







A COLLECTIVE INDEX  
OF THE  
TRANSACTIONS, PROCEEDINGS  
AND ABSTRACTS  
OF  
THE CHEMICAL SOCIETY

1883 1892

14-5-38

COMPILED  
BY  
MARGARET D. DOUGAL

1514  
  
IARI

LONDON: GURNEY AND JACKSON  
(Successors to Longman)  
1, PATERNOSTER ROW

RICHARD CLAY & SONS LIMITED  
LONDON & BUNGAY

## PREFACE.

THIS Index has been compiled under the direction of a Committee appointed by the Council of the Chemical Society, consisting of the Treasurer (Chairman), the Secretaries, the Editors, Dr. Forster Morley, Mr. J. W. Rodger, and Dr. Palmer Wynne. The actual execution of the work was entrusted to Mrs. Dougal, who has been assisted at various times by Mrs. Guthrie, Miss Neale, B.Sc., Miss Green, Miss Morfee, Miss Sharpe, and Mr. D. A. Gracey.

The Committee are indebted for assistance, and for advice as to the arrangement of special subject matter, to Captain Abney, Mr. Michael Carteighe, Mr. Thiselton-Dyer, Mr. Lazarus Fletcher, Professor Percy Frankland, Mr. A. J. Green, Dr. Halliburton, Professor Hummel, Professor Japp, Professor Meldola, Dr. Morris, Dr. D. H. Scott, Professor Tilden, Mr. Tutton, Dr. J. A. Voelcker, Dr. Walker, and Professor Warington. They desire especially to thank Dr. Forster Morley for the great care with which he has read and corrected the whole of the proof-sheets, and for the many valuable suggestions he has made as the compilation was passing through the press.

The work is divided into two main parts: (1) an Index of Authors arranged alphabetically, with the titles of their respective papers in chronological order; and (2) an Index of Subjects.

The general arrangement of each part is self-evident, and calls therefore for very little explanation. With a view to the more certain identification of authors, care has been taken to give their names in full whenever possible. In some instances, however, even the full name has not sufficed, and it has been necessary, as a means of further identification, to add the name of the town or place with which the author is connected. Thus we have Thomas Andrews of Belfast and Thomas Andrews of Sheffield; Hermann Müller-Hersfeld, Hermann Müller of Munich, and Hermann Müller of Berlin. In the case of Russian authors, whose papers for

most part reach the Society's publications through German sources, the advice of Professor Menshutkin and Dr. Lewkowitsch has been followed in employing the German system of transliteration, as more likely to lead to uniformity of spelling.

Errors in the names of authors found in the Annual Indexes, and discovered in the course of compiling the Collective Index of Authors, were of course rectified before that section of the work was passed for press; other errors detected subsequently when arranging the Subject-Index are given in a separate list on p. vii. A few papers were found to have been omitted from the Annual Indexes, and hence are not given in their proper place in the Collective Index: a list of these "Additional Entries" will be found also on p. vii. Errors of transcription both in the Annual and in the Collective Indexes when detected have also been corrected.

After careful consideration the Committee decided that the Index of Subjects should be essentially, and in the main, alphabetical, but that whenever practicable the substances should also be alphabetically arranged under certain well-defined main groups, *e.g.* alkaloids, carbohydrates, glucosides, terpenes, etc. It was further decided that Agricultural Chemistry, which constitutes a large and to some extent an independent section, should be placed apart.

The Collective Index will be found to differ in many particulars from the Annual Indexes upon which it is based. This was inevitable, as in the earlier Annual Indexes especially, no consistent method of arrangement was followed. Changes of nomenclature were necessarily frequent, and although special care has been exercised that in the Collective Index the same substance should not be entered under different names, it is possible that a few instances of synonyms may have escaped detection. Entries omitted in the subject-portion of the Annual Indexes, discovered in the preparation of the Collective Index, have been duly inserted; others discovered subsequently when the separate sections had been printed off are given on p. ix. In very many cases only the title of a paper appears in the Annual Indexes, and it has been necessary to give supplementary entries as more accurately descriptive of its contents. Hence a large number of additional entries have been made in the Collective Index during its compilation; others of which the desirability was seen later, but which could not be added at the proper time, are given on p. x *et seq.* The list includes alternative names and double entries omitted from the

Collective Index. Clerical and printer's errors which had escaped detection when reading the proofs have, when discovered, been rectified.

In all cases where these have been definitely ascertained position numbers have been given. The sequence of radicles in the name of a substance, and the nomenclature of acidic and aromatic radicles have been arranged in a more systematic manner than hitherto, and except in cases where the "trivial" name was judged to be too well established to be altered, the name which seemed best to express the constitution of the substance has been preferred. Alternative names have, however, been given, with, of course, cross references. Matters relating to inorganic salts will be found under the name of the particular metal: thus, ferrous sulphate will be found under Iron. In the case of organic salts, where the acid is as a rule the distinctive or significant substance, it has been deemed more convenient to place the entries under the name of the acid: thus barium lactate will be found under Lactic acid. Whenever a prefix, such as *ortho*, *meta*, *para*, *iso*, *secondary*, *tertiary*, *mono*, *di* and *tri*, etc., is not part of the alphabetical arrangement, it is printed in italics.

T. E. T.

## ABBREVIATIONS.

--

T. = Transactions.  
P. = Proceedings.  
A. = Abstracts.  
*o* = ortho.  
*m* = meta.  
*p* = para.  
*n* = normal.  
*prim.* = primary.  
*sec.* = secondary.

*tert.* = tertiary.  
*ψ* = pseudo.  
*d* = dextro.  
*l* = laevo.  
*i* = inactive.  
*s* = symmetrical.  
*as* = unsymmetrical.  
b.p. = boiling point.  
m.p. = melting point.

# ADDITIONS AND CORRECTIONS.

## INDEX OF AUTHORS.

### ADDITIONAL ENTRIES.

- Capus**, the sorghum sugar industry in the United States, 1885, A., 1273.  
**Johnson**, *George Stillingfleet*, magnesia containing rare earths, 1886, A., 980.  
**Meissl**, *Emerich*, and *Friedrich Strohmer*, formation of fat from carbohydrates in animals, 1881, A., 912.  
**Meyer**, *Victor*, remarks on Bonz's paper on the bromination of  $\alpha$ - and  $\beta$ -thiophenic acids, 1885, A., 1207.  
**Niederist**, *Gustav*, Reichenbach's picaman, 1883, A., 1004.  
**Rospendowski**, *W.*, artificial blue colours, 1884, A., 1419.  
**Vibrans**, influence of manuring on the composition of potatoes, 1883, A., 882.  
**Weiske**, *Hugo*, and *Bernhard Schulze*, influence of certain amides on the animal organism, 1885, A., 409.

### CORRECTIONS.

- Angeblis**, *should be Angelbis*.  
**Anrep**, *Vasilius Kron*, *should be Anrep, Vasilius von*.  
**Austen**, *Peter Townsend*, and *George B. Hurff*, *delete* 1885, A., 512.  
**Baeyer**, *Adolf von*, constitution of benzene, 1887, A., 302, *add* 1887, A., 370.  
**Baur**, *R.*, estimation of fatty acids as fats, *should be* estimation of fatty acids in soaps.  
**Becker**, *George E.*, *should be Becker, George F.*  
**Behr**, *Arno*. See *Friedrich Soxhlet*, *should be* See *Franz Soxhlet*.  
**Ben Sande**, *Alfredo*, *should be Ben Saude, Alfredo*.  
**Borelli**, *S.*, *should be Borrelli, S.*  
**Brown**, *Horace*, *should be Brown, Horace T.*  
**Buchner**, *Edmund*, and *Theodor Curtius*, action of ethyl diazoacetate on aromatic hydrocarbons, 1885, A., 207, *should be* 1885, A., 1207.  
**Chanlaroff**, *Mohsin Bey*, *should be Chanlaroff, Mohsin Bey*, and *add* butyrolactone and  $\alpha$ -ethylbutyrolactone, 1885, A., 371.  
**Chrustschoff**, *K. v.*, new type of pyroxene, 1886, A., 776, *add* 1886, A., 990.  
**Claus**, *Adolph*, and *Carl Wenzlik*, *should be Carl Wenzlick*.  
**Cook**, *Ernest H.*, detection and estimation of iodine, 1885, T., 17, *should be* 1885, T., 171.  
**Degener**, *Paul* (and others), separation of sugar from molasses, 1884, A., 447, *should be* 1884, A., 1447.  
**Divers**, *Edward*, constitution of the fulminates, *add* 1884, T., 19.  
**Dunstan**, *Wyndham Rowland*, and *Edmund James Wooley*, *should be Edmund James Woolley*.  
**Dupré**, *August*, battery with two liquids, 1885, A., 853, *should be Dupré, Anatole*.

**Eder, Josef Maria**, behaviour of the haloid compounds of silver to the solar spectrum, 1885, A., 703, *add* 1885, A., 936.

**Ellenberger, Wilhelm**, and **Viktor Hofmeister**, the digestive fluids and digestion of the horse, 1884, A., 472, *add* 1884, A., 92.

**Erdmann, Hugo**, and **Richard Kirchhoff**, *should be Richard Kirchhoff*.

**Farbaky, Stefan**. See **Stefan Schenck**, *should be See Stefan Schenck*.

**Fittig, Rudolph**, and **Moritz Rühlmann**, *should be Moritz Rühlmann*.

**Fleck, Herman**, *should be Fleck, Hugo*.

**Frank, A.**, 1884, A., 1226, *should be Frank, Adolph*.

**Fresenius, Heinrich**, and **Stocks**, *delete and Stocks*.

**Friedel, Charles**, biucite of Cogné, vale of Aosta, *add* 1883, A., 1061.

**Frölich, C.**, *should be Fröhlich, Carl*.

**Gabriel, Guto**, *should be Gabriel, Sato*.

**Gabriel, Sato**, estimation of cellulose, 1829, A., 923, *should be* 1892, A., 923.

**Genth, Frederick Augustus**, hubnerite, hessite, bismutite and natrolite, 1892, A., 793, *should be Genth, Frederick Augustus*, and **Samuel Lewis Penfield**.

**Giles, Wm. B.**, and **A. Schearer**, *should be A. Shearer*.

**Gouy, A.**, and **H. Rigollet**, *should be H. Rigollet*.

**Grabowski, Nicolaus H.**, *should be Grabowski, Julian*.

**Gray, Thomas Andrew**, *should be Gray, Thomas*.

**Gray, Thomas Andrew**, and **James Johnstone Dobbie**, *should be Gray, Thomas, Andrew Gray*, and **James Johnstone Dobbie**.

**Günzberg, Alfred**, *should be Günzburg, Alfred*.

**Hansen, H.**, *should be Hanssen, H.*

**Hantzsch, Arthur Rudolf**, and **Elvir Hermann**, *should be Elvir Herrmann*.

**Höhnell, Franz Xavier R. (Friedrich) von**, *should be Höhnel, Franz Xavier R. (Friedrich) von*.

**Hönig, Max**, and **L. Jesser**, carbohydrates, 1888, A., 126, *should be* 1883, A., 1266.

**Hullemann, I.**, *should be Hulleman, I.*

**Irvine, Robert**, and **J. Sims Woodhead**, *should be A. Sims Woodhead*.

**Jenskel, Ludolf**, *should be Jenkel, Ludolf*.

**Kirchoff, Richard**, *should be Kirchhoff, Richard*.

**Klein, G.**, *should be Klien, Georg*.

**Klinger, Heinrich Carl**, action of sunlight on organic compounds, 1888, A., 888, *should be* 1886, A., 888.

**Knop, Adolf**, action of phosphorus pentasulphide on aniline, 1888, A., 265, *should be Knop, Aug.*

**Knop, H.**, analysis of silicates, 1883, A., 379, *should be Knop, Johann August Ludwig Wilhelm*.

**Knorrr, Ludwig**, and **Friedrich Jödicke**, reduction of hydroxylepidine and methyl-lepidone, 1887, A., 278, and pyrazolone derivatives from ethyl benzoylacetate, 1887, A., 1121, *for Friedrich Jödicke, and Karl Klotz*.

**Ladenburg, Albert**, and **Friedrich Carl Petersen**, duboisine, 1877, A., 740, *should be* 1887, A., 740.

**Landolf, Fr.**, *should be Landolph, Fr.*

**Lee, Matthew Carson**, combinations of silver chloride, bromide and iodide with colouring matters, 1885, A., 350, *add* 1885, A., 611.

**Lippitt, T. P.**, *should be Lippitt, T. P.*

**Ludwig, Ernst**, and **Edward Zillner**, 1890, A., 962, *should be* 1891, A., 962.

**Martiny, Benno**, and **Wilhelm Fleischmann**, *delete and Wilhelm Fleischmann*.

**Mennell, Ernst**, *should be Mennel, Ernst*.

**Miller, Oscar**,  $\alpha$ -hydroxyphthalic acid, 1884, A., 1177, *should be Müller, Oswald*.

**Mochain Beg Chanlaroff**, *should be See Chanlaroff, Mochsin Beg*.

**Moddermann, Tjahn**, *should be Modderman, Rudolph Siroo Tjaden*.

- Muntz, *Achille*, and *Emile Aubin*, estimation of carbonic anhydride in the atmosphere, 1884, A., 659, *add* 1884, A., 710.
- Obolenski, *Juan N.*, *should be Obolonski, Juan N.*
- Osmond, *Floris*, heating and cooling of melted steel, 1887, A., 21, *should be* 1887, A., 219.
- Ostwald, *Willelm*, electrical conductivity of acids, 1885, A., 323, *add* 1885, A., 3.
- Perkin, *William Henry, junior*, and *Augustus Schloesser*, 1890, P., 162, *should be* 1889, P., 162.
- Pflug, *Constantin*, ignatieffite, 1887, A., 1085, *add* 1890, A., 454.
- Pickering, *Percival Spencer Umfreville*, *should be Pickering, Spencer Percival Umfreville*.
- Pinner, *Adolf*, *m*-diazines (pyrimidines), *delete* 1885, A., 158, and 1891, A., 60.
- Prafulla Chandra Ray, *should be Rây, Prafulla Chandra*.
- Quantin, *Henri Emil*, volumetric estimation of sulphates, 1889, A., 1089, *should be* 1889, A., 1087.
- Reinhart, *J. H.*, *should be Reinhardt, J. H.*
- Rickmann, *James Pellatt*, *should be Rickman, James Pellatt*.
- Rising, *William Bradley*, *should be Rising, Willard Bradley*.
- Romanis, *Robert*, gold from Burmah, 1887, T., 221, *should be* 1887, A., 221.
- Rosol, *Alexander*, *should be Rosoll, Alexander*.
- Rubrics, *H.*, 1892, A., 1030, 1521, *should be* 1892, A., 1030, 1524.
- Salzeberger, *Georg*, *should be Salzberger, Georg*.
- Schwerin-Lowitz (*Graf*) von, *should be Schwerin-Löwitz (Graf) von*.
- Snijders, *Aarnout Johannes Cornelis*, *should be Snijders, Aarnout Johannes Cornelis*.
- Stahel, *Rudolph*, A., 1259, *should be* 1890, A., 1259.
- Stavelly, *William W.*, *should be Stavelöy, William W.*
- Steinscheider, *Josef*, *should be Steinschneider, Josef*.
- Stillwell, *Charles M.*, *should be Stillwell, Charles M.*
- Stocks, *delete* See *Hermann Fresenius*, and *add* sulphuric acid as manure, 1884, A., 926.
- Thorpe, *Thomas Edward*, and *Henry Halliburton Robinson*, 1890, P., 165, *should be* 1889, P., 165.
- Tiemann, *Ferdinand*, and *Rudolf Haarmann*, *should be Rudolf Haarmann*.
- Veley, *Vutor Herbert*, conditions of the reaction between copper and nitric acid, 1890, A., 170, *should be* 1890, A., 701.
- Verneuil, *Auguste Vutor Louis*, phosphorescent blende, 1888, A., 791, 1282, *should be* 1888, A., 791, 1248.
- Wallach, *Otto*, new compounds of the camphor series and a new terpene, 1891, A., 1686, *should be* 1891, A., 1086.

## INDEX OF SUBJECTS.

### ADDITIONAL ENTRIES.

- m*-Allylthiouramidobenzoic acid (ASCHAN), 1884, A., 907.
- m*-Amido-*s*-diphenylmethylcarbamide (LELLMANN and BENZ), 1891, A., 1215.
- Benzenesulphonic anhydride (ABRAHALL), 1886, T., 692; P., 229.
- Benzenesulphonic chloride, as a reagent for amines (HINSBERG), 1891, A., 49.
- Benzonitrile, dispersive power of (BARBIER and ROUX), 1889, A., 806.

**Bis- $\beta$ -hydroxyphenyl propyl ketone**, *di-m* chloro-*di-o*-nitro- (EICHENGRUN and EINHORN), 1891, A., 1098.

***n*-Butylaniline** (KAY), 1886, A., 268.

**Carboxyamidophenylacetic acid** (KOSSEL), 1892, A., 469.

***o*-Carboxyphenylacetamide**, *dibromo-* (LE BLANC), 1889, A., 257.

**Diethoxydiphenylethane** (*ethyl diacetethoxybenzene*) (GATIERMANN, EHRHARDT and MÄSCH), 1889, A., 862.

**Dihydroxydiphenylsulphone** (*hydroxy sulphonobenzide*) and **dihydroxyditolylsulphone** (*hydroxyditolylsulphonobenzide*) (TASSINARI), 1889, A., 245.

**Dihydroxyphenylmethylglutaric acid** (CARLSON), 1892, A., 1471.

**Dimethoxydiphenylethane** (*ethyl diacetdimethoxybenzene*) (GATIERMANN, EHRHARDT and MÄSCH), 1889, A., 862.

**3:5-Dimethyl-2-ethylpyridine** (WÄGE), 1884, A., 172; (DURKOFF and GOLDSCH), 1890, A., 795, 1002.

**1:2-Dimethylpyrrolidine** (MERLING), 1891, A., 1507.

**Di-*p*-phenethyl-carbamide and -guanidine** (PÄCKSCH), 1885, A., 256.

**Diphenylacetoneitrile**, *trinitro-* (v. RIETTER), 1888, A., 1186.

**Diphenyldimethylthiocarbamide** (BILLETTER), 1887, A., 823.

**Diphenyldisulphone-ethoxyphenylenediamine** (*m-ethoxydiphenyldisulphone-*o*-phenylenediamine*) (ALTENRIETH and HINSEBERG), 1892, A., 161.

**Diphenyldisulphone ethoxyphenylenediethyldiamine** (*thoxydiphenyldiethyldisulphonophenylenediamine*) (ALTENRIETH and HINSEBERG), 1892, A., 161.

**Diphenylenemethane oxide** (RIETTER), 1884, A., 324.

**Diphenylethenylamidine** (NOFFING and WEINGARTNER), 1885, A., 394; (MABERY and KRAUSE), 1890, A., 371.

action of carbonyl chloride on (LOEB), 1895, A., 1213.

**Diphenylhexylic tricyanide** (KRAFFT and v. HANSEN), 1889, A., 697.

***s*-Diphenylmethylcarbamide**, *m*-amido-, and *m*-nitro- (LIEPMANN and BENZ), 1891, A., 1215.

**1:2-Diphenyl-3-methylpyrazolone** (v. PERGER), 1886, A., 98; (MÜLLER), 1886, A., 899.

**Diphenyl-*p*-tolylmethanecarboxylic acid** [m.p. 203°] (v. HEMMIG), 1887, A., 266.

**1:2-Di-*m*-tolyl-3-methylpyrazolone** (v. PERGER), 1886, A., 1046.

**Hydroxy-*o*-amylamine** (RADZIZEWSKI and SCHRAMM), 1884, A., 1190.

**Phosphatic deposits of the south-east of France** (DE GASPARIN), 1885, A., 127.  
of Montey and Forest (LADHIERE), 1889, A., 222.

#### CORRECTIONS.

**Accumulators.** See also under Electrochemistry, p. 417.

**Acetic acid**, potassium salt of, electrolysis of solutions of, *add* (BROWN and WALKER), 1891, A., 1192.

thio-. See also Thioacetic acid, p. 1010.

**Acetocumidide**, thio-, *should be* Aceto- $\psi$ -cumidide, thio-.

**Acetonetrisulphone**, *tri*thio-. See *tri*Thioacetonetrisulphone, p. 1010.

**Acetonophenyl sulphide** (*thiophenacetone*), *add* (ALTENRIETH), 1891, A., 541.

**Acetylhexoic acid.** See  $\beta$ -Methyl- $\alpha$ -thylacetylpropionic acid, p. 670.

**Acetylenic hydrocarbons** (FWORKY), 1888, A., 789, *should be* 1888, A., 798.

**Acetylcamar**, *add* (PASCHOWITZ), 1893, A., 1005.

**$\gamma$ -Acetylpyrrolone**, *should be*  $\psi$ -Acetylpyrrolone.

**$\psi$ -Aconitic acid.** See also  $\psi$ -Trimethylene-1 2 3-tricarboxylic acid, p. 1071.

**Actinoelectricity**, *add* (HÄCKEL), 1883, A., 950; 1885, A., 1187.

**Alizarin-bordeaux.** See also 1:2:1' 1'-Tetrahydroxyanthraquinone, p. 987.

**ALKALOIDS—**

**Cytisine.** See also Ulexine, p. 1060.

**Filocarpidine**, *add* (HURDY and CALMEYER), 1886, A., 725; 1887, A., 1058.

**Quinine**, appearance of fluorescence in salts of, *add* (ARMSTRONG), 1892, P., 189; (HARLEY), 1892, P., 189.

**Quinoidine.** See p. 900.

ALKALOID, *continued*—

Solanidine, *for two last entries read Solanine.*

Ulexine. See also p. 1060.

Vicine. See p. 1075.

Allylbenzene, brom-, *add* (KORNER), 1889, A., 372.

Alunogen. See also Keramohalite, p. 610.

Amenylbenzene, *add* (SCHRAMM), 1883, A., 977.

4-Amido-2:6-dimethyl-*m*-diazine. See also Cyanmethine, p. 333.

*di*Amidoditolyl ketone. See Ditolyl ketone, *diamido*-, p. 411.

4-Amido-5-methyl-2:6-diethyl-*m*-diazine. See also Cyanethine, p. 333.

1-Amido-2'-methyltetrahydroquinoline. See 2'-Methyltetrahydroquinoline, 1-amido-, p. 689.

Amido- $\beta$ -naphthylene-toluquinoxaline. See  $\beta$ -Naphthylene-toluquinoxaline, p. 717.

*o*-*di*Amidophenanthraquinone. See also Phenanthraquinone, amido-, p. 788.

Amidophenyl amidotolyl ketone (LIEBERMANN), 1888, A., 1097, *should be* 1883, A., 1097.

Amidophenylacetic acid. See Phenylacetic acid, amido-, p. 797.

*di*Amidophenylethoxynaphthalene. See Phenylethoxynaphthalene, p. 803.

*o*-Amidophenylglyoxylic acid. See Isatinic acid, *and not* Isatic acid.

*p*-Amidophenylacetic acid. See also Phenyl- $\alpha$ -lactic acid, p. 816.

*m*-*di*Amido-*p*-phenyl- $\alpha$ -methylpropionic acid, *should be m*-*di*Amido  $\alpha$ -*p*-tolylpropionic acid.

4-Amido-1-phenylpyrazolone-3-carboxylic acid. See 1-Phenylpyrazolone-3-carboxylic acid, 4-amido-, p. 824.

*p*-Amidophenyl-*p*-tolylamine, *for* See Tolyphenylenediamine, *insert* (REICHHOLD), 1890, A., 610.

$\gamma$ -Amidopropyl hydrogen sulphate. See Propylsulphuric acid,  $\gamma$ -amido-, p. 884.

$\alpha$ -Amido-*iso*succinamic acid. See *iso*Succinamic acid,  $\alpha$ -amido-, p. 958.

$\alpha$ -Amido-*iso*succinic acid. See *iso*Succinic acid,  $\alpha$ -amido-, p. 959.

*di*Amidotilbene sulphide. See also Dehydrothiotoluidine, p. 342.

Amido-*ar*-tetrahydro- $\alpha$ -naphthol. See *ar*-Tetrahydronaphthol, amido-, p. 986.

Amidotetrahydronaphthylhydrazine. See Tetrahydronaphthylhydrazine, amido-, p. 986.

Amidotetramethylbenzene (*duridine*). See Tetramethylbenzene, amido-, p. 990.

5-Amido-1:2:3:4-tetramethylbenzene (*prehnidine*). See 1:2:3:4-Tetramethylbenzene, 5-amido-, p. 990.

Amidothionaphthol, *delete entries and* See Naphthol, amidothio-, p. 709, and  $\beta$ -Naphthol, amidothio-, p. 710.

2-Amido-*m*-toluic acid. See *m*-Toluic acid, 2-amido-, p. 1029.

*m*-Amido-*p*-toluic acid, *add* (NOYES), 1889, A., 394.

*di*Amidotolquinol. See 2:5-Tolquinol, 4:6-*diamido*-, p. 1033.

Amidotrimethylbutylactic acid, *add* (WEIL), 1886, A., 528.

1-Amidotriphenylmethane. See Triphenylmethane, 1-amido-, p. 1055.

2:4:6-*tri*Amido-*m*-xylene. See *m*-Xylene, 2:4:6-*tri*amido-, p. 1092.

6-Amido-*m*-xylyl methyl ketone. See *m*-Xylyl methyl ketone, 6-amido-, p. 1095.

Amylic alcohol. See also Methyl ethylcarbinol, p. 670.

Anilidoacetic acid, sulph-, *add* (ZEHENER), 1885, A., 55.

Anilidoisethionic acid. See also Phenylamine, p. 826.

Anilidoperezone, *add* (ANSCHUTZ and LEATHER), 1886, T., 717.

Anilidotoluene, *should be* See Phenyltoluidine *and not* Phenyltolylamine.

Aniline, thionyl-, *add* (MICHAELIS), 1891, A., 715.

Anilinesulphononic acid. See also Phenylsulphonamic acid, p. 825.

Animals, diseases of, *add* (PASTEUR), 1884, A., 623.

Anisylthiocarbamide, *mono*- and *di*-thio-. See Thioanisylthiocarbamide, p. 1010.

Antimony, vapour density of (MENSCHING and MEYER), 1887, A., 445, *should be* 1887, A., 888.

Aspergillin. See also Palmellin, p. 778.

Atmospheric air, percentage of oxygen in, *add* (HENPEL), 1885, A., 592.

Atomic weight of gold, *delete* (WESTMORELAND), 1887, A., 81, *and add* (KRÜS), 1887, A., 778.

of oxygen (GROSHANS), 1889, A., 643, *should be* (GROSHANS), 1889, A., 463, *and add* (NOYES), 1891, A., 1154.

**Atomic weight of rhodium, add** (JÜRGENSEN), 1883, A., 1060.

**Azo-COMPOUNDS—**

**Azo-resorcinol and diazo-resorcinol.** See also Resazurin, p. 910.

**Salicenyldiazoximepropenyl- $\omega$ -carboxylic acid, add** (MILLER), 1889, A., 255.

**Beer-wort.** See also Wort, p. 1090.

**Benzene, heats of combustion and formation of** (STOHMANN, RODATZ and HERZBERG), 1886, A., 499, *should be* 1886, A., 409.

**chloro-derivatives of, thermochemistry of** (BERTHELOT and MATIGNON), 1889, A., 1311, *should be* 1891, A., 1311.

**Benzidine, thionyl-.** See Thionylbenzidine, p. 1015.

**Benzoic acid,  $\alpha$ -thio-.** See  $\alpha$ -Thiobenzoic acid, p. 1011.

**Benzoic sulphinide.** See also "Saccharin," p. 919.

**Benzoïn, Siamese, should be** Benzoin gum, Siamese.

**Benzoylmesitylene, add** (ELBS), 1887, A., 942.

**$\beta$ -Benzoylnaphthol,  $\alpha$ -nitro-.** See  $\alpha$ -Nitro- $\beta$ -benzoylnaphthol, p. 727.

**Benzoyl-tri- and tetra-methylenecarboxylic acids,  $p$ -nitro-.** See  $p$ -Nitrobenzoyl-tetra- and tri-methylenecarboxylic acids, p. 727.

**Benzylidenephthalimidine, add** (GABRIEL), 1885, A., 903.

**Birch-oil, add** (PETTIGREW), 1884, A., 459; 1885, A., 528.

**Bismuth carbonate, delete** See also Bismuthite.

**Bismuthite, delete** See also Bismuth carbonate.

**Bis-1-phenyl-3-methylpyrazolone, 4-thio-.** See 4-Thiobis-1-phenyl-3-methylpyrazolone, p. 1011.

**Blende.** See also Zinc blende, p. 1102.

**Bombyx Mori, add** (TICHOMIROFF), 1885, A., 1150.

**Borneo-camphene.** See also Camphene *under* Terpenes, p. 980.

**Bromallylbenzene, add** (KORNER), 1889, A., 372.

**Bromamidophenols.** See Phenol, bromamido-, p. 791.

**Bromamidoquinoline, add** (CLATS and ZUSCHLAG), 1890, A., 267.

**Bromamidosuccinic acid.** See Succinic acid, bromamido-, p. 959.

**$\gamma$ -Bromo-octolic acid, should be**  $\gamma$ -Bromo-octylenic acid.

**Bromoform, chloro- (DYSON), 1883, T., 636, should be** 1883, T., 36.

**$p$ -diBromohomocoumaric acid (FILETI and BASSO), 1891, A., 105, should be** 1891, A., 1057.

**Bromomethylthiophens.** See Methylthiophens, p. 690.

**6-Bromo-1-methylthymol.** See 1-Methylthymol, 6-bromo-, p. 690.

**tetraBromonaphthalfluoresceïn.** See Naphthalfluoresceïn, p. 705.

**Bromo- $\alpha$ -naphthoic acid, add** (EKSTRAND), 1889, A., 52.

**Bromo- $o$ - and  $p$ -amidophenetoils, should be** Bromo- $o$ - and  $p$ -nitrophenetoils.

**4'-Bromo-1'-nitro- $\alpha$ -naphthoic acid.** See  $\alpha$ -Naphthoic acid, 4':1'-bromonitro-, p. 708.

**Bromonitro- $\alpha$ -naphthylamine, add** (MELDOLA and DESCH), 1892, T., 765.

**Bromo- $m$ -nitrophenetol.** See Phenetol, bromo- $m$ -nitro-, p. 789.

**Bromonitroquinolines.** See also Quinolines, bromonitro-, p. 904.

**diBromo-dinitrotoluene (CLAUS), 1888, A., 587, should be** 1888, A., 583.

**3:6-Bromonitro- $p$ -toluic acid, add** (FILETI and CROSA), 1887, A., 37.

**Bromopianic acid, add** (WEGSCHEIDER), 1883, A., 997.

**Bromonitrothiophen.** See also Thiophen, bromonitro-, p. 1016.

**Bromonitro- $p$ -toluamide.** See  $p$ -Toluamide, 3:5-bromonitro-, p. 1026.

**4-Bromo-1-phenylisopyrazolone.** See 1-Phenylisopyrazolone, 4-bromo-, p. 824.

**diBromo- $o$ -phthalimide, should be** diBromohomo- $o$ -phthalimide.

**Bromopyromucic acids, add** (HILL and SANGER), 1886, A., 446.

**Bromoquinolinic acid, add** (CLAUS and COLLICHONN), 1887, A., 159.

**Bromosalicylaldehyde.** See Salicylaldehyde, bromo-, p. 921.

**2-Bromoterephthalic acid.** See also Terephthalic acid, bromo-, p. 979.

**tetraBromothiophen, add** (CIAMICIAN and ANGELI), 1891, A., 427, 893.

**Bromo- $p$ -toluidine.** See also  $p$ -Toluidine, bromo-, p. 1031.

**Bromotoluidinesulphonic acid.** See also Toluidinesulphonic acids, bromo-, p. 1032.

**Bromotoluenitriles.** See also Toluonitriles, bromo-, p. 1033.

**Bromotolylene-ethenylamidine.** See Tolylen-ethenylamidine, bromo-, p. 1037.

- 4-Bromo-2:3-tolylenediamine.** See 2:3-Tolylenediamine, 4-bromo-, p. 1037.
- d*-Bromotrimethylpropylammonium bromide.** See Trimethylpropylammonium bromide, *di*bromo-, p. 1052.
- Bromotriphenylmethane,** reactions of, *add* (ELBS), 1883, A., 1000.
- Bromoxynaphthaquinonesulphonic acid,** *should be* Bromohydroxynaphthaquinone-sulphonic acid.
- Butylenetricarboxylic acid.** See Ethylidene-ethanetricarboxylic acid, p. 485.
- iso*Butylic chloride** (GLADSTONE and PERKIN), 1889, T., 757, *should be iso*Butylic nitrite.
- Butyric acid,  $\gamma$ -amido-,** *add* (SCHOTTEN), 1883, A., 813.
- Carbonyltriphenylenediamine,** *add* (GUCCI), 1886, A., 1024.
- Chelamide.** See also 4-Hydroxypyridine, p. 581.
- Chelerythrine,** *delete* (*sanguinarine*) (V. KUGELGEN), 1885, A., 608.
- Chelidonium majus*, *add*** (KONIG), 1891, A., 843.
- 2-Chlor-3:6-diamidotetracetylquinol.** See Tetracetylquinol, 2 chlor-3:6-*di*amido-, p. 984.
- tri*Chloritamalic acid.** See *tri*Chloropyrotartaric acid, *should be* See *tri*Chloro-hydroxypyrotartaric acid.
- Chlorobromothymoquinone.** See Thymoquinone, chlorobromo-, p. 1020.
- Chlorobromotolu-quinol and -quinone.** See Toluquinol and Toluquinone, chlorobromo-, p. 1033.
- $\omega$ -*tri*Chlorohydroxypropylpyrroline,** *should be*  $\omega$ -*tri*Chlorohydroxypropylpyridine.
- di*Chloromethyloxindole** (COLMAN), 1889, P., 95, *should be* 1888, P., 96.
- 6-Chloronicotinic acid,** *add* (V. PRICHMANN and WEISS), 1885, A., 175.
- di*Chloronitretethyl-*m*-diazine,** *should be* *di*Chloronitromethylethyl-*m*-diazine.
- $\beta$ -Chloro-2'-nitronaphthol,** *should be* Chloronitro- $\beta$ -naphthol.
- $\alpha\beta$ -*tri*Chlorophenyl- $\gamma$ -pyridonecarboxylic acid,** *add* (ZINCKE), 1890, A., 965.
- $\beta\delta$ -*di*Chloroquinazoline** (ART), 1888, A., 610, *should be* 1889, A., 610.
- Chloroquinol.** See also Quinol, chloro-, p. 901.
- di*Chlorosalicylic acid.** See also Salicylic acid, *di*chloro-, p. 922.
- Chlorosulphonic acid.** See also Sulphonic acid, chloro-, p. 963.
- Chlorotetrahydropicolinic acid.** See Tetrahydropicolinic acid, chloro-, p. 987.
- Chlorothymoquinones,** *delete* (MAZZARA), 1890, A., 753.
- Chloro-*p*-toluamide.** See also *p*-Toluamide, chloro-, p. 1026.
- $\beta$ -Chlorotoluquinol.** See 2:5-Toluquinol,  $\beta$ -chloro-, p. 1033.
- di*Chlorotolylbenzoic acid,** *should be* *di*Chloro-*p*-toluoylbenzoic acid.
- di*Chloro-1:4-*o*-tolyl-*p*-tolylidiketopyrazine.** See 1:4-*o*-Tolyl-*p*-tolylidiketopyrazine, 3:6-*di*chloro-, p. 1041.
- Chlorotrihydroxybutane.** See Trihydroxybutane, chloro-, p. 1046.
- 1'-Chlor-2'-oxy-4'-benzylisoquinoline,** *should be* 1'-Chlor-3'-oxy-4'-benzylisoquinoline.
- Chromic acid, iodo-,** See Iodochromic acid, p. 596.
- Chromate, iodo-,** See Iodochromate, p. 596.
- Citric acid,** *add* (ORTWALD), 1889, A., 337.
- Citronella oil and citronellyl alcohol,** *add* (DODGE), 1891, A., 285.
- Clark's soap test.** See also Soap, standard solution, p. 939.
- Cocoa-butter,** *delete* (*rocramut oil*) and adulteration of lard with (ALLEN), 1889, A., 320.
- Cocoonut oil,** *delete* See Cocoa-butter and *add* adulteration of lard with (ALLEN), 1889, A., 320.
- Colophony,** destructive distillation of, *add* (RENARD), 1884, A., 843.
- (COLOURING MATTERS—**
- Morin** (BENEDIKT and HAZURA), 1884, A., 84, 1179, *should be* 1884, A., 846, 1179.
- Morphine-blue** (CHASTAING and BARILLOT), 1888, A., 1165, *should be* 1888, A., 165.
- Comanic acid, oximido-,** *should be* oxime of.
- Copper,** potassium carbonate solution, *add* (OST), 1891, A., 125, 1298; (SUMMONGER), 1892, A., 387.
- $\psi$ -Cumylmethyloxyquinizine.** See Oxyphenyltetramethylpyrazole *should be* See Phenyltetramethylpyrazolone.

**Cyanethine** (1-amido-5-methyl-2:6-diethyl-m-diazine) *should be* (6-amido-5-methyl-2:4-diethyl-m-diazine).

**Cyanmethine** (4-amido-2:6-dimethyl-m-diazine) *should be* (6-amido-2:4-dimethyl-m-diazine).

**Cyanodiphenylethine** (4-amido-2:6-diphenyl-5-methyl-m-diazine) *should be* Cyanodiphenylethine (6-amido-2:4-diphenyl-5-methyl-m-diazine).

**Cyanogen disulphhydrate** (WOLLNY), 1884, A., 1109, *should be* (WOLLNER), 1884, A., 1109.

**$\alpha$ -Cyanonaphthalenesulphonic acid**, *add* (DUM), 1883, A., 1001.

***o*-Cyanophenol**. See also Salicylonitrile, p. 923.

**Cyanophenylbenzylthiocarbamide**. See Phenylbenzylthiocarbamide, cyano-, p. 801.

***di*Cyanoquinoline**. See Quinoline, *dicyano*-, p. 904.

**Cystisine**, *should be* Cytisine. See also Ulexine, p. 1060.

**Decahydrofluorene**. See Fluorene hydrides, p. 502.

**Dehydrofichtelite**, *add* (LIEBLERMAN and SPIEGEL), 1889, A., 720.

**Diacetonephosphinic acid**, *add* (MICHAELIS), 1885, A., 747.

**Dibenzoylstilbene**, *add* (JAPP and KLINGEMANN), 1890, T., 688.

**Diisobutyric acid**. See Octoic acid, p. 756.

**Dibutyronitrile**. See Octonitrile, p. 756.

**Dichlorhydrin**, *add* (ZIKES), 1885, A., 1046.

**3:5-Dihydroxybenzoic acid** (ZINCKE and FUCHS), A., 1461, *should be* 1892, A., 1461.

**Dimethylamidophenyl hexyl ketone**, *add* (KRAFFT), 1887, A., 253.

**Dimethylaniline**, thio-. See also Tetramethylthioaniline, p. 992.

**Dimethylcarbostyryl**, *add* (KNORR), 1884, A., 1198.

**1:4-Dimethylquinoline**, *add* (KNORR and ANTICK), 1885, A., 274.

**$\alpha\beta$ -Dinaphthyl sulphide**, *nitro*-. See *di*Nitro- $\alpha\beta$ -dinaphthyl sulphide, p. 730.

**Diphenacyl**, *delete* (succinophenone).

**Diphenylisobutyric acid and nitrile**. See Hydrobenzylcinnamic acid, p. 553.

**Diphenylmethylcarbonyl**, *should be* Phenyltolylcarbonyl.

**2:6-Diphenyl-5-methyl-m-diazine**, 4-amido, *should be* 2:4-Diphenyl-5-methyl-m-diazine, 6-amido-, and *add* (V. MEYER), 1890, A., 68.

**Diphenylmethyl tricyanide**, *add* (PINNER), 1892, A., 1110.

***s*-Diphenylsulphoneacetone**, *add* (OTTO), 1886, A., 801.

**Diphenylsulphonethylamine**, *add* (OTTO), 1885, A., 537.

**Diphloroglucinolcarboxylic acid**, *add* (SCHIFF), 1889, A., 1063.

**Distyryl vinyl diketone**, *should be* Distyryl vinyl ketone.

***o*, *p*-Disulphaminebenzoic acid**, *add* (FAHLBERG and LINT), 1887, A., 835.

***iso*Dulcitolcarboxylic acid**. See also Rhamnosehexonic acid, p. 914.

**Durylglyoxylic acid**, *add* (CLAUS and FOHLISCH), 1889, A., 50.

**Electromotive force of selenium**, *add* (KALISCHER), 1890, A., 97.

**Ethylallylthiocarbamide**, *add* (ANENARIUS), 1891, A., 549.

**Ethyleneimine**. See also Piperazine, p. 859.

**Ethyl acetate**, condensation of, with quinone, *add* (IKURA), 1892, A., 608.

butanetetracarboxylate (BISCHOFF and RAUCH), 1885, A., 240, *should be* (BISCHOFF and RAUCH), 1885, A., 244.

butanetricarboxylate, *add* (BARTHE), 1889, A., 588.

isobutanetricarboxylate, *delete* (BARTHE), 1889, A., 588.

***Faba vulgaris***, *should be* *Faba vulgaris*.

**Fibrinogen tissue**, *add* (WRIGHT), 1892, A., 646.

**Fusel oil**, estimation of, in spirits, *add* (TRAUBE), 1888, A., 198.

**Glyoxalinedicarboxylic acid**, *add* (MAQUENNE), 1891, A., 330.

***Heclera Helix***. See also Ivy, p. 609.

**2:6-diIodoquinone**, *add* (SEIFERT), 1884, A., 431, and *delete* (METZELER), 1888 A., 1278.

**3:5-diIodoquinone**, *should be* 2:5 diIodoquinone, *add* (MEI ZELER), 1888, A , 1278, *and delete* (SEIFERT), 1881, A., 431.

**o-Iodotoluene**. See Toluene, o-iodo-, p. 1027.

**3-Iodotoluquinol**. See 2:5-Toluquinol, 3-iodo-, p. 1033.

**Iodotoluquinone**. See 2:5-Toluquinone, iodo-, p. 1034.

**$\gamma$ -Iodotrimethylpropylammonium iodide**, *add* (SCHMIDT and PAULHILL), 1892, A., 950.

**Ivy**. See also *Hedera Helix*, p. 510.

**Jute fibre**, constitution of (CROSS and BLYAN), 1889, T., 99, *should be* 1889, T., 199.

**Keramohalite**. See also Alunogen, p. 66.

**Ketonic acids**. See also Acids, ketonic, p. 24.

**Licareol**. See also Linalool, p. 983.

**Linalool**, *add* (BARBIER), 1892, A , 1236.

**Macleynine**. See also Protopine, p. 887.



## INDEX OF AUTHORS.

## A.

- "A. von T." See *T. A. von*.  
**Abbona, V.** See *Micheli Fileti*.  
**Abbot, Helen C. S., and Henry Trimble,** solid hydrocarbons in plants, 1886, A., 1329.  
**Abbot, Helen C. S.** See also *Helen C. S. Abbot Michael*.  
**Abbott, A. C.** See *Carl Voit*.  
**Abegg, Richard,** amidochrysene, 1890, A., 789.  
 — derivatives of chrysene, 1891, A., 730.  
**Abel, (Sir) Frederick Augustus, and William Henry Deering,** notes on the condition in which carbon exists in steel, 1883, T., 303.  
**Abel, (Sir) Frederick Augustus, and Beccarton Redwood,** petroleum testing in tropical climates with Abel's apparatus, 1884, A., 877.  
**Abel, John J.,** molecular weights of cholic acid, cholesterol and hydrobilirubin, 1890, A., 914.  
 — animal melanines and hæmosiderin, 1890, A., 1452.  
 — benzylidenebinuret and chlorobenzylideneethiolbinuret, 1891, A., 702.  
**Abel, John J., and Edmund Drechsel,** carbamic acid, 1892, A., 518.  
**Abel, Julius.** See *Albert Ladenburg*.  
**Abeles, Markus,** secretion of the kidney fed with defibrinated blood, 1883, A., 875.  
 — estimation of sugar in blood, 1891, A., 1399.  
**Abelli, Modesto,** chlorides of *o*- and *m*-nitrobenzyl, 1883, A., 1092.  
**Abelli, Modesto.** See also *Cesari Schiaparelli*.  
**Abelous, J. E., and F. Heim,** digestive ferments in crustacean eggs, 1892, A., 362.  
**Abenius, Per Wilhelm,** lactones derived from glycines, 1888, A., 825; 1890, A., 215.  
 — aromatic halogen acetamido-compounds and their derivatives, 1888, A., 851.  
 — *p*-diazine derivatives, 1890, A., 268, 525.  
**Abenius, Per Wilhelm, and Henrik Gustav Söderbaum,** diphenyltetra-ketone, 1892, A., 69.  
**Abenius, Per Wilhelm, and Oskar Widman,** bromacet-*o*-toluide and some of its derivatives, 1888, A., 824.  
 — halogen-substituted acetamido-derivatives of the aromatic series, 1889, A., 131.  
 — action of bromine on *o*-acet-toluidide at a high temperature, 1889, A., 131.  
**Abney, William de Wiveleslie,** comparative effect of different parts of the spectrum on silver salts, 1886, A., 749.  
 — colour photometry, 1891, P., 159.  
**Abney, William de Wiveleslie, and George Selwyn Edwards,** effect of the spectrum on the haloid salts of silver, 1890, A., 933.  
**Abney, William de Wiveleslie, and Edward Robert Festing,** atmospheric absorption of the infra-red of the solar spectrum, 1883, A., 837.  
 — atmospheric absorption of aqueous vapour, 1884, A., 241.  
 — relation between radiation, energy, and temperature, 1884, A., 240.  
 — relation between energy and radiation in the spectrum of incandescence lamps, 1885, A., 325.  
 — absorption spectra thermograms, 1885, A., 1175.  
**Abraham, John Leigh Hoskyns,** phenylsulphonic anhydride, 1886, T., 692.

- Abrahall, John Leigh Hoskyns**, atomic weight of boron, 1892, T., 650; P., 74.  
 — obituary notice of, 1892, T., 486.
- Abrahall, John Leigh Hoskyns**. See also **Eugen Bamberger**.
- Abraham, Kurt**, the currents of the gases in sulphuric acid chambers, 1883, A., 129.
- Abt, Alfred**. See **Emilio Nölting**.
- Abt, Wilhelm**, benzoylenecarbamide, 1889, A., 609.
- Ach, Friedrich**, phenylhydrazonelevulinic anhydride, 1890, A., 70.
- Ach, Friedrich**. See also **Emil Fischer**.
- Achiardi, Antonio d'**, minerals found near Massa in the Apuanian Alps, 1883, A., 428.
- Ackermann, Edwin**, salts and ethers of aurin and of rosolic acid, 1884, A., 1339.  
 — estimation of tartar in sweet wines, 1892, A., 1531.
- Ackroyd, William**, cohesion and cohesion figures, 1886, A., 971.
- Acqua, C.**, calcium oxalate crystals, 1890, A., 1182.
- Acton, E. Hamilton**, assimilation of carbon from organic compounds by green plants, 1890, A., 818, 1021.
- Adam, George**. See **Albert Ladenburg**.
- Adam, Paul**, bromo-*p*-xylenol, 1884, A., 1329.  
 — action of organic chlorides on diphenyl, 1886, A., 1033.  
 — diphenyl-derivatives, 1887, A., 589; 1888, A., 959.
- Adams, Benjamin F., junior**. See **Thomas Charlton van Nüys**.
- Adams, Frank D.**, melilite-bearing rock from Canada, 1892, A., 1058.
- Adams, Matthew Algernon**, new method for the analysis of milk, 1886, A., 533.  
 — new form of air bath, 1890, A., 546.  
 — estimation of oxygen dissolved in water, 1892, T., 310; P., 1.
- Addyman, Frank Thomson**, action of sulphuric acid on the bromides of potassium, sodium, and hydrogen, 1891, P., 168; 1892, T., 94.
- Adeney, Walter Ernest**, gas apparatus, 1891, A., 240.
- Adeney, Walter Ernest**, and **Thomas Alexander Shedge**, combination of wet and dry methods in chemical analysis, 1892, A., 100.
- Adermann, Friedrich**, alkaloids of *Corydalis cava*, 1891, A., 1266.
- Adie, Richard Haliburton**, compounds of arsenious oxide with sulphuric anhydride, 1889, T., 157; P., 4.  
 — sulphates of antimony, 1890, T., 540; P., 5.
- Adie, Richard Haliburton**, compounds of the oxides of phosphorus with sulphuric anhydride, 1891, T., 230; P., 19; discussion, P., 20.  
 — osmotic pressure of salts in solution, 1891, T., 344; P., 25.  
 — a direct comparison of the physical constants involved in the determination of molecular weights by Raoult's method, 1891, P., 26; discussion, P., 26.
- Adie, Richard Haliburton**. See also **M. M. Pattison Muir**.
- Adkins, Henry**, relations between atomic weights, 1892, A., 938.
- Adrian, piliganine**, 1886, A., 816.
- Adrian and Charles Bougarel**, separation of barium from strontium salts, 1892, A., 776.
- Adrian and E. Gallois**, assay of opium, 1887, A., 622.
- Adrian and Moreaux**, preparation of quassin, 1884, A., 908.
- Adrian**. See also **Baudet**.
- Aducco, Vittorio**, urine reaction, 1888, A., 621.
- Aducco, Vittorio**, and **Ugolino Mosso**, physiological action of "saccharin," 1888, A., 310.
- Agostini, C.**, detection of dextrose, 1887, A., 534.
- Agrestini, Angelo**, derivatives of naphthalene hexahydrides, 1883, A., 345.
- Ahrens, Cäsar**, derivatives of *m*-xylene, 1892, A., 1437.
- Ahrens, F.**, derivatives of terephthalic acid, 1886, A., 801.  
 — Sandmeyer's reaction: substitution of cyanogen for the amido group, 1888, A., 266.
- Ahrens, Felix B.**, octylbenzene, 1887, A., 133.  
 — sparteine, 1887, A., 1056; 1888, A., 611; 1891, A., 842.  
 — dipiperidyl and dipicolyl, 1889, A., 59.  
 — alkaloids of Mandragora, 1889, A., 1074.  
 — mandragorine, 1889, A., 1222.  
 — rhombic sulphur from hydrogen sulphide, 1890, A., 1371.  
 — crystalline veratrine, 1890, A., 1448.  
 —  $\gamma$ -dipyridyl and  $\gamma$ -dipiperidyl, 1891, A., 1093.
- Aignan, A.**, adulteration of French essence of turpentine, 1890, A., 422.  
 — adulteration of linseed oil, 1890, A., 1198.  
 — constitution of aqueous solutions of tartaric acid, 1891, A., 1018.

- Aignan, A.**, combinations of tartaric acid and potash or soda in solutions, 1891, A., 1019.
- Aisemann, Semjon.** See *Mejer Wildermann*.
- Aitken, Andrew P.**, report on ensilage and manuring beans and barley, 1885, A., 1257.
- experiments on potatoes at Harelaw, 1887, A., 992.
- basic cinder and other finely-ground phosphatic manures, 1887, A., 995.
- ground felspar as a potash manure, 1887, A., 996.
- Åkerman, Richard**, reduction of iron oxide with carbonic oxide, 1884, A., 20.
- Albertoni, Pietro**, action and metamorphoses of some substances in the organism in relation to diabetes, 1885, A., 683.
- formation and change of alcohol and aldehyde in the organism, 1888, A., 973.
- action of carbohydrates on the animal organs, 1889, A., 1023.
- action of sugars in the body, 1891, A., 1526.
- Albitzky, Alexius**, refractive power of the hydrocarbon  $C_{12}H_{20}$ , 1885, A., 211.
- $\beta$ -dipropylacrylic acid, 1885, A., 242.
- some properties and transformations of dimethylallene, 1888, A., 797.
- Albitzky, Alexius**, and *Wohltmar Nikol-sky*, non-volatile product of the oxidation of the hydrocarbon  $C_{12}H_{20}$ , 1886, A., 141.
- Albrecht, Karl**, method of formation of benzhydryl derivatives, 1889, A., 263.
- Albrecht, Karl.** See also *W'Uhlen Will*.
- Aldehoff, Gustav**, influence of starvation on the glycogen of the liver and muscle, 1889, A., 427.
- Aldringen, Friedrich**, thiocoumarins and their behaviour towards hydroxylamine and phenylhydrazine, 1890, A., 624.
- thiocoumarin and its analogues, 1892, A., 320.
- Alechin, Alceci W'us**, anhydrides of mannitol, 1885, A., 744.
- melezitose, 1886, A., 683; 1890, A., 733.
- Alén, Johan Edward**, nitronaphthalene-disulphonic acids, 1883, A., 596.
- $\alpha$ -azoxynaphthalene- $\alpha$ -sulphonic acid, 1886, A., 555.
- Alessi, P. Alessi**, dibromo-*p*-hydroxybenzoic acid, 1886, A., 65.
- lecture experiments, 1889, A., 567.
- Alexander, Heinrich**, hydroxylamine-platinum bases, 1888, A., 425.
- phenylmalic acids, 1890, A., 1135.
- attempts to synthesize conhydride, 1890, A., 1417.
- reduction of coumarone, 1892, A., 1318.
- action of formaldehyde on *o*-dimethyltoluidine, 1892, A., 1320.
- Alexander, John.** See *Thomas Carnelley*.
- Alexéeff, Petr P.**, derivatives of azocumic acid, 1885, A., 390.
- action of light on nitrocumic acid, 1885, A., 794.
- nitro-compounds of the fatty series, 1886, A., 999.
- azocumic chloride, 1890, A., 891.
- Alexéeff, Petr P.**, and *Eugene W. Werner*, thermochemical influence of certain groups on the value of the hydroxyl and carboxyl groups in the aromatic series, 1890, A., 439.
- Alexéeff, W'ladimir**, mutual solution of liquids, 1883, A., 11; 1885, A., 340.
- thermal effect of solution, 1884, A., 1244.
- stability of compounds, 1885, A., 114.
- source of error in vapour density determinations, 1886, A., 116.
- catalytic action of glass, 1886, A., 591.
- heat of combustion of coal, 1886, A., 757.
- solution, 1886, A., 847.
- elaterite and dopplerite, 1892, A., 689.
- Alibegoff, Georg**, uranium compounds, 1886, A., 855.
- quantitative separation of uranium from the alkalis and alkaline earths, 1886, A., 922.
- Alla, Lucien.** See *Emile Aubin*.
- Allain Lecanu, Jules**, compound of ethylic acetate with calcium chloride, 1885, A., 371.
- combination of ethyl acetate with magnesium chloride, 1886, A., 440.
- *p*-phenolsulphonic acid, 1886, A., 1031.
- *o*-phenolsulphonic acid, 1889, A., 1183.
- phenoldisulphonic acid, 1889, A., 1185.
- Allard.** See *H. Lezé*.
- Allary, Eugene**, regeneration of acid residues in the manufacture of gun-cotton, 1887, A., 770.

- Allary, Eugene**, chlorine and cyanogen, 1889, A., 13.
- Allen, Alfred Henry**, action of water on lead, 1883, A., 128.
- estimation of ethylic nitrite in spirit of nitrous ether, etc., 1885, A., 1013.
- new applications of the nitrometer, 1886, A., 278.
- estimation of glycerol in fatty oils, 1886, A., 581.
- Reichert's method of examining butter fat, 1886, A., 583.
- examining fixed oils, 1887, A., 88.
- assay of carbolic soaps, 1887, A., 185.
- specific gravity, etc., of waxes, etc., 1887, A., 186.
- saponification of fixed oils, 1887, A., 186.
- Reichert's distillation process, 1887, A., 1145.
- detection of hop substitutes in beer, 1887, A., 1146.
- estimation of sulphur in oils, 1888, A., 627.
- aluminium in wheat, 1888, A., 631.
- precipitation of hop-bitter by lead acetate, 1888, A., 763.
- solubility of calcium compounds, 1888, A., 1030.
- detection of cotton-seed oil in lard, 1889, A., 319.
- adulteration of lard with cocoa-nut oil, 1889, A., 320.
- detection of "saccharin" in beer, 1889, A., 322.
- analytical examination of water for technical purposes, 1890, A., 298.
- assay of aconite preparations, 1892, A., 392.
- Allen, Alfred Henry**, and **William Chattaway**, Adams' method for milk analysis, 1887, A., 186.
- examination of spirits for secondary constituents, 1892, A., 244.
- Allen, Anson Warren**. See **Lewis Mills Norton**.
- Allen, C. L.**, composition of two specimens of jade, 1883, A., 163.
- Allen, C. R.** See **William Ripley Nichols**.
- Allen, Edwin West**, and **Bernhard Tollens**, xylose and wood gum from straw, etc., 1890, A., 472.
- wood sugar (xylose) and wood gum, 1891, A., 659.
- xylonic acid, 1891, A., 668.
- Allen, Walter Spooner**, and **George Robinson Underwood**, oxidation of diethylbenzene, 1884, A., 587.
- Allen, William**, and **Alfred Kolliker**, derivatives of triphenylcarbonyl bromide, 1885, A., 655.
- Allendorff, O.**, phthalaldehydic acid, 1891, A., 1369.
- oximes of opianic and phthalaldehydic acids, 1892, A., 180.
- Allihn, Felix**, reducing power of grape sugar for alkaline copper solutions, 1883, A., 244.
- action of dilute hydrochloric acid on starch, 1884, A., 721.
- apparatus for filtering in a vacuum, 1885, A., 631.
- filtration apparatus, 1888, A., 526.
- rise in the zero point of thermometers of Jena glass, 1889, A., 1041; 1891, A., 8.
- Allihn, Felix**. See also **Paul Degener**.
- Alling, A. N.**, topaz from Thomas Range, Utah, 1887, A., 453.
- Almén, Aug.**, detection of mercury in organic liquids, 1887, A., 302.
- Alt, Hermann**, bromination of *o*-acetyl-amidobenzoic acid, 1889, A., 986.
- quinoline, 1889, A., 1214.
- precipitation of manganese as peroxide, 1890, A., 419.
- estimation of thiocyanates, 1890, A., 424.
- Alt, Hermann**, and **Julius Schulze**, separation of zinc from nickel, 1890, A., 418.
- Alt, Hermann**. See also **Eugen Lellmann**.
- Alt, K.**, detection of mercury in urine, 1888, A., 630.
- Altar, Sigmund**, oxidation of *s*-trialkylpyridines, 1887, A., 378.
- Althausse, Max**, and **Gerhard Krüss**, relations between the composition and absorption spectra of organic compounds, 1889, A., 1093.
- Althausse, Max**. See also **Eugen Bamberger**.
- Altschul, Julius**, *o*-nitro-*p*-hydroxyquinoline and *o*-amido-*p*-hydroxyquinoline, 1888, A., 1108.
- *p*-alkoxy-derivatives of phenylhydrazine, diacetone, and antipyrine, 1892, A., 1080.
- *p*-alkoxy-derivatives of phenylhydrazine, 1892, A., 1198.
- Altschul, Julius**. See also **Rudolf Wilhelm Schmitt**.
- Alvarez, E.**, microbe of the indigo fermentation, 1887, A., 1061.
- Alvisi, Ugo**, formation of pyrazole derivatives from the dichlorohydrins and tribromohydrins, 1892, A., 884.
- the camphor group, 1892, A., 1343.

**Amagat, Emile Hilaire**, compressibility of nitrogen, 1883, A., 150.  
 -- compressibility of gases, 1884, A., 115.  
 -- compressibility of air and carbonic anhydride, 1884, A., 116.  
 -- compressibility of rarefied air, hydrogen, and carbonic anhydride, 1884, A., 116.  
 -- estimation of the dry extract of wines, 1884, A., 1132.  
 -- correction of the results given in a paper on compressed gas manometers, 1885, A., 341.  
 -- density and atomic volumes of oxygen and hydrogen, 1885, A., 631.  
 -- atomic volume of oxygen, 1885, A., 631; 1886, A., 662.  
 -- expansion and compressibility of water, 1887, A., 695.  
 -- solidification of liquids by pressure, 1887, A., 1013.  
 -- dilatation and compressibility of liquids, 1888, A., 215.  
 -- compressibility of hydrogen, oxygen, nitrogen, and air at very high pressures, 1889, A., 8; 1891, A., 378.  
 -- new isothermal curves for carbonic anhydride, 1892, A., 3.  
 -- determination of the density of liquefied gases and of their saturated vapours, 1892, A., 934.  
 -- density of liquefied gases and their saturated vapours: critical constants of carbonic anhydride, 1892, A., 1043.  
**Amagat, Emile Hilaire, and Ferdinand Jean**, optical examination of oils and fats, 1890, A., 91.  
**Amat, L.**, ammonium phosphites, 1888, A., 107.  
 -- pyrophosphorous acid, 1888, A., 914.  
 -- alkaline phosphites, 1888, A., 915.  
 -- sodium phosphite, 1889, A., 569; 1890, A., 438.  
 -- phosphorous acid, 1889, A., 825.  
 -- sodium phosphite and pyrophosphite, 1890, A., 438.  
 -- lead phosphites and pyrophosphite, 1890, A., 945.  
 -- estimation of hypophosphorous, phosphorous, and hypophosphoric acids, 1891, A., 243.  
 -- conversion of sodium pyrophosphite into sodium hydrogen phosphite, 1891, A., 641.  
 -- conversion of sodium pyrophosphite into phosphite, 1891, A., 799.  
**Amat, L.** See also **F. Parmentier**.  
**Amato, Domenico**, chemical action of light, 1884, A., 1237.

**Ambühl, H.**, adulteration of lard, 1889, A., 659.  
**Ames, Joseph Streetman**, some gaseous spectra: hydrogen, nitrogen, 1891, A., 1. relations between the lines of various spectra, 1891, A., 1.  
**Amoretti, G.** See **Michele Fileti**.  
**Amphlett, Edward Greenhill, and Henry Edward Armstrong**, isomeric change in the naphthalene series. No. 2.  $\beta$ -Ethoxynaphthalenesulphonic acids, 1887, P., 144.  
**Amsel, Hugo, and August Wilhelm von Hofmann**, amidobenzylamine, 1886, A., 698.  
**Amthor, Carl**, glycerol in beer, 1883, A., 385.  
 -- studies on ripe grapes, 1883, A., 581.  
 -- studies on ripe cherries and cunants, 1884, A., 776.  
 -- caramel, 1885, A., 601.  
 -- nuclein of grape stones, 1885, A., 823.  
 -- Danneborg's hemidin crystals, 1887, A., 408.  
 -- studies on pure yeast, 1888, A., 181.  
 -- cadaveric alkaloid behaving like strychnine, 1888, A., 731.  
 -- *Saccharomyces apiculatus*, 1888, A., 1218.  
**Amthor, Carl, and Gustav Müller**, dry distillation of terpenylic acid, 1891, A., 79.  
**Amthor, Carl, and Julius Zink**, horse fat, 1892, A., 1533.  
**Anacker**, poisoning of cattle by earthnut cake, 1883, A., 818.  
**Ance, J.** See **M. Bauer**.  
**Andeer, Justus**, phloroglucinol as an antiseptic, 1885, A., 454.  
 -- action of resorcinol on eggalbumin, 1890, A., 804.  
**Anderlini, Francesco**, compounds of glycogen with sulphuric acid, 1888, A., 934.  
 -- derivatives of pyrrolinophthalide, 1889, A., 58.  
 -- derivatives of dihydropyrroline, 1890, A., 65, 1430.  
 -- nitropyrroline- $\alpha$  carboxylic acids, 1890, A., 66.  
 -- action of methyl iodide on tetramethyldihydropyridine, 1890, A., 67.  
 -- derivatives of cantharidin, 1890, A., 640; 1891, A., 1243.  
 -- pyroglutamic acid, 1890, A., 642.  
 -- action of methyl iodide on pentamethyldihydropyridine, 1890, A., 1431.  
**Anderlini, Francesco.** See also **Giacomo Luigi Ciamician**.

- Anderson, William Smellie**, solubility of calcium carbonate in fresh and sea water, 1890, A., 450.
- Anderson, William Smellie**. See also *Robert Irvine*.
- Andés, L. E.**, refining of shellac, 1884, A., 380.
- preparation of wood stains in the solid form, 1885, A., 711.
- Andouard, Ambroise**, the guano of Cape Vert, 1884, A., 359.
- estimation of gum arabic in syrup, 1885, A., 299.
- analyses of phosphatic manures, 1885, A., 888.
- butter analysis, 1886, A., 283.
- incompatibility of nitrates and superphosphates, 1887, A., 617.
- variations in the proportion of phosphoric acid in milk, 1887, A., 856.
- Andouard, Ambroise**, and *V. Dézaunay*, effect of exhausted beet pulp on cows' milk, 1884, A., 347; 1885, A., 73.
- André, Gustave**, desiccation of seed potatoes, 1885, A., 1155.
- André, Gustave**, ammonio-bromides and oxybromides of zinc, 1883, A., 713.
- double chlorides of lead and ammonium and oxychlorides of lead, 1883, A., 717.
- double salts of lead, 1883, A., 903.
- heats of formation of lead oxychlorides and oxybromides, 1884, A., 384.
- heat of formation of mercuric oxybromides, 1884, A., 707.
- barium oxychloride, 1884, A., 712.
- thermochemistry of the oxychlorides, 1884, A., 884.
- ammonio-zinc sulphates, 1885, A., 485.
- basic and ammoniacal nitrates, 1885, A., 634.
- ammonio-cupric sulphate, and a basic cupric sulphate, 1885, A., 573.
- combination of acetamide with metallic chlorides, 1886, A., 337.
- action of ammonia on chloroform, 1886, A., 521.
- action of water and ammonia on methylene chloride, 1886, A., 861.
- action of lead oxide on soluble chlorides, 1887, A., 446.
- action of mercuric oxide on dissolved chlorides, 1887, A., 447.
- ammoniacal compounds of calcium chloride, 1887, A., 637.
- ammoniacal compounds of calcium sulphate and nitrate, 1887, A., 638.
- André, Gustave**, action of metallic oxides on solutions of zinc and manganese chlorides, 1888, A., 651.
- ammoniacal derivatives of nickel salts, 1888, A., 655.
- properties of the mercurammonium chlorides, 1889, A., 570.
- formation of mercurammonium chlorides, 1889, A., 827.
- ammoniacal mercuric chlorides, 1891, A., 986.
- some compounds formed by mercuric chloride, 1891, A., 1030.
- bismuthic acid, 1892, A., 413, 688.
- André, Gustave**. See also *Marcellin Berthelot*.
- Andrae, G. L.**, solubility of solid substances in water at various temperatures, 1881, A., 1090.
- method for estimating the specific gravity of solid substances soluble in water, 1885, A., 332.
- specific gravity of saturated solutions of solid substances at various temperatures, 1885, A., 334.
- constant vapour pressure, 1891, A., 781.
- Andreasch, Rudolf**, oxidation of the bases obtained by the action of halogen compounds on thiocarbamide, 1883, A., 664.
- potassium ethylenic disulphonate, 1883, A., 912.
- allylcarbamide, 1884, A., 731.
- thiohydantoin and its derivatives, 1886, A., 226.
- sulphochloroacetic acid, 1886, A., 786.
- thiohydantoin, 1888, A., 47.
- thiocarbimidoacetic acid and rhodanic acid, 1889, A., 960.
- Andreasch, Rudolf**. See also *Richard L. Maly*.
- Andrée, Ad.**, testing balsam of Peru, 1886, A., 181.
- Andréeff, A.** See *Hugo Andres*.
- Andreocci, Americo**, action of phenylhydrazine on acetylurêthane, 1890, A., 889.
- synthesis of 1:3-phenylpyrrodi-azolecarboxylic acid, 3-methylpyrro-diazole, 3-pyrrodiazolecarboxylic acid, and pyrroliazole, 1892, A., 636.
- Andreocci, Americo**. See also *Siegismund Levy*.
- Andres, Erwin**, soap varnishes, 1884, A., 648.
- Andres, Hugo**, Russian oil of peppermint, 1890, A., 1428.
- spectroscopical properties of Russian oil of peppermint, 1891, A., 2.

- Andres, Hugo**, and **A. Andréeff**, Russian peppermint oil and menthylamine, 1892, A., 723.
- Andresen, M.**, trichloroquinone-chlorimide, tri- and tetra-chloroquinone, 1881, A., 131.
- safranine and methylene-blue, 1886, A., 1026.
- Andrews, Clement Walker**, influence of temperature on the specific rotation of cane sugar, 1890, A., 579.
- Andrews, Clement Walker**. See also *Lewis Mills Norton*.
- Andrews, Laurence W.**, volumetric estimation of combined sulphuric acid, 1890, A., 411.
- detection of coniine in a case of poisoning, 1891, A., 871.
- Andrews, Thomas** (Belfast), properties of matter in the gaseous and liquid state under various conditions of temperature and pressure, 1889, A., 95.
- Andrews, Thomas**, electromotive force between metals at high temperatures, 1885, A., 1175.
- electrochemical effects of magnetizing iron, 1889, A., 92; 1890, A., 678.
- passive state of iron and steel, 1891, A., 250.
- Andrieu, L.**, chromatometer, 1886, A., 1070.
- Angeblis, Alexander**, and **Richard Anschütz**, syntheses of dimethylanthracene hydride and diphenylethane from benzene and ethylidene chloride, 1884, A., 753.
- — — action of aluminium chloride on a mixture of benzene and vinyl bromide, and of benzene and vinyl tribromide, 1884, A., 753.
- Angeli, Angelo**, dimethylethylene-diamine, 1890, A., 954.
- — — condensation products of  $\alpha$ -acetylpyrrolone with benzil, 1890, A., 1000.
- — — action of ethyl oxalate on methyl pyrrol ketone, 1890, A., 1156, 1243.
- — — diphenylacetylenediurene and some of its derivatives, 1890, A., 1290.
- — — action of ethyl oxalate on aceto-thienone, 1891, A., 550.
- — — action of carbamide on benzil, 1891, A., 726.
- — — electrolyte, 1891, A., 889.
- — — action of nitric acid on acetylacetone, 1891, A., 890.
- — — ethyl acetothienoneoxalate, 1892, A., 151.
- — — use of sodium hypophosphite in Sandmeyer's reaction, 1892, A., 305.
- — — estimation of sulphur in organic substances, 1892, A., 382.
- Angeli, Angelo**, action of nitrous acid on some unsaturated aromatic compounds, 1892, A., 417, 1198.
- Angeli, Angelo**, and **A. Chiussi**, action of iodic acid on levulinic acid, 1892, A., 1179.
- Angeli, Angelo**, and **Giuseppe Luigi Ciamician**, oxidation products of brominated thiophenes, 1891, A., 427.
- Angeli, Angelo**. See also *Giuseppe Luigi Ciamician*; *Giuseppe Magnanini*.
- Angot, Alfred**, effect of altitude on plant growth, 1881, A., 627.
- Ångström, Knut**, alteration in the volume and density of liquids by the absorption of gases, 1888, A., 401.
- Ankersmit, Hendrik Jan**. See *André Pictet*.
- Annaheim, J.**, substituted naphthylene-diamines, 1887, A., 839.
- Anraeff, A. N.**, behaviour of quinol with urine and urea, 1887, A., 511.
- Anrep, Vladimir Kion**, physiological action of ptomaines, 1885, A., 682.
- Anschütz, Richard**, action of aluminium bromide on *s*-dibromethylene and benzene, 1883, A., 807.
- — — bromine substitution products of ethane and ethylene, 1884, A., 32.
- — — monethyl hydrogen oxalate, 1884, A., 296.
- — — *as*-tetraphenylethane, 1884, A., 326.
- — — syntheses by means of aluminium chloride, 1884, A., 754; 1887, A., 150.
- — — acridine picrate, 1881, A., 908.
- — — use of dry oxalic acid in the formation of condensation products, 1884, A., 1019.
- — — chrysamine, 1881, A., 1034.
- — — new method of preparing aromatic hydrocarbons, 1885, T., 898; A., 1061.
- — — formation of the anhydrides of mono- and dibasic acids, 1885, A., 213.
- — — racemic acid, and the calcium salts of the four tartaric acids, 1885, A., 213.
- — — replacement of two chlorine atoms in chlorides by means of anhydrous oxalic acid, 1885, A., 263.
- — — pipitzahoic acid, 1885, A., 776.
- — — formation of methyl racemate from methyl *d*- and *l*-tartrates, 1885, A., 966.
- — — malic acids, 1885, A., 1049.
- — — action of phosphoric chloride on salicylic acid, 1885, A., 1061.
- — — ethoxalic chloride, 1886, A., 1011.
- — — isomerism of fumaric and maleic acids, 1887, A., 916; 1888, A., 448; 1890, A., 863.

- Anschütz, Richard**, formation of anilic acids from anhydrides of dibasic acids, 1888, A., 277.
- phenylhydrazide acids from the anhydrides of dibasic acids, 1888, A., 367.
- action of phosphorus pentachloride on anilic acids, 1888, A., 594.
- Reissert's pyranilpyroinlactone, pyranilpyroic acid, and anilosuccinic acid, 1888, A., 1092.
- determination of the molecular weight of dimethyl diacetylracemate by Raoult's method, 1888, A., 1273.
- Reissert's pyranilpyroic acid, 1889, A., 142.
- Reissert's anilosuccinic acid and anilopropionic acid, 1889, A., 707.
- Raoult's method of determining molecular weights as used to distinguish between isomerism and polymerism, 1889, A., 754.
- can Raoult's method distinguish between atomic and molecular union? 1890, A., 105.
- alkyl hydrogen oxalates, dichloroglycolates, and chloroxalates: tetralkyl oxalates, 1890, A., 235.
- cyanogen monosulphhydrate, 1890, A., 351.
- formation of hydantoin, 1890, A., 365.
- acetyltrichlorophenomalic acid, 1890, A., 365.
- lactam-formation in the fatty series, 1890, A., 774.
- identity of pyranilpyroinlactone and citraconanil, 1890, A., 774; 1891, A., 73.
- amic and anilic acids of fumaric acid and maleic acid, 1891, A., 176.
- diglycollic anhydride, 1891, A., 177.
- so-called phenylketohydroxydimethylanilidetetrahydropyridinecarboxylic lactone,  $\beta$ -anilidoglutaranil, 1891, A., 741.
- Anschütz, Richard**, and **Charles Beavis**, dichloromaleinanil chloride, 1891, A., 1047.
- Anschütz, Richard**, and **Paul Bendix**, diphenylsuccinic acids, 1891, A., 71.
- Anschütz, Richard**, and **Carl Bennert**, monosubstituted succinic acids, 1890, A., 363.
- Anschütz, Richard**, and **Wilhelm Berns**, phenylacetic acid and desoxybenzoins, 1887, A., 829.
- diethylcarbobenzoic acid, 1891, A., 913.
- Anschütz, Richard**, and **Fritz Eltzbacher**, new synthesis of anthracene, 1888, A., 809.
- synthesis of *as*-tetraphenylethane, 1888, A., 1132.
- Anschütz, Richard**, and **William Orrin Emery**, action of phosphorous chloride on salicylic acid and phenol, 1887, A., 946.
- action of phosphorus trichloride on phenol, 1890, A., 34.
- action of phosphorus trichloride on salicylic acid, 1890, A., 53.
- Anschütz, Richard**, and **Philip Norman Evans**, chlorides of antimony, 1886, T., 708.
- antimony pentachloride, 1888, A., 424.
- vapour density of antimony pentachloride, 1890, A., 16.
- Anschütz, Richard**, and **Hugo Geldermann**, action of carbamide and thiocarbamide on dihydroxytartaric acid, benzil, and benzoin, 1891, A., 725.
- Anschütz, Richard**, and **Camille Gillet**, constitution of mesitonic acid, 1888, A., 1272.
- Anschütz, Richard**, and **Arthur R. Haslam**, action of phosphorus pentachloride on chloralide, 1887, A., 915.
- action of phosphorus pentachloride on chloralide: tetrachloroethylidene trichlorolactate, 1890, A., 27.
- Anschütz, Richard**, and **Ferdinand Hensel**, Reissert's deoxypyranilpyroic dibromide and bromodeoxypyranilpyroic acid, 1889, A., 258.
- Anschütz, Richard**, and **Friedr. Heusler**, partial amidation of polynitrated aromatic compounds, 1886, A., 1021.
- Anschütz, Richard**, and **Carl Hintze**, diammonium oxalate, 1885, A., 1049.
- Anschütz, Richard**, and **Heinrich Immendorff**, action of aluminium chloride, 1885, A., 269.
- preparation of homologues of benzene by aid of aluminium chloride, 1885, A., 769.
- Anschütz, Richard**, and **August Friedrich Kekulé**, useful apparatus, 1885, A., 1035.
- Anschütz, Richard**, and **Joseph Klein**, tetraphenylethane, 1884, A., 1034.
- Anschütz, Richard**, and **Felix Klingemann**, preparation of malic acid from citric acid, 1885, A., 1050.
- Anschütz, Richard**, and **John Walter Leather**, derivatives of pipitalhoic acid, 1885, A., 777; 1886, T., 709.

- Anschütz, Richard**, and **Peter Meyer**, amido- and hydroxy-phenanthraquinones, 1885, A., 1067.
- Anschütz, Richard**, and **George Dunning Moore**, action of phosphoric chloride on *m*- and *p*-hydroxybenzoic acids, 1887, A., 947.
- — — action of phosphoric chloride on salicylic acid, 1887, A., 947.
- Anschütz, Richard**, and **Emilio Parlato**, ethylic dioxysuccinate, 1892, A., 1181.
- Anschütz, Richard**, and **Ferdinand Reuter**, itaconanilic acid, 1888, A., 594.
- — — action of aniline on citraconic acid and on itaconic acid, 1890, A., 368.
- Anschütz, Richard**, and **Eugen Romig**, action of aluminium chloride on mixtures of ethylenic chloride with benzene, toluene, or *m*-xylene, 1885, A., 768.
- — — nitration products of diphenylethane, 1885, A., 800.
- — — action of nitric acid on *o*-diphenylethane, 1886, A., 1033.
- Anschütz, Richard**, and **Fritz Schönfeld**, ethereal hydrogen oxalates: action of phosphoric chloride on ethereal oxalates, 1886, A., 785.
- Anschütz, Richard**, and **Gustav Theodor August Otto Schultz**, behaviour of primary aromatic amines with sulphur, 1889, A., 602.
- Anschütz, Richard**, and **Charles C. Selden**, Glaser's monobromomannamic acids, 1887, A., 829.
- Anschütz, Richard**, and **Heinrich Weyer**, action of aniline on chloride and bromide of arsenic, 1891, A., 901.
- Anschütz, Richard**, and **Quirin Wirtz**, decomposition of aromatic salts of fumaric acid, 1885, T., 899; A., 1064.
- — — anilides of fumaric and maleic acids: phenylaspartic acid, 1887, A., 934.
- Anschütz, Richard**, **Paul Bendix**, and **Wilhelm Kerp**, mesitene lactone and isodehydracetic acid, 1891, A., 172.
- Anschütz, Richard**. See also **Alexander Angeblis**.
- Ansdell, Gerrard**, critical point of mixed gases, 1883, A., 277.
- Ansdell, Gerrard**, and **James Dewar**, gaseous constituents of meteorites, 1887, A., 851.
- Anselm, F.**, hydronaphthalic acid, 1889, A., 717.
- Ansiaux, Georges**. See **Joseph Corin**.
- Antoine, Ch.**, dilatation and compression of air, 1889, A., 160.
- dilatation and compression of carbonic anhydride, 1889, A., 668.
- vapour pressure of water up to 200 atmospheres, 1891, A., 1407.
- Antony, Ubaldo**, removal of platinum from iridium, 1892, A., 1285.
- Antony, Ubaldo**, and **Adolfo Lucchesi**, composition of some metallic sulphides obtained in the wet way, and reactions of the sulphide of gold,  $\text{Au}_2\text{S}_3$ , 1890, A., 1216.
- — — auric sulphide, 1891, A., 526; 1892, A., 280.
- Antrick, Otto**, compounds of diacetaniline with aldehydes, 1885, A., 502.
- benzylindole, 1885, A., 543.
- optical behaviour of cocaine, 1887, A., 506.
- Antrick, Otto**. See also **Ludwig Knorr**.
- Appiani, Giuseppe**. See **Angelo Menozzi**.
- Appleyard, James Robert**. See **Edmund Knecht**.
- Arachequesne, G.**, estimation of acetone as iodoform, 1890, A., 837.
- Araki, Tracaburo**, methemoglobin and sulphur-methemoglobin, 1890, A., 1012.
- formation of lactic acid and glucose in the organism, 1891, A., 1125, 1392.
- formation of sugar and lactic acid in the organism, 1892, A., 517, 1113.
- Arapides, Leonidas**, conversion of ketone thiocyanates into oxythiazoles, 1889, A., 413.
- isothiocyanoacetic acid, 1889, A., 414.
- Arapides, Leonidas**. See also **Arthur Rudolf Hantzsch**.
- Arata, Pedro N.**, and **Francesco Canzoneri**, bark of Quina morada (*Pogonopus febrifugus*), 1890, A., 404.
- true winter bark, 1890, A., 405.
- "pillijau" (*Lyceopodium Saururus*), 1892, A., 894.
- Arata, Pedro N.**, and **Carl Gelzer**, morrenole, 1891, A., 1088.
- morrenine, 1891, A., 1122.
- Arbenz, Carl**, constitution of isocouanthone, 1890, A., 53.
- phenylsalicylic acid, 1890, A., 892.
- Arbos y Tor, (Don) Jaime**, pyrrolein, 1883, A., 519.
- Archarow, J.**, estimation of organic matter in the atmosphere, 1892, A., 542.
- Archbold, Geo.**, a new method of manufacturing paper pulp, 1883, A., 759.

- Archbutt, Leonard**, free acid in oil, 1885, A., 446.  
 — analysis of oils, 1887, A., 402.  
 — analysis of grease, 1889, A., 321.  
 — estimation of sulphur in iron and steel, 1890, A., 1463.
- Arche, Alto**, cerite, and the extraction of cerium, lanthanum, and didymium therefrom, 1884, A., 557.
- Arche, Alto, and Carl Hassack**, analysis of a pit-water, 1884, A., 782.  
 — analysis of some Indian bronzes and their patina, 1885, A., 100.
- Arche, Alto**. See also **C. Kornauth**.
- Arcy**. See **D'Arcy**.
- Argutinsky, P.**, excretion of nitrogen in sweat, 1891, A., 350.  
 — Kjeldahl-Wilfarth method, 1891, A., 362.
- Arheidt, Richard**, diphenylenedihydrazine, 1887, A., 958.
- Aristoff, V.**, oxidation of acids of the lactic series, 1885, A., 752.
- Aristoff, V., and Nicolaus I. Demjanoff**, oxidation products of the  $\alpha$ -hydroxy-acids of the fatty series, 1888, A., 251.
- Arloing, Saturnin**, zymotic properties of certain virus, 1886, A., 170.  
 — zymotic virus and fermentation, 1887, A., 292.
- Armitage, J. Lister**, delicate test for morphine, 1888, A., 1137.
- Armsby, Henry P.**, digestion experiments, 1886, A., 380.
- Armsby, Henry P., and William H. Caldwell**, maize dried in the field and as silage, 1891, A., 359.
- Armsby, Henry P., and Fred Garland Short**, apparatus for nitrogen determination, 1887, A., 298.
- Armstrong, Henry Edward**, note on the formation and constitution of the fulminates, 1884, T., 25.  
 — constitution of the fulminates, 1885, T., 79.  
 — theory of the interaction of carbon monoxide, water, and oxygen gases, 1886, T., 112.  
 — use of the electric light to influence chemical change, 1886, P., 182.  
 — action of metals on acids, 1886, P., 189.  
 — correlation of electrolytic conduction and molecular composition, 1886, A., 754.  
 — explanation of the laws which govern substitution in the case of benzenoid compounds, 1887, T., 258, 583; P., 8, 44, 62; discussions, P., 9, 62.
- Armstrong, Henry Edward**, influence of liquid water in promoting the interaction of hydrogen chloride and oxygen on exposure to light, 1887, T., 806.  
 — isomeric change in the naphthalene series, No. 1., 1887, P., 143.  
 — determination of the constitution of carbon compounds from thermochemical data, 1887, A., 420.  
 — electrolytic conduction: evidence of a change in the constitution of water, 1887, P., 127; discussion, P., 128; 1888, T., 125.  
 — the origin of colour and the constitution of colouring matters, 1888, P., 27; discussion, P., 31.  
 — criteria of plane and axial symmetry, 1888, P., 93.  
 — valency, 1888, A., 550.  
 — the constitution of  $\beta$ -naphthol- $\alpha$ -sulphonic acid (Bayer's acid), 1889, P., 8.  
 — the sulphonation of naphthalene- $\beta$ -sulphonic acid, 1889, P., 10.  
 — note on the interaction of metals and acids, 1889, P., 66; discussion, P., 67.  
 — note on the determination of the molecular weight of substances in solution, especially colloids, 1889, P., 109; discussion, P., 113.  
 — note on the hydration of cyanides, 1889, P., 122.  
 — terminology of hydrolysis, especially as affected by ferments, 1890, T., 528.  
 — oxidation of turpentine in sunlight, 1890, P., 99.  
 — structure of cycloid hydrocarbons, 1890, P., 101; discussion, P., 103.  
 — terpenes and allied compounds. The nature of turpentine oils, including that obtained from *Pinus khasyana*, 1891, T., 311.  
 — function of chlorine in acid chlorides, as exemplified by sulphuryl chloride, 1891, P., 60.  
 — formation of salts—a contribution to the theory of electrolysis and of the nature of chemical change in the case of non-electrolytes, 1891, P., 118.  
 — theory of solution, 1891, A., 788.  
 — origin of colour; the appearance of colour in quinoline derivatives and of fluorescence in quinine salts, 1892, T., 789; P., 148.  
 — the interaction occurring in flames, 1892, P., 22.  
 — note on anhydrides of sulphonic acids, 1892, P., 41.

- Armstrong, Henry Edward**, the origin of colour. Part II. The constitution of coloured nitro-compounds, 1892, P., 101.
- the origin of colour. Part III. Colour as an evidence of isodynamic change: the existence of isodynamic acids, 1892, P., 103; discussion, P., 101.
- contributions to an international system of nomenclature; the nomenclature of cycloids, 1892, P., 127; discussion, P., 130.
- the origin of colour. Part V. (Coloured hydrocarbons and fluorescence, 1892, P., 189.
- the origin of colour. Part VI. Azobenzene, 1892, P., 191; discussion, P., 195.
- remarks on memorial lectures, 1892, P., 203.
- Armstrong, Henry Edward**, and **John Frederick Briggs**, relative orienting effect of chlorine and bromine. [I]. The constitution of *p*-bromo- and *p*-chloroanilinesulphonic acids, 1892, P., 40; discussion, P., 11.
- Armstrong, Henry Edward**, and **Frederick Stanley Kipping**, camphorone, a product of the action of dehydrating agents on camphor, 1891, P., 188.
- production of the ketone 1:2:4-acetyl-*o*-xylene from camphor by the action of sulphuric acid and zinc chloride, 1892, P., 54.
- the products of the interaction of zinc chloride and sulphuric acid and camphor, 1892, P., 198.
- Armstrong, Henry Edward**, and **Alexander Kenneth Miller**, studies on sulphonic acids. No. I. On the hydrolysis of sulphonic acids, and on the recovery of the benzenes from their sulphonic acids, 1884, T., 148.
- contributions to our knowledge of camphor, 1884, A., 43.
- *m*-isopropylmethylbenzene, 1884, A., 43, 299.
- products of the manufacture of gas from petroleum, 1885, P., 77; 1886, T., 71.
- Armstrong, Henry Edward**, and **William Jackson Pope**, terpenes and allied compounds. Sabinol, a product of the oxidation of terebenthene (oil of turpentine) in sunlight, 1891, T., 315.
- Armstrong, Henry Edward**, and **Edmund Charles Rossiter**, action of halogens on  $\beta$ -naphthol, 1889, P., 71.
- chloro- and bromo-derivatives of naphthol and naphthylamine, 1891, P., 32.
- Armstrong, Henry Edward**, and **Edmund Charles Rossiter**, bromo-derivatives of  $\beta$ -naphthol, 1891, P., 87.
- action of nitric acid on naphthol derivatives as indicative of the manner in which nitration is effected in the case of benzenoid compounds generally. The formation of nitro-keto-compounds, 1891, P., 89; discussion, P., 91.
- new method of preparing nitro-derivatives: the use of nitrogen dioxide as a nitrating agent, 1891, P., 91.
- the sulphochlorides of the isomeric dibromonaphthalenes, 1891, P., 182.
- action of alcohols on sulphonic chlorides as a means of producing ethereal salts of sulphonic acids, 1891, P., 181.
- action of bromine on  $\alpha$ - and  $\beta$ -bromonaphthalene, 1891, P., 181.
- action of bromine on a mixture of *o*- and *p*-nitro- $\alpha$ -naphthalide, 1891, P., 186.
- Armstrong, Henry Edward**, and **Frederick William Streetfield**, action of bromine on  $\beta$ -naphtholsulphonic acid, 1886, P., 232.
- Armstrong, Henry Edward**, and **Sidney Williamson**,  $\alpha$ -nitro-,  $\alpha$ -bromo-, and  $\alpha$ -chloronaphthalenesulphonic acids, 1886, P., 233.
- $\alpha$ -cyanonaphthalenesulphonic acid, 1887, P., 43.
- isomeric change in the naphthalene series. No. 4.  $\alpha$ -Haloidnaphthalenesulphonic acids, 1887, P., 145.
- Armstrong, Henry Edward**, and **William Palmer Wynne**, action of chlorosulphonic acid on naphthalene- $\alpha$ - and  $\beta$ -sulphonic acids, 1886, P., 230.
- action of bromine on the naphthalenesulphonic acids, 1886, P., 233.
- sulphonic acids derived from the  $\beta$ -monohaloid derivatives of naphthalene, 1887, P., 22.
- formation of  $\gamma$ -naphthalenesulphonic acids:  $\gamma$ -dihydroxynaphthalene, 1887, P., 42.
- isomeric change in the naphthalene series. No. 3.  $\beta$ -Chloronaphthalenesulphonic acids, 1887, P., 145.
- sulphonation of naphthalene, 1887, P., 146.
- constitution of the dichloronaphthalenes, especially of the  $\alpha$ - $\beta$ -compounds, 1888, P., 104.

- Armstrong, Henry Edward, and William Palmer Wynne**, note on the 1:3-homo- and the isomeric hetero- $\alpha$ - $\beta$ -dichloro-naphthalenes melting at nearly the same temperature, 1889, P., 5.
- nitration of naphthalene- $\beta$ -sulphonic acid, 1889, P., 17.
- determination of the constitution of the heteronuclear  $\alpha$ - $\beta$ - and  $\beta$ - $\beta$ -di-derivatives of naphthalene, 1889, P., 34, 48.
- nitro- $\beta$ -chloronaphthalene, 1889, P., 71.
- isomeric change in the naphthalene series. No. 5.  $\beta$ -Iodonaphthalenesulphonic acids, 1889, P., 119.
- constitution of the tri-derivatives of naphthalene. No. 1. The constitution of  $\beta$ -naphthol- and  $\beta$ -naphthylamine-sulphonic acids R. and G; naphthalene-*m*-disulphonic acid, 1890, P., 11.
- constitution of tri-derivatives of naphthalene. No. 2.  $\alpha$ -Amido-1:3-naphthalenedisulphonic acid, 1890, P., 15.
- constitution of tri-derivatives of naphthalene. No. 3.  $\alpha$ -Naphthylaminedisulphonic acid Dahl (No. III.), the constitution of naphthol-yellow S., 1890, P., 16.
- homonuclear trichloronaphthalenes, 1890, P., 76.
- the ten isomeric dichloronaphthalenes and the sulphonic acids and trichloronaphthalenes derived therefrom, 1890, P., 77.
- chlorides of naphthalene and its derivatives, and the manner in which they are decomposed by alkalis, 1890, P., 85.
- isomeric change in the naphthalene series. No. 6. The influence of position in determining the nature of isomeric change in the case of the chloronaphthalenesulphonic acids, 1890, P., 86.
- constitution of tri-derivatives of naphthalene. No. 4. Constitution of  $\alpha$ -naphthylaminedisulphonic acid Dahl (No. II.), naphthalene-1:2-disulphonic acid, 1890, P., 125.
- constitution of tri-derivatives of naphthalene. No. 5. Constitution of the Schollkopf  $\alpha$ -naphthylaminedisulphonic acid, 1890, P., 126.
- constitution of tri-derivatives of naphthalene. No. 6. Constitution of Cassella's  $\beta$ -naphthylamine- $\delta$ -disulphonic acid, 1890, P., 127.
- Armstrong, Henry Edward, and William Palmer Wynne**, constitution of tri-derivatives of naphthalene. No. 7. Disulphonic acids obtained by sulphoning the isomeric heteronuclear  $\beta$ -naphthylaminesulphonic acids, 1890, P., 128.
- constitution of tri-derivatives of naphthalene. No. 8.  $\beta$ -Chloronaphthalenedisulphonic acids, 1890, P., 131.
- comparative influence exerted by the radicles Cl, OH, and NH<sub>2</sub> in naphthalene-derivatives, on the formation of sulphonic acids, 1890, P., 133.
- action of potash on naphthalene-1:3-disulphonic acid, 1890, P., 136.
- constitution of tri-derivatives of naphthalene. No. 9. Andresen's  $\beta$ -naphthylaminedisulphonic acid, 1891, P., 27.
- Griess-Sandmeyer interactions and Gattermann's modifications thereof, 1892, P., 199.
- Armstrong, Henry Edward.** See also *Edward Greenhill Amphlett.*
- Arnaud, Albert**, cinchonamine, 1881, A., 87.
- colouring matter of leaves, 1885, A., 670.
- carotene, 1886, A., 711.
- cholesterol in the carrot, 1886, A., 830.
- carotene in leaves, 1887, A., 859; 1890, A., 285.
- crystalline arrow poison of the Somalis, extracted from the wood of the onabaio, 1888, A., 848.
- strophantidin, 1888, A., 1310.
- crystalline compound from glabrous Strophantus, 1889, A., 407.
- tanghinin from *Tanghinia venenifera*, 1889, A., 900.
- crystallised digitalin, 1890, A., 65.
- digitalin and tanghinin, 1890, A., 171.
- cinchonamine as a test for nitrates, 1891, A., 362.
- new acid of the C<sub>11</sub>H<sub>21</sub>O<sub>3</sub> series, 1892, A., 582.
- Arnaud, Albert, and Albert Charrin**, transformation and elimination of organic matter by the pyrocyanic bacillus, 1891, A., 1182, 1894.
- Arnaud, Albert, and Léon Padé**, test for nitric acid and nitrates in vegetable tissues, 1884, A., 1074.
- Arnaud, Albert.** See also *Eloiard Grimaux.*

- Arndt, E. M.**, volatile base from the root of *Cephaelis Ipecacuanha*, 1889, A., 918.
- Arnell, K. E.**,  $\alpha$ -chloronaphthylsulphonic acid, 1883, A., 595.  
— action of sulphuric acid on  $\beta$ -chloronaphthalene, 1886, A., 555.
- Arnhold, M.**, triethyl formate and various methylals, 1887, A., 911.
- Arnold, Bernhard.** See *Eugen Lellmann*.
- Arnold, Carl**, estimation of organic nitrogen, 1883, A., 378.  
— new colour reactions of the alkaloïds, 1883, A., 386.  
— poisonous principles contained in certain lupines, 1883, A., 740.  
— ptomaines and similar bodies, 1884, A., 469.  
— estimation of chlorides in urine, 1885, A., 835.  
— estimation of nitrogen, 1885, A., 837.  
— Kjeldahl's method of nitrogen estimation, 1885, A., 930; 1887, A., 78.
- Arnold, Carl, and Georg Schneidmühl**, poisonous matter of lupines, 1884, A., 915.
- Arnold, Carl, and Konrad Wedemeyer**, Boyer's method of estimating nitrogen, 1892, A., 1517.  
— — estimation of nitrogen in nitrates, 1892, A., 1517.
- Arnold, Eduard**, ethylic methyloxalacetate and ethylic oxalacetate, 1888, A., 1179.
- Arnold, Eduard.** See also *Wilhelm Wislicenus*.
- Arnold, H.**, bromine amalgamation process, 1883, A., 399.
- Arnold, John Oliver**, Allen's method for the detection of hop-substitutes in beer, 1888, A., 763.
- Arnold, John Oliver, and Henry J. Hardy**, determination of chromium in iron or steel in presence of phosphorus, 1888, A., 757.  
— — estimation of sulphur in steel and in iron for steel making, 1888, A., 1333.
- Arnschink, Ludwig**, nutritive value of glycerol, 1887, A., 509.  
— — absorption of different fats from the alimentary canal, 1890, A., 811.
- Arnst, Theodor.** See *Theodor Zincke*.
- Arons, Leo**, heat of dilution and specific heat of saline solutions, 1885, A., 1101.
- Arons, Leo.** See also *Emil Cohn*.
- Aronstein, Louis**, transformation of propyl biomide into isopropyl biomide, under the influence of heat, 1883, A., 172.
- Aronstein, Louis, and Arnold, Frederick Holleman**, stilbene, 1889, A., 51.  
— — conversion of acetylene into ethylene derivatives by the direct addition of hydrogen, 1889, A., 578.
- Arrhenius, Svante**, Clausius-Williamson hypothesis, 1884, A., 701.  
— conductivity of mixtures of aqueous solutions of acids, 1887, A., 415.  
— viscosity of dilute aqueous solutions, 1888, A., 336.  
— influence of neutral salts on the rate of hydrolysis of ethyl acetate, 1888, A., 340.  
— conductivity of illuminated air, 1888, A., 544.  
— — dissociation of substances dissolved in water, 1888, A., 896.  
— — theory of isohydric solutions, 1888, A., 1144.  
— — freezing-point of dilute aqueous solutions, 1888, A., 1242.  
— — heat of dissociation and influence of temperature on the dissociation of electrolytes, 1889, A., 1044.  
— electrolytic dissociation, 1889, A., 1099; 1891, A., 521, 1148.  
— rate of change in the inversion of cane sugar by acids, 1889, A., 1103.  
— conditions of equilibrium between electrolytes, 1890, A., 437.  
— electrical conductivity of salts in the Bunsen flame, 1891, A., 4.  
— — conduction of electricity by the vapours of heated salts, 1891, A., 515.  
— — theory of solution, 1891, A., 788.  
— — heats of neutralisation, 1891, A., 1406.  
— — correction in the calculation of the heat of dissociation of electrolytes, 1892, A., 937.  
— applicability of Planck's proof of the law of van't Hoff, 1892, A., 935.  
— — electrical conductivity of substances in mixed solvents, 1892, A., 1038.  
— — diffusion in aqueous solutions, 1892, A., 1265.
- Arsonval, A. d'**, suppression of nitroxygen fumes from the Bunsen battery, 1885, A., 854.  
— rapid absorption of carbonic anhydride from expired air, 1888, A., 512.  
— calorimetry at constant temperatures, 1888, A., 773.

- Arsonval, A. d.** use of liquefied carbonic anhydride for the rapid filtration and sterilisation of organic liquids, 1891, A., 854.  
 — reactions of carbonic anhydride at high pressures, 1892, A., 274.
- Arsonval, A. d.** See also *Charles Edouard Brown-Sequard*.
- Arth, Georges**, menthyl chloride, 1884, A., 167.  
 — decomposition of ethyl carbamate, 1884, A., 731.  
 — oxidation of menthol by potassium permanganate, 1884, A., 755.  
 — action of anhydrous ammoniacal ammonium nitrate on metals, 1885, A., 1039.  
 — urethanes of the paraffin series, 1886, A., 692.  
 — menthol derivatives, 1886, A., 892.  
 — pinelic acid from menthol, 1888, A., 1273.  
 — estimation of phosphoric acid in slags: formation of tetrahydrated ferrous phosphate, 1890, A., 292.
- Arth, Georges**. See also *Albin Haller*.
- Arthus, Maurice**, glycolysis in the blood, 1891, A., 1528; 1892, A., 900.
- Arthus, Maurice**, and *Calixte Pagès*, chemical theory of the coagulation of the blood, 1891, A., 596.
- Arthus, Maurice**. See also *A. Dastre*.
- Arzberger, Hans**. See *Theodor Zincke*.
- Arzruni, Andreas**, artificial and natural gaylussite, 1883, A., 430.  
 — dietrichite, 1883, A., 433.  
 — jadeite axe from Rabbes, Hanover, 1883, A., 437.  
 — sulphur from Zielenzig, 1885, A., 27.  
 — minerals from a chromite deposit, 1885, A., 31.  
 — groddeckite, a new zeolite, 1885, A., 32.  
 — minerals from Bolivia, 1886, A., 514.  
 — granite rocks of the Ural, 1886, A., 995.  
 — paragonite schist from the Ural, 1887, A., 351.  
 — dipyr from Connecticut, 1887, A., 903.  
 — manganotantalite from the Ural, 1888, A., 234.
- Arzruni, Andreas**, and *Carl Baerwald*, relations between the crystalline form and chemical composition of arsenical iron pyrites, 1884, A., 404.
- Arzruni, Andreas**, and *August Frenzel*, ferroustite, 1891, A., 649.
- Arzruni, Andreas**. See also *Alfonso Cossa*.
- Asb6th, Alex. v.**, estimation of starch, 1887, A., 868.  
 — does grain contain sugar? 1888, A., 1220.  
 — artificial cryolite and the dissociation of aluminium fluoride, 1891, A., 806.
- Asch, Adolf Ossian**, action of phenylthiocarbimide on amido-acids, 1883, A., 1107.  
 — action of thiocarbimides on amido-acids, 1884, A., 907.  
 — *p*- and *o*-nitroxanilic acids, 1886, A., 147.  
 — action of alkali thiocyanates on phthalic acid, 1886, A., 704.  
 — phthalamic acid, 1886, A., 705.  
 — action of chloracetic chloride on *o*-amidophenol, 1887, A., 814.  
 — preparation of  $\alpha$ -dibromhydrin, 1889, A., 31.  
 — acids poor in carbon obtained from Baku petroleum, 1890, A., 737.  
 — acids from Baku petroleum, 1890, A., 737; 1891, A., 1452.  
 — constitution of  $\alpha$ -dibromhydrin, 1890, A., 1033.  
 — atomic re-arrangement of allyl compounds, 1890, A., 1084.  
 — oxanilic acid, 1890, A., 1124.  
 — hydrogenation of benzoic acid, 1891, A., 1053, 1481.  
 — hydrobenzoic acid, 1892, A., 847.
- Aschan, Karl Allan**, action of hydrogen phosphide on mercury salts, 1886, A., 423.
- Aschan, Walter**, derivatives of homopiperidinic acid, 1891, A., 466, 1246.
- Aschan, Walter**. See also *Sigmond Gabriel*.
- Aschenbrandt, Heinrich**, *p*-diethylbenzene, 1883, A., 318.
- Aschmann, U.**, preparation of an antiseptic compound, 1884, A., 782.
- Aschoff, U.**, importance of chlorine in the plant, 1890, A., 1182.
- Aschoff, K.** See *Paul Ehrhard Jannasch, Julius Mai*.
- Ashdown, Herbert H.**, reducing substances in urine, 1890, A., 279.
- Askensy, Paul**, and *Victor Meyer*, slow combustion of gaseous mixtures, 1892, A., 938.  
 — photochemical notes, 1892, A., 939.  
 — nitropropylene, 1892, A., 1062.
- Aslanoglou, P. L.**, electrolysis of various substances, 1890, A., 1203.

- Aslanoglu, P. L.**, ammonia in burnt magnesium hydroxide, 1890, A., 1209.  
 — — — supposed copper nitride, 1892, A., 409.
- Assche, F. van**, separation of rays of high and low refrangibility, 1881, A., 211.
- Assmus**, feeding experiments on pigeons, 1884, A., 473.
- Aston, (Miss) Emily**, some compounds of the oxides of silver and lead, 1891, T., 1093; P., 133.
- Aston, (Miss) Emily**, and **Percival Spencer (Unfrerville) Pickering**, multiple sulphates, 1885, P., 129; discussion, P., 130; 1886, T., 123.
- Aston, (Miss) Emily**, and **William Ramsay**, atomic weight of boron, 1892, P., 165.
- Astre, Charles**, adulteration of verdigris, 1884, A., 1236.  
 — — — bismuth potassium iodides, 1890, A., 708, 1067.  
 — — — bismuth oxyiodide, 1891, A., 19.
- Athanasescu, Nicole**, analysis of artificial brochantite, 1885, A., 1117.  
 — — — crystallised basic sulphates, 1886, A., 981.
- Athenstädt, Jul.**, preparation of aluminium acetate, 1884, A., 540.
- Athenstädt, Wilh.** See **Hans Julius Anton Edward Hübner**.
- Atherton, T. W. T.**, occurrence of a natural gold sulphide, 1892, A., 253.
- Atkinson, Alexander J.**, estimation of sulphur in coal and coke, 1887, A., 296.
- Atkinson, Robert William**, some compounds of antimony and bismuth containing two halogens, 1883, T., 289.  
 — — — volumetric estimation of iron, 1884, A., 873.  
 — — — volumetric method for estimating alumina, 1886, A., 282.  
 — — — estimation of manganese, 1887, A., 399.
- Atterberg, Albert**, Swedish method of testing for arsenic, 1886, A., 100.  
 — — — testing soil by the growth of oats, 1888, A., 317.  
 — — — sodium as a plant food, 1892, A., 1508.
- Attfield, John**, sap, 1883, A., 1164.
- Atwater, Wiebur Olin**, chemistry of fish, 1883, A., 1179; 1888, A., 732.  
 — — — absorption of nitrogenous food-stuffs by plants, 1884, A., 1401.  
 — — — acquisition of atmospheric nitrogen by plants, 1885, A., 1005; 1887, A., 515.
- Atwater, Wiebur Olin**, comparative absorption of fish and meat in the alimentary canal, 1887, A., 1130.  
 — — — analyses of American fishes, 1888, A., 308.  
 — — — nitrogen determinations by soda-lime, 1888, A., 990.  
 — — — sources of error in determinations of nitrogen by soda-lime, 1888, A., 1334.
- Atwater, Wiebur Olin**, and **Everett Meachum Ball**, sources of loss in nitrogen determinations, 1888, A., 752.
- Atwater, Wiebur Olin**, and **Elbert William Rockwood**, loss of nitrogen during germination and growth, 1887, A., 292.
- Atwater, Wiebur Olin**, and **Charles Dayton Woods**, soda-lime method for determining nitrogen, 1888, A., 193.  
 — — — acquisition of atmospheric nitrogen by plants, 1891, A., 353, 491.
- Aubel, Edmond van**, electrical resistance of bismuth and its alloys, 1888, A., 515; 1889, A., 807.
- Aubel, Edmond van**. See also **Walthère Spring**.
- Aubert, E.**, simultaneous evolution of oxygen and carbonic anhydride by (actem), 1891, A., 856.
- Aubert, Hermann**, exhalation of carbonic acid by frogs, 1884, A., 91.
- Aubert, Louis**, and **Victor Giraud**, manufacture of cane sugar from starch, 1885, A., 1274.
- Aubert, Pierre**. See **Raphael Lépine**.
- Aubin, C.** See **Carl Graebe**.
- Aubin, Emile**, estimation of phosphoric acid in superphosphates, 1884, A., 1124.  
 — — — estimation of phosphoric acid, 1885, A., 1093.  
 — — — separation and estimation of lead, silver, and zinc in galena and blende, 1892, A., 1878.
- Aubin, Emile**, and **Lucien Alla**, estimation of nitrogen by Kjeldahl's method, 1889, A., 648, 925.
- Aubin, Emile**, and **Jules Quenot**, estimation of the total nitrogen in manures, 1890, A., 921.
- Aubin, Emile**. See also **Achille Müntz**.
- Audoynaud, A.**, adulteration of olive oil, 1886, A., 182.  
 — — — rapid fermentation of grape juice, 1888, A., 989.
- Audoynaud, A.**, and **Ed. Zacharewicz**, farmyard manure, 1885, A., 884, 1200.
- Auer, Henrik**, ethylphenol, 1884, A., 1002.

- Auer von Welsbach, Carl**, gadolinite from Ytterby, 1884, A., 717.  
 — the rare earths, 1885, A., 350.  
 — separation of didymium into its elements, 1885, A., 1113.
- Aufschläger, Heinrich**, formation of zinc cyanide on heating nitrogenous organic substances with zinc dust, 1892, A., 1164.
- Augé, E.**, sodium alun, 1890, A., 1059.
- Anger, Victor**, action of cenanthaldehyde and heptyl chloride on dimethylaniline, 1887, A., 814.  
 — chlorides of bibasic acids, 1888, A., 952.
- Anger, Victor**, and **Augusto Béhal**, preparation of acetic chloride and of chloroacetic acid, 1890, A., 234.
- Anger, Victor**. See also **Auguste Béhal**.
- Aulich, Paul**, relation between affinity and partition coefficients in immiscible solvents, 1891, A., 1148.
- Auriol, G. A. Henry**, and **Denis Monnier**, estimation of casein, 1890, A., 312.
- Austen**. See **Roberts-Austen**.
- Austen, Peter Townsend**, preparation of stannic oxide from sodium stannate, 1883, A., 425.  
 — analysis of stannate of soda, 1884, A., 498.  
 — lecture experiments with nitric acid, 1889, A., 672.  
 — hypochlorous acid in alkaline solution, 1889, A., 672.  
 — diamidophenyl thiocyanate, 1889, A., 700.  
 — lecture experiments with hydrogen iodide, 1889, A., 754.
- Austen, Peter Townsend**, and **J. Chester Chamberlain**, ammonium ferrous sulphate as a reagent for nitric acid, 1884, A., 493.
- Austen, Peter Townsend**, and **George B. Hurff**, reduction of ferric salts, 1883, A., 511; 1885, A., 512.
- Austen, Peter Townsend**, and **Franklin S. Smith**, dinitrophenyl thiocyanate, 1886, A., 693.
- Austen, Peter Townsend**, and **Francis A. Wilber**, purification of ammonium fluoride, 1884, A., 492.  
 — purification of drinking-water by alum, 1885, A., 936.
- Autenrieth, Wilhelm**, dimethylene-disulphone-derivatives, 1887, A., 463.  
 — substituted crotonic acids, 1887, A., 797.  
 — mixed acid anhydrides, 1888, A., 250.  
 — thio-derivatives of the crotonic acids, 1890, A., 361.
- Autenrieth, Wilhelm**,  $\beta$ -chlorocrotonic acids, 1891, A., 170.  
 — benzenesulphinic acid and ethylsulphinic acid, 1891, A., 203.  
 — sulphone-derivatives of the crotonic acids, 1891, A., 203.  
 — sulphur-derivatives of ethyl acetoacetate, ethyl methylacetoacetate, and ethyl ethylacetoacetate, 1891, A., 204.  
 — derivatives of acetal and acetone, 1891, A., 540.  
 — substituted sulphones, 1891, A., 567.  
 — certain sulphone derivatives and their hydrolysis in alkaline solution, 1891, A., 1067.
- Autenrieth, Wilhelm**, and **Oscar Hinsberg**, phenacetin: methoxy-*o*-phenylenediamine, 1892, A., 160.  
 — derivatives of *o*-tolylenediamine, 1892, A., 709.  
 — hydroxyquinoxalines and ethoxyquinoxalines, 1892, A., 732.
- Auwers, Karl**,  $\psi$ -cumenol, 1885, A., 380.  
 —  $\psi$ -cumenol and  $\psi$ -cumidine, 1886, A., 143.  
 — application of Raoult's method for determining molecular weights, 1888, A., 408.  
 — preparation of oximes, 1889, A., 689.  
 — *p*-tolyl phenyl ketoxime, 1890, A., 503.  
 — synthesis of alkyltricarballic acids and other polycarboxylic fatty acids, 1891, A., 516.  
 — hydrobenzoins and their anhydrides, 1891, A., 1069.
- Auwers, Karl**, and **Reinhard Bernhardt**, determination of the structure of fatty acids by bromination, 1891, A., 1189.
- Auwers, Karl**, and **Max Dittrich**, structure of the oximido-group in the isomeric benzilmonoximes, 1889, A., 1192.
- Auwers, Karl**, and **John Addyman Gardner**, tetramethylsuccinic acid, 1891, A., 290.
- Auwers, Karl**, and **August Imhäuser**, bromination of succinic acid and its alkyl derivatives, 1891, A., 1191.
- Auwers, Karl**, and **Louis L. Jackson**, determination of the structure of aliphatic acids, 1890, A., 1098.
- Auwers, Karl**, and **Eduard Köbner**, dimethylglutaric acid and trimethylsuccinic acid, 1891, A., 1015.
- Auwers, Karl**, and **Friedrich von Meyenburg**, synthesis of isindazole derivatives, 1891, A., 1375.

- Auwers, Karl**, and **Victor Meyer**, investigation of the second van't Hoff hypothesis, 1888, A., 597.
- **Raoult's** method for the determination of molecular weights, 1888, A., 646.
- action of heat on benzildihydrazone, 1889, A., 51.
- isomerism of the benzildioximes, 1889, A., 403.
- isomerism of the oximido-compounds, 1889, A., 609.
- two isomeric benzilmonoximes, 1889, A., 611.
- the third benzildioxime, 1889, A., 713.
- tetraphenylsuccinonitrile, 1889, A., 883.
- tetramethylsuccinic acid, 1889, A., 1145.
- oximes of phenanthraquinone, 1889, A., 1201.
- dicarboxylic acids,  $C_{12}H_{10}O_4$ , 1890, A., 132.
- anhydride formation in acids of the succinic series, 1890, A., 179.
- tetramethylsuccinic acid and trimethylglutaric acid, 1890, A., 479.
- stereochemistry of ethane derivatives, 1890, A., 1083.
- oximes of halogen benzophenones, 1890, A., 1144.
- isomeric oximes of  $\alpha$ -ketones and the configuration of hydroxylamine, 1890, A., 1263.
- **Claus's** theory of the benziloximes, 1892, A., 186.
- stereoisomeric nitrogen compounds other than oximes, 1892, A., 598.
- Auwers, Karl**, and **Moritz Siegfeld**, benziloximes, 1892, A., 1470.
- Auwers, Karl**, **Eduard Köbner**, and **Friedrich von Meyenburg**, synthesis of polybasic fatty acids, 1892, A., 41.
- Avenarius, Curt**, conversion of alkylthiosinannines and alkylallylsomithiocarbazides into isomeric bases, 1891, A., 548.
- Avène, (Baron d')**, continuous cultivation with artificial manures, 1884, A., 490.
- Axenfeld, Davide**, an albumin reaction, 1886, A., 183.
- pyrogallol as a test for hemialbumose, 1887, A., 1127.
- Aymonnet**, relation between the index of refraction, density, molecular weight, and diathermanous power of a substance, 1892, A., 1.

- Ayres, Edward H.**, borax in California, 1881, A., 260.
- Ayrton, William Edward**, and **John Perry**, seat of the electromotive force in a voltaic cell, 1886, A., 750.
- expansion of mercury between  $0^\circ$  and  $-39^\circ$ , 1887, A., 317.
- expansion produced by amalgamation, 1887, A., 327.
- alternate current electrolysis, 1838, A., 1006.

## B.

- "**B., E.**," titration of soda in presence of aluminium, vanadium, and tungsten, 1886, A., 650.
- estimation of alumina in aluminates, 1886, A., 651.
- tannin estimation, 1887, A., 311.
- Baas, Hermann Karl Ludw.**, relation of tyrosine to hippuric acid, 1887, A., 1133.
- decomposition of ethereal salts in the alimentary canal, 1890, A., 1013.
- Babánek, Franz**, the fahleiz of Pyribam, 1886, A., 514.
- Babbitt, H. C.**, manganese in steel and iron, 1887, A., 619.
- Babcock, S. Moulton**, method for the estimation of fat in milk, 1891, A., 509.
- Babés, A.**, colouring matters and aromatic products from the *Bacillus pyrocyanus*, 1890, A., 189.
- Babington, P. W.**, analysis of sugar, wine, molasses, and syrup, 1892, A., 388.
- Babo, A. W.**, (*Freiherr von*), use of milch cows for labour, 1884, A., 1396.
- Bach, Carl**, benzyloxanthranol, 1890, A., 1144, 1425.
- Bach, Eugen.** See **Rudolf Leuckart**.
- Bach, Robert**, thermochemistry of hydrazine: molecular refraction of some nitrogen compounds, 1892, A., 933.
- Bachér, P.**,  $\beta$ -picoline, 1888, A., 498.
- methylstilbazole and its reduction products, 1889, A., 162.
- Bachman, Irvin Argus**, freezing mixture, 1888, A., 643.
- oxidation of solutions of sulphurous anhydride and sulphites, 1888, A., 649.
- arsenic nitride, 1888, A., 650.
- nickeliferous talc, 1888, A., 661.
- Bachmann, Albert**, aldehydethyl chloride, and behaviour of acetal to alcohols at a high temperature, 1888, A., 726.

- Bachmann, E.**, emodin in *Nephroma lusitanica*, 1888, A., 722.
- Bachmetieff, P.**, magnetism and atomic weight, 1892, A., 672.
- Bachmeyer, Wilhelm**, test for organic acids in phenol, 1883, A., 385.
- test for sodium carbonate in milk, 1883, A., 385.
- analysis of potable water, 1884, A., 1431.
- Bader, Richard**, affinity constants of organic acids, 1891, A., 257.
- s-trisubstitution derivatives of benzene, 1891, A., 1030.
- alkalimetric estimation of phenol, 1892, A., 543.
- Badl, Victor**. See *Heinrich Goldschmidt*.
- Bäckström, Helge**, place of langbanite in the mineral system, 1891, A., 1436.
- Bäckström, Helge**, and *Gunnar Pajkull*, volume and carbon contents of the gas evolved during the solution of iron in acids, 1888, A., 420.
- Bäckström, Helge**. See also *Woldemar Christofer Brögger*.
- Baelde, Albéric**, and *Hubert Lavrand*, biliary acids in urine during jaundice, 1889, A., 637.
- Baerwald, Carl**, thenardite from Aguas Blancas, 1883, A., 434.
- analysis of a pyromorphite from Zähringen in Baden, 1883, A., 1063.
- analysis of crocoisite, 1883, A., 1063.
- action of hydrogen peroxide on molybdates, 1884, A., 965.
- molybdenum derivatives, 1886, A., 17.
- Baerwald, Carl**. See also *Andreas Arzruni*.
- Baessler, Arthur**, derivatives of dimethylquinol, 1884, A., 1329.
- quinol and its derivatives, 1887, A., 364.
- Baessler, P.**, assimilation of asparagine by plants, 1886, A., 1061.
- comparative experiments with oats manured with basic slag on moorlands, 1888, A., 189.
- best time for ploughing in yellow lupines, 1888, A., 191.
- estimation of the oil and water in linseed cake, 1889, A., 321.
- comparative manurial value of the nitrogen in sodium nitrate and ammonium phosphate, 1889, A., 436.
- estimation of fat in poppy cake, 1890, A., 306.
- yields and composition of a variety of red clover, 1890, A., 1183.
- Baeyer, Adolf von**, benzoylacetic acid, 1883, A., 336.
- nitroso-oxindole and nitroso-indoxyl, 1883, A., 1131.
- compounds of the indigo group, 1881, A., 73.
- chemical nomenclature, 1881, A., 998.
- derivatives of o-amidoacetophenone, 1884, A., 1021.
- polyacetylene compounds, 1885, A., 759, 1198.
- synthesis of ethyl acetoacetate and of phloroglucinol, 1886, A., 223.
- trioxime of phloroglucinol, 1886, A., 350.
- ethyl succinosuccinate, 1886, A., 445.
- polymerisation of propargylic acid, 1886, A., 1009.
- melting-point of phloroglucinol, 1886, A., 1020.
- condensation product of pyrroline with acetone, 1886, A., 1043.
- constitution of benzene, 1887, A., 362; 1888, A., 1069; 1889, A., 1176; 1890, A., 1275; 1892, A., 1211.
- reduction of the phthalic acids, 1887, A., 370.
- constitution of benzene: reduction products of terephthalic acid, 1888, A., 1069; 1889, A., 1176.
- hydrophthalic acids, 1888, A., 1090.
- constitution of benzene: reduction products of phthalic acid, 1890, A., 1275; 1892, A., 1211.
- relationship between ethyl succinosuccinate and phloroglucinol, 1891, A., 1485.
- quinitol, the simplest sugar of the inositol group, 1892, A., 833.
- synthesis of dihydrobenzene, 1892, A., 1074.
- synthesis of dihydro-*p*-xylene, 1892, A., 1182.
- Baeyer, Adolf von**, and *Paul Becker*, *p*-nitrobenzaldehyde and acetone, 1883, A., 1120.
- Baeyer, Adolf von**, and *Friedrich Bloem*, o-amidophenylpropionic acid and its derivatives, 1883, A., 196.
- formation of indigo from o-amidoacetophenone, 1884, A., 1026.
- Baeyer, Adolf von**, and *Gustav von Brünig*, constitution of the phenylhydrazine derivatives of ethyl succinosuccinate, 1891, A., 1486.
- Baeyer, Adolf von**, and *William James Comstock*, oxindole and isatoxime, 1883, A., 1130.

- Baeyer, Adolf von, and Viggo Deutner Drewsen**, preparation of indigo-blue from *o*-nitrobenzaldehyde, 1883, A., 341.
- action of *o*-nitrobenzaldehyde on aldehyde, 1884, A., 58.
- Baeyer, Adolf von, and Paul Fritsch**, *o*-hydroxyphenylacetic acid and its derivatives, 1884, A., 1021.
- Baeyer, Adolf von, and Benno Homolka**, quinisatin, 1884, A., 78, 1029.
- Baeyer, Adolf von, and Ernst Kochendorfer**, catecholphtalein, 1889, A., 1153.
- action of phenylhydrazine on phloroglucinol and resorcinol, 1889, A., 1162.
- Baeyer, Adolf von, and Maurice Julius Lazarus**, condensation products of isatin, 1886, A., 151.
- Baeyer, Adolf von, and Richard Löhr**, *p*-amidotriphenylcarbinol, 1890, A., 1141.
- Baeyer, Adolf von, and William Albert Noyes**, succinosuccinic acid, 1889, A., 1147.
- Baeyer, Adolf von, and Spiridon Economidis**, isatin, 1883, A., 201.
- Baeyer, Adolf von, and Carl Fape**, derivatives of *o*-xylene, 1884, A., 898.
- Baeyer, Adolf von, and William Henry Perkin, junior**, benzoylacetic acids, 1884, A., 63, 838.
- derivatives of hydrindonaphthene, 1884, A., 752.
- synthesis of naphthalene derivatives, 1884, A., 907.
- Baeyer, Adolf von, and Hans Rupe**, reduction products of dichloromucic acid, 1890, A., 875.
- Baeyer, Adolf von, and Friedrich Tutsin**, reduction products of hydroxyterephthalic acid, 1889, A., 1180.
- Baeyer, Adolf von, Rudolf Jay, and O. R. Jackson**, phenylhydrazine derivatives of ethylic succinosuccinate, 1891, A., 1486.
- Baeyer, Adolf von, Robert Schoder, and Eduard Rudolf Besemfelder**, hydro-naphthoic acids, 1892, A., 191.
- Bagard, Henri**, thermoelectric phenomena at the contact of two electrolytes, 1892, A., 1037.
- Baginsky, Adolf**, occurrence of xanthine, guanine, and hypoxanthine, 1885, A., 286.
- use of milk preserved by high temperatures for children's food, 1885, A., 679.
- bacteria of normal milk faeces, 1888, A., 865.
- Bahlmann, P.**, amido-compounds in the animal system, 1887, A., 512.
- Bahrman, Robert**, amarine and furfurine, 1883, A., 799.
- Bailey, E.**, dried alum, 1883, A., 1053.
- Bailey, Edgar Henry Summerfield**, halotrichite from Colorado, 1891, A., 993.
- the Tonganoxie meteorite, 1892, A., 284.
- Bailey, George Herbert**, on some vanadates of the amines, 1884, T., 690.
- separation and estimation of zirconium, 1886, T., 119, 481; P., 138, 205.
- analysis of koppite, 1886, T., 153; P., 138; discussion, P., 138.
- apparatus for the determination of the temperature of the decomposition of salts, 1886, P., 205.
- determination of atomic weights by means of the normal sulphate, 1887, T., 676.
- temperatures at which various sulphates undergo decomposition, 1887, P., 100.
- interpenetration of absorption spectra, 1887, P., 141.
- silver suboxide, 1887, A., 771.
- absorption spectra of the rare earths, 1888, A., 1.
- lead aluminium sulphate, 1888, A., 110.
- components of rare earths yielding absorption spectra, 1888, A., 208.
- estimation and occurrence of sulphur in coal, 1890, A., 414.
- atomic weight of zirconium, 1890, A., 705.
- Bailey, George Herbert, and John Connell Cain**, simple and rapid method of gravimetric analysis, 1892, A., 524.
- Bailey, George Herbert, and Gilbert John Fowler**, silver suboxide, 1887, T., 416; P., 54; discussion, P., 54.
- some reactions of the halogen acids, 1888, T., 755; P., 79.
- Bailey, George Herbert, and William Bercey Hopkins**, behaviour of the more stable oxides at high temperatures: copper oxide, 1890, T., 269; P., 19.
- Bailey, George Herbert, and Thornton Charles Lamb**, the atomic weight of palladium, 1892, T., 745; P., 138.
- Bailey, Henry**, alloy of tin and sodium, 1892, A., 572.
- Bailey, S. O. H.**, ærolite from Rensselaer Co., New York, 1888, A., 121.
- Bailhache**, estimation of nitric nitrogen by ferrous sulphate, 1889, A., 925.

- Bailhache and Commelin**, specific gravity apparatus, 1890, A., 206.
- Baille, J. B.**, and **C. Féry**, aluminium amalgam, 1890, A., 110.
- Baither, Otto**, tetramethyldiamidobenzophenone, 1887, A., 816.
- tetramethyldiamidothiobenzophenone, 1888, A., 289.
- Baker, Charles John**, absorption of gases by carbon, 1887, T., 249; P., 7; discussion, P., 8.
- Baker, Harry**, *o*-vanadates of sodium, etc., 1885, T. 353; P., 47; discussion, P., 48.
- Baker, H. Brereton**, direct union of nitrogen and hydrogen, 1884, A., 152.
- combustion in dried gases, 1885, T., 349; P., 37; discussion, P., 38.
- combustion in dried oxygen, 1889, A., 465.
- action of light on silver chloride, 1892, T., 728; P., 120.
- Baker, Julian L.** See **Arthur R. Ling**.
- Baker, Robert Walker**, beryl from Amelia Co., Virginia, 1886, A., 127.
- Baker, T.** See **Alexander Kenneth Miller**.
- Bakker, H. P.**, tengkawang fat or vegetable tallow, 1885, A., 710.
- Balbani, E. G.** (and others), suggestions for the destruction of phylloxera, 1884, A., 920.
- Balbiano, Luigi**, dry distillation of sodium dibromanilate, 1883, A., 1125.
- constitution of dibromanilic acid, 1884, A., 1172.
- some fluorine compounds of copper, 1884, A., 1264.
- derivatives of bromanilic acid, 1885, A., 580.
- camphorphenylhydrazine, 1886, A., 72.
- derivatives of camphor, 1886, A., 808; 1887, A., 842, 1049, 1115.
- derivatives of pyrazole, 1887, A., 1054.
- basic cupric chromate, 1888, A., 1249.
- trimethylenephenylenimine, 1889, A., 252.
- monosubstituted derivatives of pyrazole, 1889, A., 1215.
- brominated derivatives of 1-phenylpyrazole, 1890, A., 797.
- action of acid chlorides on 1-phenylpyrazole, 1890, A., 798.
- two pyrazolebenzoic acids, 1890, A., 799.
- synthesis of pyrazole, 1890, A., 1009.
- Balbiano, Luigi**, derivatives of 1-phenylpyrazole, 1890, A., 1164.
- the pyrazole group: derivatives of trimethylenephenyldiamine, 1890, A., 1244.
- platinum compounds derived from the pyrazoles, 1892, A., 885.
- Baldi, Dario**, jecorin in the organism, 1888, A., 1813.
- Baldracco, Giacomo**. See **Giorgio Errera**.
- Balestra, E.**, mercuriammonium compounds, 1892, A., 276.
- Balfour, John Mackintosh**. See **Diarmaid Noël-Paton**.
- Ball, Edwin Jennings**, alloys of copper and antimony, and of copper and tin, 1887, P., 136; discussion, P., 137; 1888, T., 167.
- Ball, Everett Meachum**. See **Wichur Olin Atwater**.
- Balland**, alteration of flour, 1884, A., 236, 532.
- Indian wheat, 1884, A., 355.
- analyses of flour, 1884, A., 374.
- analyses of the wines of the Médéah, 1884, A., 1086.
- germinated wheat, 1884, A., 1087.
- alkaloids in old flour, 1886, A., 164.
- action of sulphurous anhydride on flour, 1891, A., 95.
- aluminium, 1892, A., 1281.
- Ballantyne, Horatio**. See **Robert T. Thomson**.
- Ballario, F.**, and **C. A. Revelli**, estimation of the principal constituents of cows' milk, 1890, A., 1472.
- Balli, B.**, estimation of cream of tartar in wine lees, 1892, A., 1033.
- Ballé, M.**, carbonic hydrate, 1883, A., 574.
- platinized magnesium as a reducing agent, 1883, A., 1053.
- chemistry of plants, 1884, A., 765.
- composition of Borhagyer water, 1884, A., 978.
- estimation of carbonic anhydride in air, 1884, A., 1076.
- reduction of tartaric acid, 1889, A., 693.
- Bally, Oscar**, phenylated piperidine and pyridine bases, 1888, A., 65.
- ethyl phloroglucinolitaicarboxylate, 1888, A., 955.
- action of chlorine on pyridine, piperidine, and their derivatives, 1888, A., 964.
- Balmer, J. J.**, spectrum lines of hydrogen, 1885, A., 1025.
- Balsohn, Max**. See **Charles Friedel**.

- Baltzer, Otto, and Hans (Freiherr) von Pechmann**, homologues of *n*-phenylosotriazole, 1891, A., 1115.  
 ——— osotriazole, 1891, A., 1116.  
**Baltzer, Otto.** See also *Hans (Freiherr) von Pechmann*.  
**Bamberger, Eugen**, formation of phenylxanthamide, 1883, A., 185.  
 ——— Bechi's so-called picranalcrime from Monte Catini mine, Monte Caporciano, 1883, A., 438.  
 ——— dicyanodiamide, 1883, A., 907, 1090.  
 ——— melanuric acid, 1883, A., 1086.  
 ——— triamidophenol, 1884, A., 309.  
 ——— retene, 1884, A., 1040; 1885, A., 549.  
 ——— mixed azo-compounds, 1885, A., 157.  
 ——— colour reactions of *o*-diketones, 1885, A., 807.  
 ——— behaviour of anisols at high temperatures, 1886, A., 872.  
 ——— reaction of potassium cyanide with *o*-nitrobenzylic chloride, 1887, A., 131.  
 ——— sparteine, 1887, A., 162.  
 ——— synthesis of guanylcarbamide, 1887, A., 357.  
 ——— hydro-derivatives of aromatic bases, 1888, A., 159.  
 ——— quinoline, 1888, A., 301.  
 ——— camphor bases, 1888, A., 721.  
 ——— reduction of quinoline-derivatives, 1889, A., 518.  
 ——— fichtelite, 1889, A., 711.  
 ——— relations between the chemical properties and constitution of hydrogenised bases, 1889, A., 717.  
 ——— decomposition of *α*-1:4'-tetrahydronaphthylenediamine into its optically active components, 1890, A., 511.  
 ——— camphoric acid, 1890, A., 517.  
 ——— synthesis of ammeline and cyanuric acid, 1890, A., 1082.  
 ——— contributions to the theory of the six-membered "rings," 1890, A., 1299.  
 ——— piperylbiquanide, 1891, A., 735.  
 ——— 1:4:6-trimethyl-*p*-phenylenediamine, 1891, A., 1032.  
 ——— constitution of rings containing five atoms, 1891, A., 1090.  
 ——— alicyclic homology, 1891, A., 1097.  
 ——— reduction of tricyclic systems, 1891, A., 1258.  
 ——— *s*-bisphenylhydrazone of mesoxaldehyde, 1892, A., 162.  
**Bamberger, Eugen, and John Leigh Hoskyns Abrahall**, 1:4'-tetrahydronaphthylenediamine, 1889, A., 782.  
**Bamberger, Eugen, and Max Althausse**,  $\alpha$ -tetrahydronaphthylamine, 1888, A., 959.  
**Bamberger, Eugen, and Johannes Bammann**, 1:4'-tetrahydronaphthylendiamine and  $\alpha$ -tetrahydronaphthylamine, 1889, A., 782.  
**Bamberger, Eugen, and Bernhard Berlé**, benzimidazoles, 1892, A., 632.  
**Bamberger, Eugen, and Otto Boeckmann**,  $\beta$ -naphthyl derivatives, 1887, A., 675.  
 ——— action of sodium on alcoholic  $\beta$ -naphthonitrile, 1887, A., 840.  
**Bamberger, Eugen, and Fritz Bordt**,  $\alpha$ -tetrahydronaphthylamine, 1889, A., 715, 782.  
 ——— *α*-tetrahydro- $\alpha$ -naphthol, 1890, A., 508.  
**Bamberger, Eugen, and Carl Burgdorf**, anidochrysene, 1890, A., 902.  
 ——— chrysene, 1890, A., 1812.  
**Bamberger, Eugen, and Albert Calman**, mixed azo-compounds, 1886, A., 62.  
**Bamberger, Eugen, and Walter Dieckmann**, synthesis of guanamine, 1892, A., 736.  
 ——— biguanide, 1892, A., 737.  
**Bamberger, Eugen, and Wilhelm Fiehne**, relations between the physiological properties and constitution of hydrogenised bases, 1889, A., 737.  
**Bamberger, Eugen, and Carl Goldschmidt**, ethyl- $\alpha$ -naphthylamine, 1891, A., 1238.  
**Bamberger, Eugen, and Hermann Helwig**, reduction of secondary and tertiary alkyl- $\alpha$ -naphthylamines, 1889, A., 891.  
 ——— hydronaphthabenzylamines, 1889, A., 1198.  
**Bamberger, Eugen, and Samuel C. Hooker**, retene, 1885, A., 905.  
 ——— constitution of retene, 1885, A., 1070.  
**Bamberger, Eugen, and Max Kitchelt**,  $\alpha$ -tetrahydro- $\beta$ -naphthol, 1890, A., 627.  
 ——— *α*- and *α*-tetrahydro- $\beta$ -naphthylamine, 1890, A., 631.  
 ——— reduction of naphthalene and anthracene, 1890, A., 1146.  
 ——— action of hypochlorous acid on  $\beta$ -naphthaquinone, 1892, A., 494, 857.  
 ——— preparation of isoquinoline from naphthalene, 1892, A., 882.  
**Bamberger, Eugen, and Jacob Kranzfeld**, chrysene, 1885, A., 1069.  
**Bamberger, Eugen, and Felix Lengfeld**, characteristics of the hydrogenation process, 1890, A., 1304.

- Bamberger, Eugen, and Felix Lengfeld**, reduction products of quinoline, 1890, A., 1318.
- Bamberger, Eugen, and Wilhelm Lodter**, aromatic nitriles, 1887, A., 719.
- hydrogenation of aromatic hydrocarbons, 1888, A., 292.
- $\alpha$ -naphthaldehyde, 1888, A., 375.
- reduction of the thiamides of aromatic acids, 1888, A., 376.
- characteristics of partly hydrogenised aromatic substances, 1888, A., 604.
- *ac*-tetrahydro- $\beta$ -naphthol and secondary closed chain alcohols, 1890, A., 506.
- action of carbon bisulphide on menthol and borneol, 1890, A., 517.
- a closed chain analogue of ethylene, 1891, A., 1072.
- Bamberger, Eugen, and Julius Lorenzen**, benzimidazoles, 1892, A., 631.
- Bamberger, Eugen, and Rudolf Müller**, so-called carbonylcarbazole ("carbazole blue"), 1887, A., 959.
- $\beta$ -tetrahydronaphthylamine, 1888, A., 599, 712.
- phthalimide, 1888, A., 950.
- reduction of alkyl- $\beta$ -naphthylamines, 1889, A., 888.
- tetrahydro-derivatives of  $\beta$ -naphthaquinoline and  $\beta$ -naphthaquinoline, 1891, A., 1510.
- octahydro-derivatives of  $\beta$ -naphthaquinoline, 1891, A., 1511.
- Bamberger, Eugen, and Max Philip**, pyrene, 1886, A., 718, 948; 1887, A., 271, 496.
- acenaphthene and naphthalic acid, 1887, A., 495.
- Bamberger, Eugen, and William Say Schieffelin**, hydrogenation of 1:2- and 1:4-naphthylenediamine: preparation of 2:2'-naphthylenediamine, 1889, A., 892.
- Bamberger, Eugen, and Ludwig Seeburger**, dicyanodiamide, 1891, A., 838.
- synthesis of closed chains, 1892, A., 735.
- Bamberger, Eugen, and Ludwig Stettenheimer**, tetrahydro- $\alpha$ -naphthaquinoline, 1891, A., 1258.
- "aromatic" octahydro- $\alpha$ -naphthaquinoline, 1891, A., 1260.
- Bamberger, Eugen, and Ludwig Strasser**, fichtelite, 1890, A., 384.
- octahydro-derivatives of  $\beta$ -naphthaquinoline, 1891, A., 1513.
- Bamberger, Eugen, and Sidney Williamson**, hydrogenation of  $\beta$ -diethylnaphthylamine, 1889, A., 1000.
- Bamberger, Eugen, and Paul Wulz**, methyl-*p*-toluidine, 1891, A., 1202.
- homologues of tetrahydroquinoline, 1891, A., 1253.
- tetrahydro-1-amidoquinoline, 1891, A., 1256.
- action of diazobenzene chloride on acetone, 1891, A., 1449.
- Bamberger, Eugen, Bernhard Berlé, and Ludwig Strasser**, behaviour of carvacrol towards reducing agents, 1892, A., 157.
- Bamberger, Max**, analysis of resins and balsams, 1890, A., 1032.
- natural resins, 1892, A., 204.
- Bamberger, Max**. See also *Rudolf Benedikt, Hugo Weidel*.
- Bammann, Johannes**. See *Eugen Bamberger*.
- Bancroft, William Dwight**. See *Charles Loring Jackson*.
- Bandrowski, Ernst von**, acetylenedicarboxylic acid, 1883, A., 313.
- propargylic acid, 1883, A., 314.
- action of dibasic organic acids on hydrazobenzene, 1884, A., 1015.
- oxidation of diphenylamine, 1886, A., 1023.
- diphenyl-*p*-azophenylene, 1888, A., 269.
- dinitrobenzidine, 1888, A., 286.
- derivatives of *p*-phenolphenyamine, 1888, A., 943.
- action of aniline on quinonephenylimide and diphenyl-*p*-azophenylene, 1888, A., 1081.
- oxidation of *p*-phenylenediamine and of *p*-amidophenol, 1889, A., 973.
- Bandrowski, Franz Xaver**, bases in Galician petroleum, 1887, A., 979.
- action of primary aromatic amines on benzil, 1889, A., 117.
- Bandrowski, Franz Xaver**. See also *Bronislaw Lachowicz*.
- Bankiewicz, Zygm.**, reduction products of *m*-dinitro-*p*-acetotoluidide, 1888, A., 1184.
- reduction products of *m*-nitro-*p*-acetotoluidide, 1889, A., 865.
- Bannow, A.**, pure butyric acid, 1887, A., 29.
- Barabini, E.** See *Giuseppe Oddo*.
- Barataeff, Sergius**, methoxydiallylactic acid, 1887, A., 359.
- action of allylic and ethylic iodides on ethylic oxalate, 1887, A., 361.
- Barataeff, Sergius, and Alexander M. Saytzeff**, triethylcarbinol, 1887, A., 353.

- Baratta, Norbert (Freiherr) von**, cultivation of *Sorghum halepense*, 1881, A., 921.
- Barba, W. P.**, use of asbestos in filtration, 1892, A., 751.
- Barbaglia, Giovanni Angelo**, alkaloids of *Buzus sempervirens*, 1881, A., 188.
- thiovaleraldehyde, 1885, A., 136.
- parabuxinidine, a fourth alkaloid from *Buzus sempervirens*, 1885, A., 177.
- isobutaldehyde and its polymerides, 1887, A., 461.
- action of sulphur on aldehydes, 1887, A., 462.
- action of sulphur on *p*-isobutaldehyde, 1889, A., 120.
- Barbaglia, Giovanni Angelo**, and **Albert Marquardt**, action of sulphur on benzaldehyde, 1891, A., 1049.
- Barbier, Emile**, relation between the ordinary thermometer and the weight thermometer, 1885, A., 111.
- Barbier, Philipp**, liquid terebenthene hydrochlorides, 1883, A., 809.
- phthalimidine and methylphthalimidine, 1889, A., 253.
- puleone, an isomeride of camphor, 1892, A., 627.
- essential oil of *Licari kantii*, 1892, A., 1236.
- Barbier, Philippe**, and **Jean Hilt**, australene, 1889, A., 616.
- Barbier, Philippe**, and **Léon Roux**, action of heat on ketones, 1886, A., 865.
- — — dispersion in organic compounds, 1889, A., 805; 1890, A., 1353.
- — — dispersive power of aqueous solutions, 1890, A., 673.
- — — dispersive power of carbon compounds: alcohols of the fatty series, 1890, A., 1034.
- — — dispersive power of acids of the acetic series, 1890, A., 1353.
- — — dispersion of organic compounds: ethereal salts, 1891, A., 774.
- Barbier, Philippe**, and **Leo Vignon**, formation of substituted safranines, 1888, A., 54, 141.
- — — phenosafranine, 1888, A., 688.
- Barbieri, Johann**. See **Ernst Schulze**.
- Barbieri, Riccardo de**. See **François Sachs**.
- Bardach, Bruno**. See **Heinrich Goldschmidt**.
- Bardet, G.** See **Dujardin Beaumetz**.
- Bardwell, Fred. L.**, action of isobutyric acid on aniline, 1886, A., 52.
- Bardy, Charles**, detection of higher alcohols in spirits of wine, 1892, A., 1379.
- Baret**, chlorophyllite from Loquidy, near Nantes, 1883, A., 113.
- Barff** (and others), preservation of milk, etc., 1883, A., 253.
- Barfoed, Christen Thomsen**, action of sodium hydroxide on mercurous salts, 1889, A., 316.
- action of ammonia on mercurous salts, 1889, A., 675.
- Barge, R.** See **Constantin Fahlberg**.
- Bargioni, Guido**, and **Hugo Schiff**, anhydrides of cresotic acid, 1888, A., 838.
- Barillé, A.**, thermo-mineral waters of Hamman el Lif, Tunis, 1886, A., 322.
- Barillot, Ernest**. See **Paul L. Chatting**.
- Baringer, W.**,  $\psi$ -selenocarbamides, 1890, A., 880.
- Barker, George F.**, secondary batteries, 1883, A., 765.
- Barker, George F.** (and others), report on glucose, 1885, A., 206.
- Barlow, John James**, estimation of manganese and iron by means of hydrogen peroxide, 1886, A., 393.
- modified Soxhlet's apparatus, 1888, A., 537.
- Barlow, William Henry**, mechanical properties of aluminium, 1883, A., 421.
- Barner, F.**, crystallographic examination of  $\alpha$ - $\beta$ -dinitro-*p*-xylene and of dinitro-*p*-xylene (m.p. 93°), 1883, A., 179.
- Barnes, Joseph**, separation of metals precipitated by hydrochloric acid, 1885, A., 597.
- titanio acid as a mordant, 1886, A., 292.
- valuation of zinc powder, and testing of carbonates, 1887, A., 80.
- Barnes, J. B.**, separation of chlorine, bromine, and iodine, 1883, A., 1167.
- Barnstein, Ferd.**, isobutenyltricarboxylic acid and *as*-dimethylsuccinic acid, 1888, A., 135.
- Barnum, Morrill Wright**. See **Spencer Baird Newbury**.
- Barr, Andrew**, behaviour of aromatic carbamides at high temperatures, 1886, A., 876.
- nitrophenols and phenylhydrazine, 1887, A., 722.
- preparation of nitramines from nitrophenols, 1888, A., 822.
- Barral, Etienne**. See **Raphaël Lépine**.

- Barral, J. A.**, salicylic acid in beer and wine, 1884, A., 778.
- Barré.** See *Léon Grimbart*.
- Barret, Edward Louis.** See *Charles Henry Wood*.
- Barrett, W. Fletcher**, new form of calorimeter, 1888, A., 103.
- Barrois, Ch.**, glaucophane schists of the island of Groix, 1884, A., 412.
- chloritoid from Morbihan, 1885, A., 1118.
- the pyroxenites of Morbihan, 1889, A., 109.
- Barrows, Arthur Edward, and Thomas Turner**, estimation of slag in wrought iron, 1892, T., 551; P., 122.
- Barsilowsky, Jacob N.**, oxidation of aromatic diamines, 1885, A., 525.
- reaction of benzaldehyde with azobenzene, 1886, A., 148.
- aniline dyes from aromatic diamines, 1888, A., 140.
- condensation of aldehydes with azo-compounds, 1892, A., 854.
- Barth, August**, rearing calves on skim milk, 1884, A., 852.
- Barth, Kurt**, complex salts of sulphurous acid, 1892, A., 564.
- Barth (von Barthenau), Ludwig (Ritter), and Josef Herzig**, constituents of *Herniaria*, 1889, A., 1003.
- Barth (von Barthenau), Ludwig (Ritter), and Hugo Weidel**, oxidation of morphine, 1884, A., 85.
- Barth (von Barthenau), Ludwig (Ritter), and Michael Kretschy**, picrotoxin, 1881, A., 846.
- Barth (von Barthenau), Ludwig (Ritter), and Josef Schreder**, fusion of orcinol and gallic acid with soda, 1883, A., 59.
- action of melting potassium hydroxide on benzoic acid, 1883, A., 468.
- hydroxyquinol, the third isomeric trihydroxybenzene, 1883, A., 987.
- substances formed by the fusion of quinol with soda, 1885, A., 520.
- Barth, Max**, specific influence of acetic acid on the fermentation of must, 1885, A., 942.
- abnormal fermentation under unfavourable circumstances, 1885, A., 942.
- estimation of glycerol in wines, 1887, A., 184.
- ensilage in the open air, 1888, A., 523.
- Barth, Max.** See also *Julius Nessler*.
- Barthe, L.**, strontium phosphate, 1892, A., 1156.
- Barthe, L., and Falières**, preparation of pure strontium salts, 1892, A., 1277.
- Barthe, Léonce**, methyl benzoylcyanacetate and cyanacetophenone, 1888, A., 951.
- synthesis by means of ethyl cyanosuccinate, 1889, A., 588.
- ethyl benzyleyanosuccinate, 1889, A., 708.
- methyl cyanosuccinate and cyanotricarballylate, 1891, A., 42.
- ethyl allylcyanosuccinate, 1891, A., 43.
- methyl methylecyanosuccinate: methyl methylolthényltricarboxylate, 1891, A., 1017.
- Barthe, Léonce.** See also *Albin Haller*.
- Barthel, Gustav**, Bunsen burner for spirit, 1892, A., 1386.
- Barthélemy, Aimé**, respiration of aquatic and submerged aëro-aquatic plants, 1883, A., 747.
- arsenic in wines free from artificial colouring matter, 1884, A., 526.
- infection of eggs by chicken cholera, 1884, A., 1398.
- Bartlett, James Monroe.** See *Whitman Howard Jordan*.
- Bartoli, Adolfo**, constitution of electrolytes, 1883, A., 540.
- electrical conductivity of carbon compounds, 1885, A., 624; 1886, A., 191.
- conductivity of cetyl alcohol, 1885, A., 855.
- relation between fusing and boiling points, 1885, A., 859.
- capillary constants of liquids and cohesion of solids, 1885, A., 866.
- impermeability of glass to gases, 1885, A., 869.
- electrical conductivity of mixtures of organic compounds, 1886, A., 191.
- Bartoli, Adolfo, and Giorgio Papisoglia**, electrolysis of water and of solutions of boric acid, 1883, A., 540.
- electrolysis of hydrofluoric acid and of potassium antimonate with carbon electrodes, 1883, A., 590.
- electrolysis with carbon electrodes of solutions of binary compounds and of various acids and salts, 1883, A., 592.
- electrolysis of glycerol with electrodes of carbon and platinum, 1884, A., 170.
- electrolysis of solutions of ammonia and ammoniacal salts with carbon electrodes, 1884, A., 176.

- Bartoli, Adolfo**, and *Giorgio Papasogli*, a new cell founded on the oxidation of carbon in the cold, 1881, A., 1239.
- oxidation of various forms of carbon, 1886, A., 202.
- products of the oxidation of carbon in the electrolysis of aqueous ammonia, 1886, A., 406.
- incomplete oxidation of mellogen, 1886, A., 469.
- electrolysis with carbon electrodes, 1889, A., 559.
- Bartoli, Adolfo**, and *Enrico Stracciati*, specific heat of mellite, 1884, A., 1244.
- Mendeléeff's formula for the expansion of liquids, 1885, A., 859.
- critical volumes of paraffins, 1885, A., 859.
- — physical properties of paraffins from Pennsylvania petroleum, 1886, A., 215.
- — relation between the critical temperatures of substances and their thermal expansion as liquids, 1887, A., 429.
- Bartolotti, Pietro**, essence of myrtle, 1891, A., 1384.
- action of phosphorus pentachloride on methylhydrocotton and methylprotocotton, 1892, A., 1314.
- derivatives of isoupiol, 1892, A., 1315.
- Bartoschewitsch, S. T.**, sulphates and ethereal hydrogen sulphates in urine during diarrhoea, 1892, A., 1505.
- Bartram, George H.**, estimation of nitrates by the phenolsulphonic acid method, 1891, A., 1136.
- Barus, Carl**, viscosity of gases at high temperatures, 1888, A., 1014.
- electrical relations of the alloys of platinum, 1889, A., 201.
- relation of volume, pressure, and temperature in the case of liquids, 1890, A., 321.
- pressure variations of certain high temperature boiling-points, 1891, A., 9.
- effect of pressure on the electrical conductivity of liquids, 1891, A., 250.
- compressibility of hot water and its solvent action on glass, 1891, A., 634.
- volume lag and its bearing on molecular constitution, 1892, A., 1043.
- Barus, Carl**, and *Eduard Adolph Schneider*, nature of colloidal solutions, 1891, A., 1412.
- Barus, Carl**. See also *Vincent Stronhal*.
- Bary, Paul**, refractive indices of saline liquids, 1892, A., 929.
- Basaroff, Alexander J.**, oxidation of sulphur in the air, 1883, A., 551.
- sulphuring vineyards, 1884, A., 629.
- the atomic weights of the elements, 1888, A., 406.
- Basler, Ad.**, condensation products of *p*-nitrobenzylic alcohol, 1884, A., 310.
- substituted aromatic  $\beta$ -lactones and derivatives of cinnamic acid, 1884, A., 603, 1172.
- Bassett, Henry**, reaction of tin with sulphuric and nitric acids, 1886, A., 599.
- preparation of trichloromethylsulphonic chloride, 1886, A., 1000.
- interaction of iodine, water, and potassium chlorate, 1890, T., 760: P., 113.
- eulyte and dyslyte (a correction), 1891, T., 978; P., 121.
- tabular expression of the periodic relations of the elements, 1892, A., 562.
- Bassett, Henry**, and *E. Fielding*, action of hypochlorous anhydride on iodine trichloride, 1887, A., 106.
- Basso, G.** See *Nichole Fileti*.
- Bastelaer, A. van**, analysis of butter, 1883, A., 246; 1884, A., 120.
- Battandier, J. A.**, glaucine, 1892, A., 893.
- Battut, L.**, estimation of sugars and glucoses, 1885, A., 693.
- sulphurous anhydride in sugar refining, 1885, A., 709.
- ammonia in beet-roots, 1887, A., 71.
- estimation of sugars in beet, 1889, A., 314.
- Bauby, Henri**, action of ammonium sulphide on stannous sulphide, 1883, A., 22.
- action of hydrogen sulphide on solutions of normal nickel sulphate, 1883, A., 24.
- action of hydrogen sulphide on nickel sulphate in acetic acid solution, 1883, A., 25.
- action of heat on an acid solution of nickel sulphate in presence of hydrogen sulphide, 1883, A., 25.
- transformation of amides into amines, 1883, A., 175.
- determination of atomic weights by means of metallic sulphates, 1884, A., 256.
- atomic weight of aluminium, 1884, A., 395.

- Baubigny, Henri**, pure chromic sulphate, 1884, A., 558.  
 — determination of the atomic weight of chromium, 1884, A., 894.  
 — estimation of chromium, 1884, A., 1428.  
 — conversion of amides into amines, 1886, A., 1006.  
 — Schweizer's reagent and "Eau Céleste," 1887, A., 773.  
 — artificial formation of alabandine, 1887, A., 781.  
 — action of hydrogen sulphide on cobalt salts, 1888, A., 113.  
 — use of hydrogen sulphide to purify nickel and cobalt, 1888, A., 423.  
 — separation of nickel and cobalt, 1889, A., 188.  
 — action of hydrogen sulphide on zinc sulphate, 1889, A., 346.  
 — separation of zinc and nickel, 1889, A., 652.  
 — separation of zinc and cobalt, 1889, A., 653.  
 — estimation of thallium, 1892, A., 238.  
**Baubigny, Henri**, and **E. Péchard**, efflorescence of metallic sulphates, 1892, A., 1271.  
**Bauch, C.**, iodo-m-xylenesulphonic acid, 1891, A., 73.  
**Baudet**, prevention of boiler incrustation, 1883, A., 408.  
**Baudet and Adrian**, morphine in *Eschscholzia californica*, 1889, A., 644.  
**Baudin, E.**, resin oil in oil of turpentine, 1891, A., 870.  
**Baudoin, Antonin**, testing copper sulphate, 1887, A., 1139.  
**Baudoin, Georges**. See **Albert William Léon Hénocque**.  
**Bauer, Adolf**. See **Carl Engler**.  
**Bauer, Alexander**, new acids of the series  $C_nH_{2n-4}O_6$ , 1883, A., 970.  
 — pimelic acid, 1883, A., 998.  
**Bauer, Alexander**, and **Karl Hazura**, linoleic acid, 1886, A., 868.  
 — drying oils, 1888, A., 1269.  
**Bauer, A. H.**, preservation of beer, 1883, A., 136.  
**Bauer, Emil**, influence of invertin on the fermentation of cane sugar, 1883, A., 101.  
 — nature and formation of dextran, 1883, A., 105.  
**Bauer, Felix**. See **Karl Elbs**.  
**Bauer, Franz Wilhelm**. See **Carl Engler**.  
**Bauer, Hermann**, boiling-point anomalies of the chlorinated acetoneitriles and their derivatives, 1885, A., 1120.  
**Bauer, Hermann**. See also **Wilhelm Staedel**.  
**Bauer, Karl**, some reactions of tertiary alcoholic iodides, 1884, A., 167.  
**Bauer, M., L. Brouard**, and **J. Ancel**, vegetable leather, 1885, A., 851.  
**Bauer, Max**, diophtase from the Cordilleras of Chili, 1883, A., 446.  
 — pseudomorphs of calcite after arragonite, 1886, A., 431.  
 — the basalt of the Stempel, near Marburg, 1891, A., 1440; 1892, A., 126.  
**Bauer, Oscar**. See **Alexander Classen**.  
**Bauer, J.**, azobenzenethiosulphonic acid; azobenzenesulphinic acids, 1885, A., 1139.  
**Bauer, Reinhard W.**, sugar from agar-agar, 1885, A., 500.  
 — anabonic acid and lichenin sugar, 1886, A., 869.  
 — saccharine matter in peach gum, 1888, A., 741.  
 — galactose from plum gum, 1888, A., 1329.  
 — sugar obtained from *Plantago Psyllium*, 1889, A., 233.  
 — sugar-like compound from Laminaria, 1889, A., 657.  
 — birotation of arabinose, and its reducing value with Fehling's and Sachsse's solutions, 1889, A., 1132.  
 — sugar from the pectin of plums, 1891, A., 413.  
 — sugar from quince juice, 1892, A., 128.  
 — sugar from linseed, 1892, A., 1293.  
**Bauer, Reinhard W.**. See also **Julius Haedicke**.  
**Baum**. See **Adolph Schlieper**.  
**Baum, Joseph**, simple method for preparing hippuric acid and allied compounds, 1885, A., 981.  
 — oxidation products of conine, 1886, A., 562.  
**Baum, Joseph**. See also **Karl Schotten**.  
**Baumann, Anton**, behaviour of zinc salts with plants and in the soil, 1884, A., 1408.  
 — estimation of ammoniacal nitrogen in soils, 1887, A., 82.  
 — estimation of ammonia in soils, 1888, A., 87.  
 — azotometric method of soil analysis, 1888, A., 1336.  
 — formation of nitric and nitrous acids by the evaporation of water in presence of alkalis and soil, 1889, A., 183.  
 — valuation of pyrolusite by means of hydrogen peroxide, 1891, A., 245.

- Baumann, Anton**, new methods in quantitative analysis, 1892, A., 103, 538.  
 — gas volumetric analysis, 1892, A., 538.
- Baumann, Eugen**, detection and estimation of phenol and oxy-acids in the urine, 1883, A., 885.  
 — active oxygen, 1884, A., 14.  
 — oxidation of carbonic oxide, air, and moist phosphorus, 1884, A., 1092.  
 — cystin and cystem, 1884, A., 1382.  
 — formation of mercapturic acid in the organism, and its detection in the urine, 1884, A., 1395.  
 — estimation of iodine in urine, 1881, A., 1423.  
 — derivatives of pyruvic acid, 1885, A., 513.  
 — compounds of mercaptans with aldehydes, ketones, and ketonic acids, 1885, A., 748.  
 — aromatic compounds in urine and putrefaction in the intestines, 1886, A., 384.  
 — disulphones, 1887, A., 123.  
 — compounds of aldehydes and ketones with mercaptan, 1887, A., 126.  
 — preparation of ethereal benzoates, 1887, A., 228.  
 — thioaldehydes, 1890, A., 477.  
 — action of hydrogen sulphide on aldehydes, 1890, A., 1092.  
 — hydrolysis of sulphones and ethereal salts of benzenesulphinic acid, 1891, A., 1229.  
 — estimation of homogentisic acid in the urine, 1892, A., 925.
- Baumann, Eugen**, and **Rudolf Camps**, thioaldehydes, 1890, A., 478.
- Baumann, Eugen**, and **Emil Fromm**, thioaldehydes, 1890, A., 25.  
 — thio-derivatives of ketones, 1890, A., 26.  
 — isomerism of thioaldehydes, 1891, A., 1008.  
 — trithio-derivatives of acetaldehyde, 1891, A., 1010.  
 — thio-derivatives of benzaldehyde, 1891, A., 1050.  
 — aromatic thioaldehydes, 1891, A., 1050.  
 — thio-derivatives of furfuraldehyde, 1892, A., 301.
- Baumann, Eugen**, and **Alfred Kast**, relation between the chemical constitution and physiological action of certain sulphones, 1889, A., 1232.
- Baumann, Eugen**, and **Mar Klett**, stilbene, thionessal, and tolane sulphide, 1892, A., 184.
- Baumann, Eugen**. See also **Richard Escales**, **Emil Fromm**, **Edwin Goldmann**, **László von Udránszky**, **Michael Wolkow**.
- Baumann, J.**, action of amines on ethylenedibenzoyl-*o*-carboxylic acid, 1887, A., 735.
- Baumann, Thiebaut**. See **Emilio Nöling**.
- Baumert, Georg**, action of dehydrating agents on lupinine, 1883, A., 100.  
 — preparation of lupinine hydrochloride from lupinine residues, 1883, A., 224.  
 — liquid alkaloid from *Lupinus luteus*, 1884, A., 1387.  
 — action of acetic chloride and anhydride on lupinine, 1884, A., 1387.  
 — lupinidine from *Lupinus luteus*, 1885, A., 177.  
 — behaviour of lupinidine with ethylic iodide, 1885, A., 676.  
 — colchicine-like decomposition product, 1888, A., 636.  
 — constituents of lupine seeds, 1888, A., 1221.  
 — occurrence of boric acid in the vine and in wines, 1889, A., 295.  
 — estimation of glycerol in wine, 1892, A., 1529.
- Baumhauer, E. H. von**, simple form of thermo-regulator and registering thermometer, 1885, A., 471.  
 — the Ngawi meteorite, 1885, A., 1190.
- Baumhauer, Heinrich**, the trapezohedral hemihedry of strychnine sulphate, 1883, A., 485.  
 — artificial twin-crystals of potassium sulphate and chromate, 1886, A., 17.  
 — variegated copper ore from New Mexico, 1886, A., 22.  
 — hornblende, 1886, A., 24.
- Baumstark, F.**, new method of proximate resolution of the brain substance, 1885, A., 918.
- Baur, Albert**, artificial musk, 1890, A., 1401; 1891, A., 1464.
- Baur, Albert**. See also **Werner Kelbe**.
- Baur, C.**, radiation of rock salt at various temperatures, 1883, A., 702.
- Baur, Heinrich von**, and **Wilhelm Staedel**, dimethylxylylides, dimethyl-*m*-chloroaniline, and dimethyl-*m*-aminodiphenetol, 1883, A., 579.
- Baur, R.**, test for available chlorine in bleach-works and similar establishments, 1884, A., 775.  
 — apparatus for the estimation of carbonic anhydride, 1884, A., 1216; 1887, A., 398.

- Baur, R.**, estimation of fatty acids as fats, 1887, A., 401.
- Baurath, Heinrich**,  $\alpha$ -stilbazole ( $\alpha$ -cinnamylpyridine), 1888, A., 65, 608.
- Bayer, Friedrich**, and **Carl Duisberg**,  $\beta$ -naphthylaminesulphonic acid, 1887, A., 732.
- Bayer, K. J.**, estimation of alumina, 1886, A., 281.
- estimation of alumina by titration, 1886, A., 651.
- basic aluminium sulphate, 1887, A., 448.
- detection of free sulphuric acid and of aluminium hydroxide in aluminium sulphate, 1887, A., 530.
- alkaline aluminates, 1889, A., 213.
- analysis of sodium aluminate, 1891, A., 864.
- Bayley, Thomas**, analysis of alloys and minerals containing the heavy metals, selenium, tellurium, etc., 1886, T., 735; P., 228.
- error in the nitrometric analysis of sulphuric acid, 1886, A., 833.
- reduction of ferric nitrate in the nitrometer, 1886, A., 1072.
- separation of zinc from nickel and manganese, and estimation of nickel, 1888, A., 388.
- reaction of iron with nitric oxide, 1888, A., 388.
- Bayley, William Shirley**, quartz keratophyre from Pigeon Point, Minnesota, 1889, A., 473.
- Bayley, William Shirley**. See also *Harmon Northrup Morse, Ira Remsen*.
- Bayrac**, estimation of uric acid in urine by means of sodium hypobromite, 1890, A., 670.
- Bayrac, Pierre Henri**, indothymol and thymoquinone, 1892, A., 1311.
- Beadle, Clayton**, the acid action of drawing papers, 1892, P., 34.
- Beam, William**, rocks of the Yellowstone Park, 1884, A., 28.
- Beam, William**. See also *Henry Leffmann*.
- Beaumetz, Dujardin**. See *Dujardin-Beaumetz*.
- Beaurepaire**, preparation of durenene and of benzylidurenene, 1889, A., 966.
- Beavis, Charles**. See *Richard Anschütz*.
- Béchamp, Antoine**, decomposition of hydrogen peroxide by certain organised bodies, 1883, A., 103.
- microzymas and the cause of the decomposition of hydrogen peroxide by animal tissues, 1883, A., 103.
- Béchamp, Antoine**, action of hydrogen peroxide on the red colouring matter of the blood and on haemalotin, 1883, A., 103.
- spontaneous fermentation of animal matter, 1883, A., 226.
- evolution of oxygen from hydrogen peroxide by fibrin, 1883, A., 227.
- zymase of human milk, 1883, A., 926.
- optical inactivity of cellulose and the rotary power of pyroxylin, 1885, A., 237.
- rotary power of solutions of cellulose in Schweizer's reagent, 1885, A., 369.
- origin of microzymas and vibrios, 1885, A., 417.
- optical inactivity of cellulose, 1885, A., 500.
- organisms which produce zymases, 1885, A., 580.
- causes of the alteration of blood in contact with air, oxygen, and carbonic anhydride, 1887, A., 609.
- coagulation: preparation of soluble casein, 1891, A., 338.
- action of light on silver chloride, 1892, A., 775.
- Béchamp, Joseph**, and **A. Dujardin**, the zymase of jequirity, 1885, A., 1085.
- Bechhold, Jacob**, conversion of phenylazoresorcinol ethers into hydroxyquinol derivatives, 1889, A., 1155.
- chemical energy at the surface of liquids, 1890, A., 328.
- carbazolesulphonic acid, 1890, A., 1297.
- Bechi, Emilio**, prehnite and laumontite from Monte Catini, 1883, A., 441, 442.
- detection of cotton-seed oil in olive oil, 1885, A., 301.
- boric acid in plants, 1890, A., 656.
- Bechi, Guido dr.** See *Emilio Nölting*.
- Beck, Carl**. See *Carl Haussermann*.
- Beck, Charles Ridgeway**. See *William Ashwell Shenstone, William Augustus Tilden*.
- Beck, Ludwvig**. See *Adolph Claus*.
- Beck, Paul**. See *Wilhelm Will*.
- Beck, Richard**, and *Willi Luzi*, formation of graphite by contact metamorphism, 1891, A., 989.
- Beck Wilhelm von**, and *Iwan IV. von Muschketoff*, nephrite, 1883, A., 1068.
- Becke, Friedrich Johann**, euclase from the Alps, 1883, A., 34.
- hornblende and anthrophyllite after olivine, 1883, A., 414.

- Becke, Friedrich Johann**, zinc blende, 1886, A., 207.  
 — parallel growth of tetrahedrite and zinc blende, 1886, A., 207.  
 — crystalline form of grape sugar and of optically active substances in general, 1889, A., 1041.
- Becke, Fritz von der**. See **Albert Hilger**.
- Becke, Dr. von der**. See **Carl Emil Clemens Freytag**.
- Becke, Paul von der**, *m*- and *p*-ethylisopropylbenzene, 1891, A., 183.
- Beckenkamp, J.**, the coefficients of elasticity of crystals, 1885, A., 729.  
 — strontianite and celestine from the Kaiserstuhl, 1888, A., 659.
- Becker, Adolf**, reduction of nitric acid to ammonia by the galvanic current, 1892, A., 403.
- Becker, Arthur**, fusibility of calcium carbonate, 1886, A., 676.  
 — chemical constitution of barytocalcite and alstonite, 1887, A., 18.  
 — two analyses of mica, 1890, A., 220.
- Becker, Arthur**. See also **Robert Sachsse**.
- Becker, Franz**, estimation of tannin, 1885, A., 934.  
 — aluminium sulphate, 1885, A., 1271.
- Becker, George E.**, new law of thermochemistry, 1886, A., 498.  
 — natural solutions of cinnabar, gold, and associated sulphides, 1887, A., 555.  
 — silicic acids, 1890, A., 342.
- Becker, G. M.**, felspar, 1884, A., 716.
- Becker, Heinrich**. See **Adolph Claus**.
- Becker, Paul**, *m*-nitrodiphenylmethane, 1883, A., 202.  
 — chlorination by means of acetic chloride, 1887, A., 932.
- Becker, Paul**. See also **Adolf von Baeyer**.
- Beckmann, Ernst Otto**, barium aluminates, 1883, A., 289, 649.  
 — lassic halogen salts of barium, 1883, A., 649.  
 — preparation of mercury fulminate, 1886, A., 606.  
 — isonitroso-derivatives, 1886, A., 618.  
 — detection of atropine, 1886, A., 955.  
 — cracking glass with certainty, 1887, A., 105.  
 — titration with Fehling's solution, 1887, A., 185.  
 — isonitroso-compounds, 1887, A., 326; 1888, A., 48, 55, 409.
- Beckmann, Ernst Otto**, isobenzaldoxime, 1888, A., 55.  
 — molecular weight of oximes, 1888, A., 646.  
 — determining molecular weights by reduction of the freezing-point, 1889, A., 11.  
 — isomerism of oximido-compounds: isomeric monosubstituted hydroxylamines, 1889, A., 607, 608, 979, 980.  
 — isomerism of benzaldoximes, 1889, A., 607, 608, 979.  
 — the camphor series, 1889, A., 721; 1891, A., 936.  
 — behaviour of ketones and aldehydes towards sodium in presence of indifferent solvents, 1889, A., 781.  
 — determination of the molecular weight from the rise in the boiling-point, 1889, A., 933; 1891, A., 389, 1317.  
 — determination of the molecular weight from vapour pressure, 1890, A., 323.  
 — molecular weights of dissolved iodine, phosphorus, and sulphur, 1890, A., 447.  
 — isomerism of the aldioximes, 1890, A., 1121.  
 — aldioximes, 1891, A., 193.  
 — apparatus for freezing-point determinations, 1891, A., 784.
- Beckmann, Ernst Otto**, and **Theodor Paul**, action of sodium on ketones and aldehydes, 1892, A., 169.
- Beckurts, Heinrich**, detection of hydrocyanic acid, 1884, A., 222.  
 — volumetric estimation of ammonia, 1884, A., 492.  
 — method of testing butter for foreign fats, 1884, A., 778.  
 — estimation of arsenic in judicial cases, 1885, A., 439.  
 — hydrochloric acid in Marsh's apparatus, 1885, A., 440.  
 — preparation of hydrochloric acid free from arsenic, 1885, A., 440.  
 — strychnine, 1885, A., 675; 1890, A., 1323.  
 — separation of alkaloids in forensic analysis, 1885, A., 701.  
 — strychnine and brucine, 1885, A., 911.  
 — volatile constituents of ranunculaceous plants, 1886, A., 365.  
 — potassium nitrate and chlorate, 1886, A., 664.  
 — estimation of phenol as tribromophenol, 1886, A., 1081.  
 — estimation of phenol in "liquid carbolic acid," 1886, A., 1081.

- Beckurts, Heinrich**, ptomaines, 1887, A., 385.  
 — ferrocyanides of the alkaloids, 1890, A., 1318.  
 — brucine, 1890, A., 1330.  
 — anemonin, 1892, A., 1241.
- Beckurts, Heinrich**, and **Wilhelm Freytag**, violet colouration of starch caused by iodine chloride, and bromide, 1886, A., 783.
- Beckurts, Heinrich**, and **Paul Nehring**, constituents of Angostura bark, 1892, A., 642.
- Beckurts, Heinrich**, and **Robert Otto**, action of heat and water on the halogen substituted acids of the  $C_nH_{2n}O_2$  series, 1885, A., 506.  
 — monohalogen derivatives of acrylic acid, 1885, A., 509.
- Beckurts, Heinrich**, and **Wilhelm Rougemont**, testing nitric acid, etc., for iodine and iodic acid, 1886, A., 834.
- Beckurts, Heinrich**. See also **Robert Otto**, **Georg Holst**.
- Becquerel, Alexandre Edmond**, spectroscopic study of compounds rendered phosphorescent by the action of light or electrical discharge, 1885, A., 1098.  
 — effect of manganese on the phosphorescence of calcium carbonate, 1887, A., 190.  
 — phosphorescence of alumina, 1887, A., 191, 409.  
 — phosphorescence of calcium sulphide, 1887, A., 540.  
 — preparation of phosphorescent calcium and strontium sulphides, 1889, A., 198.
- Becquerel, Henri**, observations of infra-red spectra by means of phosphorescence, 1883, A., 761.  
 — infra-red radiation spectra, 1884, A., 1.  
 — infra-red radiation spectra of metallic vapours, 1884, A., 1237.  
 — relation between the absorption spectrum and the phosphorescence of uranium compounds, 1886, A., 189.  
 — variations in the absorption spectrum of didymium, 1887, A., 537.  
 — variations in the absorption spectra of didymium salts, 1887, A., 873.  
 — absorption spectra of epidote, 1889, A., 553.  
 — phosphorescence of minerals under the influence of light and heat, 1891, A., 776.  
 — optical measurement of high temperatures, 1892, A., 761.
- Becquerel, Henri**, and **Henri Moissan**, fluospar from Quincid, 1891, A., 148.
- Beddies, Alfred**. See **Friedrich Krafft**.
- Bedson, Peter Phillips**, colliery waters, 1888, A., 354.
- Beebe, Alfred L.**, reduction of ferric solutions by means of amalgamated zinc and platinum foil, 1886, A., 836.
- Beer, Alexander**, hydroxypyrotartaric, pataconic, and aconic acids, 1883, A., 457.
- Beetz, Wilhelm von**, constant element for electrical measurements, 1885, A., 2.  
 — dry electric batteries, 1886, A., 3.
- Béhal, Auguste**, separation of copper and cadmium, 1885, A., 1012.  
 — ketone from  $\alpha$ -anthrylidene, 1886, A., 45.  
 — detection of nitrates and chlorates, 1886, A., 392.  
 — caprylidene: constitution of capraldehyde, 1887, A., 788.  
 — capraldoxime and methyl hexyl ketoxime, 1887, A., 795.  
 — preparation of allyl iodide and allyl alcohol, 1887, A., 905.  
 — ethylpropylacetylene, 1888, A., 240.  
 — hydrolysis of diallyl, 1888, A., 241.  
 — allylene, 1888, A., 663.  
 — conversion of  $\alpha$ -anthrylidene and caprylidene into isomeric hydrocarbons, 1888, A., 929.  
 — alcoholic nitrate of silver as a reagent for acetylenic hydrocarbons, 1888, A., 930.  
 — preparation of isopropylacetylene from methyl isopropyl ketone, 1888, A., 930.  
 — hydration of tolane, 1888, A., 959.  
 — hydration of methylamylacetylene: ethyl amyl ketone, 1889, A., 227.  
 — hydrocarbons of the  $C_nH_{2n-2}$  series, 1889, A., 839.  
 — formation of hexylacetylene from methylvalerylacetylene, 1889, A., 950.  
 — action of phosphorus pentachloride on acetophenone, 1889, A., 984.  
 — conversion of methylbenzylidene chloride into triphenylbenzene, 1889, A., 998.  
 — constitution of caprylaldehyde, 1892, A., 293.
- Béhal, Auguste**, and **Victor Auger**, action of phosphorus pentachloride on malonic acid, 1889, A., 958.  
 — new class of diketones, 1890, A., 388.  
 — action of ethylmalonic chloride on ethylbenzene, 1890, A., 493.

- Béhal, Auguste**, and **Eugène Choay**, action of heat on chloralaminonia, 1890, A., 230.  
 ——— chloralimide and its isomeride, 1890, A., 1093.
- Béhal, Auguste**, and **Alexandre Desgrez**, action of organic acids on acetylenic hydrocarbons, 1892, A., 1064.  
 ——— action of fatty acids on olefines, 1892, A., 1162.
- Béhal, Auguste**, and **Paul Desvignes**, asbolin, 1892, A., 1312.
- Béhal, Auguste**. See also **Victor Auger**.
- Behla, Gustav**, chlor- and brom-anthracene-carboxylic acids, 1886, A., 248.  
 ——— substituted anthracenecarboxylic acids: action of carbonyl chloride on anthracene dihydride, 1887, A., 593.
- Behr, Arno**. See **Friedrich Soxhlet**.
- Behrend, Gottlieb**, pasteurising barrelled beer, 1884, A., 789.
- Behrend, M.** See **P. Rung**.
- Behrend, P.**, and **Herm. Kast**, titration of small quantities of gases in mixtures, 1890, A., 290.
- Behrend, Paul**, changes occurring in barley during malting, 1885, A., 617.  
 ——— composition of barleys grown in Wurtemberg in 1887, 1888, A., 1331.
- Behrend, Robert**, action of sulphonic chloride on secondary amines, 1884, A., 285.  
 ——— action of carbamide on ethylic acetoacetate, 1884, A., 583.  
 ——— derivatives of carbamide, 1885, A., 246.  
 ——— compounds of the uric acid series, 1886, A., 338.  
 ——— condensation of members of the carbamide group with ethylic acetoacetate, 1886, A., 443.  
 ——— formation of dibromo- and dichlorobarbituric acids, 1887, A., 129.  
 ——— synthesis of compounds of the uric acid series, 1887, A., 919.  
 ——— diazo-derivatives of methyluracil, 1888, A., 809.  
 ——— alkyl derivatives of hydroxylamine, 1889, A., 970.  
 ——— alkyl derivatives of methyluracil and nitrouracil, 1890, A., 31.  
 ——— stereochemistry of nitrogenous compounds, 1890, A., 575.  
 ——— intramolecular change of some isaldoxime derivatives, 1892, A., 50.  
 ——— molecular transformation of the aldoximes, 1892, A., 163.  
 ——— solubility of double compounds, 1892, A., 1047, 1885.
- Behrend, Robert**, and **Paul Ernert**, diazouracilcarboxylic acid and its derivatives, 1890, A., 1210.  
 ——— condensation of carbamide with ethylic acetoacetate, 1890, A., 1210.
- Behrend, Robert**, and **Ernst König**, a dimolecular isomeride of benzaldoxime, 1890, A., 1122.  
 ——— two different modifications of *p*-nitrobenzylisobenzaldoxime, 1890, A., 1412.  
 ——— alkyl derivatives of hydroxylamine, 1891, A., 1032; 1892, A., 1456.
- Behrend, Robert**, and **Karl Leuchs**, benzyl-derivatives of hydroxylamine, 1889, A., 500, 703.
- Behrend, Robert**, and **Detlev Nissen**, *o*-chlorobenzaldoximes, 1892, A., 1199.
- Behrend, Robert**, and **Oscar Roosen**, synthetical experiments in the uric acid series, 1888, A., 581.
- Behrens, Th. H.**, microscopic analysis of minerals, 1886, A., 917.  
 ——— reactions for microchemical mineral analysis, 1891, A., 766.  
 ——— formation of mixed crystals, 1892, A., 10.
- Behrmann, Alfred**, and **August Wilhelm von Hofmann**, amides of citric acid and their conversion into pyridine derivatives, 1885, A., 138.
- Beilby, George T.**, on the specific gravity of paraffin, solid, fused, and in solution, 1883, T., 388.  
 ——— preparation of ammonia from nitrogenous minerals, 1885, A., 304.  
 ——— new form of gas thermometer, 1886, A., 116.
- Beilstein, Fedor F.**, petroleum testing, 1884, A., 369.  
 ——— investigation of petroleum, 1884, A., 500.
- Beilstein, Fedor F.**, and **O. von Bläse**, basicity of antimonie acid, 1889, A., 1123.  
 ——— estimation of antimony, 1890, A., 830.
- Beilstein, Fedor F.**, and **Theodor Grosset**, analysis of aluminium sulphate, 1890, A., 85.
- Beilstein, Fedor F.**, and **R. Luther**, separation of ferric oxide from alumina, 1891, A., 1293.
- Beilstein, Fedor F.**, and **Eugen Wiesgand**, some ethereal oils, 1883, A., 346.  
 ——— alkylsulphamic acids, 1883, A., 971.  
 ——— Caucasian ozokerite, 1883, A., 1078.

- Beilstein, Fedor F.**, and **Eugen Wiegand**, new method of formation of pyrotartaric acids, 1884, A., 1123.  
 — angelic and tiglic acids, 1885, A., 42.  
 — unsaturated compounds of the fatty series, 1885, A., 740.  
**Bein, Sigismund**, indirect estimation of fluorine, 1886, A., 918; 1888, A., 527.  
 — detection of the colouring matter of the yolk of egg, 1890, A., 840.  
 — exact method for the estimation of egg substance, 1890, A., 840.  
 — estimation of fat in yolk of eggs, 1892, A., 1134.  
**Beketoff, Nikolai N.**, lithium oxide, 1884, A., 1247.  
 — change in volume during the formation of metallic oxides, 1887, A., 1073.  
 — energy of compounds and the oxides of sodium and potassium, 1888, A., 1244.  
 — selective chemical affinity, 1889, A., 332.  
 — combining energy of rubidium, 1890, A., 108.  
 — heat of combustion of rubidium, 1890, A., 679.  
 — influence of steam and other gases on the combustion of carbonic oxide and oxygen, 1892, A., 274.  
 — reduction of caesium, 1892, A., 274.  
 — properties of caesium and its hydroxide, 1892, A., 274.  
 — heat of combination of bromine and iodine with magnesium, 1892, A., 762.  
**Bel.** See **Le Bel**.  
**Belar, Albin**, aurichalite, 1890, A., 218.  
**Belky, Johann**, action of gaseous poisons, 1887, A., 392.  
**Bell, James**, chemistry of food, 1883, A., 1160.  
 — analysis of spirits, 1892, A., 387.  
**Bell, J. Carter**, estimation of iron in water, 1890, A., 419.  
**Bell, Louis**, absorption spectrum of nitrogen peroxide, 1885, A., 949.  
 — spectroscopic determination of lithium, 1885, A., 1012.  
 — optical properties of malic and tartaric acids, 1886, A., 1.  
 — ultra-violet spectrum of cadmium, 1886, A., 957.  
**Bell, Louis.** See also **Henry A. Rowland**.  
**Bell, W. Hamilton**, new locality for zoisite, 1886, A., 319.  
**Bellamy, Felix**, action of carbonic anhydride on lead acetate, 1884, A., 990.  
 — action of some metals on mixtures of acetylene and air, 1885, A., 951.  
 — decoloration and recoloration of litmus solution by light, 1889, A., 199.  
**Bellati, Manfredo**, and **Silvio Lussana**, influence of light on the heat conductivity of selenium, 1888, A., 98.  
**Bellati, Manfredo**, and **Riccardo Romanese**, specific heat and heat of transformation of silver iodide and its alloys with cuprous and lead iodides, 1883, A., 274.  
 — transformation of ammonium nitrate, 1888, A., 106.  
**Bellenot, Gustav.** See **William Henry Perkin, junior**.  
**Bellmann, Theodor**, action of phosphorus pentachloride on amidocoumaric acid, 1884, A., 840.  
**Bellmann, Theodor.** See also **Ernst Sigismund Christian von Meyer**.  
**Bellmer, H.**, secret anti-incrustators, 1884, A., 1087.  
**Bellone.** See **Ferry de la Bellone**.  
**Belloni, Cesare.** See **Angelo Menozzi**.  
**Belluci, Guiseppe**, formation of starch in chlorophyll granules, 1887, A., 1186.  
 — salt in rain-water, 1889, A., 299.  
**Belohoubek, August**, colouring matters from ebony wood, 1885, A., 396.  
**Bemmelen, Jacobus Martinus van**, glucinum hydrated oxides, 1883, A., 291.  
 — recent alluvial deposits in the IJ and Zuyder Zee, 1887, A., 224.  
 — absorption compounds and the absorptive power of the soil, 1888, A., 985.  
 — explosion of a tube containing crystals of chromous sulphate, 1888, A., 1041.  
 — germanium oxide, 1888, A., 1041.  
 — colloids and the water they contain, 1888, A., 1157.  
 — colloidal silica, 1888, A., 1158.  
 — colloidal alumina and aluminium hydrate, 1888, A., 1159.  
 — colloidal stannic acid, 1888, A., 1160.  
 — colloidal ferric oxide, 1888, A., 1162.  
 — colloidal chromic oxide, 1888, A., 1162.  
 — composition of the sea-mud in the new alluvia of the Zuyder Zee, 1890, A., 822.

- Bemmelen, Jacobus Martinus van**, composition of the volcanic soils of Deli and Malang, and the clay soil of Rembang, 1890, A., 823.  
 — estimation of water, humus, sulphur, etc., in soils, 1890, A., 832.  
 — composition of the ash of tobacco leaves, 1890, A., 1338.  
 — composition of soils, 1890, A., 1339.  
 — causes of the fertility of the forest-land of Deli (Sumatra) and Java for tobacco, and of the decrease of fertility, 1890, A., 1340.
- Bémont, Gustave.** See *Alexandre Leon Etard*.
- Benas, Theodor**, new tin salts, 1885, A., 727.  
 — volumetric estimation of tin, 1885, A., 839.
- Benckiser, Theodor.** See *Rudolf Nietzki*.
- Bender, Carl**, specific gravity of normal salt solutions, 1884, A., 144, 251.  
 — saline solutions, 1885, A., 12; 1888, A., 22.  
 — refractive indices of normal salt solutions, 1890, A., 549.
- Bender, Carl Julius**, Erythroxylen alkaloids, 1886, A., 85.
- Bender, Fritz**,  $\alpha$ -naphtholsulphonic acid, 1889, A., 717.
- Bender, Fritz**, and *Gustav Theodor August Otto Schultz*, diamidostilbene, 1887, A., 268.
- Bender, Fritz.** See also *August Bernthsen*.
- Bender, Georg**, ethereal carbonates, 1887, A., 37, 245.  
 — substituted nitrogen chlorides, 1887, A., 44.  
 — non-existence of chromium hepta-sulphide, 1887, A., 553.  
 — bismuth thiocyanate, 1887, A., 566.  
 — action of phenylhydrazine on chloroacetoacetates, 1888, A., 53.  
 — action of phenylhydrazine on the alkyl salts of halogen ketonic acids and halogen ketones, 1888, A., 1188.
- Bendersky, J.**, excretion of the digestive ferments from the animal, 1891, A., 483.
- Bendix, Paul.** See *Richard Anschütz*.
- Benecke, Franz**, detection of rye-meal in wheat-meal and bran, 1890, A., 302.
- Benedikt, Rudolf**, tests for resorcinol dyes, 1888, A., 689.  
 — nitro-derivatives of resorcinol, 1888, A., 803.  
 — chloroxy- and bromoxy-derivatives of benzene, 1888, A., 984.
- Benedikt, Rudolf**, hydrolysis of fat, 1888, A., 1269.  
 — Schmidt's process for the conversion of oleic acid into solid fatty acids, 1890, A., 863.  
 — fat analysis, 1891, A., 870.  
 — analysis of galena and lead sulphate, 1892, A., 1522.
- Benedikt, Rudolf**, and *Max Bamberger*, quantitative reaction of lignin, 1890, A., 1474.  
 — action of hydrogen iodide on substances containing sulphur, 1891, A., 1296.
- Benedikt, Rudolf**, and *Mathias Cantor*, estimation of glycerol, 1888, A., 1345.  
 — volumetric estimation of zinc oxide, 1889, A., 308.
- Benedikt, Rudolf**, and *Edmund Ehrlich*, shellac, 1888, A., 846.
- Benedikt, Rudolf**, and *Leopold Gans*, quantitative separation of silver and lead, 1892, A., 1522.
- Benedikt, Rudolf**, and *Anton Grüssner*, estimation of methoxyl, 1890, A., 299.  
 — analysis of essential oils, 1890, A., 423.
- Benedikt, Rudolf**, and *Karl Hazura*, morin, 1884, A., 846, 1179; 1885, A., 553.  
 — composition of solid animal and vegetable fats, 1889, A., 1057.
- Benedikt, Rudolf**, and *Paul Julius*, diresorcinol and diresorcinolphthalein, 1884, A., 1139.  
 — a new resorcinol-blue, 1885, A., 386.
- Benedikt, Rudolf**, and *Julius Neudörfer*, oxidation of alcohol by permanganate, 1892, A., 1529.
- Benedikt, Rudolf**, and *Max von Schmidt*, halogen derivatives, 1883, A., 1118.
- Benedikt, Rudolf**, and *Ferdinand Ulzer*, investigation of acetyl compounds: method for the analysis of fats, 1887, A., 620.  
 — Turkey-red oil, 1887, A., 914.  
 — shellac, 1888, A., 1809.
- Benedikt, Rudolf.** See also *Edmund Ehrlich*, *Karl Hazura*, and *Philipp Weselsky*.
- Bener, P.**, xanthenes and hydroxyxanthenes of the naphthalene series, 1892, A., 1099.
- Bennert, Carl.** See *Richard Anschütz*.
- Benoist, Lucien.** See *Charles Collin*.
- Ben Sande, Alfredo**, doubly-refracting crystals of sodium chloride and potassium chloride, 1886, A., 206.

- Bensemann, L.**, purification of hydrochloric acid, 1884, A., 259.  
 — estimation of glycerol in wine, 1886, A., 1080.
- Bente, F.**, estimation of phosphoric acid, 1887, A., 397; 1888, A., 753.
- Bentley, William Burdelle**, and **William Homer Warren**, nitro-derivatives of *m*-bromotoluene, 1890, A., 485.
- Bentley, William Burdelle**. See also **Charles Loring Jackson**.
- Benz, Emil**. See **Eugen Lellmann**.
- Benz, G.**, primary and secondary naphthylamines, 1883, A., 594.
- Beran, A.**, *p*-amidoctylbenzene, *p*-amidoctyltoluene, 1885, A., 523.
- Bérard, Edgard**. See **Gabriel Corin**.
- Berchem, Paul van**, ditolylphthalides, 1885, A., 266.  
 — equilibrium in homogeneous solutions when unequally heated, 1890, A., 444.
- Berend, Ludwig**, dimethylquinaldine, 1884, A., 1053; 1885, A., 558.  
 — some new alkanes, 1884, A., 1114.  
 — dimethylquinoline, 1884, A., 1197; 1885, A., 274; 1886, A., 260.
- Berend, Ludwig**, and **Carl Stoehr**, brucine, 1891, A., 37.
- Berend, Ludwig**, and **Ernst Thomas**, ketones of the quinoline series, 1892, A., 1488.
- Berendes, Johannes**. See **Wilhelm Fleischmann**.
- Berg, Armand**, chromiodates, 1887, A., 776; 1890, A., 1378.  
 — chloranilamines, 1890, A., 952.  
 — amylamines, 1891, A., 169.  
 — *n*-butylamines, 1891, A., 662.  
 — action of sodium and potassium cyanide on chlorodiamylamine, 1892, A., 804.  
 — chlorine derivatives of isobutylamines, 1892, A., 1172.
- Berg, Armand**. See also **Daniel Klein**.
- Berg, Paul von**, separation of zinc from iron, cobalt, and nickel, 1887, A., 182.  
 — titration of zinc and cadmium sulphites with iodine, 1887, A., 301.
- Bergami, Otto**, examination of Caucasian madder-root, 1887, A., 1061.
- Bergami, Otto**. See also **Carl Theodor Liebermann**.
- Bergeat, Eugen**, crystalline acid from pig's bile, 1889, A., 1231.
- Berger, Franz**, phenylcyanamide, 1884, A., 1157.  
 — action of acetamide on phenylcyanamide, 1885, A., 387.
- Berger, Franz**. See also **Max Hönig**.
- Berget, Alphonse**, thermal conductivity of mercury above 100°, 1888, A., 1237.
- Berghe, Jul. van der**, manner of applying artificial manures, 1886, A., 617.
- Berghell, Hugo**. See **Wilhelm Ramsay**.
- Berglund, Emil**, qualitative separation of tin, antimony, and arsenic, 1884, A., 777; 1885, A., 839.  
 — Vortman's method for estimating chlorine in the presence of bromine, 1885, A., 836.  
 — separation of chlorine and bromine, 1885, A., 836.  
 — proportion of bromine in sea-water, 1886, A., 134.
- Bergreen, Henry**, isonitroso-compounds, 1887, A., 466.  
 — carbon thiodichloride, 1887, A., 937.  
 — thiocarbonyl chloride, 1888, A., 444.
- Bergreen, Rudolph**, and **Otto Licht**, use of magnesium sulphite and ferric chloride in sugar factories, 1884, A., 939.
- Beringer, Cornelius**, and **John Jacob Beringer**, titration of copper by means of potassium cyanide, 1884, A., 113.  
 — volumetric estimations of sulphur by means of barium chloride, 1889, A., 437.
- Berju, Geory**, derivatives of amidonobenzene, 1884, A., 1148; 1885, A., 660.
- Berkfeld, W.** See **Adolph Claus**.
- Berkenheim, Abraham**, menthol, 1892, A., 866.
- Berkenheim, Abraham**. See also **Otto Wallach**.
- Berlé, Bernhard**. See **Eugen Bamberger**.
- Berliner, Alfred**, catalytic action of metals on oxy-hydrogen gas, 1889, A., 206.
- Berlinerblau, Joseph**, muscaine, 1881, A., 1056.  
 — action of cyanogen chloride on *o*- and *p*-amidophenetol, 1885, A., 117.  
 — homologue of rhodanic acid, 1886, A., 326.  
 — indole from dichloroether and aniline, 1887, A., 836.
- Berlinerblau, Joseph**, and **Heinrich Polier**, intermediate products in the formation of indoles from dichloroether and aromatic amines, 1887, A., 813.
- Berlinerblau, Maximilian**, occurrence of lactic acid in blood, and its formation in the organism, 1888, A., 971.

- Berlioz**, *Antoine*, rhinoliths, 1891, A., 1279.
- Berlioz**, *Antoine*. See also *Saul Yvon*.
- Bernard**, *A.*, calcimetry, 1887, A., 865.
- Bernays**, *Albert James*, obituary notice of, 1892, T., 488.
- Bernhardi**, *Reinhard*. See *Karl Auwers*.
- Bernhart**, *Carl*. See *William Henry Perkin, junior*.
- Bernheim**, *Jules*. See *Gustave Rousseau*.
- Bernheimer**, *Oscar*, sparteine, 1884, A., 337.
- derivatives of berberine, 1884, A., 340.
- Bernheimer**, *Oscar*. See also *Raffaele Nasini*.
- Bernreuther**, *C.*, steeping of barley, 1885, A., 1273.
- Berna**, *Wilhelm*. See *Richard Anschütz*.
- Bernthsen**, *August*, nitrotoluidines from liquid nitrotoluene, 1883, A., 579.
- preparation of the base  $C_{10}H_{13}N$  from benzoyldiphenylamine, 1883, A., 580.
- methylene-blue, 1883, A., 916.
- formation of nitrile bases from organic acids and amines, 1883, A., 1099.
- methylene-blue and allied colouring matters, 1884, A., 595, 1156; 1885, A., 259.
- acridines, 1884, A., 1356.
- ammonium bases derived from acridine and quinoline, 1884, A., 1857.
- juglone, 1884, A., 1365.
- ammonium bases derived from quinoline, 1885, A., 814.
- methylene-blue group, 1886, A., 53; 1889, A., 775.
- base isomeric with benzidine, 1886, A., 471.
- constitution of the safranines, 1887, A., 139, 480.
- new synthesis of thiodiphenylamine, 1887, A., 245.
- pyrogenic formation of phenazine, 1887, A., 249.
- phenazoxine, 1887, A., 665.
- action of cinnamic acid on diphenylamine, 1887, A., 814.
- relations between hydrazides and azo-compounds, 1888, A., 469.
- $\alpha$ -naphthylamine- and  $\alpha$ -naphthol- $\epsilon$ -disulphonic acid, 1890, A., 386.
- naphthasulphonosulphonic acids and  $\alpha$ -naphtholsulphonamidesulphonic acids, 1891, A., 215.
- ammonium bases of phenylacridine, 1892, A., 1095.
- Bernthsen**, *August*, and *Felix Bender*, derivatives of styrolene, 1883, A., 70.
- — synthesis of acridines, 1883, A., 1133.
- — acridine, 1883, A., 1134.
- Bernthsen**, *August*, and *Adolf Goske*, methyl-orange and ethyl-orange, 1887, A., 666.
- Bernthsen**, *August*, and *Wilhelm Hess*, quinoline ammonium bases, 1885, A., 558.
- Bernthsen**, *August*, and *Hans Mettegang*, reactions of quinolinic acid, 1887, A., 737.
- Bernthsen**, *August*, and *Franz Muhlert*, acridaldehyde and acridinecarboxylic acid, 1887, A., 849.
- Bernthsen**, *August*, and *Alfred Osann*, crystallography of acridine derivatives, 1886, A., 471.
- Bernthsen**, *August*, and *Hugo Schweitzer*, phenazine derivatives, 1887, A., 139.
- Bernthsen**, *August*, and *August Semper*, juglone, 1885, A., 546; 1886, A., 363.
- — synthesis of juglone, 1887, A., 674.
- Bernthsen**, *August*, and *Isidor Traube*, butylacridine and acridylbenzoic acid, 1884, A., 1183.
- Bernthsen**, *August*. See also *Wilhelm Hess*.
- Berry**, *Neill Alford*, copper slag, 1887, A., 447.
- Bersch**, *Wilhelm*, interaction between oxides and hydroxides of heavy metals and the halogen compounds of the alkalis, 1891, A., 1413.
- Berson**, *G.*, and *A. Destrem*, electrolysis of solutions of potassium hydroxide, 1888, A., 1007.
- Bert**, *Paul*. See *Henri de Varigny*.
- Berthelot**, *Daniel*, electrical conductivity as a means of investigating the interaction of acids of complex function, 1890, A., 204.
- electrical conductivity and multiple affinities of aspartic acid, 1890, A., 204.
- electrical conductivity of phenols and hydroxybenzoic acids, 1890, A., 677.
- electrical conductivity of the ammonium and aniline salts of hydroxybenzoic acids, 1890, A., 1039.
- conductivity of isomeric organic acids and their salts, 1891, A., 375, 517.
- basicity of acids deduced from their conductivity: monobasic and bibasic acids, 1891, A., 631.

- Berthelot, Daniel**, conductivities of tribasic acids, 1891, A., 632.  
 — conductivity of organic acids, 1891, A., 632.  
 — study of the chemical neutralisation of acids and bases by means of their electrical conductivities, 1892, A., 2.  
 — existence of acid or basic salts of monobasic acids in very dilute solution, 1892, A., 110.  
 — basicity of phosphoric acid, 1892, A., 394.
- Berthelot, Marcellin (Pierre Eugène)**, reciprocal displacements of the halogens, 1883, A., 8.  
 — perchloric acid, 1883, A., 8.  
 — Berthollet's laws and the combinations of mercuric oxide with acids, 1883, A., 10.  
 — ethylene oxide, 1883, A., 174, 275.  
 — the light emitted by comets, 1883, A., 261.  
 — lead iodides, 1883, A., 275.  
 — decomposition of cyanogen, 1883, A., 303.  
 — ethyl peroxide, 1883, A., 305.  
 — properties of chlorinated organic gases and vapours, 1883, A., 394.  
 — natural formation of manganese dioxide and some reactions of peroxides, 1883, A., 425.  
 — reactions between sulphur, sulphur oxides, carbon, and carbon oxides, 1883, A., 551.  
 — direct combination of hydrogen with ethylene, 1883, A., 565.  
 — heat of formation of chromic acid, 1883, A., 642.  
 — alkaline sulphites, 1883, A., 704.  
 — alkaline thiosulphates, 1883, A., 707.  
 — chromates, 1883, A., 707.  
 — some relations between temperatures of combustion, specific heats, dissociation, and pressure of explosive mixtures, 1883, A., 771.  
 — explosives, 1884, A., 540.  
 — heat of formation of fluorides, 1884, A., 545.  
 — thermochemistry of haloid salts, 1884, A., 656.  
 — law of thermochemical moduli or constants of substitution, 1884, A., 702.  
 — absorption of gases by platinum, 1884, A., 702.  
 — some mercuric salts, 1884, A., 706.  
 — reactions of carbon oxysulphide, 1884, A., 728.  
 — scales of temperature and molecular weights, 1884, A., 804.
- Berthelot, Marcellin (Pierre Eugène)**, thermochemistry of phosphorus trifluoride, 1885, A., 328.  
 — chemical neutrality of salts, 1885, A., 472.  
 — rate of propagation of detonation in solid and liquid explosives, 1885, A., 478.  
 — action of bromine on chloride, 1885, A., 632.  
 — principle of maximum work, 1885, A., 868.  
 — volatility of sulphur and mercury, 1885, A., 953.  
 — isomerism in the benzene series, 1885, A., 1177; 1886, A., 7.  
 — phenols, 1886, A., 6.  
 — acids of the benzene series, 1886, A., 8.  
 — absorption of free nitrogen from the atmosphere by argillaceous soils, 1886, A., 175.  
 — antimony sulphide and its decomposition by hydrochloric acid, 1886, A., 308.  
 — antimony sulphide, 1886, A., 512.  
 — organic carbon in soils which absorb free nitrogen, 1886, A., 736.  
 — decomposition of ammonium salts by metallic oxides, 1886, A., 770.  
 — sugars, 1887, A., 24.  
 — thermochemistry of phosphates, 1887, A., 94.  
 — thermochemistry of reactions between magnesia salts and ammonia, 1887, A., 96.  
 — ammonium magnesium phosphate, 1887, A., 202.  
 — direct absorption of nitrogen from the atmosphere by vegetable soils, 1887, A., 395, 617.  
 — metals and minerals of ancient Chaldaea, 1887, A., 443.  
 — phosphates of the alkaline earths, 1887, A., 877.  
 — explosive decomposition of picric acid and other nitro-compounds, 1888, A., 216.  
 — ancient process for making gems and glasses phosphorescent, 1888, A., 552.  
 — general conditions favourable to the absorption of free nitrogen by vegetable soils, 1888, A., 624.  
 — conversion of nitrates in soils into nitrogenous organic compounds, 1888, A., 745.  
 — absorption of nitrogen by vegetable soils, 1888, A., 871.  
 — absorption of nitrogen by soils, 1888, A., 871, 1330; 1889, A., 743.

- Berthelot, Marcellin (Pierre Eugène)**, absorption of nitrogen by vegetable soils and by plants, 1888, A., 1330.
- graduation of tubes for gasometric purposes, 1889, A., 301.
- interaction of chloric acid and hydrogen peroxide, 1889, A., 350, 468, 571.
- thermochemistry of the thionic acids, 1889, A., 667, 823, 824.
- absorption of nitrogen during slow oxidation, 1889, A., 673.
- action of alkalis on the thionic acids, 1889, A., 823.
- action of acids on thio-sulphates, 1889, A., 824.
- heat of formation of hyponitrites, 1889, A., 930.
- estimation of benzene vapour in coal-gas, 1889, A., 1036.
- absorption of nitrogen by clay soils, 1889, A., 1237.
- influence of electrification on the absorption of nitrogen by vegetable soils, 1889, A., 1237.
- absorption of atmospheric nitrogen, 1889, A., 1238.
- evolution of ammonia and volatile nitrogen compounds from vegetable soils and from plants, 1889, A., 1238.
- reciprocal displacement of oxygen and the halogens, 1890, A., 6.
- raffinose, 1890, A., 21.
- heat developed by the action of oxygen on the blood, 1890, A., 274.
- preparation of nitrogen, 1890, A., 330.
- melitose, 1890, A., 356.
- formation of nitrates in plants, 1890, A., 543.
- condensation of carbonic oxide and the penetrability of glass by water, 1890, A., 691.
- condensation of carbonic oxide and the drying of gases, 1890, A., 692.
- vegetable soils and atmospheric ammonia, 1890, A., 822.
- the marsh gas fermentation, 1890, A., 855.
- heat of transformation of isomeric inosites, 1890, A., 1041.
- reduction of alkaline sulphates by hydrogen and by carbon, 1890, A., 1053.
- stability of salts alone and in presence of water, 1890, A., 1361.
- equilibrium and reciprocal displacements between volatile organic bases, 1890, A., 1362.

- Berthelot, Marcellin (Pierre Eugène)**, absorption of carbonic oxide by earth, 1891, A., 16.
- condensation of acetylene by the silent discharge, 1891, A., 28.
- volatile nitrogen compounds evolved from vegetable soils, 1891, A., 611.
- action of heat on carbonic oxide, 1891, A., 801.
- reaction of carbonic oxide, 1891, A., 801.
- calorimetric data, 1891, A., 967.
- volatile compound of iron and carbon monoxide: nickel-carbon oxide, 1891, A., 1427.
- persulphates, 1892, A., 12.
- oxidation of nickel carbonyl, 1892, A., 279.
- use of compressed oxygen in the calorimetric bomb, 1892, A., 673.
- new method of organic analysis, 1892, A., 753.
- persulphuric acid and its salts, 1892, A., 931.
- Berthelot, Marcellin, and Gustav André**, formation of nitrates in plants, 1885, A., 581.
- carbonates in living plants, 1885, A., 1086.
- oxalic acid in plants, 1885, A., 1164.
- formation of oxalic acid in vegetation, 1886, A., 734.
- nitrogen compounds in rain water, 1886, A., 737.
- estimation of ammonia in soils, 1886, A., 739, 740.
- ammonia in soils, 1886, A., 832.
- displacement of ammonia by alkaline bases, 1886, A., 1074.
- tension of dissociation of dry ammonium hydrogen carbonate, 1887, A., 10.
- decomposition of ammonium hydrogen carbonate by water, etc., 1887, A., 11.
- decomposition of amides by water and dilute acids, 1887, A., 235.
- nitrogen compounds in vegetable soils, 1887, A., 293.
- evolution of ammonia from vegetable soils, 1887, A., 860.
- condition of potassium in soil, plants, and mould, 1888, A., 190.
- sulphur and phosphorus in plants, soils, and moulds, 1888, A., 384.
- absorption of salts by plants, 1888, A., 739.

- Berthelot, Marcellin, and Gustav André,** phosphorus and phosphonic acid in plants, 1888, A., 743.
- — — estimation of nitrogen in vegetable soils, 1888, A., 1335; 1889, A., 307.
- — — thermochemistry of hydroxylamine, 1890, A., 934.
- — — heats of combustion and formation of nitrogenous compounds derived from albuminoids, 1890, A., 936.
- — — heats of combustion of the chief nitrogenous compounds in living organisms, 1890, A., 937.
- — — presence and function of sulphur in plants, 1891, A., 606.
- — — nitrogen compounds in vegetable soils, 1891, A., 610.
- — — estimation of the inorganic constituents of soils, 1891, A., 622.
- — — peculiar odour of soil, 1891, A., 858.
- — — humic compounds, 1891, A., 1089.
- — — thermochemistry of humic acid from sugar, 1891, A., 1456.
- — — spontaneous oxidation of humic acid in vegetable soil, 1892, A., 655.
- — — estimation of sulphur in vegetable soils, and the forms in which it is present, 1892, A., 656.
- — — fermentation of blood, 1892, A., 900.
- Berthelot, Marcellin, and Rodolphe Engel,** allotropic forms of arsenic, 1890, A., 679.
- Berthelot, Marcellin, and Ch. Fabre,** tellurium, 1887, A., 761.
- — — heat of formation of hydrogen telluride, 1887, A., 1010.
- — — hydrogen telluride, 1889, A., 210.
- Berthelot, Marcellin, and Johann Fogh,** heats of formation of amides, 1890, A., 1359.
- Berthelot, Marcellin, and Charles Friedel,** meteoric iron from Magura, Hungary, 1890, A., 1384.
- Berthelot, Marcellin, and Antoine Guntz,** reciprocal displacements of hydrofluoric and other acids, 1884, A., 703.
- — — absorption of chlorine by carbon, and its combination with hydrogen, 1884, A., 1249.
- Berthelot, Marcellin, and Ludwig Ilasvay de Nagy Ilosva,** double salts formed by fusion, 1883, A., 11; 1884, A., 704.
- Berthelot, Marcellin, and Vladimir F. Luginin,** heats of combustion, 1887, A., 762.
- Berthelot, Marcellin, and Camille Matignon,** heats of formation of sugars, 1890, A., 1360.
- — — heats of combustion of sulphur compounds, 1890, A., 1361.
- — — thermochemistry of organic chlorine compounds, 1891, A., 1311.
- — — thermochemistry of the camphene series, 1891, A., 1313.
- — — heats of combustion and formation of nitrobenzenes, 1892, A., 4.
- — — heat of formation of hydrazine and hydrazoic acid, 1892, A., 261.
- — — heats of combustion and formation of ethyl alcohol and formic and acetic acids, 1892, A., 1139.
- Berthelot, Marcellin, and Henri Moissan,** heat of combination of fluorine with hydrogen, 1889, A., 1096.
- Berthelot, Marcellin, and Jules Ogier,** specific heat of gaseous acetic acid, 1883, A., 6.
- — — hyponitrites, 1883, A., 422.
- Berthelot, Marcellin, and Paul Petit,** heat of formation of antimony hydride, 1889, A., 666.
- — — heat of combustion of carbon, 1889, A., 811.
- — — heats of combustion and formation of nitriles, 1889, A., 812.
- — — thermochemistry of the nitrocamphors, 1889, A., 1098.
- — — animal heat, and the heat of formation and combustion of urea, 1890, A., 206, 275.
- — — different forms of graphitic carbon and their derivatives, 1890, A., 448.
- Berthelot, Marcellin, and Albert Recoura,** the calorimetric bomb, 1887, A., 627.
- — — heats of combustion, 1887, A., 761.
- — — passage from the benzene to the acetic series, 1887, A., 1011.
- Berthelot, Marcellin, and Paul Vieille,** nitrogen semide, 1883, A., 707.
- — — wave of explosion, 1883, A., 777.
- — — gaseous explosive mixtures, 1884, A., 709.
- — — relative rapidity of combustion of explosive gaseous mixtures, 1884, A., 804.
- — — influence of the density of explosive gaseous mixtures on the pressures which they develop, 1884, A., 805.

- Berthelot, Marcellin, and Paul Vieille**, specific heat of gaseous elements at high temperatures, 1885, A., 7.
- specific heat of steam and carbonic anhydride at high temperatures, 1885, A., 7.
- heat of combustion of charcoal and organic compounds, 1885, A., 326.
- heats of combustion and formation of solid hydrocarbons, 1886, A., 756.
- heats of combustion and formation of carbohydrates, 1886, A., 757.
- Berthelot, Marcellin, and Eugene W. Werner**, bromine substitution, 1881, A., 383.
- bromine substitutions of polyhydric phenols, 1885, A., 627.
- isomerism in the benzene series: heat of neutralisation of polyhydric phenols, 1885, A., 628.
- heat of neutralisation of hydroxybenzoic acids, 1885, A., 1032.
- heats of formation and transformation of the hydroxybenzoic acids, 1885, A., 1103.
- Berthelot, Marcellin, Gustave André, and Camille Matignon**, oxidation of the sulphur in carbon compounds, 1890, A., 1462.
- Berthold, D.**, a plant which destroys the taste of sweets and bitters, 1889, A., 182.
- Bertin-Sans, Henri**, spectrum of acid methæmoglobin, 1888, A., 858.
- Bertin-Sans, Henri, and Joseph Moitesier**, conversion of carboxyhemoglobin into methæmoglobin and detection of carbonic oxide in blood, 1891, A., 1522.
- formation of oxyhemoglobin from hæmatin and a proteid, 1892, A., 1017.
- Bertoni, Giacomo**, mineral water of Acquarossa, 1885, A., 494.
- ethereal salts of nitrous acid, 1886, A., 217; 1887, A., 453; 1890, A., 353.
- etherification, 1886, A., 975.
- two new butyl nitrates, 1891, A., 163.
- oxynitro-derivatives of triphenylmethane, 1891, A., 1378.
- *m*-nitrophenylsantoninmethane, 1892, A., 622.
- Bertoni, Giacomo, and Ferruccio Truffi**, preparation of ethereal salts by double decomposition, 1884, A., 1110.
- Bertoni, Giacomo, and Menotti Zenoni**, *m*-nitro- and *p*-nitro-di-*p*-dihydroxytriphenylmethane, 1892, A., 620.
- Bertoni, Giacomo**. See also *Paolo Pellacani*.
- Bertram, August**, phenylthiocarbamide and imidothiocarbamates, 1890, A., 1291; 1892, A., 465.
- Bertram, Julius, and Edward Gilde-meister**, betel oil, 1889, A., 863.
- kesso oil, 1891, A., 238.
- Bertram, Julius, and Heinrich Walbaum**, oil of lavender and of bergamot, 1892, A., 1235.
- Bertrand, Emile**, walthelite from Joachimsthal, 1883, A., 36.
- zinc aluminite, a new mineral species, 1883, A., 433.
- optical properties of nocciine, 1883, A., 1060.
- optical properties of cobalt carbonate, 1883, A., 1062.
- selenium minerals from Cachaeta, 1881, A., 406.
- hubnerite from the Pyrenees, 1881, A., 406.
- optical properties of berzelite, 1886, A., 127.
- hæmatite and hæmatolite, 1886, A., 601.
- Bertrand, Gabriel**, xylose, 1892, A., 28.
- constitution of xylitol and xylose, 1892, A., 29.
- colour reactions of carbohydrates, 1892, A., 664.
- Berwerth, Fritz**, amphiboles, 1886, A., 28.
- Besana, Carlo**, glacialin, 1884, A., 373.
- Reichert-Meissl-Wollny method of analysis as applied to Italian and mixed butters, 1889, A., 448.
- methods for detecting the adulteration of butter, 1889, A., 658.
- estimation of free acids in butter, 1892, A., 924.
- Beseler, Otto**, manuring sugar-beet with dung, 1883, A., 238.
- Beseler, Otto, and Max Heinrich Märker**, effect of thick and thin sowing and of the manuring on the yield of oats, 1884, A., 768.
- cultivation of varieties of oats, 1885, A., 1008.
- Besemfelder, Edward Rudolf**. See *Adolf von Baeyer*.
- Bezedka, A.** See *Nicolai D. Zelinsky*.
- Besson, Jules Adolphe**, combination of nitrogen oxides with metallic chlorides, 1889, A., 834.
- phosphonium sulphate, 1890, A., 9.

- Besson, Jules Adolphe**, freezing-points of arsenic chloride and stannic chloride, 1890, A., 331.
- combination of hydrogen phosphide with boron fluoride and silicon fluoride, 1890, A., 448.
- combination of ammonium and hydrogen phosphide with silicon chloride and silicon bromide, 1890, A., 559.
- combination of hydrogen phosphide and ammonia with boron chloride and silicon sesquichloride, 1890, A., 690.
- interaction of ammonia and hydrogen phosphide with the haloid compounds of arsenic, 1890, A., 1052.
- combination of ammonia with phosphorus chlorides and bromides, 1891, A., 398.
- silicobromoform, 1891, A., 642.
- action of hydrogen iodide on silicon chloride, 1891, A., 800.
- action of hydrogen iodide on boron bromide, 1891, A., 980.
- action of hydrogen bromide on silicon chloride, 1891, A., 981.
- boron phosphides, 1891, A., 1418; 1892, A., 273.
- silicon chloriodides, 1891, A., 1418.
- silicon bromiodides, 1891, A., 1419.
- silicon thiochloride, 1892, A., 404.
- combination of ammonia with boron bromide and iodide, 1892, A., 771.
- carbon chlorobromides, 1892, A., 771.
- phosphorus chloronitride and phosphamide, 1892, A., 1152.
- phosphorus bromonitride, 1892, A., 1272.
- Best, Thomas Thompson**, methyl-*o*-anisidine, 1890, A., 607.
- Besthorn, Emil, and Wilhelm Curtman**, anilidoacridines and hydroxyacridines, 1891, A., 1282.
- Besthorn, Emil, and Otto Fischer**, a new class of colouring matters, 1883, A., 600.
- Bethmann, Heinrich Georg**, affinity constants of organic acids, 1890, A., 1209.
- Bettel, W.**, separation of gold from the platinum metals, 1887, A., 1084.
- Bettelli, Ciro**. See *Leone Pesci*.
- Bettendorff, Anton**, presence of sodium phosphate in glacial phosphoric acid, 1888, A., 321.
- earths of the cerium and yttrium groups, 1890, A., 851; 1891, A., 984; 1892, A., 1400.
- Bettink, Wefers**, ophioxylin, 1888, A., 848.
- Beuf, Henri**, estimation of lead by phosphomolybdic acid, 1891, A., 118.
- Beutell, A.**, the potash soda felspars of Silesia, 1885, A., 31.
- prehnite from Silesia, 1887, A., 223.
- Beutnagel**. See *Burghard*.
- Bevan, Edward John**. See *Charles Frederick Cross, Arthur George Green*.
- Bewad, Ivan I.**, rate of formation of the carbonates of the alkaline earths in relation to time, mass, etc., 1885, A., 480.
- solubility of lithium carbonate, 1885, A., 634.
- action of zinc ethyl on nitroethane, 1889, A., 112.
- action of zinc ethyl on primary and secondary nitro-compounds, 1889, A., 1127.
- preparation of secondary and tertiary nitro-compounds from halogen derivatives of nitronethane and nitroethane, 1889, A., 1123.
- tertiary nitro-hydrocarbons of the aliphatic series, 1891, A., 653.
- Beyer, A.**, carvol, 1884, A., 321.
- behaviour of the soluble phosphoric acid in superphosphates after keeping in bulk, 1888, A., 223.
- Beyer, Carl**, phenylhydroxyacetimido-ether and -amidine, 1884, A., 65.
- homologue of quinoline, 1885, A., 672.
- derivatives of mandelic acid, 1885, A., 982.
- 2':4'-dimethylquinoline, 1885, A., 1246; 1886, A., 629.
- action of acetone on aniline, 1886, A., 145.
- quinoline derivatives from  $\beta$ -diketones, 1887, A., 849.
- Hantzsch's pyridine synthesis, 1891, A., 1090.
- Beyer, Carl, and Ludwig Claisen**, introduction of acid radicles into ketones, 1887, A., 943.
- mixed azo-compounds, 1888, A., 827.
- Beyer, Oscar Emil, and Eduard Kegel**, preparation of dinitrophenolsulphonic acid, 1885, A., 269.
- Beyerinck, Martinus Willem**, simple diffusion experiment, 1889, A., 565.
- artificial infection of *Vicia Faba* with *Bacillus radicicola*, 1891, A., 1539.
- action at a distance of aqueous solutions on water vapour, 1892, A., 936.

- Beyerinck, Martinus Willem**, accumulation of atmospheric nitrogen in cultivations of *Bacillus radicicola*, 1892, A., 1019.
- Beysen, Curt**. See **Adolph Claus**.
- Beythien, K.**, and **Bernhard Tollens**, compounds of raffinose with bases, 1889, A., 846; 1890, A., 580.  
— behaviour of inverted raffinose with phenylhydrazine, 1890, A., 581.  
— melting-points and preparation of ozones, 1890, A., 581.
- Beythien, K.**, **Eugen Pareus**, and **Bernhard Tollens**, formation of lactic acid from raffinose and from cane sugar: raffinose not formed from cane sugar by the action of lime on strontia, 1890, A., 582.  
— lactic acid from molasses, 1890, A., 583.
- Bezold, Wilhelm von**, cohesion figures, 1885, A., 335.
- Biard, L.** See **Henri Pellet**.
- Bichat, Ernest**, decomposition of optically inactive compounds, 1886, A., 446, 612.
- Bichat, Ernest**, and **René Blondlot**, oscillations of the plane of polarisation by electric discharge, 1888, A., 4.  
— difference of potential of the electric layers of two liquids which are in contact, 1884, A., 383.
- Bichat, Ernest**, and **Antoine Guntz**, production of ozone by the electric discharge, 1888, A., 1234.
- Bichat, Ernest**. See also **René Blondlot**.
- Bickel, H.**, derivatives of diphenylacetic acid and of benzilic acid, 1889, A., 999.
- Bickes, Th.** See **Paul Ehrhardt Jannasch**.
- Bidet, A.**, preparation of oxygen, 1886, A., 418.  
— effect of thiophen on the colour of benzene derivatives, 1889, A., 595.  
— alteration of compounds of the benzene series when exposed to air and light, 1890, A., 1401.
- Bidet, A.** See also **Laurent Naudin**.
- Bidwell, Sheldford**, electric resistance of carbon contacts, 1888, A., 841.  
— sensitiveness to light of selenium and sulphur cells, 1886, A., 2.  
— experiments with selenium cells, 1891, A., 777.
- Biedermann, Alfred**,  $\beta$ -thiophenylaldehyde and  $\beta$ -thienyl alcohol, 1886, A., 536.  
— thiophenol and the  $\alpha$ -naphthol of the thiophen series, 1886, A., 787.  
— thiophenylaldehyde, 1886, A., 870.
- Biedermann, Alfred**, and **Paul Jacobson**, thiophthene, 1886, A., 1082.
- Biedermann, Alfred**, and **Robert Albert Emile Lepetit**, synthesis of indigo from anilidoacetic acid, 1891, A., 206.
- Biedermann, H.**, caffeine and its salts, 1884, A., 185.
- Biedermann, Joh.**,  $p$ -hydroxybenzyl alcohol, 1887, A., 38.  
— glutarenediimidoxime and its derivatives, 1890, A., 128.  
— quinoline- $p$ -methenylamidoxime and its derivatives, 1890, A., 175.  
— derivatives of phenyl- $\alpha$ -hydroxyacetic acid, 1892, A., 471.  
— new method of preparing the amide, anilide, and phenylhydrazide of mandelic acid, 1892, A., 473.
- Biedert, F.**, albuminoids of human milk, 1885, A., 922.  
— albuminoids of human milk and of cows' milk, 1887, A., 388.
- Biel, J.**, Russian petroleum and petroleum lamps, 1884, A., 936.  
— estimation of nicotine in tobacco ash extract, 1888, A., 876.  
— detection of cotton-seed oil in olive oil, 1889, A., 658.
- Bieler, H., junior**, manuring oats with Thomas' slag, 1886, A., 391.
- Bieler, Kurt**, and **Bernhard Tollens**, fucosol, 1890, A., 238, 1105.
- Biernacki, E.**, influence of temperature on digestive ferments, 1891, A., 1271.
- Biginelli, Pietro**, action of ethyl acetoacetate on dextrose in presence of alcoholic ammonia, 1890, A., 732.  
— action of ethyl acetoacetate on cinnamaldehyde, 1890, A., 768.  
— action of methylchloroform on phenol in presence of potash and soda, 1891, A., 296.  
— saligenin oxyacetic acid, 1891, A., 309.  
— ethyl acetoacetate aldehydeuramide, 1891, A., 908; 1892, A., 56.
- Biginelli, Pietro**. See also **Isidoro Guareschi, Wilhelm Körner**.
- Bignamini, Angelo**, estimation of saccharose, glucose, and lactose, 1885, A., 443.
- Bignon, A.**, coca leaves, 1886, A., 388.  
— cocaine and its benzoate, 1886, A., 951.
- Bijlert, A. van**, estimation of antimony by Marsh's method, 1891, A., 115.  
— cryoscopic observations, 1891, A., 1411.
- Bikfalvi, Karl**, hæmin crystals, 1887, A., 165.
- Billeter, Otto**, action of thiocarbonyl chloride on secondary amines, 1887, A., 822.

- Billeter, Otto**, and **Arnold Steiner**, toluylene thiocarbimide, 1886, A., 234.  
 ——— thiocarbimides of bibasic aromatic radicles, 1887, A., 366.
- Billeter, Otto**, and **Alexandre Strohl**, action of thiocarbonyl chloride on secondary amines, 1888, A., 364.
- Billitz, Géa**, and **Karl Heumann**, new modes of formation of pyrosulphuric chloride and of chlorosulphonic acid, 1883, A., 710.
- Billwiller, Rob.**, influence of fallen snow on the temperature of the air, 1883, A., 500.
- Biltz, Heinrich**, molecular weight of sulphur, 1888, A., 1027; 1889, A., 340.  
 ——— influence of the shape of the bulb in vapour density determinations, 1888, A., 1240.  
 ——— estimating the molecular weight of volatile chlorides, 1888, A., 1241.  
 ——— lecture experiment on the diffusion of gases, 1892, A., 562.  
 ——— additive products of hydrogen iodide and nitriles, 1892, A., 1449.
- Biltz, Heinrich**, and **Victor Meyer**, stannous chloride, 1888, A., 345.  
 ——— vapour density determinations of some elements and compounds at a white heat, 1889, A., 673.
- Biltz, Heinrich**. See also **Julius Wilhelm Brühl**.
- Bindel, Karl**, specific gravity, specific heat, and heat of dissolution of supersaturated salt solutions, 1890, A., 1042.
- Binder, Felix**. See **Emilio Nölting**, **Maurice Prud'homme**.
- Binder, Otto**, detection of nitrates in well waters, 1888, A., 197.  
 ——— water analysis, 1888, A., 197.  
 ——— determination of the amount of soda and lime requisite for purifying water, 1888, A., 758.  
 ——— aspirator with constant flow, 1888, A., 1244.
- Bindewald, Carl**. See **Theodor Zincke**.
- Binz, Karl**, behaviour of ozone with blood, 1883, A., 486; 1884, A., 95.  
 ——— quinine as a protoplasmic poison, 1891, A., 1581.
- Birch, De Burgh**, and **Harry Spang**, secretion of the gall bladder, 1888, A., 307.
- Bird, F. C. J.**, a filter tube for use in the estimation of alkaloids by Mayer's reagent, 1887, A., 1002.
- Bird, G. B.**, purification of zinc, 1887, A., 446.  
 ——— mercurous hydroxide, 1887, A., 447.
- Bird, M.**, chlorite from Albemarle Co., Virginia, 1886, A., 180.
- Birhans, Fl.**, solidification of nitrous anhydride, 1889, A., 1109.
- Birkenwald, Paul**, essential oil of mustard, 1891, A., 818.
- Birnbaum, K.**, action of organic acids on nickel-plated iron vessels, 1884, A., 520.  
 ——— composition of the water of the new mineral springs at Freyersbach, 1884, A., 1274.
- Birnie, Steven**, decomposition of ferrous oxalate, 1885, A., 752.
- Birukoff, Wladimir**, dimethylantragallol, 1887, A., 592.  
 ——— methylethyrohydroxyanthraquinone, 1887, A., 964.  
 ——— erythrohydroxyanthraquinonecarboxylic acid, 1887, A., 1049.
- Biscaro, Giuseppe**. See **Horroni Spica**.
- Bischler, Aug.**, condensation products from *p*-toluidine and *p*-nitrobenzaldehyde, 1888, A., 287.  
 ——— condensation products from bases of the para-series with *p*- and *m*-nitrobenzaldehyde, 1889, A., 132.  
 ——— *o*-nitrophenylhydrazine, 1889, A., 501; 1890, A., 148.  
 ——— piperazine, 1891, A., 735.  
 ——— pheno-2'-methyl-*m*-diazine [2'-methylquinazoline], 1891, A., 745.  
 ——— formation of substituted indoles, 1892, A., 1465.
- Bischler, Aug.**, and **Salomon Brodsky**, *m*-nitrophenylhydrazine and *p*-bromo-*o*-nitrophenylhydrazine, 1890, A., 150.
- Bischof**, sodium felspar from Kragerø, Norway, 1887, A., 453.
- Bischoff, Carl Adam**, ethyl ethenyltricarboxylate, 1883, A., 45.  
 ——— ethyl chlorethenyltricarboxylate, 1883, A., 45.  
 ——— ethereal salts of propanetricarboxylic acid, 1883, A., 45.  
 ——— ethylic *isocallytetracarboxylate*, 1883, A., 46.  
 ——— synthesis of ketonic acids, 1883, A., 912.  
 ——— action of the alkyl-derivatives of the halogen substituted fatty acids on aniline, 1883, A., 919.  
 ———  $\beta$ -benzoisosuccinic acid, 1886, A., 355.  
 ——— isomeric dialkylsuccinic acids, 1888, A., 254.  
 ——— decomposition of anilides at a high temperature, 1888, A., 726.  
 ——— ethyl acetylenetetracarboxylate, 1888, A., 1061.  
 ——— synthesis of polybasic fatty acids, 1888, A., 1061.

- Bischoff, Carl Adam**, *o*-dinitrostilbene, 1888, A., 1094.
- azo-dyes from *o*-diamidostilbene, 1888, A., 1094.
- quinoline derivatives from ethyl *o*-nitrobenzoylmalonate, 1889, A., 519.
- piperazines, 1889, A., 1009.
- hydrogenated *p*-diazines of the aromatic series, 1889, A., 1010.
- characteristics of the piperazines, 1889, A., 1015.
- substituted succinic acids, 1890, A., 237.
- limitation of the free rotation of singly-bound carbon atoms, 1890, A., 723.
- theory of anhydride formation in the case of acids of the succinic series, 1890, A., 741.
- preparation of mono-, di-, and tri-substituted succinic acids from ethyl malonate, 1890, A., 742.
- brominated pyrotartaric acids, 1890, A., 1097.
- trimethylsuccinic acid and dimethylglutaric acid, 1890, A., 1099; 1891, A., 828.
- synthesis of mesaconic and citraconic acids from ethyl propenyltricarboxylate, 1890, A., 1101.
- action of methyl chloride on naphthalene: constitution of hydrocarbons obtained from carminic acid, 1890, A., 1145.
- azo-colours from  $\alpha$ -naphthylamine, dimethylaniline, and  $\alpha$ -hydroxy-naphthoic acid, 1890, A., 1148.
- stereochemistry of nitrogen, 1890, A., 1330.
- stereochemical studies in the piperazine group, 1890, A., 1331.
- homologues of maleic acid, 1891, A., 291.
- ethyl *isobutenyltricarboxylate*, 1891, A., 292.
- trimethylsuccinic acid, 1891, A., 828.
- substituted dimethylsuccinic acids, 1891, A., 829.
- substitution derivatives of succinic acid, 1891, A., 891.
- theoretical results of studies in the succinic acid series, 1891, A., 892.
- dynamical hypothesis in its application to the succinic acid series, 1891, A., 892.
- acids of the fumaric series, 1891, A., 1220.
- Bischoff, Carl Adam**, and **Arthur Hausdörfer**, action of iodine on derivatives of ethyl sodomalonate, 1887, A., 916.
- Bischoff, Carl Adam**, and **Arthur Hausdörfer**, distillation products of citrates, 1890, A., 1102.
- derivatives of *p*-tolylglycin, 1890, A., 1284.
- derivatives of *o*-tolylglycin, 1890, A., 1285.
- derivatives of  $\alpha$ - and  $\beta$ -naphthylglycin, 1890, A., 1309.
- diphenyl  $\alpha\gamma$ - and  $\alpha\delta$ -diketopiperazine, 1890, A., 1332.
- *o*- and *p*-ditolylpiperazine and  $\beta$ -dinaphthylpiperazine, 1890, A., 1333.
- derivatives of phenylglycocine and *o*-tolylglycocine, 1892, A., 1336.
- *p*-tolylglycocine and its derivatives, 1892, A., 1335.
- derivatives of  $\alpha$ -amidopropionic acid, 1892, A., 1336.
- derivatives of naphthylglycocines, 1892, A., 1341.
- Bischoff, Carl Adam**, and **Edvard Immanuel Hjelt**, *s*-diethylsuccinic acids, 1888, A., 1057.
- Bischoff, Carl Adam**, and **Karl Jaunsicker**, pimelic acids, 1891, A., 280.
- Bischoff, Carl Adam**, and **Alfons von Kuhlberg**, methylsuccinic, ethylsuccinic, and *as*-dimethylsuccinic acids, 1890, A., 742.
- attempts to prepare alkyl substituted tricarballic acids, 1890, A., 747.
- benzylmethylsuccinic acid and benzyltrimethylsuccinic acid, 1890, A., 1134.
- Bischoff, Carl Adam**, and **Naum Mintz**, *s*-ethylmethylsuccinic, trimethylsuccinic, *s*- and *as*-diethylsuccinic and ethyldimethylsuccinic acids, 1890, A., 743.
- anhydride formation and intramolecular change of substituted succinic acids, 1890, A., 744.
- benzylsuccinic acid and its homologues, 1890, A., 774.
- ethyldimethylsuccinic acid, 1891, A., 290.
- derivatives of  $\alpha$ -amidobutyric acid, 1892, A., 1338.
- anilidoisobutyric acids, 1892, A., 1338.
- toluidoisobutyric acids, 1892, A., 1339.
- derivatives of  $\alpha$ - and  $\beta$ -naphthylidobutyric acids, etc., 1892, A., 1342.
- Bischoff, Carl Adam**, and **Oskar Nestvogel**, ketopiperazines, 1889, A., 1009.

- Bischoff, Carl Adam, and Oskar Nastvogel**,  $\alpha$ -diketopiperazines, 1889, A., 1011.
- $\alpha$ S-diketopiperazines, 1889, A., 1015.
- anilides and toluidides of tartaric acid, 1890, A., 1112.
- distillation of iotin in a vacuum, 1890, A., 1154.
- diphenylketopiperazine and diphenyl- $\alpha$ S-diketopiperazine, 1890, A., 1160.
- action of chloracetic acid and oxalic acid on ethylene-*o*-ditolylidamine, 1890, A., 1161.
- action of chloracetic acid and oxalic acid on ethylene-*p*-ditolyl- and ethylene- $\alpha$ -dinaphthylidamine, 1890, A., 1162.
- action of acetic anhydride on the anilides, toluidides, and naphthalides of malic acid, 1890, A., 1162.
- attempts to prepare aromatic tetra- and tri-ketopiperazines, 1890, A., 1164.
- attempts to prepare closed chains containing 2 nitrogen atoms and 2, 3, and 6 carbon atoms, 1890, A., 1164.
- Bischoff, Carl Adam, and Carl Raab**, ethyl acetylenetetracarboxylate, 1885, A., 244.
- derivatives of *o*-nitrobenzoic acid, 1885, A., 263.
- *s*-dimethylsuccinic acid, 1885, A., 885.
- hydroxypyrocinchonic acid, 1886, A., 1012.
- Bischoff, Carl Adam, and Hermann Siebert**, benzyl and benzoyl compounds, 1887, A., 951.
- Bischoff, Carl Adam, and Arthur Tigerstedt**, action of ethyl  $\alpha$ -bromo-isobutyrate on ethyl propylmalonate and isopropylmalonate, 1890, A., 1103.
- Bischoff, Carl Adam, and Chateaues Trapesanzjanz**, diphenylpiperazine, 1890, A., 1332.
- Bischoff, Carl Adam, and Eduard Voit**, *s*-dimethylsuccinic acids, 1889, A., 490.
- the two *s*-dimethylsuccinic acids, 1890, A., 743.
- relation of the two *s*-dimethylsuccinic acids to pyrocinchonic acid, 1890, A., 743.
- Bischoff, Carl Adam, and Paul Walden**, disubstituted succinic acids, 1889, A., 959.
- physical constants of alkyl derivatives of ethyl ethenyltricarboxylate, 1890, A., 745.
- Bischoff, Carl Adam, and Paul Walden**, conductivity of the substituted succinic and glutaric acids, 1890, A., 1038.
- Bischoff, Carl Adam, Anton Sienecki, and Elias Brodsky**, sulphonation of aniline and naphthylamine with potassium hydrogen sulphate, 1890, A., 1149.
- Bischoff, Carl Adam**. See also *Max Conrad*.
- Bischoff, Carl August**, distribution of poisons in the human organism in cases of poisoning, 1883, A., 1020.
- Bischoff, Ernst**, action of nitrous acid on tetramethyldiamidobenzophenone, 1888, A., 1197.
- action of nitrous acid on tetramethyldiamidobenzophenone and analogous compounds, 1889, A., 511.
- derivatives of deoxybenzoin, 1889, A., 512.
- Bishop, Arthur Wright, and Ludwig Claesen**, camphoraldehyde, 1889, A., 619.
- Bishop, Arthur Wright, and William Henry Perkin, junior**, the action of ethyl dichloracetate on the sodium derivative of ethyl malonate, 1891, P., 41.
- Bishop, W.**, analysis of honey, 1885, A., 444.
- action of oils on polarised light, 1888, A., 388.
- estimation of sugar in presence of carbohydrates, 1889, A., 85.
- oil of sesame, 1890, A., 90.
- Bishop, W., and L. Ingé**, detection of cotton-seed oil in lard, 1889, A., 194.
- Bissinger, Theodor**, constituents of *Lactarius piperatus* and *Elaphomyces granulatus*, 1884, A., 480.
- Bistrzycki, Augustin**, opianic acid, 1888, A., 1209.
- action of *o*-diamines on phthalaldehydic acid, 1890, A., 969.
- action of *o*-diamines on *o*-aldehydobenzoic acid, 1891, A., 740.
- Bistrzycki, Augustin, and Gustav Cybulski**, action of acid chlorides on *o*-diamines, 1891, A., 694.
- phthalamidones, 1892, A., 1248.
- Bistrzycki, Augustin, and Stanislaus von Kostanecki**, isomeride of cuxanthone, 1885, A., 1077.
- Bistrzycki, Augustin, and Fritz Ulfers**, diacetyl-*o*-diamines, 1890, A., 1115; 1892, A., 1197.
- Bitschichin, Athanasius A., and Nicolai D. Zelinsky**, *s*-diethylsuccinic and methylethylsuccinic acids, 1890, A., 740.

- Bitschichin, Athanasius A.** See also *Nicolaï D. Zelinsky*.
- Bitté, Béla von**, sodium nitroprusside as a reagent for aldehydes and ketones, 1892, A., 924.
- behaviour of aldehydes and ketones with aromatic nitro-compounds, 1892, A., 1263.
- Bizio, Giovanni**, Bechi's newest method for the detection of cotton-seed oil in mixtures, 1889, A., 86.
- Bizzarri, Decio**, hydroxycoumarin, 1885, A., 901.
- new class of acridines: phenylcarbazacridine, 1891, A., 219.
- coumarone, 1891, A., 566.
- methylcarbazacridine, 1892, A., 343.
- carbazacridines: dehydration of amides in contact with diphenyl-derivatives, 1892, A., 617.
- Bizzarri, Decio**, and *Giovanni Campani*, attempts to obtain tartaric acid from glycerol and tartaric acid from erythrol, 1884, A., 297.
- native arsenic of Valtellina, 1886, A., 206.
- Blaas, Josef**, roemerite, botryogen, and native magnesium iron sulphate, 1884, A., 269.
- natural hydrous double sulphates, 1884, A., 1103.
- Blachstein**, gases of peptone blood, 1892, A., 363.
- Blackman, Frederick Frost**. See *Nieffried Ruhemann*.
- Bladin, Joh. Adolph**, action of cyanogen on the toluidines, 1884, A., 1141.
- action of cyanogen on aromatic diamines, 1885, A., 256.
- cyanogen compounds of the aromatic diamines, 1885, A., 784.
- derivatives of dicyanophenylhydrazine, 1885, A., 980; 1886, A., 146; 1887, A., 138; 1889, A., 702.
- diphenylmethyltriazole, 1889, A., 138.
- amidoximes and azoximes of the triazole and tetrazole series, 1889, A., 977.
- ditriazole-derivatives, 1890, A., 271.
- oxidation of phenylmethyltriazole-carboxylic acid, 1890, A., 1165.
- oxidation of phenylmethyltriazole-carboxylic acid: phenyltriazoledicarboxylic acid and the constitution of phenyltriazolecarboxylic acid, 1891, A., 472.
- condensation products of dicyanophenylhydrazine with aliphatic aldehydes, 1892, A., 596.
- Bladin, Joh. Adolph**, action of ethyl acetoacetate on dicyanophenylhydrazine, 1892, A., 597.
- triazole-derivatives, 1892, A., 637.
- triazole, 1892, A., 735.
- tetrazole, 1892, A., 1009.
- Bladin, Joh. Adolph**. See also *Oskar Widman*.
- Bläse, O. von**. See *Fedor F. Beilstein*.
- Blair, Andrew A.**, valuation of acetate of lime, 1885, A., 1014.
- estimation of carbon in steel, 1892, A., 237.
- Blake, Francis Hayes**, vanadinite in Arizona, 1885, A., 489.
- Blake, James**, relative toxic power of metallic salts, 1883, A., 745.
- action of inorganic compounds on living matter, 1886, P., 254; discussion, P., 254.
- physiological action of lithium, potassium, and rubidium salts, 1886, A., 385.
- physiological action and optical properties of inorganic substances, 1890, A., 813.
- physiological action of thallium salts, 1890, A., 1452.
- Blake, Joseph A.** See *Russell H. Chittenden*.
- Blake, Lucien J.**, production of electricity by evaporation and electrical neutrality of vapour arising from the electrified surfaces of liquids, 1884, A., 243.
- Blake, Robert Frederick**. See *Edmund Albert Letts*.
- Blake, William Phipps**, cascaterite, spodumene, and beryl from Dakota, 1884, A., 23.
- new locality of chalcuite, 1884, A., 26.
- metallurgy of nickel, 1884, A., 129.
- native lead and minium in Idaho, 1884, A., 563.
- columbite in the Black Hills of Dakota, 1885, A., 360; 1891, A., 1329.
- crystallised gold in prismatic forms, 1885, A., 487.
- meteorite from Green Co., Tennessee, 1886, A., 438.
- minerals from Arizona, —thenardite, mirabilite, glauberite, halite, and bourdonite, 1890, A., 572.
- Blanc**. See *Le Blanc*.
- Blanchard, Raphael**, colouring matter from *Diaptomus* analogous to carotene, 1890, A., 640.
- Blank, A.** See *Johannes Wislicenus*.
- Blank, Albert**, carbazole synthesis, 1891, A., 571.

- Blank, Albert.** See also *Ludwig Knorr*.  
**Blarez, Charles,** deplastering of wines, 1883, A., 252.  
 — volumetric estimation of sulphurous acid, 1886, A., 918.  
 — absolute acidity of animal fluids, 1886, A., 1057.  
 — saturation of normal arsenic acid with barium hydroxide, 1887, A., 7.  
 — saturation of arsenic acid with calcium and strontium oxides, 1887, A., 8.  
 — saturation of selenious acid by bases, 1887, A., 106.  
 — saturation of arsenic acid with magnesia: formation of ammonium magnesium arsenate, 1887, A., 204.  
 — estimation of oxygen dissolved in water, 1888, A., 1344.  
 — solubility of potassium hydrogen tartrate, 1891, A., 676.  
 — influence of extractive matter on the real alcoholic strength of spirits, 1891, A., 865.  
 — influence of inorganic potassium salts on the solubility of potassium hydrogen tartrate, 1891, A., 974.  
 — influence of potassium halides on the solubility of normal potassium sulphate, 1891, A., 974.  
 — influence of potassium salts on the solubility of potassium chlorate, 1891, A., 1319.  
**Blarez, Charles, and Georges Denigés,** distinguishing coal-tar colours from the natural colouring matter of wine, 1886, A., 1084.  
 — estimation of uric acid by potassium permanganate, 1887, A., 621.  
 — solubility of uric acid, 1887, A., 919.  
**Blarez, Charles.** See also *Maurice Hanriot*.  
**Blas and Miest,** extraction of the precious metals from all kinds of ores by electrolysis, 1883, A., 134.  
**Blasberg, Otto.** See *Georg Vortmann*.  
**Blaserna, Pietro, and Stanislaus Cannizzaro,** report on a memoir by Schiff "on the molecular volumes of liquids," 1883, A., 279.  
**Blasi, L. de,** Brieger's typhotoxine, 1890, A., 391.  
**Blasi, L. de, and G. Russo Travali,** reducing power of micro-organisms, 1890, A., 1453.  
**Blattner, G.,** decomposition of ammonium sulphate by means of sodium sulphate, 1885, A., 613.  
 — reaction of ammonium and sodium sulphates, 1886, A., 107.  
**Blau, Fritz,** action of sodium methoxide on bromobenzenes, 1887, A., 242.  
 — distillation of salts of pyridine-carboxylic acid, 1888, A., 728; 1889, A., 1212.  
 — preparation of mono- and dibromopyridines, 1889, A., 1212.  
 — elementary analysis, 1889, A., 1248.  
 — constitution of nicotine, 1891, A., 583.  
 —  $\alpha\beta$ -dipiperidyl, 1892, A., 1365.  
 — estimation of nitrogen in organic substances, 1892, A., 1515.  
**Blau, Fritz.** See also *Hugo Weidel*.  
**Bleekrode, L.,** indices of refraction of liquefied gases, 1885, A., 467.  
**Bleibtren, Leopold,** nitrogenous constituents of dogs' urine, 1890, A., 279.  
 — influence of muscular work on the output of urea, 1891, A., 350.  
**Bleibtren, Leopold.** See also *Edmund Friedrich Wilhelm Pfäuger*.  
**Bleicher,** microscopic structure of the oolitic iron ore of Lorraine, 1892, A., 791.  
**Blendermann, H.,** formation and decomposition of tyrosine in the body, 1883, A., 818, 876.  
**Bloch, Olaf Frederick.** See *Wyntham Rowland Dunstan*.  
**Blochmann, G. F. Rudolf,** electromotive forces of cells containing mixed salt solutions, 1890, A., 202.  
**Blochmann, Reinhard,** phenolphthaleïn as indicator in estimating carbonic anhydride in gases, 1884, A., 1072.  
 — carbonic anhydride in the atmosphere, 1887, A., 214.  
 — action of aniline hydrochloride on ethyl cyanide, 1887, A., 931.  
 — the concentration of reagents, 1890, A., 412.  
**Blochmann, Reinhard, and G. F. Rudolf**  
**Blochmann,** lecture experiments to demonstrate the dissociation of ammonium chloride, 1891, A., 1415.  
**Block, Hermann,** constituents of *Medera helix*, 1889, A., 294.  
**Block, Justus, and Bernhard Tollens,** methylhydroxyglutaric acid and the corresponding lactonic acid, 1886, A., 533.  
 — salts of levulinic acid, 1887, A., 800.  
**Bloem, Friedrich.** See *Adolf von Baeyer*.  
**Blomstrand, Christian Wilhelm,** oxyacids of chlorine, 1883, A., 645.  
 — a uranium mineral from Moss, 1884, A., 1102.

- Blomstrand, Christian Wilhelm**, the Hainstadt clays, 1886, A., 678.  
 — oxy-acids of iodine, 1887, A., 327.  
 — analyses of monazite and xenotime, 1889, A., 217.  
 — the so-called cyrtolite of Ytterby, 1889, A., 220.  
 — platinum compounds of ethyl sulphide, 1889, A., 230.  
 — iodic acid: double salts of iodic acid with other acids, 1890, A., 107.  
 — cerium and yttrium phosphates in South Norway, 1890, A., 111.  
 — monazite from Ural, 1890, A., 571.  
 — monazite from Sweden, 1891, A., 1168.  
 — gadolinite, 1892, A., 1410.
- Blondlot, René**, transference of copper across a stratum of gas: combination of nitrogen with copper, 1886, A., 422.
- Blondlot, René**, and **Ernest Bichat**, determination of the potential differences between mercury and electrolytes, 1888, A., 1005.
- Blondlot, René**. See also **Ernest Bichat**.
- Blount, Bertram**, cause of the decrepitations in "explosive pyrites," 1885, T., 593; P., 90.  
 — calcium borate, 1887, A., 108.  
 — estimation of carbon in steel, 1888, A., 530.  
 — igniting point of sulphur, 1890, A., 849.
- Bloxam, Arthur George**, action of carbonic oxide on lead and silver chlorides, 1886, A., 17.  
 — solubility of sulphur in alcohol, 1886, A., 593.
- Bloxam, Charles L.**, reconversion of nitroglycerol into glycerol, 1883, A., 788.  
 — use of bromine in testing for alkalis, 1883, A., 1036, 1175.  
 — reduction of potassium ferricyanide by potassium cyanide, 1884, A., 35.  
 — detection of silver cyanide, 1884, A., 118.  
 — reactions with silver cyanide, ferrocyanide, and ferricyanide, 1884, A., 118.  
 — silver nitrocyanide, 1884, A., 168.  
 — reaction between mercuric cyanide and silver nitrate in presence of ammonia, 1884, A., 168.  
 — barium and strontium in a boiler incrustation, 1884, A., 699.  
 — estimation of manganese in cast-iron or spiegel-eisen, 1885, A., 84.  
 — some reactions of silver cyanide, 1885, A., 183.
- Bloxam, Charles L.**, detection of iron, aluminium, etc., 1885, A., 1264.  
 — chronic phosphate, 1886, A., 17.  
 — ferrates; a lecture experiment, 1886, A., 848.  
 — detection of calcium in presence of strontium, 1886, A., 920.  
 — calcium ammonium arsenate and calcium arsenate, 1887, A., 108.  
 — colour tests for strychnine and other alkaloids, 1887, A., 752.
- Bloxam, William Popplewell**, and **Edward Felix Herroun**, iodolaldehyde, 1886, A., 864, 1006.
- Blümcke, Adolf**, influence of concentration on the specific heat of aqueous and alcoholic solutions of metallic chlorides, 1885, A., 8.  
 — determination of the specific gravity of carbonic acid solutions, 1885, A., 215.  
 — specific heat of uranium, 1885, A., 625.  
 — specific heat of aqueous alcohol, 1885, A., 1031.  
 — specific heat of concentrated soda solutions, 1885, A., 1101.  
 — modification of Bunsen's ice calorimeter, 1886, A., 5.  
 — specific gravities of mixtures of ethylic alcohol and carbonic anhydride, 1887, A., 435.  
 — determination of the specific weight and vapour pressure of mixtures of sulphurous and carbonic anhydrides, 1888, A., 775.  
 — isothermals of a mixture of sulphurous and carbonic anhydrides, 1889, A., 750.  
 — connection between the theoretical and empirical isothermals of mixtures, 1891, A., 375.  
 — change of the empirical and theoretical isothermals of mixtures of two substances with the temperature, 1892, A., 259.  
 — labile conditions of equilibrium in mixtures of two substances at a temperature below the melting-point of either, 1892, A., 936.
- Blümlein, Friedr.** See **Jos. Plöchl**.
- Blümlein, F. O.**, action of bromacetophenone on anides, 1885, A., 162.  
 — brominated phthalic acids, 1885, A., 162.
- Blum, F.**, thymolglyconic acid, 1892, A., 1116.
- Blum, L.**, estimation of silicon in iron, 1886, A., 835.  
 — separation of manganese from iron, 1887, A., 188.

- Blum, L.**, detection of albumin in urine, 1887, A., 1003.  
 — estimation of aluminium in presence of iron and phosphoric acid, 1888, A., 324.  
 — estimation of iron in iron ores by the tartaric acid method, 1888, A., 757.  
 — estimation of sulphur in coke, 1888, A., 1333.  
 — analysis of substances containing aluminium, calcium, and magnesium, 1889, A., 652.  
 — precipitation of magnesia, 1889, A., 1037.  
 — source of error in separating traces of manganese from much lime by ammonium sulphide, 1889, A., 1037.  
 — estimation of carbon in iron, 1889, A., 1088.  
 — estimation of sulphur in iron, 1890, A., 921.  
 — volumetric estimation of zinc, 1890, A., 1191; 1892, A., 534.  
 — estimation of sulphur in inorganic sulphides, 1891, A., 107.  
 — detection of foreign raw phosphates in powdered basic slag, 1891, A., 109.  
 — estimation of manganese in iron and steel, 1891, A., 963.  
 — manganese ammonium ferrocyanide, 1891, A., 1293.  
 — volumetric estimation of manganese, 1891, A., 1293.  
 — presence of lead in glass wool, 1892, A., 1375.  
 — absorption apparatus for use in the estimation of sulphur in iron, 1892, A., 1376.  
**Blumenbach, Edm.** See *Georg Dragen-dorff*.  
**Blunck-Schilkowitz**, butter making, 1884, A., 534.  
**Blundstone, Edwin Richardson**, glycogen in the connective tissue of molluscs, 1886, A., 569.  
**Blunt, Thomas Porter**, specific gravity of crystalline strychnine, 1886, A., 1047.  
 — a simple nitrometer, 1887, A., 998.  
 — assay of emetine in ipecacuanha wine, 1890, A., 310, 548.  
 — indirect estimation of alcohol, 1892, A., 543.  
**Blyth, Alexander Wynter**, studies of disinfectants by new methods, 1886, A., 573.  
 — distribution of lead in the brains of two factory operatives dying suddenly, 1887, P., 71.  
 — nutritive value of wheat meal, 1890, A., 396.  
**Blyth, Alexander Wynter**, and *George Henry Robertson*, notes of experiments on butter fat, 1889, P., 5.  
**Blythe, G. W.**, arsenic cyanide, 1888, A., 1047.  
**Boam, F. W.**, estimation of arsenic, 1890, A., 1026.  
**Boas, Isidor**, digestion of albumin, 1888, A., 733.  
 — free hydrochloric acid in gastric juice, 1889, A., 734.  
 — estimation of hydrochloric acid in gastric juice, 1892, A., 97.  
**Boas, Isidor.** See also *Carl Anton Ewald*.  
**Boccard, G. di**, manganese hydroxide from the Euganean, Italy, 1892, A., 639.  
**Bochefontaine and William Oechsner de Coninck**, physiological action of  $\beta$ -collidinehexahydride, 1885, A., 681.  
**Bochefontaine.** See also *Germain Sée*.  
**Bock, Joh.**, transformation of cane sugar into dextrose, 1890, A., 21.  
**Bock, Joh.** See also *Christian Bohr*.  
**Bock, Otto**, conductivity of compounds of potassium and sulphur in solution, of sodium sulphide, and of boric acid, 1887, A., 758.  
**Bockairy, P.**, adulteration of butter, 1888, A., 1135.  
 — estimation of cotton-seed oil in lard, 1890, A., 307.  
**Bockal, Arpad**, physiological action of *p*-aldehyde, 1887, A., 391.  
**Bocklisch, Oscar**, ptomaines from fish, 1885, A., 566, 1146.  
 — ptomaines from pure cultivation of *Vibrio proteus*, 1887, A., 742.  
**Boddé, H.**, detection of resorcinol, 1889, A., 1090.  
**Bode, Johann**, derivatives of neurine and choline, 1892, A., 806.  
**Bodewig, Anton.** See *Carl Paal*.  
**Bodewig, Charles**, analyses of magnetic pyrites, 1883, A., 1061.  
 — estimation of sulphur in pyrites, 1884, A., 492.  
 — estimation of boric acid in borosilicates, 1884, A., 871.  
 — nephrite from Tasmania, 1885, A., 733.  
**Bodewig, Charles**, and *Gerhard vom Rath*, colemanite from California, 1885, A., 957.  
**Bodewig, J.** See *Wilhelm La Coste*.  
**Bodisco, A.**, heat of dissolution of anhydrous lithium iodide, 1889, A., 329.  
 — heat of dissolution of anhydrous lithium bromide, 1889, A., 1098.

- Bodländer, Guido**, secretion of perspiration by the skin after taking alcohol, 1888, A., 977.
- solubility of some substances in mixtures of water and alcohol, 1891, A., 794.
- solubility of mixed salts in water, 1891, A., 795.
- rubidium barium dithionate, 1891, A., 802.
- formation of melilite during the burning of Portland cement, 1892, A., 416.
- behaviour of molecular compounds on dissolution, 1892, A., 1154.
- Bodländer, Guido**, and **Isidor Traube**, distinction between albuminoids, gelatin. and peptones by the capillaryimetric method, 1886, A., 1087.
- Bodmer, Richard**. See *Alfred W. Stokes*.
- Böcher, Philipp**. See *Adolph Claus*.
- Boeck, Georges de**. See *Walther Spring*.
- Boeck, John**, oriental enamel on tiles and its imitation, 1889, A., 1112.
- Böcker, Franz**. See *Emrich Meissl*.
- Böckmann, Fr.**, manufacture of sorgho- and imply-sugar in the United States, 1883, A., 683.
- Böckmann, Otto**. See *Otto Boeckmann*.
- Boeddinghaus, Walther**, *p*-nitrosobenzylaniline and *p*-nitrosobenzyltoluidine, 1891, A., 1205.
- Boeddinghaus, Walther**. See also *Ju- lius Bredt*.
- Böhm, Amand**. See *Conrad Willge- rodt*.
- Böhm, Joseph**, formation of starch from sugar, 1883, A., 820.
- nature of the gases contained in vegetable tissues, 1884, A., 670.
- behaviour of vegetable tissues, starch, and charcoal towards gases, 1884, A., 1250.
- Böhm, L.**, absorption of mercury sali- cylate, 1891, A., 351.
- Böhm, L.**, and *O. Schwenk*, putrefaction of albumin in the alimentary canal of Herbivora, 1885, A., 284.
- Boehm, Max**. See *Carl Engler*.
- Böhm, Rudolf**, chemical and toxicolo- gical relations of certain fungi, 1885, A., 1008.
- curare, 1887, A., 1125.
- formation of lactic acid in muscles 1891, A., 848.
- Boehme, E. P.**, the welding of iron, 1884, A. 786.
- Böhmer, Carl**, albuminoid and non- albuminoid nitrogen compounds of certain vegetables, 1883, A., 236.
- estimation of nitric oxide and nitric acid, 1883, A., 508.
- Bohmer, Carl**. See also *Franz Josef König*.
- Bohringer, Christian**. See *Wilhelm Körner*.
- Boekmann, Otto**. See *Eugen Bam- berger, Paul Friedländer*.
- Bölsing, Friedrich**, and *Julius Tafel*, acid hydrazides, 1892, A., 981.
- Böniger, M.**, desmotropic derivatives of ethyl succinosuccinate, 1888, A., 954.
- ethyl dihydroxyquinonediacar- boxylate and its hydro-derivatives, 1889, A., 878.
- Börnstein, Ernst**, methylanthraquinone and some of its derivatives, 1883, A., 70.
- anthracenecarboxylic acid from methylanthraquinone, 1884, A., 329.
- oxidation of glycerol in alkaline solution, 1886, A., 327.
- detection of Fahlberg's "saccharin" in articles of food, 1888, A., 760.
- detection of "saccharin," 1889, A., 449.
- Börnstein, Ernst**, and *Alexander Herz- feld*, oxidation of levulose, 1886, A., 328.
- Börnstein, Ernst**. See also *Alexander Herzfeld*.
- Boessneck, Paul Ernst**,  $\alpha$ -naphthoic cyanide, 1883, A., 595.
- derivatives of  $\alpha$ -naphthoic acid, 1883, A., 807.
- methylnaphthalene, 1883, A., 1135.
- condensation of chloral hydrate with tertiary amines, 1885, A., 976; 1886, A., 458.
- acetyl-*o*-tolylenediamine and ac- tazimidotoluene, 1886, A., 874.
- condensation of chloral hydrate with secondary amines, 1888, A., 587.
- compounds of acetone with the sulphides of aromatic amines, 1888, A., 942.
- valuation of wine lees, 1890, A., 303.
- Boessneck, Paul Ernst**. See also *Oskar Knöfler*.
- Böttcher, Wilhelm**, anhydro-compounds, 1883, A., 800.
- molecular transformations, 1883, A., 1118.
- migrations in benzene  $\alpha$ -di- derivatives, 1885, A., 658.

- Böttcher, Wilhelm.** See also *Gustav Kraemer*.
- Böttger, silvering of glass,** 1885, A., 847.
- Böttger, Heinrich,** polysulphides of sodium, 1884, A., 1260.
- constitution of the alkaline polysulphides, 1884, A., 1260.
- action of sulphur on sodium mercaptide, 1884, A., 1282.
- ethyl sulphides, 1884, A., 1282.
- Böttiger, Eduard,** quinolinehydrazines, 1892, A., 212.
- Böttinger, Carl,** anilpyruvic acid, 1883, A., 1128; 1891, A., 1054.
- action of phenol on ketonic acids, 1884, A., 55.
- dipyrrogallopropionic acid, 1884, A., 318; 1890, A., 982.
- aniluvitonic acid, 1884, A., 320.
- oakbark tannic acid, 1884, A., 321.
- relation between benzene and pyridine, 1884, A., 758.
- pyridine derivatives, 1884, A., 758.
- condensation to pyridine derivatives, 1884, A., 758.
- pyrotritartaric acid, 1884, A., 993.
- action of aniline on pyrotartaric acid, 1884, A., 1006.
- hemlock-tannin, 1884, A., 1025.
- bark-tannins, 1884, A., 1025.
- acetylation of gallic acid and tannin, 1884, A., 1178.
- digallic acid, 1884, A., 1178.
- preparation of thiolactic acid, 1885, A., 752.
- condensation products of pyruvic acid, 1885, A., 758.
- pyridinetricarboxylic acid, 1885, A., 1144.
- Böttinger's pyridinedicarboxylic acid, 1886, A., 368.
- oak-tannin, 1887, A., 584.
- basic aluminium sulphate, 1888, A., 556.
- compounds of gelatin with tannin, 1888, A., 614.
- gallic acid and tannin, 1888, A., 1090.
- the water of crystallisation of certain pyrotritartarates, 1888, A., 1274.
- formation of carbon oxysulphide, 1889, A., 466.
- benzoyltannin, 1890, A., 163.
- a new reaction of tannin, 1890, A., 896.
- oxidation of gallic acid, tannin, and oak-tannin, 1890, A., 1130.
- gallic acid, tannin, and oak-tannin, 1890, A., 1275.
- Böttinger, Carl,** gallic acid, tannin, and oak-tannic acids, 1891, A., 70.
- action of phenylhydrazine on tannin extracts, 1891, A., 70.
- isogallic acid phenylhydrazide, 1891, A., 202.
- oxidation of gallic acid, 1891, A., 713.
- preparation of glyceryl pyruvate, 1891, A., 1018.
- tannic acid of oak wood, 1891, A., 1061.
- oxidation of aniluvitonic acid, 1891, A., 1092.
- preparation of tiacetin, 1891, A., 1183.
- condensation of anilpyruvic acid, 1892, A., 54.
- derivatives of tannin, 1892, A., 181.
- dimethylracemic acid, 1892, A., 698.
- peptone salts of gluten, 1892, A., 1016.
- Bogdanowska, Vera E. von,** dibenzyl ketone and dibenzylcarbinol, 1892, A., 851.
- Bogomoletz, Ivan,** separation of strontium from calcium, 1884, A., 1077.
- Boguski, J. J.,** rate of the reaction between marble and hydrochloric acid, 1888, A., 900.
- attempt to eliminate the change in volume of the vessel in measuring the compressibility of liquids, 1888, A., 1019, 1237.
- variations in the electrical resistance of nitrogen peroxide with rise of temperature, 1890, A., 203.
- Bohland, Karl,** estimation of nitrogen in urine, 1885, A., 609.
- nitrogenous constituents of urine, 1889, A., 536.
- Bohland, Karl,** and **Heinrich Schurz,** excretion of uric acid and nitrogen in cases of leucæmia, 1891, A., 488.
- Bohland, Karl.** See also **Eduard Friedrich Wilhelm Pfäfer.**
- Bohlig, E.,** solubility of glass, 1885, A., 688.
- action of silver nitrate on pure potassium carbonate, 1885, A., 1111.
- volumetric estimation of chlorine, 1886, A., 178.
- examination of beer and a method for estimating alcohol, 1886, A., 493.
- quantitative evaporation of liquids in the spheroidal state, 1886, A., 647.
- testing potassium carbonate, 1888, A., 1224.

- Bohn, René**, and **Carl Graebe**, galloflavin, 1887, A., 1107.
- Bohn, René**, and **Karl Heumann**, *p*-azophenol, 1883, A., 533.
- azophenols, 1884, A., 1011.
- Bohr, Christian**, deviation of oxygen at low pressures from Boyle's law, 1886, A., 591.
- compounds of hæmoglobin and oxygen, 1890, A., 1450.
- compounds of hæmoglobin with carbonic anhydride, 1891, A., 343.
- the specific quantities of oxygen in blood, 1891, A., 344.
- combination of hæmoglobin with oxygen, 1892, A., 1369.
- Bohr, Christian**, and **Joh. Bock**, solubility of gases in water, 1892, A., 107.
- Bohr, Christian**, and **Sophus Torup**, oxygen in oxyhæmoglobin crystals, 1892, A., 1017.
- Boillot, A.**, heat of combination of carbon and oxygen, 1884, A., 141.
- heat of combination of hydrogen and oxygen, 1885, A., 8.
- Bois.** See **Du Bois**.
- Boisbaudran, Paul Emile (dit François)**
- Lecoq de**, separation of gallium, 1883, A., 21, 153, 156, 293, 715, 1054; 1884, A., 17, 158, 822.
- reactions of iridium, 1883, A., 905.
- iridium potassium sulphate, 1883, A., 905.
- violet iridium sulphate, 1883, A., 1057.
- spectrum of samarium, 1885, A., 621.
- action of hydrogen peroxide on cerium and thorium, 1885, A., 635.
- alloys of indium and gallium, 1885, A., 638.
- metallic spectra, 1885, A., 949.
- spectrum of ammonia, 1885, A., 1025.
- fluorescence of rare earths, 1885, A., 1174.
- peculiar electric spectrum of rare earths of the terbia group, 1886, A., 293.
- use of potassium sulphate in the fractionation of rare earths, 1886, A., 424.
- equivalent of terbia, 1886, A., 424, 507; 1891, A., 17.
- mosandrium, 1886, A., 507.
- fluorescence spectra of *Za* and *Zβ*, 1886, A., 666.
- gadolinium, the *Ya* of Marignac, 1886, A., 667; 1889, A., 456; 1891, A., 17.
- Boisbaudran, Paul Emile (dit François)**
- Lecoq de**, holmium, or Soret's X, 1886, A., 667.
- dysprosium, 1886, A., 667.
- spectrum and atomic weight of germanium, 1886, A., 768; 1887, A., 15.
- fluorescence spectrum of yttrium, 1886, A., 838.
- identity of the reversal spectrum of *Zβ* with Crookes' fluorescence spectrum, 1886, A., 958.
- fluorescence of manganese compounds, 1887, A., 3, 189, 873, 1006.
- fluorescence of bismuth compounds, 1887, A., 4, 189, 873, 1006.
- purification of yttria, 1887, A., 13.
- fluorescence of manganese and bismuth, 1887, A., 189, 873, 1006.
- red fluorescence of alumina, 1887, A., 191, 409, 538, 625.
- red fluorescence of chromiferous gallium, 1887, A., 755.
- fluorescence of spinel, 1887, A., 1005.
- new fluorescences with well-defined spectra, 1887, A., 1008; 1888, A., 97; 1890, A., 435.
- gallium, 1887, A., 1081.
- degree of oxidation of chromium and manganese in fluorescent mixtures, 1888, A., 329, 544, 1001, 1229; 1889, A., 2.
- fluorescent mixtures, 1888, A., 544.
- fluorescence of cupriforous calcium oxide, 1888, A., 882.
- fluorescence of ferruginous calcium oxide, 1888, A., 1001.
- history of the rare earths, 1890, A., 565.
- spark spectrum of gadolinium chloride, 1891, A., 2.
- supersaturation, 1892, A., 398.
- samarium, 1892, A., 780.
- spectra of gallium, 1892, A., 930.
- Bois Reymond.** See **Du Bois Reymond**.
- Boissien, Pierre de**, water of crystallisation of alums, 1887, A., 892.
- methyliodoform, 1888, A., 930.
- new method for the preparation of tetraphenylethylene, 1888, A., 959.
- Bokenham, T. Jessopp.** See **Thomas Lauder Brunton**.
- Bokorny, Thomas**, reduction of silver salts by living protoplasm, 1887, A., 987.
- supposed occurrence of hydrogen peroxide in animal and vegetable juices, 1888, A., 751.

- Bokorny, Thomas**, liberation of silver by living cells, 1888, A., 980.  
 — formation of starch from various substances, 1889, A., 67.  
 — living vegetable protoplasm, 1890, A., 283.  
 — formation of starch from formaldehyde, 1891, A., 1539.  
 — nutrition of green plant-cells with formaldehyde, 1892, A., 1259.  
**Bokorny, Thomas**. See also *Oscar Loew*.  
**Bollert, A.**, derivatives of anthramine, 1883, A., 1139.  
**Bolton, H. Carrington**, application of organic acids to the examination of minerals, 1883, A., 857.  
 — potassium and sodium peroxides, 1886, A., 768.  
 — list of elementary substances announced from 1877 to 1887, 1889, A., 13.  
**Bolton, Percy R.** See *Russell H. Chittenden*.  
**Boltzmann, Ludwig**, calculation of corrections of Bunsen's ice calorimeter, 1886, A., 409.  
 — the equations employed by Pebal in his investigation of euehlorine, 1886, A., 418.  
 — thermochemical law conjectured by Pebal respecting non-reversible electrolytic actions, 1887, A., 1072.  
 — osmotic pressure and the kinetic theory of gases, 1891, A., 389, 638.  
**Bombelon, E.**, ergotinine and cornutine, 1888, A., 970.  
**Bond, Charles John**, hæmoglobin crystals in septic diseases, 1888, A., 181.  
**Bondi, Simon**. See *Carl Weinreb*.  
**Bondonneau, Lucien**, estimation of moisture in amylaceous matters, 1884, A., 927.  
**Bondonneau, Lucien**, and *Forest*, saccharification in vegetable tissues, 1888, A., 41.  
**Bondzyski, Stanislas**, derivatives of hydrothiocinnamic acid, 1887, A., 1108.  
**Bondzyski, Stanislas**, and *Hans Ruff*, analysis of butter, 1890, A., 838.  
**Bondzyski, Stanislas**. See also *Jacob Ginsburg*.  
**Bone, William Arthur**. See *Bevan Lean*.  
**Bongartz, Josef**, atomic weight of antimony, 1883, A., 1056.  
 — volumetric estimation of phosphoric acid, 1885, A., 428.  
 — compounds of aldehydes, ketones, and ketonic acids with thioglycollic and thiocetic acids, 1886, A., 937.  
**Bongartz, Josef**, ethenyl trisulphide, 1886, A., 1000.  
 — compounds of aldehydes, ketones, and ketonic acids with thioglycollic acids, 1888, A., 478.  
**Bongartz, Josef**, and *Alexander Classen*, atomic weight of tin, 1889, A., 19.  
**Bonhöffer, Otto**. See *Eugen Lellmann*.  
**Boni, Domenico**, detection of the colouring matter of Campeachy wood in wine, 1884, A., 502.  
**Boniscontro, L.** See *Michele Fileti*.  
**Bonna, August**, phenyl-*p*-toluidine, 1887, A., 927.  
**Bonnans, Edmond**. See *Georges Denigés*.  
**Bonnier, Gaston**, development and absorption of heat by plants, 1886, A., 483.  
**Bonnier, Gaston**, and *Louis Mangin*, respiration and transpiration of fungi, 1884, A., 628.  
 — respiration of leaves in the dark, 1884, A., 857.  
 — methods of studying the influence of light on the respiration of plants, 1884, A., 1066.  
 — exchange of gases between lichens and the atmosphere, 1885, A., 580.  
 — activity of chlorophyll under the influence of the ultra-violet rays, 1886, A., 387.  
**Bonnier, Gaston**. See also *Philippe Edouard Léon van Tieghem*.  
**Bonz, Albert**, formation of amides from ethereal salts and ammonia, and the reversal of the reaction, 1889, A., 335.  
**Bonz, Richard**, derivatives of ethylthiophen, 1885, A., 766.  
 — bromination of  $\alpha$ - and  $\beta$ -thiophenic acids, 1885, A., 1206.  
 — synthesis of thiophendicarboxylic acid, 1885, A., 1207.  
**Boole, Lucy Everest (Miss)**. See *Wyndham Rowland Dunstan*.  
**Booth, H.** See *T. Miniati*.  
**Booth, James C.**, toughening gold and silver, 1884, A., 1445.  
 — toughening gold, silver, etc., in the crucible, 1885, A., 462.  
 — graphite crucibles, 1885, A., 616.  
**Bopp, Hermann**. See *Adolph Claus*.  
**Boquillon, Henri**, action of chlorine on isobutyl alcohol, 1885, A., 961.  
**Borchers, Wilhelm**, estimation of hydrochloric, hydrocyanic, and thiocyanic acids when simultaneously present, 1883, A., 1173.  
 — galvanic element, 1887, A., 541.

- Borchers, Wilhelm**, electrolytic extraction of antimony, 1888, A., 230.
- estimation of carbonic acid in mineral waters, 1888, A., 533.
- Bordas, Frédéric**, grain of *Holcus Sorghum*, 1887, A., 519.
- Borden, J. L.** See *Julian Wood*.
- Bordt, Fritz**. See *Eugen Bamberger*.
- Borelli, S.**, benzotribromanilide, 1888, A., 1292.
- Borggreve, Bernard**, and *Richard Hornberger*, analysis of bilberries, 1886, A., 953.
- Borgmann, Eugen**, relation between the glycerol and alcohol in wine, 1883, A., 518.
- formic and acetic acids in plants, 1883, A., 611.
- sulphuric acid in sherry, 1883, A., 829.
- determination of small proportions of alcohol in viscous liquids, 1884, A., 641.
- ratio of glycerol to alcohol in beer, 1884, A., 641.
- examination of spices, 1884, A., 642.
- examination of wine for nitric acid, 1883, A., 753.
- Borgmann, Eugen**, and *Th. Wilhelm Fresenius*, analyses of pure sherry, 1889, A., 476.
- Borgmann, Eugen**. See also *Th. Wilhelm Fresenius*, *Carl Remigius Fresenius*.
- Borgmann, Iwan I.**, photoelectric battery, 1883, A., 625.
- Borgmann, Otto**, benzyl compounds, 1886, A., 56.
- Borgmann, Otto**. See also *Siegfried Gabriel*.
- Bormann, Karl**, Götz's method of estimating phosphorus in iron, 1890, A., 416.
- Bornemann, Ernst**, Etard's reaction for the preparation of aromatic aldehydes, 1881, A., 1161.
- action of hydroxylamine on cinnamaldehyde hydrocyanide, 1886, A., 799.
- synthesis of quinoline, 1886, A., 1045.
- *m*-methylcinnamic acid, 1887, A., 829.
- *p*-toluidine oxalate, 1890, A., 137.
- Bornträger, Arthur**, Witt's filtering apparatus, 1886, A., 917.
- estimation of tartaric acid in wine and tartar, 1886, A., 1082; 1888, A., 536.
- Bornträger, Arthur**, polariscopic estimation of sugar in sweet wines, 1890, A., 426.
- inversion of saccharose by hydrochloric acid, 1891, A., 535.
- use of potassium hydrogen tartrate in titrating standard acids and alkalis, 1892, A., 525.
- decolorisation of wines, 1892, A., 543.
- Bornträger, Hugo**, preparation of selenium on a large scale, 1883, A., 852.
- manufacture of sulphuric acid free from arsenic and selenium, 1884, A., 126.
- use of salicylic acid for preserving standard solutions, 1889, A., 73.
- examination of commercial alcohol, 1889, A., 552.
- characteristic reaction for aldehyde, 1889, A., 657.
- impurities in commercial alcohol, 1890, A., 669.
- simple and rapid preparation of pure gases, 1890, A., 849.
- simple and rapid evolution of pure gases, 1891, A., 14.
- test for resorcinol and thymol, 1891, A., 370.
- Gayon's aldehyde reaction, 1891, A., 1142.
- Borodin, J.**, a crystallizable colouring matter in chlorophyll, 1884, A., 910.
- Borrella, G.**, anisates, 1886, A., 65.
- Borsbach, Emil**, double salts of quinoline and metallic quinolides, 1890, A., 643.
- action of quinoline on copper sulphate, 1890, A., 796.
- Borsbach, Emil**. See also *Georg Vortmann*.
- Bosio, Guido**, influence of temperature on Griess' reaction for nitrites in water, 1892, A., 657.
- Bosscha, Johannes**, meteorite of Karang-Modjo, or Magetan, in Java, 1887, A., 710.
- Bosshard, Emil**, estimation of ammonia in vegetable juices and extracts, 1884, A., 873.
- action of alkalis on amides, 1884, A., 878.
- Kjeldahl's method of estimating nitrogen, 1885, A., 837.
- wine analyses, 1891, A., 359.
- Bosshard, Emil**. See also *Ernst Schulze*.
- Bossung, Eugen**. See *Albert Edinger*.
- Bostwick, Arthur E.**, influence of light on the electrical resistance of metals, 1885, A., 469.

- Bothamley, Charles Herbert**, orthochromatic photography, 1887, A., 874.  
 — reduction of potassium dichromate with oxalic acid, 1888, T., 159.
- Bothamley, Charles Herbert**, and **George de Roos Thompson**, estimation of chlorates by means of the zinc-copper couple, 1887, P., 141; 1888, T., 164.  
 — action of phosphorus trichloride on organic acids and water, 1891, A., 170.
- Bott, William**, constitution of the three isomeric pyrocresols, 1887, P., 114; discussion, P., 114.  
 — method of determining vapour-density applicable at all temperatures and pressures, 1888, P., 110; discussion, P., 110.
- Bott, William**, and **Duncan Scott Macnair**, apparatus for determining vapour-densities, 1887, A., 632.
- Bott, William** and **James Bruce Miller**, some derivatives and dyes obtained from  $\alpha$ -pyrocresol, 1888, P., 110; 1889, T., 51.
- Bottomley, James T.**, Daniell's cell of small internal resistance, 1885, A., 469.  
 — condensation of gases on the surface of glass, 1885, A., 477.
- Bouchard, A.**, analyses of wines from Anjou, 1884, A., 646.
- Bouchard, Ch.**, naphthol as an anti-septic medicine, 1888, A., 183.
- Bouchardat, Gustave**, glycol and glycol-monochlorhydrin, 1885, A., 498.
- Bouchardat, Gustave** and **Justin Lafont**, essence of lemon, 1885, A., 1141.  
 — conversion of terebenthene into an active terpene, 1886, A., 364.  
 — synthesis of an inactive borneol, 1886, A., 364.  
 — action of acetic acid on terebenthene, 1886, A., 475.  
 — monohydric alcohols from terebenthene, 1886, A., 475.  
 — synthesis of an inactive terpinol, 1886, A., 890.  
 — active camphene and ethyl-borneol, 1887, A., 596.  
 — action of sulphuric acid on terebenthene, 1888, A., 294.  
 — transformation of terpene into menthene, 1889, A., 276.  
 — action of heat and acetic acid on French oil of turpentine, 1889, A., 895.  
 — action of benzoic acid on turpentine, 1892, A., 199.
- Bouchardat, Gustave**, and **Raymond Paul Eugène Voiry**, terpinol, 1887, A., 677; 1888, A., 719, 961.
- Bouchardat, Gustave**. See also **Raymond Paul Eugène Voiry**.
- Bougarel, Charles**. See **Adrian**.
- Bouilhon, E.**, estimation of solid matter in wines, 1887, A., 87.
- Bouquet, Lombard de**. See **Lombard de Bouquet**.
- Bourbouze**, soldering aluminium, 1884, A., 961.  
 — an aluminium alloy, 1886, A., 772.
- Bourcart, Emanuel**, bromo-derivatives of dibenzyl ketone, 1889, A., 884.
- Bourcart, Robert**, milk analysis, 1889, A., 1090.  
 — titration of alcohol with chromic acid, 1890, A., 1030.
- Bourcart, Robert**. See also **Emilio Nölting**.
- Bourgeois, Edouard**, tolylnaphthyl sulphides, 1891, A., 1238.
- Bourgeois, Edouard**. See also **Friedrich Krafft, Walther Spring**.
- Bourgeois, Léon**, artificial production of witherite, strontianite, and calcite, 1883, A., 31.  
 — artificial production of wollastonite and meionite, 1883, A., 560.  
 — artificial reproduction of certain silicates and titanates, 1884, A., 564.  
 — artificial preparation of rhodonite, 1886, A., 214.  
 — barium and strontium titanates, 1886, A., 985.  
 — crystallised insoluble carbonates, 1887, A., 221.  
 — calcium silico-stannate, 1887, A., 333.  
 — artificial production of crocoisite, 1887, A., 781.  
 — celestine and anglesite by Senarmont's process, 1888, A., 116.  
 — artificial production of hydrocerussite: its composition: constitution of white lead, 1889, A., 21.  
 — crystallised *o*-silicates of nickel and cobalt, 1889, A., 831.  
 — crystallised basic copper nitrate identical with gerhardite, 1890, A., 714.  
 — volatility of carbamide and its crystallisation by sublimation in a vacuum, 1892, A., 1309.
- Bourgoin, Edme Alfred**, solubility of mercuric iodide in water and alcohol, 1885, A., 350.
- Bourgoin, Edme Alfred**, and **Paul L. Chastaing**, phosphatic mineral water at Viy, 1888, A., 354.

- Bouriez, A.**, volumetric estimation of sulphides, 1892, A., 1377.
- Bourquelot, Emile Elié**, physiological functions of maltose, 1884, A., 345.
- invertin, 1884, A., 983.
- differences between pepsin and trypsin, 1885, A., 408.
- diastase, 1885, A., 927.
- selective fermentation, 1885, A., 1003.
- fermentation of invert sugar, 1885, A., 1085.
- composition and fermentation of invert sugar, 1886, A., 169.
- preparation of galactose, 1886, A., 328.
- action of saliva on starch, 1887, A., 354.
- starch granules, 1887, A., 355.
- deterioration of diastase by the action of heat, 1887, A., 608.
- alcoholic fermentation of galactose, 1888, A., 572.
- saccharine substances in fungi, 1889, A., 740.
- sugars in mushrooms, 1891, A., 103.
- starch in *Boletus puchypus*, 1892, A., 230.
- distribution of sugar in *Boletus edulis* and *D. aurantiacus*, 1892, A., 519.
- detection and extraction of trehalose, 1892, A., 545.
- Bourquelot, Emile Elié**, and **E. Troisier**, assimilation of milk sugar, 1889, A., 735.
- Bourquelot, Emile Elié**. See also **A. Dastre**.
- Bourquin, A.**, action of zinc chloride on sulcylaldehyde and *p*-hydroxybenzaldehyde, 1884, A., 1164.
- Bourquin, A.** See also **Marcellus Nencki**.
- Boursier and St. André**, manuring potatoes with potash salts, 1885, A., 833.
- Boury and O. Provins**, extraction of beet, 1885, A., 464.
- Boussingault, Jean Baptiste Joseph**, deposits of manganese on the surfaces of rocks, 1883, A., 170.
- bronze implement used by the miners of Peru, 1883, A., 691.
- cultivation of the cacao tree, 1883, A., 933.
- mineral combustibles, 1883, A., 941; 1884, A., 521.
- cocoa and chocolate, 1884, A., 202.
- analyses of combustible minerals, 1884, A., 780.
- Boussingault, Jean Baptiste Joseph**, temperature of hailstones, 1885, A., 685.
- Boutelleau**, absorption of nitrogen by Leguminosae, 1884, A., 1401.
- Boutet, J. F.**, mineral waters of St. Nectaire, 1886, A., 858.
- potable water at Royat, 1886, A., 859.
- Boutroux, L.**, fermentation of bread, 1884, A., 132; 1891, A., 1532.
- acid fermentation of glucose, 1886, A., 682.
- gluconic acid, 1887, A., 468.
- hydroxygluconic acid, 1890, A., 1399.
- Bouty, Edmond**, electrical conductivity of dilute solutions, 1884, A., 881, 1241.
- electrical conductivity of aqueous solutions of potassium chloride, 1886, A., 653.
- electrical conductivity of saline solutions of mean concentration, 1886, A., 753.
- electrical conductivity of mixtures of salts, 1886, A., 839; 1887, A., 877.
- conductivity of acids and salts in dilute solutions, 1887, A., 758.
- application of the electrometer to the study of chemical reactions, 1887, A., 882.
- molecular conductivity of fuming nitric acid, 1888, A., 545.
- electrical conductivity of concentrated nitric acid, 1888, A., 640.
- electrical conductivity and electrolysis of concentrated solutions of sulphuric acid, 1889, A., 556.
- co-existence of dielectric power and electrolytic conductivity, 1892, A., 759.
- Bouty, Edmond**, and **Lucien Poincaré**, conductivity of fused mixtures of sodium and potassium nitrates, 1888, A., 1231.
- Bouty, Edmond**. See also **Louis Paul Gailletet**.
- Boutzoureuau, Basile**, selenites, 1888, A., 220; 1891, A., 262.
- Bouveault, Louis**, synthesis of nitriles and of the  $\beta$ -ketonic ethers, 1891, A., 41.
- action of amines of the benzene series and of phenylhydrazine on  $\beta$ -ketonic nitriles, 1891, A., 51.
- Bouveault, Louis**. See also **Maurice Hanriot**.
- Bovet, V.**, composition of the bacillus from *Erythrona nodosum*, 1889, A., 539.

- Bowler, Thos. Ide**, Chinese treatment of cobalt ores, 1888, A., 1253.
- Bowman, Walker**, action of potassium cyanide on meconine, 1887, A., 586.
- acetylhydrocotarnineacetic acid, 1887, A., 1056.
- Boye, Harald**. See *Eugen Lellmann*.
- Boyen, Edgar von**, bromoeugenol-derivatives, 1888, A., 680.
- Boyer, E.**, estimation of nitric acid, 1890, A., 1025.
- estimation of ash in sugars, 1890, A., 1472.
- new method for the estimation of nitrogen, 1892, A., 237.
- Boymond**, precipitation of albuminoids from urine, 1890, A., 273.
- trichloroacetic acid as a reagent for albumin, 1890, A., 312.
- Boys, Charles Vernon**, Bunsen's ice calorimeter, 1887, A., 1073.
- Brackelsberg, Adolf**, behaviour of phosphorus with iron and slags, 1886, A., 426.
- Brackett, Richard N.**, ethereal salts of benzoic sulphinide, 1888, A., 282.
- Brackett, Richard N.**, and *Charles Willard Hayes*, preparation of o-sulphobenzonic acid, 1888, A., 279.
- Brackett, Richard N.**, and *J. Francis Williams*, newtonite and rectorite, two minerals of the kaolin group, 1892, A., 22.
- Brackett, Richard N.** See also *John C. Branner*.
- Bradbury, C. M.**, topaz from Maine, U.S., 1884, A., 27.
- garnet (var. spessartite) from Amelia Co., Virginia, 1885, A., 227.
- Bradbury, Robert Hart**. See *Edgar Francis Smith*.
- Bradford, J. R.**, physiological action of ulexine, 1888, A., 1325.
- effect of partial extirpation of the kidneys on nutrition, 1891, A., 1273.
- Bradford, S. S.**, basic lead acetate as a test for olive oil, 1885, A., 603.
- Bradley, Walter Parke**,  $\beta$ -thienylglyoxylic acid and its derivatives, 1886, A., 1014.
- disalicylaldehyde, 1889, A., 873.
- Bradley, Walter Parke**, and *Frank Burnett Dains*, action of acetic chloride on o-hydroxyaldehydes, 1892, A., 1458.
- Bragard, Max**, estimation of zinc as pyrophosphate, 1887, A., 398.
- estimation of zinc, 1887, A., 689.
- Braikoff, Nicolaus P.** See *Carl Paal*.
- Braithwaite, John Oldham**, and *Edward Henry Farr*, fruit of *Daphnidium Cubeba*, 1886, A., 1064.
- Braithwaite, John Oldham**. See also *William Arthur Hurnson Naylor*.
- Brame, Charles**, certain properties of hydrogen cyanide, 1883, A., 129.
- detection of hydrocyanic acid, 1884, A., 371.
- loss of nitrogen during the fermentation of farm-yard manure, 1884, A., 1416.
- pseudosquare octahedrons of sulphur, 1885, A., 1182.
- genesis of sulphur crystals in square tables, 1886, A., 16.
- Brand, Albano**, artificial breithauptite from the Mechnich lead furnaces, 1887, A., 17.
- use of "solid bromine" in analysis, 1887, A., 688.
- use of double pyrophosphates in the electrolytic estimation and separation of metals, 1890, A., 294.
- metallurgical products from the Mechnich lead works, 1890, A., 338.
- Brand, C.**, estimation of combined carbon in iron, 1887, A., 866.
- Brand, Fr.** See *Albert Hilger*.
- Brander, K. A.**, thermoelectric currents between amalgamated zinc and zinc sulphate, 1890, A., 98.
- Brandhorst, C. Heinrich**, and *Karl Kraut*, phosphotungstic acid, 1889, A., 469.
- Brandis, Ernst**, condensation derivatives of  $\alpha$ -naphthaldehyde, 1889, A., 1199.
- Brandl, Josef**, chemical composition of minerals of the cryolite group, 1883, A., 29.
- Brandl, Josef**, and *Ludwig Pfeiffer*, melanin, 1890, A., 805.
- Branly, E.**, estimation of haemoglobin in blood by optical means, 1883, A., 394.
- Branner, John C.**, and *Richard N. Brackett*, peridotite from Arkansas, 1890, A., 345.
- Brard**, currents produced by fused nitrates in contact with incandescent carbon, 1883, A., 273.
- fuel to produce electricity, 1883, A., 626.
- Brasch, Richard**, nitro-derivatives of alizarin and purpurin, 1891, A., 1077.
- Brasch, Richard**, and *Georg Freyss*, benzidine colouring matters, 1891, A., 1231.
- Brasch, Richard**. See also *Friedrich Kehrman*.

**Brass, Wilhelm.** See **Otto Wallach.**

**Brasse, Léon,** amylase in leaves, 1885, A., 182.

— action of the diastase of malt on crude starch, 1885, A., 499.

— solution of starch in leaves, 1886, A., 827.

— accumulation of sugar in the root of the sugar-beet, 1886, A., 1063.

— estimation of mercury in urine, 1888, A., 196.

— Tanret's reaction for albumin, peptone, and alkaloids in urine, 1888, A., 204.

— influence of temperature on the tension of dissociation of oxyhaemoglobin, 1889, A., 630.

**Braun, Erich,** sulphuranes, 1888, A., 243.

— aldrine formation, 1889, A., 613.

**Braun, Erich,** and **Victor Meyer,** aldrines and amidoacetophenone, 1888, A., 366.

— aldrines, 1888, A., 700.

— aldrine formation, 1888, A., 1093.

**Braun, Ferdinand,** electrical energy and chemical action, 1883, A., 413.

— electromotive force of certain galvanic combinations, 1883, A., 764.

— unipolar conductivity of solid substances, 1883, A., 769.

— solubility of solid substances and the changes in volume and energy accompanying solution, 1887, A., 436.

— decrease of compressibility of ammonium chloride solutions with increase of temperature, 1887, A., 768.

— electric properties of rock-salt, 1888, A., 9.

— relation between the compressibilities of a solution and of its constituent parts, 1888, A., 214.

— compressibility of rock-salt, 1888, A., 404.

— change of volume in gases on mixture, 1888, A., 1015.

— observations on electrolysis, 1891, A., 778.

— electrostenolysis, 1892, A., 393.

— electrocapillary reactions, 1892, A., 394.

**Braun, Hermann,** titration of carbamide with mercuric nitrate, 1885, A., 702.

**Braun, L.,** and **Robert Ebert,** naphthalene dihydrosulphide and dithiocyanate, 1892, A., 1471.

**Brauner, Bohuslav,** chemistry of the cerite metals, 1883, T., 278; 1885, T. 879.

**Brauner, Bohuslav,** didymium, 1883, A., 18.

— density of cerium sulphate solutions, 1888, T., 357; P., 25.

— experimental researches on the periodic law: tellurium, 1889, T., 382; P., 94; discussion, P., 94.

— basis or standard of atomic weights, 1889, A., 335, 819.

— volumetric estimation of tellurium, 1890, P., 168; 1891, T., 58, 238; P., 31.

— atomic weight of lanthanum, 1891, A., 881.

**Brauner, Bohuslav,** and **František Tomfíček,** action of hydrogen sulphide on arsenic acid, 1887, P., 130; 1888, T., 115.

**Brauns, Ferdinand,** action of aniline and toluidine on nitro- $\beta$ -naphthaquinone, 1884, A., 1038.

**Brauns, Ferdinand.** See also **Theodor Zincke.**

**Brauns, Reinhard,** cause of the anomalous double refraction of certain salts crystallizing in the regular system, 1883, A., 1041.

— manganite from Oberstein, 1886, A., 676.

— paleopicroite of Amelose and the products of its alteration, 1888, A., 34.

— products of the weathering of diabase, 1892, A., 1412.

**Braultsch, J.,** microscopic examination of water for organic impurities, 1884, A., 221.

**Bréal, Emile,** microscopic fresh-water Alga, 1886, A., 1060.

— new mode of testing for nitrates, 1887, A., 1138.

— nitrates in soils and waters, 1888, A., 384.

— absorption of nitrogen by Leguminosae, 1888, A., 1330.

— fixation of nitrogen by Leguminosae, 1890, A., 79.

— cultivation of Leguminosae, 1890, A., 660.

— aerobic nitrate-reducing ferment in straw, 1892, A., 1259.

— fixation of free nitrogen during vegetation, 1892, A., 1508.

**Bredig, Georg,** kinetic nature of osmotic pressure, 1890, A., 105.

**Bredig, Georg.** See also **Wilhelm Will.**

**Bredt, Julius,** action of nitric acid on fatty acids containing the isopropyl group, 1883, A., 176.

— camphoric acid, 1885, A., 395; 1886, A., 156.

- Bredt, Julius**, breaking up of the lactone ring by means of alcohol and halogen hydro-acids, 1886, A., 531.
- acetyllevulinic acid; constitution of  $\gamma$ -ketonic acids, 1887, A., 126; 1890, A., 863.
- acetyllevulinic acid, 1890, A., 863.
- action of ethyl sodacetate on ethyl benzalmalonate, 1891, A., 712.
- Bredt, Julius**, and **Walther Boeddinghaus**, Rischbieth's  $\gamma$ -valeroximido-lactone; methylsuccinimide, 1889, A., 1061.
- Bremer, Gustav Jacob Wilhelm**, change of specific rotatory power under the influence of various solvents, 1885, A., 622.
- decomposition of malic acid obtained from fumaric acid, 1886, A., 48.
- differential tonometer, 1888, A., 402.
- cause of the change of specific rotatory power under the influence of various solvents, 1888, A., 1141.
- density and expansion by heat of saline solutions, 1889, A., 329.
- Breneman, Abram Adam**, apparatus for the rapid analysis of gases, 1884, A., 213.
- estimation of carbon in cast-iron, 1884, A., 219.
- coloured tubes for Nesslerising, 1884, A., 1072.
- Brenstein**, detection of thiosulphate in sodium hydrogen carbonate, 1887, A., 79.
- Brenstein, G.**, action of ether on plant life, 1888, A., 624.
- Brenzinger, Karl**, cystin and cystein, 1892, A., 1111.
- Bréon, R.**, analyses of minerals from the basalt of Iceland, 1886, A., 602.
- crystallographic association of triclinic feldspars, 1886, A., 992.
- Bretet, H.**, estimation of free and combined carbonic anhydride in mineral waters, 1891, A., 562.
- Breuer, August**. See **Theodor Zincke**.
- Breyer, Theodor**, gas-generator with continuous removal of the exhausted solution, 1889, A., 1048.
- estimation of raffinose in raw sugar, 1890, A., 301.
- Brezina, Aristides**, the meteorites of Alfanello, 1883, A., 1071.
- uranothallite, 1886, A., 24.
- Briant, Lawrence**, estimation of magnesia as ammonium magnesium phosphate, 1886, A., 490.
- Bridge, J. L.**, quinoneoxime alkyl oxides, 1892, A., 1456.
- Brieger, Ludwig**, putrefaction alkaloids, 1883, A., 924, 1159.
- ptomaines, 1884, A., 1056, 1202.
- preparation of phenolsulphuric acid from urine, 1884, A., 1353.
- basic products (ptomaines) from human corpses, 1885, A., 278.
- bacteria, 1885, A., 578.
- a ptomaine producing tetanus, 1887, A., 284.
- source of trimethylamine in ergot of rye, 1887, A., 394.
- tetanine and mytilotoxine, 1888, A., 1317.
- Briem, H.**, absorption of water by beet-roots, 1885, A., 928.
- Brierley, John Thomas**, new vanadium compounds, 1885, P., 114; 1886, T., 30.
- electrolytic preparation of vanadious sulphate, 1886, T., 822.
- Briggs, John Frederick**. See **Henry Edward Armstrong**.
- Brigham, C. Pliny**, double halogen salts of bismuth, 1892, A., 788.
- Brignone**, different methods of estimating chlorides in urine, 1888, A., 990.
- Brignone, Giovanni**, analysis of the water of a thermal spring in the island of Pantelleria, 1884, A., 1106.
- Brinck, Julia**, synthetic action of living cells, 1889, A., 632.
- nutrition of muscle, 1891, A., 1273.
- Brinckmann** (and others), manuring with basic-slag and other phosphates, 1887, A., 524.
- Briosi, Giovanni**, and **Torquato Gigli**, chemical composition and anatomical structure of the fruit of the tomato (*Lycopersicum esculentum*), 1891, A., 955.
- Brito, Philip S.**, method of testing for iodine in presence of large quantities of bromine, 1885, A., 189.
- Britton, J. Blodget**, normal solutions for the volumetric estimation of iron, 1883, A., 241.
- Brix, Richard**, exchange of chlorine, bromine, and iodine between organic and inorganic compounds, 1885, A., 34.
- Broadbent, Frank Vincent**. See **Hurvey Washington Wiley**.
- Brochet, André**, pyrogenic hydrocarbons in compressed gas, 1892, A., 797.
- action of chlorine on isobutylic alcohol, 1892, A., 1292.
- Brocimer, Alphonse L.**, reactions of the alkaloids, 1890, A., 310.
- Brockhaus**, experiments on the poisonous action of potato-brandy, 1883, A., 362.

- Brodsky, Elias.** See *Carl Adam Bischoff*.
- Brodsky, Leon,** action of aldehydes on ammonium thiocyanate, 1887, A., 580.
- Brodsky, Solomon.** See *Aug. Bischoff*.
- Brøgger, Woldemar Christoffer,** the Silurian rocks of Christiania, 1883, A., 723.
- pitchblende and xenotime from Norway, 1884, A., 1101.
- minerals of the pegmatite vein at Moss, 1886, A., 27.
- two new Norwegian minerals, 1886, A., 34.
- crystals of thorium, 1886, A., 427.
- minerals of the syenite-pegmatite veins of the South Norwegian augite and nepheline-syenites, 1890, A., 1077.
- Brøgger, Woldemar Christoffer,** and *Helge Bäckström*, dahllite, 1890, A., 714.
- minerals of the garnet group, 1891, A., 24.
- Brøgger, Woldemar Christoffer,** and *Gust. Flink*, crystalline form of beryllium, 1884, A., 1092.
- Broekema, L.,** and *Adolf Mayer*, comparison of ensilage with hay as fodder, 1886, A., 737.
- Brömme, Chr.,** action of bromine on the naphthaquinoneoximes, 1888, A., 490.
- action of monamines on the naphthaquinoneoximes, 1888, A., 491.
- Brömme, Eduard,** and *Ludwig Claisen*, action of ethyl oxalate on acetophenone, 1888, A., 691.
- Brömme, R.,** amido-derivatives of *m*-xylene, 1888, A., 1295.
- Brömme, Wilhelm,** *m*-cyanobenzoic acid, 1887, A., 484.
- behaviour of cyanobenzoic acids on dry distillation, 1887, A., 484.
- Broeckmann, K.,** estimation of phosphoric acid and of magnesia, 1883, A., 380.
- Brooks, E. E.,** phosphorescence of lithium compounds in vacua, and spectra of coated terminals, 1891, A., 249.
- Brooks, Frank Terry.** See *Frank Austin Gooch*.
- Brothers, Horace Edward.** See *Watson Smith*.
- Brouard, L.** See *M. Bauer*.
- Brouardel, P.,** and *Paul Loye*, poisoning by hydrogen sulphide, 1885, A., 1151.
- Brough, Bennett Hooper,** griqualandite, 1888, A., 236.
- Brown, Adrian John,** chemical action of pure cultivations of *Bacterium aceti*, 1886, T., 172; P., 136; discussion, P., 137.
- Brown, Adrian John,** an acetic ferment which forms cellulose, 1886, T., 432; P., 194; discussion, P., 195.
- chemical action of *Bacterium aceti*, 1886, P., 136; 1887, T., 638; P., 86.
- the cellulose formed by *Bacterium xylinum*, 1887, P., 87.
- influence of oxygen and of concentration on fermentation, 1892, T., 369; P., 33.
- Brown, Alexander Crum,** ferric ferri-cyanide as a reagent for detecting traces of reducing gases, 1888, A., 627.
- synthesis of bibasic acids, 1890, A., 583.
- presidential address, 1892, T., 474; P., 59.
- Brown, Alexander Crum,** and *John Gibson*, a rule for determining whether a given benzene derivative shall be a *m*-di-derivative or a mixture of *o*- and *p*-di-derivatives, 1892, T., 367; P., 39; discussion, P., 39.
- Brown, Alexander Crum,** and *James Walker*, electrolysis of potassium ethyl malonate and potassium ethyl succinate, 1890, A., 583.
- electrolytic synthesis of bibasic acids, 1891, A., 1192.
- synthesis of alkyl derivatives of succinic acid, 1891, A., 1193.
- Brown, Ch.,** manuring of turnips, 1886, A., 1068.
- Brown, D. Rainy,** and *William Henry Perkin, junior*, cryptopine, 1891, P., 166.
- Brown, Henry C.** See *Rudolph Fittig*.
- Brown, Horace,** maltodextrin, 1886, A., 438.
- on the search for a cellulose-dissolving (cytohydrolytic) enzyme in the digestive tract of certain animals, 1892, T., 352; P., 30; discussion, P., 33.
- Brown, Horace,** and *George Harris Morris*, non-crystallisable products of the action of diastase on starch, 1885, T., 527; P., 79.
- molecular weights of the carbohydrates, 1888, T., 610; P., 57; 1889, T., 462; P., 96; discussion, P., 98.
- amylo-dextrin of W. Nügeli, and its relation to soluble starch, 1889, T., 449; P., 95.
- identity of cerebrose and galactose, 1889, P., 167; discussion, P., 167; 1890, T., 57.
- germination of some of the Gramineæ, 1890, T., 458; P., 52; discussion, P., 54.

- Brown, J.**, formation of a stalactite by vapour, 1885, A., 1034.  
 — theory of voltaic action, 1887, A., 417.  
 — electrification of effluvia from chemical or voltaic reactions, 1891, A., 7.
- Brown, Lucine Polk**, analysis of tobacco screenings, 1889, A., 543.  
 — pea-nut, 1892, A., 1122.
- Brown, Phillip H.**, ethoxy-*m*-toluic acid, 1883, A., 471.
- Brown, Thomas**, failure of ammonium sulphate as a manure, 1886, A., 646.
- Brown, Walter Lee**, analysis of chrome paints, 1887, A., 304.
- Brown, William George**, hydrous manganese aluminium sulphate from Sevier Co., Tennessee, 1885, A., 226.  
 — cassiterite from Irish Creek, Rock-bridge Co., Virginia, 1885, A., 488.  
 — crystallographical notes, 1887, A., 342.
- Browne, David H.**, phosphorus in the Ludington mine, Michigan, 1889, A., 763.
- Browne, George M.** See *Arthur Michael*.
- Browning, Philip Embury**, rhodochrosite from Franklin Furnace, New Jersey, 1891, A., 527.  
 — separation of strontium and calcium nitrates by means of amyl alcohol, 1892, A., 915.  
 — separation of barium from calcium, 1892, A., 915.
- Browning, Philip Embury**. See also *Frank Austin Gooch*.
- Brown-Séguard, Charles Edouard**, and *A. d'Arsonval*, poisonous effect of expired air, 1889, A., 629.
- Brubacher, Robert**. See *Heinrich Goldschmidt*.
- Brubaker, Albert P.** See *Henry C. Chapman*.
- Brubaker, Heinrich**, inorganic constituents of bone and organs of normal and rachitic children, 1891, A., 847.
- Bruce, James Douglas**, silver hydroxide, 1885, A., 124.  
 — analysis of cassiterite from King Co., N. Carolina, 1885, A., 126.  
 — marmalite from Himmelfahrt Mine, Freiburg, 1885, A., 222.
- Brück, P.**, diiodoacetylenedicarboxylic acid and diiodoacrylic acid, 1892, A., 431.
- Brücke, Ernst von**, alkophyr, and the true and so-called biuret reaction, 1883, A., 1019.
- Brücke, Ernst von**, alkophyr and biuret, 1886, A., 338.  
 — colour reaction of guanine, 1887, A., 280.  
 — does human urine contain free acid? 1887, A., 986.  
 — behaviour of Congo-red with human urine and with acid salts, 1888, A., 381.  
 — behaviour of Congo-red with acids and salts, 1888, A., 625.  
 — van Deen's test for blood and Vitali's test for pus, 1889, A., 1040.
- Brückner, Carl**, condensation of dichloro-ether with cresols, 1890, A., 1140.
- Brückner, Carl**. See also *Max Conrad, Wilhelm Hecht*.
- Brückner, E.**, Russian black earth, 1887, A., 687.
- Brügelmann, G.**, on crystallization, 1883, A., 147; 1885, A., 114.  
 — experiments on crystallization exemplifying Berthollet's law of affinity, 1883, A., 148.  
 — estimation of thiosulphuric acid, 1884, A., 492.  
 — crystallisation and physical union, 1889, A., 817.  
 — dimorphism of barium oxide: a new catalytic phenomenon, 1890, A., 850.  
 — characteristics of the alkaline earths and of zinc oxide, 1890, A., 850.  
 — characteristics of the alkaline earths, 1892, A., 17.
- Brüggemann, Rudolf**, action of sodium on ethyl butyrate and isobutyrate, 1888, A., 1176.
- Brühl, Julius Wilhelm**, molecular refraction of liquid organic compounds of high dispersive power, 1887, A., 191.  
 — experimental examination of the older and more recent dispersion formulae, 1887, A., 195.  
 — Thomsen's supposed explanation of molecular refraction relations, 1887, A., 200.  
 — criticism of Thomsen's theory of the heat of formation of organic compounds, 1887, A., 423.  
 — influence of single and double union on the refractive power of compounds: constitution of benzene and naphthalene, 1887, A., 1005.  
 — terpenes and their derivatives, 1888, A., 377, 494; 1892, A., 200, 347, 624, 1100.  
 — apparatus for fractional distillation in a vacuum, 1889, A., 207.  
 — sublimation apparatus, 1889, A., 463.

- Brühl, Julius Wilhelm**, apparatus for crystallising at a low temperature, 1889, A., 461.
- concentration of the sun's rays for chemical reactions, 1890, A., 1033.
- crystallisation at a low temperature, 1890, A., 1043.
- measurement of refractive indices at high temperatures by means of the total reflectometer, 1891, A., 513.
- determination of the specific gravity of viscid substances, 1891, A., 520, 1147.
- refraction and chemical constitution of gases and vapours, 1891, A., 629.
- refractive indices of water, 1891, A., 629.
- relation between the spectrometrical constants and chemical constitution of epichlorhydrin, acetaldehyde, *p*-acetaldehyde, and benzene, 1891, A., 630.
- relations between the heats of combustion and structural formulæ of the alkylene oxides, acetaldehyde and its polymerides, trimethylene and benzene, 1891, A., 633.
- relations between dispersion and chemical constitution, 1891, A., 774.
- vacuum desiccator arranged for evaporation at any temperature, 1891, A., 1152.
- pyrone, 1891, A., 1195.
- ethyl acetoacetate, 1892, A., 583.
- alcohol of antipyrin, 1892, A., 730.
- action of sodium and carbonic anhydride on antipyrin, 1892, A., 1106.
- trimethylene, 1892, A., 1163.
- camphene and camphoric acid, 1892, A., 1240.
- dipropargyl and benzene, 1892, A., 1436.
- Brühl, Julius Wilhelm**, and **Heinrich Biltz**, metallic derivatives of alcohols, 1891, A., 656.
- Brühl, Julius Wilhelm**, and **Ferdinand Müller**, terpenes, 1892, A., 722.
- Brühl, Julius Wilhelm**, **Heinrich Biltz**, **August Cantzler**, and **Ludwig Reuter**, terpenes and their derivatives, 1892, A., 623.
- Bruel, G.**, volumetric estimation of iron by means of sodium thiosulphate and salicylate, 1884, A., 367.
- Brummer**, white mustard as fodder, 1884, A., 864.
- Brünig, A.**, yield of butter from flesh and stale cream, 1885, A., 620.
- Brüning, Gustav von**, methylhydrazine, 1888, A., 936; 1890, A., 23.
- Brüning, Gustav von**. See also **Adolf von Baeyer**.
- Bruère**. See **John Casthélaz**.
- Brugman, Wm. F.**, influence of copper on the estimation of sulphur, 1887, A., 296.
- Brugnatelli, Eugenio**, detection of mercury in organic liquids, 1890, A., 926.
- Bruhns, Gustav**, adenine and hypoxanthine, 1890, A., 534.
- Bruhns, Gustav**, and **Albrecht Carl Ludwig Martin Leonhard Kossel**, adenine and hypoxanthine, 1892, A., 220.
- Bruhns, Willy**, synthesis of quartz, corundum, etc., 1890, A., 112.
- Bruhns, Willy**, and **Karl H. E. (J. Busz)**, phosphosiderite, 1890, A., 1073.
- Brükner, Bruno**, contribution to the more exact knowledge of the chemical nature of starch grains, 1884, A., 575.
- Brullé, Raoul**, adulteration of olive oil, 1888, A., 876; 1891, A., 506.
- reactions of oils with silver nitrate, 1889, A., 1261.
- analysis of olive oil and seed oils, butter and margarine, 1891, A., 506.
- Brun, A.**, mineralogical notes, 1883, A., 31; 1884, A., 402.
- galena with octahedral cleavage, 1883, A., 428.
- a crystal of stibnite from Japan, 1885, A., 221.
- Brun, Etienne**, cupric oxybromide analogous to atacamite, 1889, A., 1112.
- compounds of cuprous iodide and ammonium thiosulphate, 1892, A., 1167.
- Brunck, Heinrich**, and **Carl Graebe**, soluble alizarin-blue, 1883, A., 74.
- Brunck, Otto**, derivatives of *p*-dianilidobenzene, 1892, A., 1450.
- Bruneau, Brise**. See **Gustave Rousseau**.
- Brunel, O.**,  $\beta$ -ethylnaphthalene, 1884, A., 1035.
- Brunelle, Joseph**. See **François Auguste Frédéric Combemale**.
- Brunlechner, A.**, minerals from Carinthia, 1888, A., 233.
- Brunn, Otto**, murexoin, 1888, A., 452.
- action of iodine on hydrogen arsenide and antimonide, 1888, A., 1224.
- hydrogen arsenide and antimonide, 1890, A., 209.
- Brunnemann, C.**, estimation of phosphorus in basic slag, 1887, A., 527.
- Brunner, Daniel B.**, and **Edgar Francis Smith**, minerals from Berks Co., Pa., 1884, A., 663.

- Brunner, Heinrich**, azoresorcinol and azoresorufin, 1885, A., 776.  
 — reaction of sodium nitroprusside with alkaline and alkaline earthy hydroxides, 1890, A., 198.  
 — synthesis of double sulphides of the alkali metals and the heavy metals, 1890, A., 215.  
**Brunner, Heinrich**, and **Ernest Chuard**,  $\beta$ -amidoalizarin, 1885, A., 806.  
 — phytochemical studies, 1886, A., 576.  
**Brunner, Heinrich**, and **Philippe Chuit**, dichroms, 1888, A., 363.  
 — dichroms obtained by the action of aqua regia and bromine aqua regia, 1888, A., 1182.  
**Brunner, Heinrich**, and **Charles Kraemer**, action of nitrobroinic acid on organic compounds, 1884, A., 1815.  
 — azoresorcinol and azoresorufin, 1884, A., 1833.  
 — amidophenolsulphonic acids and their relationship to Liebermann's colouring matters, 1884, A., 1354.  
**Brunner, Heinrich**, and **William Robert**, colouring matters from phenols, 1885, A., 525.  
**Brunner, Jos. C. A.**, action of isobutaldehyde on quinaldine (2-methylquinoline), 1887, A., 975.  
**Brunner, Karl**, quinol and quinone of ditolyl, 1889, A., 996.  
**Brunner, Philipp**, diundecylenic acid, 1886, A., 1011.  
**Brunner, Philipp**, and **Otto Nikolaus Witt**, benzidine derivatives, 1887, A., 672.  
 — naphthaphenazine, 1888, A., 59.  
**Brunner, Philipp**. See also **Zdenko Hanns Skraup**, **Friedrich Krafft**.  
**Bruns, Wilhelm**, and **Otto (Freiherr) von der Pfordten**, mercurous oxide, 1888, A., 1037.  
**Brunswig, H.**, derivatives of acetothione, 1887, A., 236.  
**Brunton, Thomas Lauder**, physiological action of brucine and bromostychnine, 1885, T., 143; P., 5.  
**Brunton, Thomas Lauder**, and **T. Jessopp Bokenham**, physiological action of amyl nitrite, 1889, A., 433.  
 — action of hydroxylamine and nitrites on blood pressure, 1889, A., 630.  
**Brunton, Thomas Lauder**, and **John Theodore Cash**, action of calcium, barium, and potassium salts on muscle, 1883, A., 875.  
 — connexion between chemical constitution and physiological action, 1884, A., 348.  
**Brunton, Thomas Lauder**, and **John Theodore Cash**, action of caffeine and theine on voluntary muscle, 1887, A., 985; 1888, A., 1217.  
 — chemical constitution and physiological action, 1887, A., 985; 1891, A., 1279.  
**Brunton, Thomas Lauder**, and **Allan Macfadyen**, ferment action of bacteria, 1890, A., 916.  
**Brunton, Thomas Lauder**, and **Silvery Harris Cox Martin**, action of alcohols and aldehydes on proteids, 1891, A., 947.  
**Brush, George Jarvis**, and **Edward Salisbury Dana**, spodumene and the products of its alteration, 1883, A., 438.  
 — mineral locality at Branchville, 1890, A., 1072.  
**Brush, George Jarvis**, and **Samuel Lewis Penfield**, scovellite, a new phosphate of didymium, yttrium, etc., 1884, A., 26.  
 — identity of scovellite and rhabdophane, 1884, A., 827.  
**Braylants, Gustave**, thiocyanic acid in the animal organism, 1888, A., 1321.  
 — analysis of peptones, 1890, A., 1351.  
**Bruyn (van Troastenburg), Cornelis Adriaan Lobry de**, action of hydrocyanic acid and of dilute sulphuric acid on aldol, 1885, A., 240.  
 — propenylglycollic acid, 1885, A., 242.  
 — action of potassium cyanide on *m*-dinitrobenzene, 1885, A., 656.  
 — displacement of the NO<sub>2</sub> group by an oxy-alkyl group, 1885, A., 657.  
 — action of potassium cyanide on *o*- and *p*-dinitrobenzene, 1885, A., 657.  
 — propionic acid and some of its derivatives, 1885, A., 963.  
 — identity of the two ortho-positions in the benzene nucleus, 1885, A., 972.  
 — ethenylglycollic acid, 1886, A., 224.  
 — preparation of mercury fulminate, 1886, A., 680.  
 — direct substitution in the aromatic series, 1891, A., 428.  
 — conversion of *o*-chloronitrobenzene and *o*-bromonitrobenzene into *o*-nitroanisole and *o*-nitrophenetol, 1891, A., 429.  
 — *as*-trinitrobenzene, 1891, A., 429.  
 — *s*-dinitrophenol, 1891, A., 430.  
 — displacement of the nitro-group by chlorine or bromine, 1892, A., 305.  
 — free hydroxylamine, 1892, A., 402, 1891.

- Bruyn (van Troastenburg), Cornelis Adriaan** Lobry de, apparatus for determining vapour pressures, 1892, A., 679.
- explosion of ammonium nitrate, 1892, A., 683.
- estimation of sulphur in red copper, 1892, A., 753.
- Bruyn (van Troastenburg), Cornelis Adriaan** Lobry de, and **Frederik Hendrik van Leent**, estimation of copper, 1892, A., 753.
- Bubnow, N. A.**, chemical constituents of the thyroid gland, 1884, A., 1060.
- Buch, Karl**, conversion of phenols into amines, 1885, A., 147.
- Buch, Karl**. See also **Alexander Zega**.
- Buchan, Alexander**, Ruffie's method of estimating ammonia, 1890, A., 1024.
- Buchanan, John**, thermoelectric position of carbon, 1886, A., 295.
- electrical conductivity of hot gases, 1887, A., 1071.
- Buchanan, John Young**, occurrence of sulphur in marine muds and nodules, and its bearing on their mode of formation, 1891, A., 994.
- composition of some deep sea deposits from the Mediterranean, 1891, A., 995.
- Bucher, Emil**, *p*-methylbenzil and benzil-*p*-carboxylic acid, 1890, A., 168.
- oxidation of benzyl *p*-tolyl ketone, 1890, A., 260.
- Buchka, Karl von**, hæmatoxylin and brazilin, 1884, A., 1043.
- action of sulphur chloride on ethyl sodacetoacetate, 1885, A., 1200.
- formation of phenylglyoxylic acid from benzoic cyanide, 1887, A., 487.
- *p*-tolylglyoxylic acid, 1887, A., 949.
- preparation of *m*-nitrotoluene, 1889, A., 696.
- Buchka, Karl von**, and **Adolf Erek**, brazilin, 1885, A., 907.
- Buchka, Karl von**, and **P. H. Irish**, action of potassium ferricyanide on acetophenone, 1887, A., 483.
- oxidation of ketones, 1887, A., 825.
- Buchka, Karl von**, and **Antonio José da Cruz Magalhães**, cytosine, 1891, A., 587, 750.
- Buchka, Karl von**, and **Ferdinand Schachtebeck**, reduction products of *m*-nitrotoluene, 1889, A., 701.
- Buchka, Karl von**, and **Charles T. Sprague**, formation of pyridine from amidoazonaphthalene, 1889, A., 728.
- ethyl thiocetoacetate, 1890, A., 28.
- Buchka, Karl von**, and **Charles T. Sprague**, action of phenylhydrazine on ethyl thiocetoacetate, 1890, A., 796.
- Buchkremer, Leonard**, change of volume on mixture of two liquids, and its influence on the refractive power, 1891, A., 2.
- Buchmann, Carl**. See **Hermann Maas**.
- Buchner, Eduard**, influence of oxygen on fermentation, 1885, A., 1002.
- action of ethereal salts of diazoacetic acid on ethereal salts of unsaturated acids, 1888, A., 1274.
- action of methyl diazoacetate on ethereal salts of unsaturated acids, 1889, A., 694; 1890, A., 736.
- isomeride of glyoxaline, 1889, A., 1214.
- acetylenedicarboxylates and phenylhydrazine, 1890, A., 156.
- fermentation, 1892, A., 820.
- Buchner, Eduard**, and **Theodor Curtius**, action of ethyl diazoacetate on aromatic hydrocarbons, 1885, A., 207.
- synthesis of ketonic acids from aldehydes and ethyl diazoacetate, 1885, A., 1238.
- gelatin, 1886, A., 635.
- Buchner, Eduard**, and **Hans Dessauer**, phenyltrinitroethylenecarboxylic acids, 1892, A., 849.
- Buchner, Eduard**, and **August Papendieck**, bromacetamide, 1892, A., 827.
- Buchner, Eduard**, and **Hugo Witter**, *s*-trimethylenetricarboxylic acid, 1890, A., 1397.
- citric acid, 1892, A., 824.
- *s*-ethanetetra-carboxylic acid, 1892, A., 824.
- Buchner, Georg**, action of ammonium sulphide on metallic pyrophosphates, 1884, A., 218.
- detection of sugar in urine, 1885, A., 843.
- mercurous sulphate, 1886, A., 852.
- cadmium sulphide: commercial cadmium pigments, 1888, A., 224.
- analysis of wax, 1889, A., 322.
- analysis of white wax, 1892, A., 665.
- cadmium sulphides, 1892, A., 778.
- Buchner, O.** See **Albert Hilger**.
- Buchstab, Lazarus**. See **Eulhyme Klimenko, Nicolai D. Zelinsky**.
- Buchstab, M.**, *m*-azo- and hydrazo-phenetol, 1884, A., 1147.
- Budde, E.**, dead-space in chemical reactions, 1891, A., 975.
- Budde, F.**, estimation of grape sugar in urine by Roberts' method, 1888, A., 198.

- Buddeberg, M.**, replacement of the methylene hydrogen atoms in deoxybenzoin and benzylcyanide: synthesis of substituted quinoline, 1890, A., 1142.
- Buddéus, Wilhelm**, action of benzoic chloride on sodium cyanamide in the presence of ether, 1890, A., 1253.
- Budisteann, Demetre**. See *Lazar Edlecanu*.
- Bücheler, Max**. See *Carl Gustav Hüfner*.
- Bücher, August Wilhelm**. See *Adolph Claus*.
- Büchner, Ernst**, action of carbonic anhydride on ultramarine, 1887, A., 774.
- Bücking, Hugo**, glaseite, blodite, kainite, and boracite from Douglas-hall, 1890, A., 18.
- Bühning, Ludwig**, estimation of fat in fodder, 1888, A., 633.
- Büllo, Carl**, phenylhydrazine compounds, 1887, A., 138, 144.
- ethyl phthalacetate, 1887, A., 144.
- Büllo, Carl**. See also *Emil Fischer, Ludwig Knorr, Karl Polstorff*.
- Bürger, Josua**. See *Friedrich Krafft*.
- Büsgen, M.**, experiments with *Drosera rotundifolia*, 1884, A., 917.
- function of tannin in plants, 1890, A., 819.
- behaviour of tannin in plants, 1891, A., 104.
- Bütschli, Otto**, glycogen in the Protozoa, 1886, A., 87.
- Büttner, Max**. See *Eugen Lellmann*.
- Bufalini**, formation of iodohæmin as a method for detecting blood-stains, 1886, A., 184.
- Bugaleff**. See *Alexei A. Wolkoff*.
- Bugarszky, Stefan**, velocity coefficients of bases, 1891, A., 1413.
- Buisine, A.**, constituents of woolgrease, 1885, A., 509.
- composition of suint, 1886, A., 902.
- amines in suint, 1887, A., 792.
- volatile acids of suint, 1888, A., 673.
- Buisine, A.**, and **P. Buisine**, new source of capric acid, 1888, A., 44.
- malic acid in suint, 1888, A., 976.
- glycollic acid and pyrotartaric acid from suint, 1889, A., 178.
- alleged reaction of copper salts, 1889, A., 795.
- beeswax, 1891, A., 131.
- bleaching of beeswax: composition of white wax, 1891, A., 625.
- adulteration of beeswax, 1892, A., 251.
- Buisine, J.**, and **P. Buisine**, utilisation of burnt pyrites in the manufacture of iron salts, 1892, A., 1281.
- Bujard, Alfons**, and **Carl Hell**, bromazelaic and hydroxyzelaic acids, 1889, A., 375.
- Bujard, Alfons**, and **A. Klinger**, detection of the colouring matter of alkanna root, 1891, A., 372.
- Bulach, Wilhelm**, action of *p*-nitrobenzaldehyde on quinaldine, 1887, A., 976.
- condensation of *p*-nitrobenzaldehyde with quinaldine, 1889, A., 527.
- Bulitsch, Peter**, analysis of the water of a saline lake, 1887, A., 648.
- oxidation of diallyloxalic acid, 1888, A., 449.
- action of sulphuric acid on diallyloxalic acid, 1888, A., 450.
- Bunge, Gustav**, inorganic constituents of muscle, 1885, A., 573.
- assimilation of iron, 1885, A., 574.
- amount of iron in foetal tissue, 1889, A., 789.
- respiration of entozoic worms, 1890, A., 274.
- the intake of iron by the foetus, 1892, A., 516.
- iron in the foetal organism, 1892, A., 1502.
- iron in the liver, 1892, A., 1503.
- Bunge, Nikolaj Andrejevich**, kaolin balls for gas analysis, 1889, A., 544.
- electrolysis of fatty acids, 1890, A., 1236.
- Bungener, Henry**, bitter principle of hops, 1884, A., 1366; 1886, A., 809.
- degeneration of brewers' yeast, 1885, A., 417.
- asparagine in hops, 1886, A., 387.
- Bungener, Henry**, and **Leonard Fries**, nitrogenous combinations in barley, malt, and beer-wort, 1884, A., 1446.
- Bunsen, Robert Wilhelm**, condensation of carbonic anhydride by glass, 1884, A., 146.
- capillary gas absorption, 1885, A., 867.
- decomposition of glass by carbonic anhydride condensed on its surface, 1887, A., 13.
- Bunsen, Robert Wilhelm**, congratulatory address to, 1892, P., 87, 89.
- Bunzel, Hugo**, oxidation of  $\alpha$ -pipacoline, 1889, A., 904.
- Bunzl, Rudolph**. See *Amé Pictet*.
- Burch, George J.**, experiments on flame, 1885, A., 466.
- Burch, George J.**, and **James Ernest Marsh**, dissociation of amine vapours, 1889, T., 656; P., 127.

- Burch, George J.**, and **Victor Herbert Veley**, variation of E.M.F. of cells of certain metal-, platinum, and nitric acid, 1891, A., 514.
- Burchard, Oscar**, oxidation of hydrogen iodide by oxy-acids, 1889, A., 207.
- ethylenephnylhydrazine, 1890, A., 250.
- Burchard, Oscar**, and **Carl Arnold August Michaelis**,  $\alpha$ -ethylenephnylhydrazine, 1889, A., 138.
- Burcker, E.**, synthesis of toluoylpropionic acid, 1888, A., 951.
- action of camphoric anhydride on benzene, 1891, A., 324.
- Burckhardt, Rudolf**, fluoresceins from malic acid, 1886, A., 51.
- Burckhardt, Rudolf**. See also **Georg Lunge**.
- Burdon Sanderson, John Scott**, chemical products of putrefaction, 1886, A., 112.
- Burfeind, W. H.**, use of bromine for gold extraction, 1888, A., 1844.
- Burgdorf, Carl**. See **Eugen Bamberger**.
- Burgemeister, A.**, apparatus for preparing gases, 1890, A., 556.
- Burgerstein, Alfred**, absorption of water by flower-petals, 1884, A., 1403.
- influence of camphor on the germination of seeds, 1888, A., 742.
- Burghard and Beutnagel**, *p*-bromom-bromobenzoic acid, 1884, A., 601.
- Burghardt, Charles A.**, estimation of organic carbon and nitrogen in waters, 1887, A., 619.
- soda or potash and carbon in analysis, 1890, A., 1027.
- Buri, Eugen**, hydropiperic and piperhydronic acids, 1883, A., 485.
- Burkard, Ernst**. See **Rudolf Wilhelm Schmitt**.
- Burkhard, G.**, detection and estimation of starch in liquids containing dextrin, 1888, A., 326.
- Burmeister, Richard**, and **Carl Arnold August Michaelis**, action of phenylhydrazine on ethyl chloromalonate, 1891, A., 1068.
- Burmeister, Richard**. See also **Carl Arnold August Michaelis**.
- Burney, William B.**, estimation of phosphoric acid, 1892, A., 1125.
- Burns, Peter S.**, dimolecular ethyl cyanide, 1891, A., 888.
- dimolecular nitriles, 1892, A., 450.
- Burow, Friedrich**, process for preparing press cake from maize, etc., 1883, A., 695.
- Burstert, Hermann**. See **Adolph Claus**.
- Burton, Beverly S.**, derivatives of benzil, 1881, A., 62.
- Burton, Beverly S.**, and **Hans (Friedrich) von Pechmann**, action of phosphoric chloride on ethyl acetonedicarboxylate, 1887, A., 467.
- condensation of acetonedicarboxylic acid with phenols, 1891, A., 672.
- Burton, Cosmo Innes**. See **Francis Robert Japp**.
- Burton, Thomas**. See **Thomas Carnelley, William T. Wright**.
- Burton, William Merriam**, estimation of sulphur in organic compounds, 1890, A., 289.
- estimation of petroleum in turpentine, 1890, A., 669.
- Burton, William Merriam**, and **L. D. Vorce**, atomic weight of magnesium, 1890, A., 850.
- Burton, William Merriam**. See also **Harmon Northrup Morse, Ida Remsen, George H. Williams**.
- Busatti, Luigi**, minerals from Tuscan, 1887, A., 19.
- wollastonite from Sardinia, 1887, A., 709.
- Busatti, Luigi**. See also **Angiolo Funaro**.
- Busch, A.**, manufacture of santonin, 1887, A., 677.
- Busch, Albert**, and **Wilhelm Koenigs**, substitution products of lepidine, 1890, A., 1434.
- synthesis of 3'-chloroquin-aldine, 1892, A., 505.
- Busch, Max**, new synthesis of phenotriazines, 1892, A., 734.
- synthesis of ketoquinazolines and thioquinazolines, 1892, A., 1495.
- Busch, Max**, and **Max Klett**, cinnoline derivatives, 1892, A., 1494.
- Busch, Max**. See also **Otto Fischer, Carl Paal**.
- Busse, preservation of milk**, 1883, A., 254.
- Busz, Julius**, and **August Friedrich Kekulé**, acetic tripiperidide, 1888, A., 302.
- Busz, Karl Heinrich Emil Georg**, barytes from Mittelagger, 1885, A., 733.
- titanite, 1888, A., 83.
- atesite from Schneeberg in Saxony, 1890, A., 18.
- Busz, Karl Heinrich Emil Georg**. See also **Willy Bruhns**.
- Butler, Francis Henry**. See **Edward Kinoh**.
- Butleroff, Alexander M.**, notes on the atomic weights, 1883, A., 846.

- Butleroff, Alexander M., and Benvenuto Rizza**, asarone, 1885, A., 669.  
**Butleroff, Alexander M.** See also *Benvenuto Rizza*.  
**Butte, L.**, effect of medicines and especially of valerian extract on the destruction of dextrose in the blood, 1891, A., 754.  
**Butter, Fritz**, hydroxy- $\alpha$ -stilbazole and its derivatives, 1890, A., 1438.  
**Buttgenbach, Franz**, separation of minerals according to the degree of cohesion, 1883, A., 858.  
**Bya, H.**, estimation of iron with potassium dichromate, 1888, A., 530.  
**Byasson, Henri**, assay of quinine sulphate, 1884, A., 1080.  
**Bylert.** See *Bijlert*.

## C.

- Cabell, J. M.**, crystalline phosphorous anhydride, 1885, A., 121.  
 — action of hydrogen sulphide on metallic silver, 1885, A., 124.  
 — infusorial earth from Richmond, Virginia, 1885, A., 228.  
**Cabella, A. G.**, derivatives of phenylcinnamic acid, 1884, A., 1348.  
 — derivatives of phenyl-*p*-coumaric acid and methylatropic acid, 1888, A., 694.  
**Caberti, Luigi.** See *Gaetano Minunni, Emanuele Paternò*.  
**Cahn, Arnold**, gastric digestion during deprivation of chlorine, 1886, A., 1052.  
 — gastric juice in acute phosphorus poisoning, 1886, A., 1053.  
**Cahn, Arnold, and Friedrich Joseph (Freiherr) von Mering**, digestion of flesh in normal stomachs, 1888, A., 859.  
**Cahn, Ernst L.**, dimethylantrachryson, 1886, A., 556.  
 — methylantracagallois, 1887, A., 57.  
**Cahn, Ernst L., and Martin Lange**, action of aldehydes on amidosulphonic acids, 1887, A., 982.  
**Cahn, J.**, physiological action of chlorates, 1888, A., 978.  
**Cailletet, Louis Paul**, production of low temperatures by the use of liquefied gases, 1884, A., 333, 656, 1248.  
 — liquefaction of oxygen, 1885, A., 859.  
 — air thermometer, 1888, A., 772.  
**Cailletet, Louis Paul, and Edmond Bouty**, electrical conductivity of solid mercury and other metals, 1885, A., 855.  
**Cailletet, Louis Paul, and Emmanuel Colardeau**, freezing mixtures containing solid carbonic anhydride, 1888, A., 1025.  
 — determination of critical temperatures and pressures, especially of water, 1891, A., 779.  
**Cailletet, Louis Paul, and Emile Mathias**, density of liquefied gases and their saturated vapours, 1886, A., 758.  
**Cain, John Connell, and Julius Berend Cohen**, action of acetic acid on phenylthiocarbamide, 1891, T., 327; P., 70.  
**Cain, John Connell.** See also *George Herbert Bailey*.  
**Cairns, F. I.** See *Albert Huntington Chester*.  
**Calb.** See *Kalb*.  
**Calderon, L.**, estimation of the value of a degree in thermometers of short range, 1889, A., 203.  
**Caldwell, George Chapman**, volumetric estimation of phosphoric acid, 1884, A., 110.  
**Caldwell, George Chapman, and Samuel Wilson Parr**, estimation of fat in milk, 1886, A., 283.  
**Caldwell, William H.** See *Henry P. Armsby*.  
**Calder, F. J. P.**, corrosion faces of fluorspar, 1884, A., 403.  
 — peculiar kernel structure in fluorspar, 1884, A., 403.  
**Calkin, William Sommerville.** See *Spencer Baird Newbury*.  
**Callendar, Hugh L., and Ernest Howard Griffiths**, standardising platinum thermometers, 1891, A., 1146.  
**Calm, Arthur**, *p*-dichlorazobenzenesulphonic acid, 1883, A., 311.  
 — action of aniline on resorcinol and quinol, 1884, A., 591.  
 — a reaction of aldehydes, 1885, A., 387.  
**Calm, Arthur.** See also *Max Philip*.  
**Calman, Albert.** See *Eugen Bamberger, William Henry Perkin, junior*.  
**Calmels, G.**, constitution of simple cyanogen compounds, 1884, A., 1277.  
 — action of primary alcoholic iodides on silver fulminate, 1885, A., 133.  
**Calmels, G., and Eugene Gossin**, constitution of cocaine, 1885, A., 912.  
**Calmels, G.** See also *Ernest Hardy*.  
**Camerer, William**, estimation of nitrogen in the urine and feces, 1885, A., 303.  
 — metabolism in children, 1885, A., 409.

- Camerer, William**, urea and total nitrogen in human urine, 1888, A., 518.  
 — estimation of uric acid in human urine, 1889, A., 1040.  
 — quantitative estimation of uric acid in human urine, 1890, A., 1345.  
 — absorption plates of wood wool, 1891, A., 260.  
 — nitrogenous substances in human urine, 1891, A., 1277.  
**Cameron, (Sir) Charles Alexander**, manuring potatoes, 1884, A., 866.  
 — antiseptic experiments in a mortuary vault, 1884, A., 878.  
**Cameron, (Sir) Charles Alexander**, and **John Macallan**, compounds of ammonia with selenious anhydride, 1889, A., 103.  
 — selenic acid, 1890, A., 688.  
**Cammerer, Joh. Bapt.**, action of ferric chloride on metallic sulphides, 1892, A., 18, 278.  
 — action of hydrogen peroxide on the oxides of molybdenum, tungsten, and vanadium, 1892, A., 944.  
**Campani, Giovanni**, existence of manganese in plants, 1885, A., 832.  
**Campani, Giovanni**, and **Siro Grimaldi**, vanillin in the seeds of *Lupinus albus*, 1888, A., 983.  
 — lupinidine from white lupines, 1891, A., 1521.  
**Campani, Giovanni**. See also **Decio Bizzarri**.  
**Campani, R.**, action of phosphorus oxychloride on cholic acid, 1889, A., 171.  
**Campani, R.** See also **Fausto Sestini**.  
**Campari, Giacomo**, detection of sugar in urine, 1885, A., 702.  
 — volumetric estimation of urea, 1887, A., 1145.  
 — preparation of nitrous oxide, 1889, A., 569.  
**Campbell, Alonzo C.**, separation of iron from cobalt, nickel, and manganese, 1892, A., 103.  
**Campbell, Dugald**, obituary notice of, 1883, T., 252.  
**Campbell, Edward D.**, estimation of sulphur in soluble slags, 1887, A., 528.  
**Campbell, John Morrow**. See **George Gerald Henderson**.  
**Campbell, Lloyd**. See **Theodor Zincke**.  
**Campredon**. See **Gassend**.  
**Camps, Rudolf**, trimethylenetrisulphone, 1892, A., 591.  
 — trimethylenedisulphonesulphide, 1892, A., 592.  
**Camps, Rudolf**. See also **Eugen Baumann**.  
**Canby, R. C.**, estimation of arsenic, 1890, A., 923.  
**Cannizzaro, Stanislao**, products of the decomposition of santonous acid, 1884, A., 327.  
 — constitution of santonin, 1886, A., 73.  
**Cannizzaro, Stanislao**, and **Giovanni Carnelutti**, santonous and isosantonous acids, 1883, A., 77.  
**Cannizzaro, Stanislao**, and **Guido Fabris**, acid from santonin: isophotosantononic acid, 1887, A., 57.  
**Cannizzaro, Stanislao**. See also **Pietro Blaserna**.  
**Cannone, Galileo**. See **Agostino Ogialoro-Todaro**.  
**Cantor, Mathias**, chemistry of the accumulator, 1891, A., 511.  
**Cantor, Mathias**. See also **Rudolf Benedikt**.  
**Cantzler, August**. See **Julius Wilhelm Brühl**, **Ludwig Gattermann**.  
**Canu**. See **Allain Lecanu**.  
**Canzoneri, Francesco**, dibromonaphthalene from  $\beta$ -naphthol, 1883, A., 67.  
 — thapsia resin, 1884, A., 460.  
 — hot mineral spring at Finca Huracatao Salta, Argentina, 1892, A., 574.  
**Canzoneri, Francesco**, and **Vincenzo Oliveri**, monobromo- and dibromopyromucic acid, 1885, A., 244, 1125.  
 — reciprocal transformation of the pyrroline, furfuryl, and thiophen groupings, 1885, A., 1144.  
 — transformation of furfuran into pyrroline, 1887, A., 470.  
 —  $\beta$ -bromofurfuran, 1887, A., 658.  
**Canzoneri, Francesco**, and **Giovanni Spica**, brominated derivative of toluquinone, 1883, A., 330.  
 — reactions of acetone with amides of the acetic series, 1885, A., 746.  
 — ethyl acetyl- $\alpha\beta$ -imidobutyrate, 1885, A., 750.  
 — action of amides on ethyl acetoacetate, 1885, A., 751.  
 — reduction of triacetoneamine, 1885, A., 883.  
 — ethoxylutidine, 1887, A., 499.  
**Canzoneri, Francesco**. See also **Pedro N. Arata**.  
**Capranica, Stefano**, chemistry of perspiration, 1884, A., 189.  
**Capus, Guillaume**, migrations of nitrates in plant tissues, 1886, A., 484.  
**Carbonelli, Carlo Emilio**, specific heat of the diamond, 1892, A., 761.  
**Carboni**. See **Cuboni**.

- Cardani, Pietro**, and **Francesco Tomasini**, specific heat of superfused water, 1888, A., 102.
- Carette, Denis-Honoré**, oxidation of sebacic acid, 1886, A., 335.  
— oxidation of fatty acids, 1886, A., 611.
- Carey, Eustace**, and **Ferdinand Hurter**, preparation of ammonia from ammonium sulphate, 1885, A., 1268.
- Carhart, Henry S.**, electromotive force of a Daniell's cell, 1885, A., 321.  
— standard Clark cell, 1890, A., 202.
- Carl, R. IV.** See **Wilhelm Koenigs**.
- Charles, P.**, souring of wine, 1884, A., 646.  
— estimation of alum in wine, 1884, A., 1077.  
— estimation of lead in tin plate, 1884, A., 1078.  
— wines from sugar, 1884, A., 1086.  
— estimation of tannin, 1885, A., 302.  
— titration of potassium iodide, 1885, A., 1011.  
— sulpho-conjugate colouring matters in wines, 1886, A., 105.  
— phosphatic urines, supposed to be albuminous, 1886, A., 384.  
— testing essential oils, 1886, A., 394.  
— plastering of wine, 1888, A., 759.  
— is potassium ferrocyanide poisonous? 1890, A., 281.  
— characteristics of fig wine, 1891, A., 1185.  
— phosphoric acid in urine, 1892, A., 1115.
- Carlier, Edmond William Wace.** See **John Berry Haycraft**.
- Carlier, Eugen**, and **Alfred Einhorn**, 2'-quinolylacetaldehyde, 1891, A., 83.
- Carlson, Max**, acids from the dicyanhydrin of benzoylacetone, 1892, A., 1471.
- Carmichael, Henry**, copper reduction test for the estimation of arsenic, 1886, A., 1074.
- Carnegie, Douglas John**, action of finely-divided metals on ferric salts: titration of the latter, 1888, T., 468; P., 48; discussion, P., 49.  
— cupric iodide and the interaction of iodides with cupric salts, 1889, P., 2.  
— reaction between solutions of ferric chloride and potassium iodide, 1889, A., 1113.  
— potassium plumbate: crystalline hydrated thallic oxide, 1890, A., 109.  
— sulphur tetroxide, 1892, A., 111.
- Carnegie, Douglas John.** See also **M. M. Pattison Muir**, **Siegfried Ruhemann**.
- Carnelley, Thomas**, melting-points of beryllium chloride and bromide, 1884, A., 962.  
— colour of chemical compounds mainly as a function of the atomic weights of the component elements, 1884, A., 1252.  
— the periodic law and the occurrence of the elements in nature, 1885, A., 13.  
— the periodic law, 1885, A., 344; 1886, A., 503.  
— approximate algebraic expression of the periodic law, 1891, A., 13.
- Carnelley, Thomas**, and **John Alexander**, colour of some carbon compounds, 1888, P., 64; discussion, P., 65.
- Carnelley, Thomas**, and **Thomas Burton**, a new form of pyrometer, 1881, T., 287.
- Carnelley, Thomas**, and **John Dunn**, action of hot copper on the mixed vapours of phenol and carbon bisulphide, 1888, P., 53; A., 1095.
- Carnelley, Thomas**, and **William Frew**, corrosion of leaden water-pipes, 1888, A., 555.  
— relative antiseptic powers of isomeric organic compounds, 1890, T., 636; P., 90.
- Carnelley, Thomas**, and **John Scott Hal-dane**, the air of sewers, 1888, A., 582.
- Carnelley, Thomas**, and **Wm. Mackie**, estimation of organic matter in air, 1887, A., 532.
- Carnelley, Thomas**, and **Lucius Trant O'Shea**, melting-points of certain inorganic substances, 1884, T., 409.
- Carnelley, Thomas**, and **James Schlessmann**, influence of strain on chemical action, 1885, P., 89.  
— amidodiphenylsulphonic acid and azo-dyes from diphenyl, 1886, T., 380; P., 184; discussion, P., 185.
- Carnelley, Thomas**, and **Andrew Thomson**, bromo-derivatives of diphenyl, tolylbenzene, and ditolyl, 1885, T., 586; P., 88.  
— derivatives of tolylbenzene, 1886, P., 258; 1887, T., 87.  
— solubility of isomeric organic compounds and of mixtures of potassium and sodium nitrates, and the relation of solubility to fusibility, 1888, T., 782; P., 80.
- Carnelley, Thomas**, and **James Walker**, dehydration of metallic hydroxides by heat, with special reference to the polymerisation of metallic oxides and to the periodic law, 1887, P., 110; 1888, T., 59.

- Jarnelutti, Giovanni.** See *Stanislao Cannizzaro*.
- Jarnot, Adolphe,** salts of aurous oxide, 1884, A., 17.
- colorimetric estimation of gold, 1884, A., 17, 115.
- new reactions of gold, 1884, A., 115.
- origin and distribution of phosphorus in coal, 1884, A., 1270.
- composition of coal in relation to the plants from which it is derived, 1885, A., 639.
- separation of copper, cadmium, zinc, nickel, etc., 1886, A., 580, 650.
- separation and estimation of copper, cadmium, and zinc; of nickel and cobalt; and of manganese and iron, 1886, A., 650.
- separation of antimony and tin, 1886, A., 1077.
- separation of arsenic, antimony, and tin, 1886, A., 1078.
- reactions of vanadic acid, 1887, A., 896.
- vanadates, 1887, A., 1018.
- estimation of lithium as fluoride, 1888, A., 1342.
- estimation of lithium in mineral waters, 1888, A., 1342.
- estimation of chromium by hydrogen peroxide, 1889, A., 311, 443.
- estimation of chromium, iron, and manganese by means of hydrogen peroxide, 1889, A., 443.
- peroxides of nickel and cobalt: estimation of nickel and cobalt, 1889, A., 678.
- separation of nickel and cobalt, 1889, A., 747, 1116.
- ammoniocobaltic molybdate, tungstate, and vanadate, 1889, A., 1116.
- purplecobaltic tungstate and vanadate, 1889, A., 1117.
- volumetric estimation of mercury, silver, and thallium, 1889, A., 1246.
- mineral waters of Cransac (Aveyron), 1890, A., 1385.
- detection and estimation of small quantities of aluminium in iron and steel, 1891, A., 501.
- estimation of fluorine, 1892, A., 911.
- assay of antimony minerals, 1892, A., 918.
- fluorine in natural phosphates, 1892, A., 1055.
- fluorine in recent and fossil bones, 1892, A., 1161.
- proportion of fluorine in fossil bones of various ages, 1892, A., 1413.
- Carnot, Adolphe,** and *Pierre Marie Froromant*, estimation of cadmium, 1885, A., 1094.
- Carnot, Adolphe,** and *Adolphe Richard*, crystallised calcium silicophosphate produced in the dephosphorisation of iron, 1884, A., 157.
- Caro, W.,** hydroxyaurin and hydroxyaurincarboxylic acids, 1892, A., 855, 1469.
- Carpenter, Henry Sanders,** and *William Ostler Nicholson*, estimation of hydrogen peroxide, 1885, A., 430.
- examination of water for organisms, 1885, A., 442.
- Carpenter, R. Forbes,** solubility of silver chromate in ammonium nitrate, 1887, A., 216.
- Carpentier, J.,** mercury galvanometer, 1884, A., 949.
- battery with a circulating liquid, 1885, A., 714.
- Carpentier, J.** See also *C. Clamond*.
- Carpi, Serra,** examination of olive-oil, 1884, A., 931.
- Carrara, Giacomo,** sulphonic derivatives of *p*-propyl-*m*-chlorotoluene, 1890, A., 779.
- formation of acid chlorides by the action of sulphonic chloride, 1890, A., 1288.
- the bark of *Gonolobus Cundurango*, 1891, A., 1387.
- thiourea, 1892, A., 1309.
- conduragin, 1892, A., 1352.
- new method of preparing dimethylsulphine and methyl ethyl sulphide, 1892, A., 1422.
- Carrara, Giacomo.** See also *Pietro Spica*.
- Carré, L.,** estimation of phenol, 1891, A., 1557.
- Carrick, J. T.,** product of the condensation of ethyl cyanacetate and benzaldehyde, 1890, A., 1270.
- condensation of ethyl cyanacetate and benzaldehyde: ethyl  $\alpha$ -cyanocinnamate, 1892, A., 1086.
- Carrière, E. A. (and others),** phylloxera and means for its destruction, 1883, A., 680.
- Carson, Archibald Irwin,** and *Thomas Herbert Norton*, uranates, 1888, A., 918.
- Carsten, H. J.,** manuring of marshy land, 1884, A., 363.
- Carter, Oscar C. S.,** delicate test for antimony, 1885, A., 1013.
- detection of adulterations in oils, 1886, A., 103.
- Casali, Adolfo,** detection of chloral, 1885, A., 695.

- Casamajor, Paul**, asbestos filters, 1883, A., 506.  
 — detection of anhydrous glucose mixed with refined cane sugar, 1883, A., 884.  
 — the  $\frac{4}{5}$  method of sugar analysis, 1885, A., 693.  
 — silver iodide as a blowpipe reagent, 1885, A. 1157.
- Casamajor, Paul** (and others), examination of cane sugar and dextrose: decolouring dextrose solutions, 1884, A., 930.
- Casanova, Raphael Cosme**. See **Robert Otto**.
- Cash, John Theodore**, and **Wyndham Rowland Dunstan**, action of paraffinic nitriles on blood pressure, 1891, A., 1270.
- Cash, John Theodore**. See also **Thomas Lander Brunton**.
- Casoria, Eugenio**. See **Paride Palmieri**.
- Cassal, Charles Edward**, detection and estimation of boric acid in milk and cream, 1891, A., 619.
- Cassel, Henry R.**, electrolytic extraction of gold, 1886, A., 109.
- Castaing, A.**, extraction of cocaine, 1886, A., 371.
- Casthélaz, Charles**, commercial phenols, 1885, A., 447.
- Casthélaz, John**, manganese oxalate, 1889, A., 957.
- Casthélaz, John, Brùère et Cie.**, preparation of iodoform, 1890, A., 577.
- Castner, Hamilton F.**, production of alkali metals, 1887, A., 107.
- Catheart, William Richard**, and **Victor Meyer**, formation of closed-chain compounds by the elimination of bromine from the benzene nucleus, 1892, A., 992.
- Cathrein, Alois**, saussurite, 1883, A., 1066.  
 — chemical composition of diallage, 1883, A., 1068.  
 — microscopic association of magnetite with titanite and rutile, 1885, A., 27.  
 — alterations of garnets in the amphibole schists of the Tyrol, 1886, A., 29.  
 — alteration-pseudomorphs of scapolite after garnet, 1886, A., 129.  
 — magnetite from Scalotta, 1886, A., 928.  
 — chloritoid-schist from Grossarl, 1888, A., 568.  
 — calciostrontianite (emmonite) from Brixlegg, 1888, A., 1258.  
 — minerals of the Tyrol, 1889, A., 23.
- Catlett, Charles**. See **Frank Wigglesworth Clarke**.
- Cattaneo, Carlo**, thermal expansion of liquid bismuth, 1892, A., 259.
- Cauffman, Maurice**. See **William Ridgely Orndorff**.
- Causse, Henri Eugene**, action of copper on aqueous solutions of sulphurous anhydride, 1886, A., 423.  
 — combination of chloral with resorcinol, 1886, A., 1020.  
 — acetalresorcinol, 1887, A., 40.  
 — action of acetaldehyde on polyvalent phenols, 1887, A., 809.  
 — estimation of sugar by Fehling's solution, 1889, A., 1036.  
 — dicalcium phosphate, 1890, A., 1056.  
 — action of chloral on resorcinol and of aldehyde on pyrogallol, 1891, A., 48.  
 — bismuth salicylate, 1891, A., 1366.  
 — action of acetates on monocalcium phosphate, 1891, A., 1422.  
 — dissolution of bismuth chloride in a saturated solution of sodium chloride: basic bismuth salicylate, 1892, A., 122.  
 — dissolution of antimonious chloride in saturated solutions of sodium chloride, 1892, A., 413.  
 — solubility of tricalcium phosphate and dicalcium phosphate in solutions of phosphoric acid, 1892, A., 684.  
 — o-phenylene hydrogen antimonite, 1892, A., 1078.  
 — acetonesresorcinol, 1892, A., 1312.
- Cavallo, Wilhelm**. See **Ludwig Knorr**.
- Cavazzi, Alfredo**, reactions of gaseous hydrogen phosphide, 1884, A., 155.  
 — estimation of bromine in presence of large quantities of chlorides, 1884, A., 215.  
 — analysis of a meteorite which fell at Alfianello, February 1883, 1884, A., 276.  
 — estimation of iodine in presence of chlorine and bromine, 1884, A., 366.  
 — action of hydrogen phosphide on bismuth trichloride, 1885, A., 218.  
 — new bismuth compounds, 1885, A., 653.  
 — bismuth antimonate, 1885, A., 875.  
 — action of phosphine on auric chloride, 1885, A., 875.  
 — dissolution of aluminium in alkaline hydroxides, 1885, A., 1112.  
 — preparation of cuprous chloride, 1886, A., 771.  
 — reduction of sulphurous acid by hydrogen phosphide, 1886, A., 978.  
 — explosive mixture, 1886, A., 980.

- Cavazzi, Alfredo**, action of carbon bisulphide on metals, 1888, A., 106.  
 — preparation of hydrogen arsenide, 1888, A., 221.  
 — action of silicon tetrafluoride on quinine solutions, 1888, A., 968.
- Cavazzi, Alfredo and Deodato Tivoli**, action of hydrogen phosphide on an ethereal solution of bismuth tri-bromide, 1892, A., 279.
- Caventou, Eugène, and Adam Charles Girard**, action of oxalic acid on cinchonine in presence of sulphuric acid, 1888, A., 507.
- Cawley, John**, behaviour of preparations of zinc sulphide, 1891, A., 881.
- Cazeneuve, Paul**, a new monochloro-camphor, 1883, A., 214.  
 — physical isomerism of chlorocamphor, 1888, A., 598.  
 — chloronitrocampafor, 1883, A., 667.  
 — formation of acetylene from iodoform, 1884, A., 418.  
 — formation of methyl iodide and methylene iodide from iodoform, 1884, A., 896.  
 — isomeric chloronitrocampafor, 1884, A., 1041.  
 — trichlorocamphor, 1885, A., 58.  
 — bromonitrocampafor, 1885, A., 270.  
 — plaster filters to sterilise liquids, 1885, A., 288.  
 — preparation of nitrous oxide, 1885, A., 613.  
 — chlorobromocamphor, 1885, A., 668.  
 — an isomeric chlorobromocamphor, 1885, A., 806.  
 — use of metallic oxides for the detection of coal-tar colours in wine, 1886, A., 397.  
 — nitrocampafor and its derivatives, 1886, A., 1039.  
 — isomeric nitrocampafor, 1887, A., 842.  
 —  $\beta$ -chloronitrocampafor, 1887, A., 970.  
 — nitrocampaforates, 1888, A., 963.  
 — nitrocampafor, 1889, A., 617.  
 — nitrophenol isomeric with  $\alpha$ -nitrocampafor, 1889, A., 618.  
 — reduction of nitrocampafor to nitroso-campafor, 1889, A., 720.  
 — detection of impurities in alcohol, 1889, A., 928.  
 — oxidising action of nitrosocampafor in presence of light, 1889, A., 1203.  
 — chlorocampafor formed by the action of hypochlorous acid, 1889, A., 1203.  
 — isonitride of bromocampafor, 1889, A., 1204.
- Cazeneuve, Paul**, acetyl and ethyl derivatives of camphonitrophenol, 1890, A., 63.  
 — camphonitrophenol phosphate, 1890, A., 63.  
 — camphonitrophenol benzoate and phthalate, 1890, A., 64.  
 — researches on the constitution of  $\beta$ -nitrocampafor and of  $\alpha$ -chloronitrocampafor, 1890, A., 515.  
 — new bases derived from camphor: camphamines, 1890, A., 516.  
 — oxidising and decolorising properties of charcoal, 1890, A., 690.  
 — phenolsulphonic acids from camphor, 1890, A., 791.  
 — amethylcamphophenolsulphone, 1890, A., 1153.  
 — phenolic acid from camphor, 1891, A., 324.  
 — pyrogenic conversion of camphosulphophenols into ordinary phenols, 1891, A., 1088.  
 — violet colouring matter derived from morphine, 1891, A., 1120.  
 — *m*-phenylenediamine as a test for active oxygen, 1891, A., 1289.  
 — a violet from codeine, 1892, A., 360.  
 — formation of acetylene from bromoform, 1892, A., 421.  
 — nitroketone from camphosulphophenols, 1892, A., 999.  
 — ethylnitroketone, and acetylnitroketone from camphosulphophenols, 1892, A., 1085.  
 — conversion of gallic acid into pyrogallol, 1892, A., 1314.  
 — instability of carboxyl in phenolic acids, 1892, A., 1332.
- Cazeneuve, Paul, and A. Chapuis**, purification of methylated spirit, 1884, A., 1085.
- Cazeneuve, Paul, and L. Ducher**, raisin wines and their richness in nitrogen, 1890, A., 1031.
- Cazeneuve, Paul, and Louis Hugou-nenq**, pterocarpin and homoptero-carpin, 1887, A., 971.  
 — apparatus for estimating urea, 1888, A., 328.  
 — estimation of total nitrogen in organic compounds, 1888, A., 991.  
 — supposed reaction of phloroglucinol, 1888, A., 994.  
 — homoptero-carpin and pterocarpin from red sandal wood, 1889, A., 160.
- Cazeneuve, Paul, and Raphael Lépine**, physiological action of rosaniline sulphate and safranine, 1886, A., 272.

- Cazeneuve, Paul**, and **Raphael Lépine**, toxic effect of three coal-tar yellows, 1886, A., 273.
- Cazeneuve, Paul**, and **Georges Linossier**, action of pyrogallol on copper and iron salts, 1885, A., 1059.
- Cazeneuve, Paul**, and **Jules Morel**, crystallographic properties of camphor derivatives, 1885, A., 1141.
- Cazeneuve, Paul**, and **Nicolle**, rapid estimation of sulphuric acid, 1892, A., 659.
- Čech, Carl Otakar**, manufacture of santonin in Turkestan, 1885, A., 108.
- Cederström, Anders**, pseudobrookite from Havredal, Norway, 1890, A., 219.
- Celli, Angelo**, and **Francesco Marino-Zucco**, nitrification, 1887, A., 858.
- Ceresole, A. F. Maurice**, acetoacetic acids, 1883, A., 41.
- violuric acid, 1883, A., 913.
- benzoylacetone and isonitrosobenzoylacetone, 1884, A., 1167.
- Ceresole, A. F. Maurice**, and **Gustave Koeckert**,  $\alpha\beta$ -diisonitrosobutyric acid, 1884, A., 1120.
- Ceresole, A. F. Maurice**. See also **Victor Meyer**.
- Certes, A.**, influence of high pressures on putrefaction, 1884, A., 1399.
- Cervello, Vincenzo**, physiological action of *p*-aldehyde; chloral hydrate, 1884, A., 199.
- *Adonis Cupaniana*, 1885, A., 833.
- physiological action of trimethylhydroxyethyl- and trimethylvinylammonium hydroxide, 1885, A., 925.
- physiological action of trimethyl-ethoxyammonium and trimethylvinylammonium hydroxides, 1888, A., 309.
- Cesaro, G.**, crystallised voltzine, 1884, A., 1101.
- hydrated double silicate of zinc and aluminium, 1884, A., 1105.
- koninckite, 1885, A., 878.
- richellite, 1886, A., 127.
- destinezite, 1887, A., 709.
- diadochite from Visé, 1888, A., 233.
- barytes from Rumelange, 1891, A., 1486.
- Cesaro, G.**, and **G. Despret**, richellite, 1884, A., 1102.
- Chabot, P.**, rotatory power of camphor when dissolved in various oils, 1890, A., 1427.
- Chabrié, Pierre Camille**, fluosilicates of aluminum and glucinum, 1886, A., 981.
- Chabrié, Pierre Camille**, synthesis of aromatic selenium compounds, 1889, A., 41, 1167.
- selenium and oxygen derivatives in the benzene series, 1890, A., 34.
- vapour densities of selenium chlorides, 1890, A., 558.
- preparation of carbon fluorides, 1890, A., 558, 1053.
- hydrolysis of halogen carbon compounds, 1891, A., 281.
- antiseptic action of methylene fluoride, 1891, A., 353.
- new proteid from human blood serum, 1892, A., 224.
- passage of substances in solution through mineral filters and capillary tubes, 1892, A., 1267.
- organic halogen and boron derivatives, 1892, A., 1316.
- Chabrié, Pierre Camille**, and **Louis Lapicque**, physiological action of selenious acid, 1890, A., 542.
- Chairy**, action of various compounds on bacteria of the genus *Tyrophrix*, 1885, A., 289.
- Chalaney, Luka**, and **Emil Knoevenagel**, dicyanostilbene, 1892, A., 618.
- stereoisomeric diphenylsuccinonitriles, 1892, A., 619.
- Chalmas, Mémier**. See **Auguste Michel-Lévy**.
- Chalmot, Guillaume J. L. de**, condensation products of furfuraldehyde with aromatic bases, 1892, A., 1451, 1452.
- Chalmot, Guillaume J. L. de**, and **Bernhard Tollens**, estimation of pentaglucofoses (pentoses) in vegetables, 1891, A., 768.
- Chalmot, Guillaume J. L. de**. See also **August Günther**.
- Chamberlain, J. Chester**. See **Peter Townsend Austen**.
- Chamberland, Charles Edouard**, filter yielding physiologically pure water, 1884, A., 1440.
- Chamot, Emile Monnin**. See **Spencer Baird Newbury**.
- Chance, Alexander M.**, Schaffner and Helbig's process for the recovery of sulphur, 1884, A., 228.
- Chancel, Alexandre Félix**, propylamines and their derivatives, 1892, A., 804.
- propylcarbamide and *as*-dipropylcarbamide, 1892, A., 1421.
- Chancel, Alexandre Félix**. See also **Edouard Duvillier**.
- Chancel, Gustave**, alkyl nitrous acids, 1883, A., 914.
- isomeric ketones, 1885, A., 505.

- Chancel, Gustave**, characteristic reaction of secondary alcohols, 1885, A., 646.
- Chancel, Gustave**, and **F. Parmentier**, some reactions of carbon bisulphide and its solubility in water, 1885, A., 137.
- chloroform hydrate, 1885, A., 363.
- solubility of carbon bisulphide and chloroform in water, 1885, A., 630.
- solubility of calcium *o*-butyrate and isobutyrate, 1887, A., 547.
- variation of solubility with variation of heat of solution, 1887, A., 632.
- estimation of chloroform, 1888, A., 632.
- Chandelon, Théodore**, volumetric estimation of phenol, 1883, A., 124.
- chlorophenols obtained by the action of alkaline hypochlorites on phenol, 1883, A., 1108.
- studies on peptonisation, 1884, A., 1390; 1885, A., 1252.
- detection of strychnine and other alkaloids, 1885, A., 605.
- Chaniewski, Stanisław**, formation of fat from carbohydrates in the animal organism, 1885, A., 230.
- Chanlaroff, Mocheim Berg**, action of thi-acetic acid on ethyl thiocyanate, 1883, A., 39.
- Chantemille, P.**, hydrogen sulphide apparatus, 1889, A., 14.
- Chaper, Maurice**, diamonds in a pegmatite in Hindustan, 1884, A., 563, 1269.
- Chaperon, G.**, probable cause of the difference between the observed electromotive force of galvanic couples and that calculated from thermochemical data, 1884, A., 802.
- Chaperon, G.** See also **A. Gouy** and **Félix de Lalande**.
- Chaplin, Edward Mitchell**, hydrazones of camphoric acid, 1892, A., 1481.
- Chapman, Alfred Chaston Arthur William Henry**, method for estimating fluorine, 1887, A., 295.
- zinc dextrosate, 1889, T., 576; P., 118.
- cistern deposits, 1889, A., 1111.
- compounds of dextrose with the oxides of nickel, chromium, and iron, 1891, T., 323; P., 66; discussion, P., 66.
- Chapman, Henry C.**, and **Albert P. Brubaker**, respiratory exchanges in animals, 1891, A., 592.
- Chapoteaut, P.**, essence of sandal-wood, 1883, A., 76.
- Chapoteaut, P.**, gastric juice, 1883, A., 103.
- glucoside from *Boldoa fragrans*, 1884, A., 845.
- Chappell, L. N.**, variety of chloropal from Albemarle Co., Virginia, 1885, A., 228.
- Chappelle**, estimation of total phosphorus in urine, 1890, A., 825.
- Chappuis, James**, latent heat of vaporisation of certain volatile substances, 1887, A., 627; 1888, A., 773.
- Chappuis, James**, and **Charles Bivière**, refraction of carbonic anhydride and cyanogen, 1886, A., 837.
- refractive index and compressibility of cyanogen, 1887, A., 753.
- vapour pressure of liquid cyanogen, 1887, A., 764.
- Chappuis, James**. See also **Georges Maneuvrier**, **Camille Vincent**, **Paul Hautefeuille**.
- Chappuis, Pierre**, evolution of heat in the absorption of gases by solids and liquids, 1883, A., 702.
- Chapuis, A.** See **Paul Cazeneuve**.
- Charalampi**, alkaloids from the seeds of *Delphinium Staphisagria*, 1891, A., 842.
- Chardonnet, E. de**, reflection of actinic rays: influence of the reflecting surface, 1883, A., 138.
- specific gravity of fibres, 1892, A., 1036.
- Charlton, Thomas**, blowpipe test for mercury, 1890, A., 1343.
- Charpentier, Paul**, valuation of manganese peroxide, 1885, A., 1162.
- errors in the assay of fine gold, 1889, A., 798.
- Charpy, Georges**, contraction of solutions, 1889, A., 1102.
- determination of the vapour pressure of solutions, 1890, A., 1364.
- vapour pressure of aqueous solutions of cobalt chloride, 1892, A., 263.
- specific gravities of aqueous solutions, 1892, A., 765.
- chemical equilibrium in solutions, 1892, A., 1146.
- Charpy, Georges**. See also **Henri Gautier**.
- Charrin, Albert**, toxicity of serum, 1892, A., 228.
- Charrin, Albert**. See also **Albert Arnaud**.
- Chasanowitsch, J.**, action of phosphorus pentachloride on salicylic acid, 1887, A., 725.
- Chasanowitsch, Lazarus**, and **Carl Hell**, action of bromine on eugenol, 1885, A., 779.

- Chase, R. L.**, ethyl-*o*-toluidines, 1886, A., 57.
- Chassagny, Michel.** See *Jules Violle*.
- Chassevant, Allyre**, lithium copper chloride, 1892, A., 118.
- double chlorides of lithium and metals of the magnesium series, 1892, A., 1275.
- Chassy, A.**, electrical transport of dissolved salts, 1889, A., 665.
- laws of electrolysis, 1892, A., 1037.
- Chastaing, Paul L.**, action of bromine on pilocarpine, 1884, A., 468.
- action of chlorine and iodine on pilocarpine, 1885, A., 1081.
- alkyl derivatives of pilocarpine, 1885, A., 1250.
- Chastaing, Paul L.**, and *Ernest Barillot*, action of sulphuric acid on morphine and bibasic acids, 1888, A., 165.
- Chastaing, Paul L.** See also *Edme Alfred Bourgoïn*.
- Chaston, Alfred Edward.** See *Wynulham Rowland Dunstan*.
- Chatard Thomas Marean**, estimation of alkalis in silicates, 1885, A., 296.
- *lucasite*, a new variety of vermiculite, 1887, A., 349.
- analyses of the waters of some American alkali lakes, 1889, A., 29.
- *urao* (native soda), 1890, A., 340.
- estimation of water and carbonic acid in salts, 1890, A., 417.
- apparatus for the estimation of water in mineral analysis, 1891, A., 766.
- separation of titanium, chromium, aluminium, iron, barium, and phosphoric acid in rock analysis, 1891, A., 768.
- analyses of pyroxene, 1892, A., 1409.
- Chatard, Thomas Marean.** See also *Frank Wigglesworth Clarke*.
- Chatelier.** See *Le Chatelier*.
- Chatin, Gaspard Adolphe**, report on Fus's paper on the hygienic action of maize as fodder, 1883, A., 488.
- chemistry of the truffle, 1890, A., 659, 821; 1892, A., 654.
- Chattaway, William.** See *Alfred Henry Allen*.
- Chautard, Paul**, iodaldehyde, 1886, A., 330, 1006.
- detection of acetone in pathological liquids, 1886, A., 495.
- cyanaldehyde, 1888, A., 810.
- Chautard, Paul.** See also *Philippe de Clermont*.
- Chauveau, Jean Baptiste Auguste**, preventive inoculation for splenic fever, 1885, A., 1084.
- Chauveau, Jean Baptiste Auguste**, and *Maurice Kaufmann*, relation between the destruction of glucose and the production of animal heat and work, 1887, A., 289.
- heat developed by the activity of muscles, 1887, A., 1059.
- Chechoukoff.** See *Scheschukoff*.
- Cheesman, Louis M.**, measurement of rapidly alternating electric currents, 1885, A., 471.
- Chelmicki, St. von**, carbonyl-*o*-amido-phenol and thiocarb-*o*-amidophenol, 1887, A., 477; 1891, A., 52.
- Chemin, Ch. O.**, process for bleaching ozokerite, 1885, A., 101.
- Chenevier, A.**, purification of carbon bisulphide, 1891, A., 1417.
- Chervet, A.**, constants of capillarity of saline solutions, 1885, A., 1105.
- Chesneau, Gabriel**, distribution of hydrogen sulphide between the metals of two dissolved salts, 1890, A., 1367.
- Chester, Albert Huntingdon**, mineralogical notes, 1887, A., 782.
- alteration-products of rhodonite, 1888, A., 795.
- mangano-magnesian magnetite, 1891, A., 274.
- Chester, Albert Huntingdon**, and *F. J. Cairns*, crocidolite from Cumberland, 1888, A., 118.
- estimation of ferrous oxide in insoluble silicates, 1888, A., 196.
- Chevalier, Josephine**, chemical composition of nerve substance, 1886, A., 385.
- Chevallier, Adolphe.** See *Julien Thoulet*.
- Chevrenl, Michel Eugène**, co-existence of ammonium carbonate and potassium sulphate in guano, 1884, A., 359.
- atmospheric nitrogen and its relations to vegetation, 1888, A., 979.
- Chevrenl, Michel Eugène**, obituary notice of, 1890, T., 445.
- Chiappe**, reaction of ashes from wine, 1884, A., 642.
- Chibret**, antiseptic properties of mercuric cyanide, oxycyanide, and chloride, 1888, A., 1327.
- Chibret and Izarn**, detection of alkaloids in urine by means of iodine, 1886, A., 748.
- Chicandard, G.**, fermentation of bread, 1883, A., 1179; 1884, A., 235.
- Chichkoff**, composition of albuminoids, 1885, A., 405.
- Chiozza, Luigi**, formation of eugenol from coniferin, 1888, A., 941.
- Chittenden, Russell H.**, distribution of arsenic in a human body, 1884, A., 319.

- Chittenden, Russell H.**, dehydration of glucose in the stomach and intestines, 1888, A., 79.
- Chittenden, Russell H.**, and **Joseph A. Blake**, influence of antimonious oxide on metabolism, 1888, A., 80.
- distribution of antimony in the organs and tissues, 1888, A., 81.
- influence of arsenic and antimony on the glycogenic function of the liver, 1889, A., 537.
- Chittenden, Russell H.**, and **Percy R. Bolton**, egg-albumin and albumoses, 1888, A., 74.
- Chittenden, Russell H.**, and **George W. Cummins**, relative digestibility of fish in gastric juice, 1885, A., 569.
- influence of bile, bile salts, and bile acids on amylolytic and proteolytic action, 1885, A., 999.
- influence of some organic and inorganic substances on gaseous metabolism, 1888, A., 77.
- myosin, 1889, A., 530.
- Chittenden, Russell H.**, and **John Stude Ely**, alkalinity and diastatic action of human saliva, 1883, A., 488.
- Chittenden, Russell H.**, and **Ralph Goodwin**, myosin-peptone, 1891, A., 950.
- Chittenden, Russell H.**, and **Horace S. Hart**, elastin and elastoses, 1889, A., 423.
- Chittenden, Russell H.**, and **John A. Hartwell**, crystalline vitellin and vitelloses, 1891, A., 342.
- proteoses and peptones, 1891, A., 953.
- Chittenden, Russell H.**, and **Morrison T. Hutchinson**, action of uranium salts on digestive ferments, 1888, A., 78.
- Chittenden, Russell H.**, and **Alexander Lambert**, physiological action of uranium salts, 1889, A., 537.
- Chittenden, Russell H.**, and **Charles Norris**, relative absorption of nickel and cobalt salts, 1889, A., 538.
- Chittenden, Russell H.**, and **Thomas Burr Osborne**, proteids of the maize kernel, 1892, A., 379, 746, 749.
- Chittenden, Russell H.**, and **Harry M. Painter**, casein and caseoses, 1888, A., 76.
- Chittenden, Russell H.**, and **Ernest E. Smith**, digestion products of gluten-casein, 1891, A., 342.
- Chittenden, Russell H.**, and **Herbert E. Smith**, palmitic acid and the palmittins, 1885, A., 508.
- diastatic action of saliva, 1886, A., 638.
- Chittenden, Russell H.**, and **Fred P. Solley**, digestion of gelatin, 1891, A., 949.
- Chittenden, Russell H.**, and **Charles W. Stewart**, influence of certain therapeutic agents on amylolytic and proteolytic digestion, 1889, A., 533.
- Chittenden, Russell H.**, and **Henry H. Whitehouse**, metallic compounds of albumin and myosin, 1888, A., 74.
- Chittenden, Russell H.**, **Eliot P. Joslin**, and **Frank S. Meara**, ferments in pine-apple juice, 1892, A., 650.
- Chittenden, Russell H.**, **Charles Norris**, and **Ernest E. Smith**, influence of alcohol on proteid metabolism, 1891, A., 1272.
- Chittenden, Russell H.** (and others), caseoses, casein-dyspeptone, and casein-peptone, 1889, A., 534.
- influence of urthane, *p*-aldehyde, antipyrin, and antifebrin on proteid metabolism, 1889, A., 534.
- Chittenden, Russell H.** See also **Walter Kühne**.
- Chiassi, J.** See **Angelo Angeli**.
- Chlopinsky**, detection of picrotoxinin in animal liquids and tissues, 1885, A., 449.
- Chludskinsky, W.**, composition of long wool and merino fleeces, 1886, A., 105.
- Choay, Eugene.** See **Auguste Béhal**.
- Chodat, Robert**, and **Philippe Chuit**, investigation on *Lacturinus piperatus*, 1890, A., 80.
- Chodoŭský, Karel**, action of zinc dust on chloral, 1888, A., 669.
- decomposition of quinic acid by dilute hydrochloric acid, 1888, A., 1298.
- solubility of arsenious oxide and sulphide, 1889, A., 945.
- Chodoŭský, Karel.** See also **Bohuslaw Rayman**.
- Chorley, John C.**, analysis of a slag from the manufacture of phosphorus in electrical furnaces, 1892, A., 1401.
- Chrapowitzki**, synthesis of albumin in chlorophyll-containing plants, 1888, A., 868.
- Chree, C.**, conduction of heat in liquids, 1888, A., 641.
- Christ, A.**, composition of a boiler incrustation, 1892, A., 17.
- Christ, Adolph.** See **Adolph Claus**.
- Christ, Constantin.** See **Rudolph Fittig**.
- Christel, G.**, formation of sodium sulphate in bricks, 1884, A., 127.
- detection and estimation of trinitrophenol, 1884, A., 221.

- Christensen, A.**, estimation of albumin in urine, 1889, A., 452.  
 — estimation of free alkaloids and their molecular weight, 1892, A., 666.
- Christensen, Odin T.**, oxides of manganese, 1884, A., 397.  
 — chromium and manganese compounds analogous to ferro- and ferricyanides, 1885, A., 737.  
 — manganese and fluorine compounds, 1886, A., 854; 1887, A., 335, 448, 892.  
 — derivatives of chromium ammonium thiocyanate, 1892, A., 798.  
 — compounds of hydrogen diamine-chromium thiocyanate with nitrogenous bases, 1892, A., 1000.
- Christomanos, Anastasios Karl**, apparatus for determining melting-points, 1890, A., 939.
- Chrustschoff, K. v.**, new type of pyroxene, 1886, A., 776.  
 — porphyritic hyperite from California, 1886, A., 780.  
 — plagioclase, 1887, A., 20.  
 — artificial production of quartz and tridymite, 1887, A., 559.  
 — artificial production of quartz and orthoclase, 1887, A., 559.  
 — anorthite and enstatite, 1890, A., 19.  
 — artificial magnesia-mica, 1890, A., 343.  
 — artificial formation of amphibole, 1891, A., 887.  
 — artificial hornblende, 1891, A., 1439.
- Chrustschoff, Paul D.**, precipitation of mixtures of iodates and sulphates by barium salts, 1887, A., 884.  
 — electrical conductivity of saline solutions, 1889, A., 808, 809.
- Chrustschoff, Paul D.**, and **A. Martinoff**, coefficients of chemical affinity, 1887, A., 548.
- Chrustschoff, Paul D.**, and **V. Fashkoff**, electrical conductivity of saline solutions, 1889, A., 809; 1891, A., 141.
- Chuard, Ernest**, new hydrated cupric chloride, 1889, A., 17.  
 — formation of natural sulphides, 1891, A., 1434.  
 — nitrification in organic media of acid reaction, 1892, A., 906.
- Chuard, Ernest**. See also **Heinrich Brunner**.
- Chuit, Philippe**. See **Heinrich Brunner, Robert Chodat**.
- Chupotaky, A.**, action of chlorine on tetramethylethylene, 1885, A., 645.
- Chupotaky, A.**, and **Nicolai Marintza**, action of chlorine on tetramethylene, 1890, A., 727.
- Church, Arthur Herbert**, a chemical study of vegetable albinism; experiments with *Quercus rubra*, 1886, T., 839; P., 236; discussion, P., 237.  
 — Mahwa flowers, 1886, A., 389.  
 — occurrence of aluminium in vascular Cryptograms, 1889, A., 182.
- Ciamician, Giacomo Luigi**, constitution of pyrroline, 1886, A., 626.  
 — formation of quinol, 1886, A., 695.  
 — transformation of pyrroline into pyridine, 1886, A., 810; 1887, A., 678.  
 — behaviour of methylindole; constitution of pyrroline, 1887, A., 278.  
 — tetriodopyrroline, 1887, A., 597.  
 — pyrrolylene tetrabromide, 1888, A., 242.  
 — lecture experiment on Raoult's law, 1889, A., 336.  
 — physical properties of benzene and thiophen, 1889, A., 387.  
 — derivatives of diallyl, 1890, A., 351.  
 — conversion of pyrroline into tetramethylenediamine, 1890, A., 1242.  
 — the molecular theory and electrolytic dissociation, 1891, A., 390.  
 — constitution of the tetrole rings, 1891, A., 1195.  
 — constitution of naphthalene, 1892, A., 69.
- Ciamician, Giacomo Luigi**, and **Francesco Anderlini**, action of methyl iodide on some pyrroline derivatives, 1889, A., 58.  
 — action of methyl iodide on  $\alpha$ -methylpyrroline, 1889, A., 728.  
 — tetrabromides of diallyl, 1890, A., 20.
- Ciamician, Giacomo Luigi**, and **Angelo Angeli**, oxidation products of brominated thiophens, 1891, A., 893.  
 — constitution of tetrole-nuclei, 1892, A., 302.
- Ciamician, Giacomo Luigi**, and **Massimiliano Dennstedt**, action of nascent hydrogen on pyrroline, 1883, A., 82, 1142.  
 — derivatives of citraconic acid, 1883, A., 812.  
 — compounds of the pyrroline series, 1883, A., 350.  
 — action of cyanogen chloride on potassium-pyrroline, 1883, A., 599.  
 — acetylpyrroline and  $\psi$ -acetylpyrroline, 1884, A., 289.  
 — action of acetic anhydride and benzoic anhydride on pyrroline, 1881, A., 1044.

- Ciamician, Giacomo Luigi**, and *Mari-miliano Dennstedt*, action of hydroxylamine on pyrroline, 1885, A., 246.
- action of organic anhydrides on pyrroline, 1885, A., 378.
- action of potash on boiling pyrroline, 1886, A., 367.
- extraction of pyrroline from animal oil, 1887, A., 59.
- Ciamician, Giacomo Luigi**, and *Pietro Magnaghi*, action of carbonyl chloride on potassium-pyrroline, 1885, A., 809.
- action of nascent hydrogen on methylpyrroline, 1885, A., 809.
- action of heat on acetylpyrroline and carbonylpyrroline, 1885, A., 1143.
- bases derived from pyrroline, 1885, A., 1242.
- action of phosphoric chloride on alloxan, 1886, A., 226.
- condensation products of pyrroline with alloxan, 1886, A., 367.
- pyrrolylene, 1886, A., 521.
- Ciamician, Giacomo Luigi**, and *Gaetano Magnanini*, indolecarboxylic acids, 1888, A., 483.
- pyrrolylene tetrabromides, 1888, A., 799.
- methylindolecarboxylic acid, 1888, A., 958.
- Ciamician, Giacomo Luigi**, and *Paul Silber*, pyrocoll, 1884, A., 176.
- derivatives of pyrocoll, 1884, A., 292.
- synthesis of pyrocoll, 1884, A., 585, 725.
- blue colouring matter from pyrroline, 1884, A., 740.
- $\alpha$ -carboxypyrrolic acid, 1884, A., 1044.
- derivatives of succinimide, 1884, A., 1115.
- methods for the formation of  $\alpha$ -carboxypyrrolic acid, 1884, A., 1193.
- action of alkaline hypochlorites and hypobromites on pyrroline, 1884, A., 1367.
- pyrroline- $\alpha$ -carboxylic acid, 1885, A., 246.
- acetylpyrroline, 1885, A., 808.
- action of nitric acid on methyl pyrrol ketone, 1885, A., 810, 992.
- methylpyrrolketonesulphinic acid, 1885, A., 810.
- bromopyridine, 1885, A., 811.
- dimethyl pyrrolylene ketone, 1885, A., 993; 1886, A., 74.
- action of halogens on pyrroline, 1885, A., 1077.
- Ciamician, Giacomo Luigi**, and *Paul Silber*, nitro-compounds of the pyrroline series, 1886, A., 718.
- action of acetic anhydride on homopyrroline, 1886, A., 719.
- action of alloxan on pyrroline, 1886, A., 897.
- disubstituted derivatives of pyrroline and their constitution, 1886, A., 938.
- action of light on nitrobenzene, 1887, A., 240.
- synthesis of pyrroline, 1887, A., 273.
- conversion of pyrroline into pyridine-derivatives, 1887, A., 378.
- determination of positions in the pyrroline series, 1887, A., 597.
- action of acetic anhydride on methylpyrroline and benzylpyrroline, 1887, A., 843.
- constitution of some pyrroline derivatives, 1888, A., 61.
- apiole, 1888, A., 606, 847, 1100; 1889, A., 407; 1890, A., 35.
- derivatives of maleinimide, 1889, A., 384.
- derivatives of dichloromaleinimide, 1890, A., 24.
- saffrole, 1890, A., 965.
- eugenol, 1890, A., 966.
- constitution of apiole and its derivatives, 1890, A., 1294.
- hydrocotoin, a constituent of coto bark, 1891, A., 578.
- reduction of apione, 1891, A., 1500.
- constituents of paracoto bark, 1892, A., 62.
- constituents of coto bark, 1892, A., 873.
- oxymethylene group in isosaffrole, 1892, A., 972.
- $\psi$ -pelletierine, 1892, A., 1110.
- Ciamician, Giacomo Luigi**, and *Carlo Umberto Zanetti*, direct synthesis of homologues of pyrroline, 1889, A., 727.
- conversion of pyrroline into tetramethylenediamine, 1889, A., 1208.
- action of hydroxylamine on pyrrolines, 1890, A., 264, 1155; 1891, A., 1502.
- phenylsuccinazone, 1890, A., 1120.
- molecular weight of the p- $\alpha$ -tones, 1892, A., 1501.
- Ciamician, Giacomo Luigi**, and *Carlo Zatti*, indolecarboxylic acids, 1888, A., 957.

- Ciamician, Giacomo Luigi, and Carlo Zatti**, indole derivatives, 1889, A., 1187.
- culyte, 1890, A., 872.
- Ciamician, Giacomo Luigi**. See also *Angelo Angeli*.
- Cieslar, Adolf**, influence of light on the germination of seeds, 1885, A., 419.
- Cimbal, O.** (and others), cultivation and yield of potatoes, 1884, A., 483; 1885, A., 587.
- Ciotto, Francesco, and Pietro Spica**, toxicological observations, 1891, A., 772.
- Citron, Heinrich**, mucin in urine, 1887, A., 390.
- Cikandi-Bey, A.**, antiseptic properties of carbon bisulphide, 1885, A., 97.
- Claassen, Edo**, analysis of a variety of siderite, 1883, A., 559.
- mineralogical notes, 1883, A., 1066.
- bitter principle of the cowberry, 1885, A., 1254.
- vanadium compounds, 1886, A., 428.
- solubility of manganese sulphide in fused potassium sulphide, 1887, A., 449.
- extraction of vanadium and chromium from iron ores, 1887, A., 449.
- manganese sulphate, 1887, A., 774.
- catalpin, 1888, A., 1309.
- cephalanthin, 1890, A., 171.
- estimation of codeine and morphine, 1890, A., 1198.
- estimation of citric acid in parts of plants, 1891, A., 129.
- Claassen, C.** See *Gustav Loges*.
- Claassen, Conrad**. See *Carl Arnold August Michaelis*.
- Claisen, Ludwig**, action of aldehydes on ketones, ketonic acids, and malonic acid, 1884, A., 445.
- action of aldehydes on phenols, 1887, A., 270.
- action of nitrous acid on ketones, 1887, A., 463.
- condensation of aldehydes with phenols and aromatic amines, 1887, A., 494.
- action of sodium alkoxides on benzaldehyde, 1887, A., 574.
- introduction of acid radicles into ketones, 1887, A., 575.
- addition of ethyl malonate to unsaturated compounds, 1887, A., 800.
- action of ethyl chlorocarbonate on ethyl sodacetate and sodomalonnate, 1889, A., 375; 1892, A., 1070.
- Claisen, Ludwig**, introduction of acid radicles into ketone molecules, 1890, A., 26.
- conversion of ethyl acetoneoxalate into *s*-hydroxytoluic acid, 1890, A., 361.
- preparation of cinnamic acid and its homologues, 1890, A., 891.
- coloured compounds derived from ethyl acetoneoxalate, 1891, A., 422.
- hydrolysis of ethereal salts of organic acids by potassium acetate, 1891, A., 425.
- synthesis of chelidonic acid, 1891, A., 425.
- preparation of ethereal salts of fuifurylacrylic acid, 1891, A., 427.
- action of ethyl formate on camphor, 1891, A., 574.
- isoxazoles, 1892, A., 506.
- mixed azo-compounds, 1892, A., 710.
- action of ethyl chlorocarbonate on ethyl sodacetate, 1892, A., 1070.
- constitution of ethyl acetate and of the so-called formyl-derivatives of ethereal salts and ketones, 1892, A., 1072.
- Claisen, Ludwig, and Leon Crismer**, action of benzaldehyde on malonic acid and its ethylic salt, 1884, A., 444.
- Claisen, Ludwig, and Ernest Francis Ehrhardt**, preparation of acetylacetone and its homologues, 1889, A., 850.
- Claisen, Ludwig, and Louis Fischer**, benzaldehyde, 1887, A., 940; 1888, A., 690.
- Claisen, Ludwig, and Etznoyu Hori**, action of hydroxylamine on acetoacetaldehyde, 1891, A., 416.
- synthesis of aconitic acid, 1891, A., 424.
- Claisen, Ludwig, and Oscar Lowman**, preparation of ethyl benzoylacetate, 1887, A., 583.
- benzoylacetone, 1888, A., 692.
- Claisen, Ludwig, and Otto Manasse**, nitrosoketones, 1887, A., 944.
- conversion of ketones into nitrosoketones, 1889, A., 584.
- nitrosocamphor and camphorquinone, 1889, A., 619.
- Claisen, Ludwig, and Francis Edward Matthews**, reaction of ethyl acetate with aldehydes, 1884, A., 443.
- Claisen, Ludwig, and Louis Meyerowitz**, ketoaldehydes, 1890, A., 357.

- Claisen, Ludwig**, and *A. C. Ponder*, condensation of acetone with aromatic aldehydes, 1884, A., 1166.
- Claisen, Ludwig**, and *Peter Adolf Roosen*, derivatives of pyrazole, 1891, A., 1106.
- Claisen, Ludwig**, and *Robert Stock*, action of hydroxylamine on benzoyl-acetaldehyde, 1891, A., 451.
- Claisen, Ludwig**, and *Nicolas Stylos*, action of ethyl acetate on acetone, 1887, A., 917; 1888, A., 676.
- acetoacetaldehyde, 1888, A., 671.
- Claisen, Ludwig**, and *Wilhelm Zedel*, action of ethyl chlorocarbonate on the sodium derivatives of acetylacetone, ethyl acetoacetate, and ethyl malonate, 1889, A., 377.
- phenylisoxazolone, 1891, A., 468.
- Claisen, Ludwig**. See also *Carl Beyer*, *Arthur Wright Bishop*, *Eduard Brömme*.
- Clamond, C.**, and *J. Carpentier*, thermo-electric pile, 1885, A., 854.
- Claparède, Alexandre**, and *Watson Smith*, on a bye-product of the manufacture of aurin, 1883, T., 358.
- Clapp, Geo. H.** See *Alfred E. Hunt*.
- Clapp, Ralph Roger**. See *William James Comstock*.
- Clar, Conrad**, action of water containing carbonic anhydride on the trachyte of Gleichenberg, 1884, A., 569.
- Clark, Harry W.** See *Allen Hazen*.
- Clark, John**, separation of cobalt from nickel, 1884, A., 498.
- estimation of sulphur in pyrites, 1886, A., 279.
- estimation of arsenic in pyrites, 1888, A., 194.
- estimation of phosphoric acid with silver nitrate, 1889, A., 307.
- separation of arsenic, antimony, and tin, 1892, T., 424; P., 68.
- direct estimation of arsenic in minerals and metals, 1892, A., 530.
- Clark, Joseph Ivarner**, purification of mercury by distillation in a vacuum, 1885, A., 350.
- electrolytic decomposition, 1886, A., 294.
- Clark, William Inglis**, ethyl acetate, 1883, A., 1080.
- Clarke, Frank Wigglesworth**, minerals from Litchfield, Maine, 1886, A., 677.
- lithia micas, 1887, A., 347.
- studies in the mica-group, 1888, A., 117.
- Clarke, Frank Wigglesworth**, chemical structure of natural silicates, 1888, A., 659.
- nickel ores from Oregon, 1888, A., 1045.
- new occurrence of gyrolite, 1890, A., 343.
- theory of the mica group, 1890, A., 460.
- concordance in atomic weight determinations, 1891, A., 390.
- atomic weights, 1891, A., 877.
- Tschermak's theory of the chlorite group and its alternative, 1892, A., 794.
- fractional analysis of silicates, 1892, A., 945.
- petalite, spessartine, and willemite, 1892, A., 1411.
- Clarke, Frank Wigglesworth**, and *Charles Catlett*, platiniferous nickel ore from Canada, 1889, A., 835.
- Clarke, Frank Wigglesworth**, and *Thomas Marcen Chatard*, mineralogical notes, 1885, A., 491.
- Clarke, Frank Wigglesworth**, and *Joseph Silas Diller*, topaz from Stoneham, Maine, 1886, A., 213.
- turquoise from New Mexico, 1887, A., 116.
- Clarke, Frank Wigglesworth**, and *Charles Seth Evans*, antimony tartrates, 1884, A., 298.
- Clarke, Frank Wigglesworth**, and *Omar T. Joslin*, phosphides of iridium and platinum, 1884, A., 400.
- Clarke, Frank Wigglesworth**, and *Eliot Abbott Kebler*, cadmium iodide, 1884, A., 394.
- Clarke, Frank Wigglesworth**, and *George Perkins Merrill*, nephrite and jadeite, 1890, A., 716.
- Clarke, Frank Wigglesworth**, and *Edward Adolph Schneider*, constitution of talc, 1890, A., 948.
- constitution of natural silicates, 1891, A., 529.
- constitution of certain micas, vermiculites, and chlorides, 1892, A., 125.
- Clarke, Frank Wigglesworth**. See also *Edward A. Schneider*.
- Clarkson, Philip S.** See *William W. Macfarlane*.
- Classen, Alexander**, electrolytic estimations, 1885, A., 190, 597, 1094.
- titanium trioxide, 1888, A., 424, 789.
- quantitative analysis by electrolysis, 1888, A., 528.
- quantitative separation of titanium from iron, 1888, A., 532.

- Classen, Alexander**, atomic weight of bismuth, 1890, A., 706; 1891, A., 525.  
 — pure bismuth, 1892, A., 20.
- Classen, Alexander**, and **Oscar Bauer**, use of hydrogen peroxide in analytical chemistry, 1883, A., 934.
- Classen, Alexander**, and **Robert Ludwig**, quantitative analysis by electrolysis, 1885, A., 932; 1886, A., 493.
- Classen, Alexander**, and **Robert Schelle**, quantitative analysis by electrolysis, 1889, A., 76.
- Classen, Alexander**. See also *Josef Bongartz*.
- Claudon, Edouard**, use of condensation in fractionating apparatus, 1885, A., 331.
- Claudon, Edouard**, and **Ed. Charles Morin**, alcohols in brandy, 1887, A., 714.  
 — fermentation of sugar with elliptical yeast, 1887, A., 746.  
 — apparatus for fractional distillation, 1888, A., 646.
- Claus, Adolph**, dibromosuccinic acid and diamidosuccinic acid, 1883, A., 43.  
 — amarine, 1883, A., 203.  
 — sulphonic acids of *p*-cymene, 1883, A., 913.  
 — occurrence and estimation of free tartaric acid in wine, 1883, A., 935.  
 — cymenesulphonic acids, 1883, A., 1129.  
 —  $\alpha$ -nitroanthraquinonesulphonic acid and its derivatives, 1884, A., 1040.  
 — alkylquinoline derivatives, 1885, A., 814.  
 — quinoline, 1885, A., 908.  
 — allotropic modification of amarine, 1885, A., 1063.  
 — formation of propylene from glycerol, 1886, A., 136.  
 — aromatic methyl ketones and their oxidation products, 1886, A., 462.  
 — chlorinated  $\alpha$ -naphthaquinones, 1886, A., 714.  
 — action of concentrated sulphuric acid on aromatic ketones, 1887, A., 251.  
 — constitution of benzene, 1887, A., 719; 1888, A., 940; 1889, A., 1061; 1890, A., 1233; 1891, A., 44, 897.  
 — 2,5-dibromocymene, 1888, A., 583.  
 — quinolinesulphonic acid, 1888, A., 728.  
 — a new dihydroxynaphthalene, 1889, A., 714.  
 — bromoquinolinesulphonic acids, 1890, A., 265.  
 — bases derived from the halogen alkyl salts of papaverine, 1890, A., 271.
- Claus, Adolph**, alkyl aromatic ketones and their oxidation by potassium permanganate, 1890, A., 769, 979; 1891, A., 199, 561, 1222.  
 — dichloro- $\alpha$ -naphthaquinone dichloride, 1890, A., 786.  
 — constitution of naphthalene, 1890, A., 1424; 1891, A., 41.  
 — alkyl ketones from halogen derivatives of aromatic hydrocarbons, 1891, A., 911.  
 — action of zinc on ethyl dibromosuccinate, 1891, A., 1338.  
 — decomposition of glutaric acid at a high temperature, 1892, A., 40.  
 — oximes and the so-called stereochemistry, 1892, A., 50, 598.  
 —  $\gamma$ -bromoquinoline, 1892, A., 875.  
 — aromatic alkyl ketones, and their oximes, 1892, A., 985.  
 — alkyl derivatives of cinchona alkaloids, 1892, A., 1012.  
 — oximes, 1892, A., 1089.  
 — aromatic alkyl ketoximes, 1892, A., 1200.  
 — cinchona alkaloids, 1892, A., 1249.  
 — quaternary ammonium bases of the quinoline series, 1892, A., 1353.  
 — alkyl and alkylene derivatives of cinchonic acid, and alkylene derivatives of cinchonic acid, 1892, A., 1488.
- Claus, Adolph**, and **Ludwig Beck**, nitration and bromination of *p*-bromotoluic acid, 1892, A., 1207.
- Claus, Adolph**, and **Heinrich Becker**, trinitrotoluene and liquid dinitrotoluene, 1883, A., 1093.
- Claus, Adolph**, and **Curt Beysen**, di-nitro-*p*-toluic acids and their derivatives, 1892, A., 177.
- Claus, Adolph**, and **Philipp Böcher**, nitration of *m*-chloro-*p*-toluic acid, 1892, A., 173.
- Claus, Adolph**, and **Hermann Bopp**, sulphonation of *m*-chloronitrobenzene and *m*-chloraniline, 1891, A., 1489.
- Claus, Adolph**, and **August Wilhelm Bücher**, chlorobenzoic acids, 1887, A., 828.
- Claus, Adolph**, and **Hermann Burstert**, chlorine substitution products of *m*-xylene, 1890, A., 1105.
- Claus, Adolph**, and **Adolph Christ**, bromo-*p*-cymenesulphonic acid, 1886, A., 1032.
- Claus, Adolph**, and **Otto Clausen**, methyl *m*-*p*-dimethylphenyl ketone, 1886, A., 463.

- Claus, Adolph, and Jacobus Cornelis Scheneveld van der Cloet**, dichloro- $\alpha$ -naphthaquinonesulphonic acid, 1888, A., 602.
- Claus, Adolph, and Friedrich Colischonn**, quinoline, 1887, A., 60.
- bromoquinoline, 1887, A., 158.
- Claus, Adolph, and George Cropp**, methyl methylpropylphenyl ketone, 1886, A., 463.
- Claus, Adolph, and Nils Davidsen**, chloro-*p*-toluic acids, 1889, A., 988.
- nitration of *o*-chloro-*p*-toluic acid, 1892, A., 172.
- Claus, Adolph, and Hermann Decker**,  $\gamma$ -bromoquinoline, 1889, A., 728.
- Claus, Adolph, and Friedrich von Dresden**, cetyl alcohol, 1891, A., 535.
- Claus, Adolph, and August Dreher**, *m*-cresol, 1889, A., 863.
- Claus, Adolph, and Albert Edinger**, isoquinoline, 1889, A., 415.
- Claus, Adolph, and Karl Elbs**, amarine, 1883, A., 982.
- alkylated diphenyl ketones, 1885, A., 1065.
- Claus, Adolph, and Max Erler**, bromo-derivatives of diphenic acid, 1887, A., 268.
- Claus, Adolph, and Wilhelm Fahrion**, carvole and carvacrolsulphonic acid, 1889, A., 880.
- Claus, Adolph, and Paul Feist**, methyl  $\alpha$ -naphthyl ketone, 1887, A., 271.
- Claus, Adolph, and Emil Fickert**, ethyl *p*-xylyl ketone, 1887, A., 253.
- Claus, Adolph, and C. F. Ludwig Foecking**, methyl duryl ketone, 1888, A., 275.
- Claus, Adolph, and Eduard Föhlisch**, methyl *o*-duryl ketone, 1889, A., 50.
- Claus, Adolph, and Ludwig Gärtner**, methyl *m*-xylyl ketone, 1886, A., 463.
- Claus, Adolph, and Carl Geisler**, dibromoquinoline, 1890, A., 172.
- Claus, Adolph, and Franz Glyckherr**, oxidation of quinoline benzyl chloride, 1883, A., 1009.
- Claus, Adolph, and Carl Groneweg**, 4:5-dichlorophthalic acid: derivatives of *o*-xylene, 1891, A., 921.
- Claus, Adolph, and Paul Heermann**, tribromoquinolines, 1891, A., 82.
- Claus, Adolph, and Guntal Hemmann**, azophthalic acid, 1883, A., 1126.
- Claus, Adolph, and Julius Herbabny**, nitration and bromination of *o*-bromo-*p*-toluic acid, 1892, A., 174.
- Claus, Adolph, and Jakob Hirsch**, *m*-cresols, 1889, A., 389.
- Claus, Adolph, and Hermann Hirzel**, alkyl derivatives of aniline, 1887, A., 134.
- Claus, Adolph, and Rudolf Hoch**, action of phosphoric chloride on phthalic anhydride, 1886, A., 705.
- Claus, Adolph, and Hans Howitz**, aniline derivatives, 1884, A., 1005.
- the halogen alkyl oxides of *o*-hydroxyquinoline and *p*-hydroxyquinoline, 1890, A., 1323.
- halogen alkyl compounds of *p*-hydroxyquinoline and the derived quaternary ammonium bases, 1891, A., 1252.
- action of bromine on *p*- and *o*-hydroxyquinoline, 1892, A., 358.
- Claus, Adolph, and Ernest Huettlin**, papaverine, 1885, A., 996.
- Claus, Adolph, and Friedrich Immel**, sulphonation of *o*-toluidine, 1891, A., 1490.
- Claus, Adolph, and Urban Arthur Jackson**, *o*-cresol, 1889, A., 128.
- Claus, Adolph, and Joseph Joachim**, nitration of *o*-nitro-*p*-toluic acid, 1892, A., 176.
- Claus, Adolph, and Heinrich Kautz**, chloro-derivatives of *o*-xylene, 1885, A., 972.
- Claus, Adolph, and Friedrich Moritz Kinkelhayn**, cinchonic acid, 1887, A., 846.
- Claus, Adolph, and Max Knyrim**,  $\alpha$ -naphthol- $\beta$ -sulphonic acid, 1886, A., 156.
- Claus, Adolph, and Hans Kohlstock**, amarine, 1885, A., 1132.
- Claus, Adolph, and Theodor Kramer**, nitro- and amido-derivatives of quinoline, 1885, A., 908.
- Claus, Adolph, and Ernst Krause**, thymol, 1891, A., 899.
- Claus, Adolph, and Jakob Krauss**, *m*-cresolsulphonic acids, 1888, A., 280.
- Claus, Adolph and Karl Kroseberg**, *p*-tolylglyoxylic, *p*-tolylhydroxyacetic, and *p*-tolylacetic acids, 1887, A., 948.
- Claus, Adolph, and Heinrich Kunath**, bromotoluic acids, 1889, A., 987.
- Claus, Adolph, and Hermann Kurz**, chloronitrobenzoic acids, 1888, A., 594.
- Claus, Adolph, and Paul Küttner**, quinoline-*o*-sulphonic acid, 1886, A., 628.
- quinolinesulphonic acids, 1887, A., 278.
- Claus, Adolph, and Hugo von der Lippe**, oxidation of pentachloronaphthalene, 1888, A., 921.

- Claus, *Adolph*, and *Christian Mann*, sulphonation of *p*-chloronitrobenzene and *p*-chloraniline, 1891, A., 1488.
- Claus, *Adolph*, and *Friedrich Mann*, *o*-ethyltoluene, 1885, A., 888.
- Claus, *Adolph*, and *Alexander Meixner*, narceine, 1888, A., 611.
- Claus, *Adolph*, and *Emmanuel August Merck*, hydrocyanides of organic bases, 1884, A., 338.
- Claus, *Adolph*, and *Hermann Mercklin*, reaction of aluminium chloride with hydroxyl compounds, 1886, A., 143.
- Claus, *Adolph*, and *Paul Mielcke*,  $\alpha$ -naphthol di- and tri-sulphonic acids, 1886, A., 716.
- Claus, *Adolph*, and *Theodor Muchall*, quinolinecarboxylic acid, 1885, A., 560.
- Claus, *Adolph*, and *Peter Friedrich Mueller*,  $\beta$ -dichloronaphthaquinone: constitution of  $\epsilon$ -dichloronaphthalene, 1886, A., 247.
- Claus, *Adolph*, and *Walter Neukranz*, oxidation of mixed fatty aromatic ketones by potassium permanganate, 1891, A., 1864.
- Claus, *Adolph*, and *Carl Nicolaysen*, phenylacridine, 1886, A., 68.
- Claus, *Adolph*, and *Otto Pfeiffer*, isonitrostearic acid, 1891, A., 541.
- Claus, *Adolph*, and *Otto Philipson*, halogen derivatives of naphthylamine, 1891, A., 461.
- Claus, *Adolph*, and *Ernst Pieszcsek*, *o*-ethyltoluene, 1887, A., 240.
- Claus, *Adolph*, and *Gustav Pollitz*, 2'-bromoquinoline, 1890, A., 521.
- Claus, *Adolph*, and *Moritz Posselt*, 1:4-hydroxyquinolinesulphonic acid, 1890, A., 522.
- 3-hydroxyquinolinesulphonic acid, 1890, A., 523.
- Claus, *Adolph*, and *Otto Putensen*, cyanurates, 1889, A., 30.
- Claus, *Adolph*, and *August Reh*, bromination of bromobenzoic acids, 1892, A., 171.
- Claus, *Adolph*, and *Carl Richter*, action of phosphorus pentachloride and pentoxide on benzoyl- $\beta$ -naphthylphenylamine and on benzoyl-di- $\beta$ -naphthylamine, 1884, A., 1358.
- Claus, *Adolph*, and *Heinrich Riedel*, methyl *p*-tolyl ketone, 1886, A., 462.
- Claus, *Adolph*, and *Paul Riemann*, dichloro-*p*-cresol and dichloro-*o*-cresol, 1883, A., 1111.
- Claus, *Adolph*, and *Carl Ritzefeld*, narceine 1885, A., 996.
- Claus, *Adolph*, and *Georg Runschke*, the orientation of 4:6-dichloro-*m*-xylene, and on some derivatives thereof, 1890, A., 1246.
- Claus, *Adolph*, and *Wilhelm Ruppel*, di- $\beta$ -naphthylketone oxide, 1890, A., 510.
- Claus, *Adolph*, and *Ludwig Scherbel*, additive products of amarine-silver: derivatives of amarine, 1886, A., 237.
- Claus, *Adolph*, and *Wilhelm Scheulen*, bromonitrobenzoic acids, 1891, A., 564.
- Claus, *Adolph*, and *Walter Schmeisser*, sulphonic acids of 4'-bromoquinoline, 1890, A., 266.
- Claus, *Adolph*, and *Emil Schmidt*, nitration products of *m*-xylenesulphonic acid, 1886, A., 708.
- Claus, *Adolph*, and *Oskar Schmidt*,  $\beta$ -naphthol- $\beta$ -disulphonic acid, 1887, A., 269.
- Claus, *Adolph*, and *Josef August Schulte im Hofe*, cumene-*o*-sulphonic acid and *o*-cumic acid, 1887, A., 261.
- Claus, *Adolph*, and *Hugo Schweitzer*, chlorocresols and toluquinones, 1886, A., 614.
- Claus, *Adolph*, and *Richard Seibert*, dibromo-*p*-toluic acid, 1892, A., 176.
- Claus, *Adolph*, and *Alfred Stavenhagen*, dichlorobenzoic acids, 1892, A., 1206.
- Claus, *Adolph*, and *Paul Stegelitz*, action of haloïd ethereal salts on quinoline, 1884, A., 1050.
- $\alpha$ -diquinoline from azobenzene, 1885, A., 178.
- quinoline-*p*-sulphonic acid, 1886, A., 628.
- Claus, *Adolph*, and *Theodor Steinkauler*, dibromosebacic acid, and some of its derivatives, 1888, A., 183.
- Claus, *Adolph*, and *Albert Stiebel*, *m*-nitro-*p*-chloraniline, 1887, A., 810.
- *m*-nitroquinoline, 1888, A., 295.
- Claus, *Adolph*, and *Hermann Tersteegen*, naphthyl methyl ketone, 1891, A., 214.
- Claus, *Adolph*, and *Leonhard Tonn*, cumenesulphonic acids, 1885, A., 903.
- Claus, *Adolph*, and *Pector Tornier*, brominated quinolines, 1888, A., 163.
- Claus, *Adolph*, and *Franz Tosse*, addition products of quinoline, 1883, A., 1008.
- Claus, *Adolph*, and *Ernst Trainer*, action of hydrogen chloride on mixtures of aldehyde with alcohols, 1887, A., 231.
- Claus, *Adolph*, and *Gerhard N. Vis*, *m*-bromoquinolines, 1889, A., 280.

- Claus, Adolph, and Gerhard N. Vis**, 1:2-dibromoquinoline and derivatives of 2-bromoquinoline and 4-bromoquinoline, 1890, A., 173.
- Claus, Adolph, and Otto Volz**, 2:3-naphtholsulphonic acid, 1886, A., 246.
- Claus, Adolph, and R. Wehr**, *p*-tolyl-acetic acid, 1891, A., 1865.
- Claus, Adolph, and Albert Weil**, dibromobenzoic acids, 1892, A., 1205.
- Claus, Adolph, and Adolf Welter**, bromo-derivatives of quinoline, 1890, A., 173, 1320.
- Claus, Adolph, and Otto Welzel**, *n*-propylbenzenesulphonic acid, 1890, A., 503.
- Claus, Adolph, and Carl Wenzlik**, 8-heptachloronaphthalene and  $\beta$ -pentachloronaphthalene, 1886, A., 713.
- Claus, Adolph, and Constantin Witt**, dinitro- and diamido-amarine, 1885, A., 1062.
- Claus, Adolph, and Robert Wollner**, methyl *p*-xylyl ketone, 1885, A., 1136.
- Claus, Adolph, and Otto Würtz**, sulphonic acids of 4-bromoquinoline, 1890, A., 267.
- Claus, Adolph, and Stanley Wyndham**, nitro-derivatives of isophthalic acid, 1889, A., 142.
- Claus, Adolph, and Georg Zuschlag**, 3:1-bromoquinolinesulphonic acid and 4:3-nitrobromoquinoline, 1890, A., 267.
- Claus, Adolph, Hans Howitz, Carl Massan, and Georg Raps**, halogen alkyl compounds of hydroxyquinolines, 1892, A., 876.
- Claus, Adolph, Georg Raps, Eberhard Herfeldt, and W. Berkefeld**, orientation by conversion of *p*-dinitro-derivatives into quinones, 1891, A., 1190.
- Claus, Adolph, W. S. Werner, K. Ch. Schlarb, and Wilhelm Murtfeld**, aromatic ethylene diketones and alkylated benzoyl- $\beta$ -propionic acids, 1887, A., 827.
- Claus, Carl Friedrich**, strontium hydroxide, 1884, A., 1224.
- recovery of sulphur from hydrogen sulphide, 1885, A., 304.
- manufacture of strontium hydroxide, 1885, A., 937.
- Claus, Richard**. See **Adolph Fittig**.
- Clausius, A.**, 2:2'-dihydroxynaphthalene, 1890, A., 627.
- Clausius, R.**, the limits of electricity and magnetism, 1883, A., 764.
- Clausnitzer, F.** See **Adolph Mayer**.
- Claussen, Otto**. See **Adolph Claus**.
- Claustrian, G.**, hygroscopic behaviour of camphor and thymol, 1891, A., 1497.
- Clayton, Edwin Godwin**, arsenious oxide solutions, 1891, A., 1418.
- Cleaves, John Frederick, and John Charles Platts**, analysis of water from the Roundwood Colliery, 1890, A., 222.
- Clemence, Addison B.**, apparatus for estimating carbon in steel, 1884, A., 219.
- Cleminshaw, Edward**, lecture experiments on spectrum analysis, 1885, A., 1035.
- Cleminshaw, Edward**. See also **Francis Robert Japp**.
- Clemm, August**, derivatives of *m*-hydroxybenzaldehyde, 1891, A., 699.
- Clerc, Maurice**, estimation of sugars in beet, 1889, A., 314.
- Clerk, Dugald**, explosion of homogeneous gaseous mixtures, 1886, A., 761.
- Clermont, Arthur**, preparation of ether of trichloroacetic acid, 1883, A., 729.
- trichloroacetic acid, 1886, A., 222.
- quinine hydrochloride, 1887, A., 980.
- formation of peptone, 1888, A., 167.
- Clermont, Philippe de, and Paul Chautard**, iodoacetone, 1885, A., 648.
- quinol derivatives of the benzene series, 1886, A., 696.
- distillation of citric acid with glycerol, 1888, A., 45.
- Cleve, Per Theodor**, on samarium and its compounds, 1883, T., 362; 1885, A., 636.
- didymium, 1883, A., 18.
- atomic weight of yttrium, 1883, A., 292.
- atomic weight of lanthanum, 1883, A., 553.
- atomic weight of didymium, 1883, A., 852.
- action of hydrogen peroxide on the rare earths, 1885, A., 635.
- didymium compounds, 1885, A., 1030.
- action of benzaldehyde on hydrazobenzene, 1886, A., 545.
- nitronaphthalenesulphonic acid, 1886, A., 1037.
- chloronaphthalenesulphonic acids, 1887, A., 374; 1892, A., 1477.
- compound of quinaldine with formamide, 1887, A., 381.
- action of chlorine on acet- $\alpha$ -naphthalide, 1887, A., 494.
- sulphimido-compounds, 1887, A., 334; 1888, A., 698.
- action of chlorine on aceto- $\beta$ -naphthylamine, 1887, A., 961.

- Cleve, Per Theodor**, action of chlorine on  $\alpha$ - and  $\beta$ -naphthol, 1888, A., 596.
- $\gamma$ -amidonaphthalenesulphonic acid, 1889, A., 154.
- $\delta$ -amidonaphthalenesulphonic acid, 1889, A., 155.
- derivatives of 1:3-dichloronaphthalene, 1890, A., 626.
- 1:4-nitronaphthalenesulphonic acid, 1890, A., 634.
- 1-chloronaphthalenesulphonic acid, 1890, A., 635.
- formation of an explosive substance from ether, 1891, P., 15; discussion, P., 16.
- 1:3:4-dichloronaphthalenesulphonic acid, 1892, A., 344.
- amidonaphthalenesulphonic acid, 1892, A., 345.
- 1:2-dicyanonaphthalene and 1:2-naphthalenedicarboxylic acid, 1892, A., 1477.
- 1:2:2'- $\alpha$ -nitrochloronaphthalenesulphonic acid, 1892, A., 1478.
- Cloet, Jacobus Cornelis Schaenvelde van der**. See **Adolph Claus**.
- Cloëz, Charles**, pentachloracetone, 1884, A., 580.
- mineral water at Brucourt 1884, A., 895.
- apparatus for preparing hydrogen, 1885, A., 631.
- chloracetones, 1887, A., 1091.
- hydroxytetracetic acid, 1890, A., 739.
- Cloëz, Charles**. See also **Edouard Grimaux**.
- Cloizeaux**. See **Des Cloizeaux**.
- Clowes, Frank**, barium sulphate as a cementing material in sandstone, 1886, A., 35.
- deposits of barium sulphate from mine water, 1890, A., 853.
- Clutterbuck, M. Caspar**. See **Rudolph Fittig**.
- Coale, Robert Dorsey**. See **Ira Remsen**.
- Cobenzl, Albert**. See **Conrad Schmitt, Zdenko Hanns Straup**.
- Coblentz, Virgil**, seleno- and thio-derivatives of ethylamine and propylamine, 1891, A., 1216.
- Coblentz, Virgil**, and **Siegmund Gabriel**, dithioethylamine, 1891, A., 817.
- Cobley, Th. H.**, process for preparing a mineral white, 1884, A., 136.
- Cochenhausen, E. von**, determination of the hardness of water, 1888, A., 874.
- Cocheteau, Albert**. See **Jean Krutwig**.
- Cochin, Denys**, action of air on yeast, 1883, A., 746; 1884, A., 939.
- Cochius, F.**, and **Theodor Mosler**, estimation of nitrogen by the Schultze-Tiemann (Schloessing's) method, 1891, A., 107.
- Cochran, C. B.**, action of alcohol on butter fat, 1886, A., 631.
- Coda, Delfo**, estimation of zinc in its ores, 1890, A., 1191.
- Cohen, Emil**, jadeite from Thibet, 1884, A., 407.
- separation of alumina, ferric oxide, and titanite oxide, 1884, A., 640.
- labradorite rock of the coasts of Labrador, 1885, A., 644.
- talc, pseudophite, and muscovite from South Africa, 1887, A., 561.
- pallasite from Campo de Pucará, 1887, A., 904.
- pseudomorph after malacite, 1888, A., 563.
- pleochroism of biotite, 1888, A., 565.
- genesis of alluvial gold, 1889, A., 835.
- meteoric iron from Portugal, 1889, A., 839.
- garnet from the South African diamond fields, 1890, A., 1076.
- Cohen, Julius Berend**, note on some double thiosulphates, 1886, P., 251; 1887, T., 38.
- Wiborgh's method for the estimation of sulphur in iron and steel, 1890, A., 1463.
- dibenzamide, 1890, P., 162; 1891, T., 67.
- Cohen, Julius Berend**. See also **John Cammell Cain, Thomas Ewan, James Grant, T. Miniati, Robert Walter Oddy, William Reginald Ormandy, Hans (Freiherr) von Pechmann**.
- Cohen, Rudolf**, experimental determination of the ratio of the specific heats in superheated steam, 1890, A., 205.
- Cohn**. See **Lassar-Cohn**.
- Cohn, Emil**, specific inductive capacity of water, 1890, A., 203.
- Cohn, Emil**, and **Leo Arons**, determination of the specific inductive capacity of conducting liquids, 1888, A., 394, 395.
- Cohn, Felix O.**, influence of artificial gastric juice on the acetous and lactic fermentations, 1889, A., 1227.
- Cohn, Georg**, benzaldiphenylmaleide and its derivatives, 1892, A., 482.
- Cohn, Georg**. See also **Siegmund Gabriel**.
- Cohn, Rudolf**, behaviour of tyrosine ethyl ether in animal metabolism, 1890, A., 157.
- benzamide in urine after administration of benzaldehyde, 1890, A., 188.

- Cohn, Rudolf**, occurrence of acetyl derivatives in the urine of animals after ingestion of aldehydes, 1892, A., 1504.
- Cohn, Rudolf**. See also *Mos Jaffé*.
- Cohn, S.**, solubility of gypsum in solutions of ammonium salts, 1887, A., 333.
- Cohn, S. H.**, process for preparing ochre colours, 1884, A., 781.
- Cohn, Wilhelm**, basic phosphate of lime as an addition to cattle fodder, 1884, A., 194.
- Colardeau, Emmanuel**. See *Louis Paul Cailletet*.
- Colas, Et.**, action of nicotine on the heart and blood-vessels, 1891, A., 96.
- Colasanti, Giuseppe**, reactions of creatinine, 1887, A., 1056.
- reaction of thiocyanic acid, 1890, A., 424; 1891, A., 128.
- new application of Molisch's test, 1891, A., 128.
- xanthocreatinine in the urine, 1892, A., 364.
- Colasanti, Giuseppe**, and *Regulus Moscatelli*, *p*-lactic acid in the urine of soldiers after a forced march, 1888, A., 1321.
- Colby, Charles Edwards**, and *Frank Despard Dodge*, action of nitriles on organic acids, 1891, A., 409.
- Colby, Charles Edwards**, and *Charles Svacin McLoughlin*, action of sulphurous anhydride on benzene, 1887, A., 371.
- Colby, George Elden**, and *Hubert Paul Dyer*, analyses of Californian oranges and lemons, 1892, A., 1511.
- Coldridge, Ward**, interactions of nitrogen chlorophosphide, 1888, T., 398; P., 25.
- electrical and chemical properties of stannic chloride, 1890, A., 1065.
- Cole, Grenville Alfred James**. See *John Wesley Judd*.
- Colefax, Arthur**, phenuric acid: its constitution and relationship with the phenylmethylfurfurancarboxylic acid of Paal, 1890, P., 178; 1891, T., 190.
- investigation of the change proceeding in an acidified solution of sodium thiosulphate, where the products of the change are retained in the system, 1891, P., 179; 1892, T., 176.
- action of sulphurous acid on flowers of sulphur, 1891, P., 180; 1892, T., 199.
- volatility of sulphuric acid at ordinary temperatures, 1891, A., 977.
- Colefax, Arthur**, action of iodine on a mixture of sulphite and thiosulphate, 1892, T., 1083; P., 155.
- Coleman, Arthur P.**, the melaphyres of Lower Silesia, 1883, A., 563.
- Coleman, Joseph Bernard**, rapid method of solution in the cold, 1892, A., 397.
- Coleman, Joseph James**, air or hydrogen thermometer for low temperatures, 1886, A., 1116.
- liquid diffusion, 1887, A., 440.
- Colin, G.**, value of disinfectants in chicken-cholera, 1885, A., 180.
- Collan, Uno**, autocatalysis, 1892, A., 1270.
- Collan, Uno**. See also *Edvard Immanuel Hjelt*.
- Colley, R.**, Berthelot's law of maximum work and spontaneous endothermic reactions, 1890, A., 681.
- Colli, Niccolò de'**, detection of alum in wines, 1892, A., 1523.
- Collie, John Norman**, action of ammonia on ethyl acetacetate, 1885, A., 373.
- condensation product of ethyl amidooacetate with hydrochloric acid, 1887, A., 501.
- action of heat on triethylbenzylphosphonium salts, 1887, A., 1106.
- action of heat on tetramethylphosphonium salts, 1888, T., 636; P., 62.
- new method of preparing mixed tertiary phosphines, 1888, T., 714; P., 78.
- Leadhill minerals, 1889, T., 91; P., 121.
- methyl fluoride, 1889, T., 110; P., 16; discussion, P., 17.
- some compounds of tribenzylphosphine oxide, 1889, T., 223; P., 45.
- action of heat on ethyl  $\beta$ -amido-crotonate, 1890, P., 165; 1891, T., 172.
- constitution of dehydracetic acid, 1890, P., 169; 1891, T., 179.
- lactone of triacetic acid, 1891, T., 607; P., 114.
- reactions of dehydracetic acid, 1891, T., 617; P., 113.
- production of naphthalene derivatives from dehydracetic acid, 1892, P., 215.
- constitution of turpentine and camphor, 1892, A., 864.
- Collie, John Norman**, and *William Shields Myers*, production of pyridine derivatives from the lactone of triacetic acid, 1892, T., 721; P., 181.
- production of orcinol and other condensation products from dehydracetic acid, 1892, P., 187.

- Collie, John Norman, and S. B. Schryver**, action of heat on the chlorides and hydroxides of mixed quaternary compounds, 1890, T., 767; P., 115.
- Collie, John Norman**. See also **Thomas Atkinson Lawson, Edmund Albert Letts**.
- Collier, Peter**, a remarkable platinum-nugget, 1883, A., 426.
- Collin, August**. See **Emilio Nölting**.
- Collin, Charles, and Lucien Benoist**, reducing vat for indigo, 1885, A., 1096.
- estimation of tannin, 1888, A., 1138.
- Collins, J. Henry**, Cornish tinstones and tin-capels, 1886, A., 988.
- minerals from Porthalla Cove, Cornwall, 1887, A., 1022.
- Collins, Walter Heyworth**, graphite from the Bagoutal Mountains, Siberia, 1888, A., 428.
- Collischonn, Friedrich**, estimation of acetone, 1891, A., 370.
- Collischonn, Friedrich**. See also **Adolph Claus**.
- Collmar, Charles**. See **Isaac Ott**.
- Collet, A.**, rapid weighing on precision balances, 1892, A., 270.
- Colman, Harold Govett**, derivatives of methylindole, 1888, P., 95.
- some derivatives of *Pr* 1'-methylindole, 1889, T., 1.
- preparation of glycollic acid, 1892, P., 72.
- Colman, Harold Govett, and William Henry Perkin, junior**, synthetical formation of closed carbon-chains. Part II. (cont.) Some derivatives of tetramethylene, 1887, T., 228; P., 12; 1888, T., 185.
- synthetical formation of closed carbon-chains. Part III. (cont.) Derivatives of pentamethylene, 1887, P., 96.
- distillation of calcium tetramethylenecarboxylate with lime, 1887, A., 234.
- acetopropyl alcohol and acetobutyl alcohol, 1889, T., 352; P., 80.
- Coloriann, Anton**, staurotide, 1886, A., 319.
- two new nickel arsenates, 1886, A., 508.
- some crystallised arsenates, 1886, A., 771.
- basic cupric arsenate, 1886, A., 771.
- crystalline metallic molybdates, 1889, A., 760.
- Colot, Edmond**, temperature of saturated vapours of various liquids under the same pressure, 1892, A., 1143.
- Colson, Albert**, combination of tetra-atomic elements, 1883, A., 15.
- an aromatic tribromhydrin, 1883, A., 734.
- a new glycerol, 1884, A., 57.
- xylenes, 1884, A., 1000; 1885, A., 654.
- derivatives of *m*-xylene, 1884, A., 1313.
- saponification of haloid ethers of the benzene series by neutral substances, 1885, A., 146.
- action of phosphoric chloride on ethers of the benzene group, 1885, A., 252.
- heats of formation of phthalates, 1885, A., 1104.
- relations between chemistry and physics, 1886, A., 961.
- derivatives of hexamethylbenzene and durenene, 1886, A., 1016.
- erythritol, 1887, A., 353.
- isomerism of position, 1887, A., 420.
- products from the residues of compressed gas, 1887, A., 787.
- butylenic bases: characteristics of ethylenic diamines, 1888, A., 139.
- secondary diamines containing an ethylene group, 1888, A., 684.
- a base derived from diquinoline, 1889, A., 416.
- artificial and natural alkaloids, 1889, A., 729.
- colours derived from benzidine, 1889, A., 1152.
- thermochemistry of nicotine, 1890, A., 101.
- Berthollet's laws, 1890, A., 1367.
- reactions of organic bases, 1890, A., 1368.
- endothermic and exothermic reactions of organic bases, 1891, A., 377.
- action of water on normal salts of amines of the paraffins, 1891, A., 797.
- stereochemistry of diacetyltartaric acid, 1892, A., 669, 758.
- Colson, Albert, and Henri Gautier**, new method of chlorination, 1886, A., 231.
- xylene derivatives, 1886, A., 613.
- action of phosphoric chloride on hydrocarbons, 1886, A., 679.
- Colson, Albert**. See also **Gabriel Robinet, Paul Schützenberger**.
- Combemale, François Auguste Frédéric, and Joseph Brunelle**, physiological action of trimethylamine, 1892, A., 366.

- Combemale, François Auguste Frédéric,** and **Auguste Dubiquet**, physiological action of potassium ferrocyanide, 1891, A., 99.
- Combemale, François Auguste Frédéric.** See also **Albert Mairet.**
- Combes, Alphonse**, on the supposed compound  $\text{NH}_2$ , 1883, A., 14.
- a base derived from crotonaldehyde, 1883, A., 1079.
- action of chloraldehydes on benzene in presence of aluminium chloride, 1884, A., 837.
- reaction of aluminium chloride: synthesis in the acetic series, 1887, A., 127.
- homologues of acetylacetone, 1887, A., 653.
- synthesis in the paraffin series by means of aluminium chloride, 1887, A., 656.
- metallic derivatives of acetylacetone, 1888, A., 128.
- syntheses in the quinoline series by means of acetylacetone, 1888, A., 504.
- derivatives of acetylacetone: synthesis of polyatomic alcohols, 1888, A., 666; 1890, A., 1394.
- naphthaquinolines, 1888, A., 968.
- action of phenylhydrazine and hydroxylamine on acetylacetone, 1889, A., 57.
- valency of aluminium, 1889, A., 571.
- action of diamines on diketones, 1889, A., 851.
- derivatives of acetylacetone, 1890, A., 1394.
- diacetylcarbinyl acetate, 1891, A., 29.
- Combes, Alphonse**, and **Charles Combes**, synthesis of hydropyridic bases, 1889, A., 1073.
- Combes, Charles**, matezite and matezodambose, 1890, A., 471.
- Comey, Arthur Messinger**, phenyl thiényl ketone, 1884, A., 1168.
- ethanediquinolylone, 1890, A., 1007.
- Comey, Arthur Messinger**, and **Charles Loring Jackson**, compound of zinc oxide with sodium hydroxide, 1888, A., 786.
- action of fluoride of silicon on organic bases, 1888, A., 941.
- sodium zinc oxides, 1889, A., 674.
- Comey, Arthur Messinger**, and **Frank Warren Smith**, silicofluorides of certain bases, 1888, A., 1283.
- Comey, Arthur Messinger.** See also **Charles Loring Jackson**, **Arthur Michael.**
- Commelin.** See **Bailhache.**
- Comstock, William James**, alkylation of formanilide, 1890, A., 1258.
- Comstock, William James**, and **Ralph Roger Clapp**, derivatives of aromatic formyl compounds, 1892, A., 707.
- Comstock, William James**, and **Felix Kleeberg**, silver formanilide, 1890, A., 1414.
- Comstock, William James**, and **Wilhelm Koenigs**, cinchona alkaloids, 1881, A., 1382; 1885, A., 910, 1248; 1887, A., 281, 1122.
- apocinchine and apochinine, 1888, A., 71.
- halogen derivatives of the cinchona alkaloids, 1892, A., 1010.
- Comstock, William James**, and **Henry Lord Wheeler**, alkyl derivatives of isosuccinimide, 1892, A., 701.
- anilides, isoonilides, and their analogues, 1892, A., 705.
- Comstock, William James.** See also **Adolf von Baeyer**, **Ira Remsen.**
- Coninck.** See **Oechsner de Coninck.**
- Conrad, Edwin Charles.** See **Arthur Bower Griffiths.**
- Conrad, Max**, halogen substitution compounds of ethyl acetoacetate, 1883, A., 177.
- isarabic acid, 1892, A., 1432.
- Conrad, Max**, and **Carl Adam Bischoff**, tetrethyl acetylenetetra-carboxylate, 1883, A., 46.
- Conrad, Max**, and **Carl Brückner**, determination of affinity coefficients, 1890, A., 327; 1891, A., 796.
- halogen derivatives of malonic acid, 1892, A., 39.
- Conrad, Max**, and **Friedrich Eckhardt**, action of methyl iodide on ethyl phenylamidocrotonate, 1889, A., 508.
- methylquinaldone and methyllutidone, 1889, A., 519.
- Conrad, Max**, and **Wilhelm Epstein**, lutidine derivatives from lutidine-carboxylic acid, 1887, A., 501.
- action of ammonia on ethyl acetoacetate and its derivatives, 1888, A., 253.
- Conrad, Max**, and **Max Guthzeit**, ethyl methenyltricarboxylate and ethyl acetomalonnate, 1883, A., 44.
- tetrethyl dicarbontetracarboxylate, 1883, A., 46.
- action of chloroform on sodium ethylmalonnate, 1883, A., 311.

- Conrad, Max, and Max Guthzeit**, derivatives of barbituric acid, 1883, A., 314.
- halogen-substituted ethyl acetoacetates, 1883, A., 1082.
- ethyl dicarbondiacarboxylate, 1884, A., 297.
- action of  $\alpha\beta$ -dibromopropionic acid on ethyl malonate, 1884, A., 991.
- halogen derivatives of ethyl levulinate, 1885, A., 42.
- decomposition of sugar when heated with dilute acids, 1885, A., 745.
- decomposition of galactose and arabinose by dilute acids, 1886, A., 138.
- action of carbonyl chloride on ethyl cupracetoacetate, 1886, A., 333.
- action of ethyl chlorolevulinate on ethyl sodomalonate, 1886, A., 336.
- action of dilute acids on grape-sugar and fruit-sugar, 1887, A., 25.
- decomposition of milk-sugar by dilute hydrochloric acid, 1887, A., 26.
- formation and composition of humous substances, 1887, A., 229.
- action of ammonia and primary amines on ethyl dimethylpyrnedicarboxylate, 1887, A., 500.
- ethyl dimethylpyrnedicarboxylate, 1887, A., 502.
- Conrad, Max, and Leonhard Limpach**, syntheses of quinoline-derivatives by means of ethyl acetoacetate: 4'-hydroxyquinaldine, 1887, A., 679.
- synthesis of the homologues of 4'-hydroxyquinaldine, 1888, A., 503.
- synthesis of 2':4'-phenylhydroxyquinoline, 1888, A., 505.
- condensation of ethyl tetramethylphenylamidocrotonate, 1888, A., 851.
- synthesis of dihydroxyquinaldine derivatives, 1888, A., 853.
- 4'-hydroxyquinaldine, 1888, A., 1109.
- synthesis of quinoline derivatives by means of alkyl acetoacetates, 1892, A., 78.
- Conrad, Max.** See also *Wilhelm Hecht*.
- Conrad, Eugen**, calculation of atomic refraction for sodium light, 1889, A., 661.
- Conrad, Eugen.** See also *Otto Wallach*.
- Conroy, Michael**, tincture of nux vomica, 1884, A., 946.
- Constam, Emil Joseph, and Heinrich Goldschmidt**, amidoisopropylbenzenes, 1888, A., 681.
- Constam, Emil Joseph.** See also *Heinrich Goldschmidt, Victor Meyer*.
- Constantinidi, Alexander**, wheat-gluten as a food, 1887, A., 511.
- Contamine**, estimation of hydrogen peroxide, 1888, A., 751.
- Cook, Ernest H.**, carbonic anhydride in the atmosphere, 1883, A., 284.
- detection and estimation of iodine, 1885, T., 47; P., 19; discussion, P., 20.
- Cooke, Josiah Parsons**, method of correcting the weight of a body for the buoyancy of the atmosphere when the volume is unknown, 1884, A., 13.
- new method of determining gas densities, 1890, A., 321.
- Cooke, Josiah Parsons, and Theodore William Richards**, relative value of the atomic weights of hydrogen and oxygen, 1888, A., 647, 910.
- Cooke, Stephen**, reducing action of hydrogen in presence of platinum, 1888, A., 1245.
- action of the electric spark on mixtures of nitric oxide with hydrogen, methane, etc., 1889, A., 15.
- decomposition of nitric oxide in contact with water and with potash, 1889, A., 15.
- Cooksey, Thomas.** See *Theodor Zincke*.
- Cooper, W. J.**, assaying lead ores by fusion with potassium cyanide, 1891, A., 962.
- Cooper, William John.** See *James Alfred Wanklyn*.
- Coote, Arthur Herbert.** See *William Richard Eaton Hodgkinson*.
- Copeman, Sydney Monckton**, detection of human blood, 1889, A., 1092.
- crystallisation of haemoglobin, 1891, A., 343.
- nycthaematin, 1891, A., 478.
- specific gravity of blood in disease, 1891, A., 761.
- Copeman, Sydney Monckton, and Charles Scott Sherrington**, proportion of blood to body weight, 1890, A., 1015.
- Copeman, Sydney Monckton, and William Bamford Winston**, human bile, 1889, A., 792.
- Coppola, Francesco**, genesis of ptomaines, 1883, A., 522, 624; 1885, A., 278, 913.
- transformation of the fluorobenzoic acids in the animal organism, 1885, A., 446.

- Coppola, Francesco**, pyridine-choline, pyridine-neurine, and pyridine-muscarine, 1886, A., 78.  
 — physiological action of santonin and its derivatives, 1888, A., 310.  
 — physiological action of caffeine, 1888, A., 312.  
 — origin of urea in the animal economy, 1890, A., 184.
- Coquillion and Henrivaux**, decomposition of hydrocarbons with steam, 1892, A., 288.
- Corbetta, Pietro**, amount of volatile fatty acids in rancid butters, 1891, A., 180.
- Corenwinder, Benjamin**, biological researches on the beet-root, 1883, A., 613.  
 — growth of sugar-beet, 1885, A., 685.
- Corin, Gabriel, and Edgard Bérard**, proteids of white of egg, 1889, A., 1075.
- Corin, Joseph, and Georges Ansiaux**, heat-coagulation of proteids, 1891, A., 1521.
- Corleis, Ehrenfried**, sulphur compounds of tungsten, 1886, A., 510.
- Cornelius, Hans, and Benno Homolka**, hydrazoins, 1886, A., 1026.
- Cornelius, Hans, and Hans (Freiherr) von Pechmann**, synthesis of orcinol from ethyl acetomedicarboxylate, 1886, A., 802.
- Cornelius, Hans**. See also **Robert Moscheles**.
- Cornevin, Ch.**, influence of vegetable poisons on the germination of seeds, 1892, A., 228.  
 — action of pilocarpine on the excretion of milk, 1892, A., 365.
- Cornu, Alfred**, spontaneously reversible lines in spectra, 1885, A., 853.  
 — distinction between spectral lines of solar and terrestrial origin, 1887, A., 313.
- Cornwall, Henry Belinger**, examination of butter colours, 1887, A., 621.
- Cornwall, Henry Belinger, and Shippen Wallace**, Reichert's method of butter analysis, 1887, A., 309.
- Corselli, Giacomo**, terebic acid, 1891, A., 184.
- Corsi, Arnaldo**, prehnite from Tuscany, 1883, A., 441.
- Corvi, Antonio**, volumetric estimation of chlorides in urine, 1891, A., 495.
- Cossa, Alfonso**, chemical and microscopical researches on Italian rocks and minerals, 1888, A., 446.  
 — hieratite, 1883, A., 955.
- Cossa, Alfonso**, yttrium in the sphene of Biellese syenite, 1884, A., 158.  
 — diffusion of didymium, 1884, A., 262.  
 — normal didymium molybdate and the valency of didymium, 1884, A., 821.  
 — idocrase, 1886, A., 601.  
 — cerium molybdate, 1886, A., 772.  
 — didymium and cerium tungstates and molybdates, 1886, A., 981.  
 — ammoniacal platinum compounds, 1887, A., 642.  
 — columbite from Graveggia, Val Vigizzo, 1887, A., 645.  
 — platosemiamine chloride, an isomeride of Magnus' salt, 1890, A., 1218.
- Cossa, Alfonso, and Andreas Arzruni**, chromic tourmaline and the deposits of chrome iron ore in the Urals, 1883, A., 414.
- Cossa, Alfonso, and Giuseppe La Valle**, crystallised hydrated barium silicate, 1886, A., 594.
- Costa, Tullio**, relation between the molecular refractive energy and the dispersive power of aromatic derivatives with saturated lateral chains, 1890, A., 1201.  
 — molecular weight and refractive energy of sulphur dichloride, 1891, A., 149.  
 — refractive power of isocyanides and nitriles, 1892, A., 757.
- Costa, Tullio**. See also **Raffaele Nasini**.
- Coste**. See **La Coste**.
- Coste, John Henry**. See **Raphael Meldola**.
- Costobadie, H. A.**, goods printed with artificial indigo, 1885, A., 1023.
- Cotton, S.**, action of metals on chloral hydrate, 1885, A., 371.  
 — action of oxidising agents on chloral hydrate, 1885, A., 1048.  
 — action of chloral hydrate and iodoform on mercuric salts, 1888, A., 670.  
 — arganin, 1889, A., 160.
- Couldridge**. See **Coldridge**.
- Coullon, M.** See **R. Godefroy**.
- Counciler, Constantin**, ash of leaves of plants grown in the earth under water-culture, 1884, A., 98.
- Counciler, Constantin** (and others), tannin-yielding substances and their applications, 1885, A., 946.
- Courant, E., and Victor von Richter**, preparation of alkyl bisulphides, 1886, A., 217.
- Courtonne, H.**, solidification of different mixtures of naphthalene and stearic acid, 1883, A., 176.

- Cousin, H.**, homocatechol and two nitro-homocatechols, 1892, A., 1443.
- Cousins, A. C.**, relations of mercury to other metals, 1887, A., 1080.
- Cousins, Herbert Henry.** See *James Ernest Marsh.*
- Coutts, Francis James Henderson.** See *Watson Smith.*
- Countur, François,**  $\beta$ -dipropylene, 1891, A., 282.
- County, Louis** (and others), effect of coffee on the composition of the blood and on nutrition, 1884, A., 1392.
- Coward, S. P.**, carbonyl iodide, 1884, A., 40.
- Cowles, Eugene H., Alfred H. Cowles,** and *Charles Frederic Mabery*, electrical furnace and reduction of oxides, 1886, A., 401.
- Cownley, Alfred John,** ether test for quinine, 1883, A., 1174.
- cinchonidine in commercial quinine sulphate, 1886, A., 632.
- Cownley, Alfred John.** See also *Benjamin H. Paul.*
- Cowper, Richard,** on the action of chlorine on certain metals, 1883, T., 153.
- Cowper, Richard,** and *Vivian Byam Lewes*, on the oxidation of phosphorus at a low temperature, and the alleged decomposition of phosphorous anhydride by sunlight, 1884, T., 10.
- Craftt.** See *Kraftt.*
- Crafts, James Mason,** comparison of mercurial thermometers with the hydrogen thermometer, 1883, A., 144.
- density of chlorine at high temperatures, 1883, A., 710.
- thermometric measurements, 1883, A., 842.
- use of mercury thermometers with particular reference to the determination of melting and boiling points, 1884, A., 656.
- expansion of elementary gases, 1884, A., 889.
- air thermometers, 1888, A., 772.
- purification of mercury, 1889, A., 17.
- separation of the xylenes, 1892, A., 1134.
- Crafts, James Mason.** See also *Charles Friedel.*
- Crahé** (and others), beet cultivation, 1884, A., 208.
- Craig, George,** estimation of sulphur in iron and steel, 1883, A., 121, 512.
- lecture apparatus for showing combustion of air in coal gas, 1888, A., 1244.
- Craig, George,** estimation of silica and analysis of siliceous materials, 1890, A., 194.
- estimation of sulphur, 1892, A., 382.
- Cramer, August,** glycogen, 1887, A., 1127.
- Cramer, Carl Robert,** monoximes of succinic acid, 1891, A., 823.
- oximidoacetic acid, 1892, A., 699.
- Cramer, Theodor.** See *Theodor Kramer.*
- Cramer, Traugott,** vegetarianism from a physiological standpoint, 1883, A., 928.
- Crampton, Charles Albert,** analyses of sugar-cane and beet juices, 1887, A., 751.
- boric acid as a plant constituent, 1889, A., 794.
- specific gravity of some fats and oils, 1889, A., 801.
- Crampton, Charles Albert,** and *Thomas Cuthbert Trescott,* estimation of carbonic anhydride in beer, 1887, A., 1144.
- Crampton, Charles Albert.** See also *Clifford Richardson.*
- Crawley, J. T.,** simplified fat extraction apparatus, 1890, A., 304.
- Crayen, Gustav,** action of carbon bisulphide on benzenylamidoxime and *p*-homobenzenylamidoxime, 1891, A., 559.
- Crépieux, Pierre,** aromatic hydroxyketones, 1892, A., 62.
- Crépieux, Pierre.** See also *Amé Pictet.*
- Crespi, P.,** solubility of strychnine, and preparation of some of its salts, 1884, A., 187.
- Creutz, M. J.,** zinc from pyrites residues, 1884, A., 788.
- Creydt, Robert,** estimation of melitose, 1887, A., 306.
- Creydt, Robert,** and *Bernhard Tollens,* estimation of raffinose in mixtures, 1886, A., 582.
- Criper, William Risdon,** analyses of Indian wood, 1883, A., 107.
- Cripps, Richard Augustus,** estimation of hydrocyanic acid, 1883, A., 1174.
- estimation of the alkaloids of Conium, 1888, A., 540.
- reactions of essential oils, 1890, A., 200.
- diastatic power of extract of malt, 1890, A., 432.
- estimation of volatile oil of copaiba, 1892, A., 244.
- Cripps, Richard Augustus,** and *Thomas Southall Dymond,* detection of aloes in mixtures, 1885, A., 1015.

- Crismer, Léon**, liquid paraffin as a reagent for the presence of water in alcohol, ether, and chloroform, 1884, A., 1073.  
 — estimation of iron and stannous salts by potassium chromate, 1884, A., 1073.  
 — safranin as a reagent for grape sugar, 1889, A., 446.  
 — detection of sugar in urine by means of safranin, 1889, A., 552.  
 — compounds of hydroxylamine with metallic chlorides, 1890, A., 558.  
 — test for aldehyde, 1890, A., 1197.  
 — potassium mercurio-iodide as a reagent for aldehydes, 1891, A., 624.  
 — preparation of pure hydrogen peroxide solutions, 1892, A., 270.  
 — crystalline products from lemon and bergamot oils, 1892, A., 349.  
 — test for hydrogen peroxide, 1892, A., 381.  
 — reaction of certain essences with manganous salts, 1892, A., 386.  
 — detection of turpentine and other impurities in essences, 1892, A., 386.  
 — detection of tartaric acid in citric acid, 1892, A., 546.  
 — preparation of crystallised hydroxylamine, 1892, A., 771.  
 — formation of hydroxamic acids of the fatty acids by means of acid anhydrides, 1892, A., 828.
- Crismer, Léon**. See also *Ludwig Claisen*.
- Crispo, D.**, Belgian method of estimating the soluble phosphoric acid of superphosphates, 1891, A., 1289.
- Cristaldi**. See *Grassi-Cristaldi*.
- Croasdale, Stuart**. See *Edward Hart*.
- Crocco**. See *Grocco*.
- Croft, Henry H.**, rattlesnake poison, 1883, A., 104.
- Crompton, Holland**, extension of Mendeleeff's theory of solution to the discussion of the electrical conductivity of aqueous solutions, 1887, P., 126; 1888, T., 116.
- Cronander, A.**, new method of estimating fat in milk, 1887, A., 308.
- Cronquist, Albert Watsner**, lake deposits of Kolsnaren, Viren, and Högsgjö, Sweden, 1883, A., 448.  
 — analysis of a spring water from Rindö, near Stockholm, 1883, A., 449.
- Crookes, William**, radiant matter spectroscopy, 1884, A., 241.  
 — mutual extinction of the spectra of yttrium and samarium, 1885, A., 1025.  
 — the earth Y<sub>2</sub>, 1886, A., 506.  
 — spectra of erbia, 1886, A., 749.  
 — yttria, 1886, A., 853.
- Crookes, William**, chemical fractionation, 1886, A., 974.  
 — new elements in gadolinite and samarskite, 1887, A., 334.  
 — crimson line of phosphorescent alumina, 1887, A., 1006.  
 — radiant matter spectroscopy; examination of the residual glow, 1887, A., 1066.  
 — sharp line spectrum of phosphorescent aluminium, 1887, A., 1069.  
 — sharp line spectra of phosphorescent yttria and lanthana, 1887, A., 1070.  
 — presidential addresses, 1888, T., 474; P., 41; 1889, T., 250; P., 55.  
 — recent researches on the rare earths as interpreted by the spectroscope, 1889, T., 255.  
 — verbal account of volatilisation of metals *in vacuo* by electric discharge, 1891, P., 62.
- Crookshank, Edgar March, and Edward Felix Herroun**, cultivation products of the tubercle bacillus, 1891, A., 762.
- Cropp, George**. See *Adolph Claus*.
- Cros, Charles, and Aug. Vergeraud**, new photographic paper, 1883, A., 752.
- Cross, F.** See *Michele Fléti*.
- Cross, Charles Frederick**, technical aspects of lignification, 1883, A., 694.  
 — rehydration of ferric oxide, 1883, A., 853.
- Cross, Charles Frederick, and Edward John Bevan**, contributions to the chemistry of lignification, 1883, T., 18; 1889, T., 199.  
 — on the oxidation of cellulose, 1883, T., 22.  
 — hydroxycellulose and phenylhydrazine, 1884, A., 897.  
 — oxidation of carbohydrates by means of chromic acid, 1886, A., 102.  
 — combustion by means of chromic anhydride, 1888, T., 889; P., 76; discussion, P., 76.  
 — new compounds of magnesium with the halogens, 1888, P., 91.  
 — contributions to the chemistry of lignification; constitution of jute-fibre substance, 1889, T., 199; P., 30.  
 — contributions to cellulose chemistry; acetylation of cellulose, 1889, P., 133; discussion, P., 133; 1890, T., 1; 1892, A., 693.  
 — the constituents of flax, 1889, P., 155; 1890, T., 196.  
 — apparatus for estimating the amount of gas disappearing in a reaction, 1889, A., 300.  
 — chemistry of flax-fibre, 1889, A., 742.

- Cross, Charles Frederick**, and **Edward John Bevan**, conditions of activity of nitric acid, 1889, A., 1109.
- interaction of hypochlorites and ammonium salts; ammonium hypochlorite, 1890, P., 22; discussion, P., 23.
- action of nitric acid on the lignocelluloses, 1891, P., 61.
- solvent for cellulose, 1891, A., 890.
- action of nitric acid on vegetable fibres, 1891, A., 1001.
- constitution of the lignocelluloses, 1892, A., 129.
- volumetric estimation of alumina, 1892, A., 535.
- cellulose, 1892, A., 693.
- Cross, Charles Frederick**, and **A. F. Higgin**, decomposition of water by metalloids, 1883, A., 900.
- Cross, Charles Frederick**. See also **Arthur George Green**.
- Cross, Charles Whitman**, hypersthene-andesite, 1884, A., 568.
- Cross, Whitman**, topaz and garnet in rhyolite, 1886, A., 991.
- phonolites from Colorado, 1890, A., 1075.
- secondary minerals of the amphibole and pyroxene groups, 1890, A., 1081.
- alunite and diaspore from Colorado, 1891, A., 1328.
- Cross, Whitman**, and **L. G. Eakins**, ptilolite, 1886, A., 990.
- Cross, Whitman**, and **William Francis Hillebrand**, minerals, mainly zeolites, occurring in the basalt of Table Mt., near Golden, Colorado, 1883, A., 164, 956.
- interesting minerals occurring near Pike's Peak, Colorado, 1883, A., 1065.
- minerals of the cryolite group recently found in Colorado, 1884, A., 21.
- elpasolite, 1887, A., 344.
- Cross, Whitman**. See also **Joseph Paxson Iddings**.
- Crossley, Arthur William**, optical properties of dulcitol and its derivatives, 1892, A., 1419.
- Crova, André**, condensation hygrometer, 1883, A., 118.
- diffusion photometer, 1885, A., 320.
- Crova, André**, and **Paul Garbe**, charge and discharge of secondary batteries, 1885, A., 1099.
- Crum-Brown**. See **Brown**.
- Cserhádi, Alcr.**, ensilage processes, 1888, A., 522.
- Cserhádi, Alcr.** See also **Z. von Szilassy**.
- Cuboni, G.**, formation of starch in vine leaves, 1885, A., 683, 1004.
- Guénot, Lucien**, blood of the *Aplysire*, 1890, A., 810.
- respiratory value of hæmocyanin, 1892, A., 1370.
- Cuisinier, Léon**, manufacture of maltose by Dubrunfaut's method, 1885, A., 205.
- glucose and the saccharification of starch, 1887, A., 351.
- Cuisinier, Léon**, and **Heinrich Kiliani**, saccharin and lactic acid from sugars, 1883, A., 42.
- Culmann, Carl**, and **Kusimír Gasiorowski**, action of stannous chloride on salts of diazo-hydrocarbons: reactions of diazoimido-hydrocarbons, 1889, A., 1156.
- Culmann, Julius**, action of secondary aromatic amines and hydrazines on bromacetophenone, 1888, A., 1287.
- tetraphenyltetra carbazone, 1890, A., 1268.
- Cumenge, E.** See **François Ernest Mallard**.
- Cummins, George W.** See **Russell H. Chittenden**.
- Cundall, James Tudor**, zinc mineral from a blast furnace, 1889, P., 67.
- production of ozone by flames, 1890, P., 26.
- dissociation of liquid nitrogen peroxide, 1891, T., 1076; P., 129; discussion, P., 129.
- Cundall, James Tudor**. See also **William Ramsay**, **William Ashwell Shennstone**, **Claude M. Thompson**.
- Curatolo, Tommaso**, phenylcoumarin-sulphonic acids, 1885, A., 539.
- methylguanilic and trimethylguanilic, 1891, A., 539.
- Curchod**. See **P. Juillard**.
- Curchod, Alfred**. See **Sigmund Levy**.
- Curci, Antonio**, physiological action of alkalis and alkaline earths, 1888, A., 621.
- Curie, Jacques**. See **Charles Friedel**.
- Curtiss, Richard S.** See **Emil Fischer**.
- Curtius, Theodor**, synthesis of acids analogous in constitution to hippuric acid, 1883, A., 337.
- glycocine, 1883, A., 1087.
- action of nitrous acid on ethyl glycocine hydrochloride, 1884, A., 42.
- diazo- and diazoamido-derivatives of the paraffin series, 1884, A., 987.

- Curtius, Theodor**, general reaction for the amido-fatty acids, 1884, A., 994.  
 — aceturic acid, 1884, A., 1306.  
 — synthesis of hippuric acid and hippuric ethers, 1884, A., 1347.  
 — diazoacetic acid: diazoacetamide and  $\psi$ -diazoacetamide, 1885, A., 883.  
 — formation of ethyl azin-succinate from ethyl diazoacetate, 1885, A., 886.  
 — hydrazine (diamidogen), 1887, A., 715.  
 — constitution of diazo- and azo-compounds of the fatty series, and of hydrazine, 1889, A., 586.  
 — substitution of the azo-group for ketonic oxygen, 1889, A., 1157.  
 — constitution of diazo-fatty acids, 1891, A., 39.  
 — action of alkalis on acid salts of diazobenzene: ethyl diazobenzoate, 1891, A., 55.  
 — hydrogen nitride (azoimide), 1891, A., 56; 1892, A., 112.  
 — action of sodium on acid amides, 1891, A., 58.  
 — diammonium semisulphate, 1891, A., 1321.  
 — nomenclature of compounds containing two atoms of nitrogen linked together, 1891, A., 1350.  
**Curtius, Theodor**, and **Franz Goebel**, ethereal amidoacetates, 1888, A., 576.  
**Curtius, Theodor**, and **Friedrich Henkel**, preparation of tetrathionates from Wackenroder's solution, 1888, A., 552.  
**Curtius, Theodor**, and **Rudolf Jay**, hydrazine, 1889, A., 340.  
 — condensation products of hydrazine with aldehydes, 1889, A., 393.  
 — preparation of hydrazine from aldehyde-ammonia, 1890, A., 731.  
**Curtius, Theodor**, and **Franz Koch**, derivatives of diazosuccinic acid, 1885, A., 885; 1887, A., 33.  
 — diazosuccinic, diazosuccinamic, and diazopropionic acids, 1889, A., 376.  
**Curtius, Theodor**, and **Hans Lang**, triazo-derivatives, 1889, A., 369.  
 — substitution of the azo-group for ketonic oxygen, 1892, A., 451.  
**Curtius, Theodor**, and **Theo Lederer**, benzylamine, 1887, A., 40.  
**Curtius, Theodor**, and **Ludwig Pfug**, secondary asymmetrical hydrazines, 1892, A., 456.  
**Curtius, Theodor**, and **Rudolf Badenhansen**, hydrogen nitride (azoimide), 1891, A., 521.  
**Curtius, Theodor**, and **Ferdinand Rautenberg**, action of hydrazine hydrate on benzophenone, 1891, A., 1358.  
**Curtius, Theodor**, and **Heinrich Schulz**, molecular weight of glycocine and its anhydride, 1891, A., 33.  
 — hydrazine hydrate and haloid salts (halogen diammonium compounds), 1891, A., 263.  
**Curtius, Theodor**, and **Karl Thun**, action of hydrazine hydrate on ketones and  $\alpha$ -diketones, 1891, A., 1355.  
 — action of hydrazine hydrate on isatin and phenols, 1891, A., 1360.  
**Curtius, Theodor**. See also **Eduard Buchner**.  
**Curtman, Charles Otto**, detection of nitric acid by means of pyrogallol, 1886, A., 179.  
 — detection of traces of nitric acid, 1886, A., 618.  
 — detection of salicylic acid, 1887, A., 185.  
 — detecting aniline colours in wines, 1887, A., 1147.  
**Curtman, Wilhelm**. See **Emil Besthorn**.  
**Cusson**. See **L. Roos**.  
**Cutter, William Parker**. See **Spencer Baird Newbury**.  
**Cybulski, Gustav**. See **Augustin Bis-trzycki**.  
**Cyon, E. de**, borax as an internal disinfectant, 1884, A., 1440.  
**Czapek, Friedrich**, estimation of uric acid in urine, 1888, A., 1225.  
**Czapski, Siegfried**, electromotive force in terms of chemical energy, 1884, A., 650.  
**Czarnomski, Nicolaus von**. See **Werner Kelbe**.  
**Czeczetka, G.**, nitrogen estimations by Kjeldahl's method, 1885, A., 688.  
**Czimatia, Ludwig**, mixed aromatic tertiary phosphines, 1883, A., 57.  
**Czimatia, Ludwig**. See also **Carl Arnold August Michaelis**.

## D.

- Dabney, Charles W.**, isopicramic acid, 1884, A., 308.  
**Dabney, Charles W.**, and **B. van Herff**, estimation of nitrogen by the copper oxide method, etc., 1885, A., 593, 930.  
**Dacomo, Girolamo**, trichlorophenol: trichloronitro- and amidophenols; tribromonitro- and amidophenols, 1885, A., 889.  
 — action of light on iodoform, 1886, A., 1000.  
 — *Aspidium filix mas*, 1888, A., 521.

- Dacomo, Girolamo**, filicic acid, 1889, A., 54.  
 — dithiocarbonic acids, 1892, A., 306.  
 — *m*-chlorothiophenol, 1892, A., 306.  
 — *o*- and *p*-chlorothiophenol, 1892, A., 307.  
**Dacomo, Girolamo**, and **Victor Meyer**, density of nitric oxide at  $-100^{\circ}$ , 1887, A., 887.  
**Dacomo, Girolamo**. See also **Leilio Guareschi**.  
**Däumichen, Paul**, tricarballic acid, 1889, A., 238.  
**Dafert, Franz W.**, amylbenzene, 1883, A., 659.  
 — researches on periodides, 1883, A., 978.  
 — derivatives of diethyltoluene, 1883, A., 1093.  
 — formation of mannitol from dextrose and levulose, 1884, A., 720.  
 — varieties of starch, 1886, A., 527.  
 — oxidation of mannitol, 1886, A., 608.  
 — estimation of moisture in starch, 1887, A., 1143.  
 — Kjeldahl's method of estimating nitrogen, 1888, A., 85.  
**Dafert, Franz W.** See also **Gottfried Adolf Ernst Wilhelm Ulrich Kreusler**.  
**Dagger, John H. J.**, hydrogen sulphide apparatus, 1889, A., 14.  
**Dahl, A.**, preparation of benzylosanilinedisulphonic acids, 1887, A., 579.  
**Dahl, Franz**. See **Hans (Freiherr) von Pechmann**.  
**Dahn, Carl**, and **Kasimir Gasiorowski**, condensation products from carbimides and *o*-diamines, 1887, A., 247.  
**Daimler, Carl**, action of ethyl iodide and zinc on ethyl malonate, 1887, A., 360.  
**Daimler, Carl**. See also **Rudolph Fittig**.  
**Dains, Frank Burnett**. See **Walter Parke Bradley**.  
**Daix, Victor L. Ch.**, and **Antoine Louis Possoz**, extraction of sugar from molasses, 1885, A., 943.  
**Dale, John**, obituary notice of, 1890, T., 446.  
**Dale, Richard S.**, and **Carl Schorlemmer**, the phenates of amido-bases, 1883, T., 185.  
**Dale, T. Pelham**, refractive indices of gases, 1890, A., 201.  
**Dalmon, J.**, arbutin, 1885, A., 1096.  
**Dambergis, Anastasius K.**, analysis of mineral springs in Andros, 1887, A., 28.  
 — mineral springs of Menthana, 1888, A., 238.  
 — mineral springs of Edepsos, 1892, A., 418.  
**Damerow, Fritz**. See **Carl Theodor Liebermann**.  
**Damien, B. C.**, electromotive force of currents yielded by metallic couples in saline solutions, 1886, A., 190.  
**Damköhler, Hermann**. See **Robert Otto**.  
**Dammüller, Johannes**, estimation of saccharose as well as invert sugar or raffinose, 1889, A., 191.  
**Damoiseau, A.**, preparation of sodium sulphide, 1885, A., 349.  
**Damour, Augustin Alexis**, zinc aluminate, 1883, A., 443.  
 — aluminium borate from Siberia, 1883, A., 719.  
 — rhodizite, 1883, A., 956.  
 — chemical composition of a green mica from Sysert, 1883, A., 1066.  
 — new alumina lime phosphate, 1885, A., 640.  
 — new mineral from the environs of Nantes, 1885, A., 643.  
 — mimetosite containing lime from Puy-de-Dôme, 1886, A., 210.  
 — andesine from Ardèche, 1886, A., 211.  
 — innerschaum, 1886, A., 316.  
 — menilite, 1886, A., 775.  
 — a pink clay, 1887, A., 647.  
 — beryl from Madagascar, 1888, A., 236.  
**Damour, Augustin Alexis**, and **Alfred Louis Olivier Legrand Des Cloizeaux**, magnesia epidote, 1885, A., 31.  
**Damour, Augustin Alexis**. See also **Alfred Louis Olivier Legrand Des Cloizeaux**.  
**Damski, Albert W.**, isomerism of the thiophenic acids: derivatives of  $\beta$ -thiophenic acid, 1887, A., 237.  
 — sulphocamphylic acid, 1888, A., 293.  
**Damski, Albert W.** See also **Michail T. Goldstein**.  
**Dana, Arnold Guyot**, galnrite and epidote from Rowe, Massachusetts, 1886, A., 23.  
**Dana, C. M.**, digestive power of commercial pepsin, 1884, A., 471.  
**Dana, Edward Salisbury**, emerald-green spodumene from Alexander Co., N. Carolina, 1883, A., 440.  
 — stibnite from Japan, 1884, A., 22.  
 — crystallographic study of the thimolite of Lake Lahontan, 1886, A., 515.  
 — crystallisation of gold, 1886, A., 988.  
 — columbite, 1887, A., 20.  
 — brookite from Magnet Cove, Arkansas, 1887, A., 116.

- Dana, Edward Salisbury**, crystallisation of native copper, 1887, A., 341.  
 — mineralogical notes, 1887, A., 313.  
 — beryllonite, 1889, A., 355.  
 — barium sulphate from Perkins' Mill, Quebec, 1890, A., 572.  
**Dana, Edward Salisbury**, and **Samuel Lewis Penfield**, hauksite, 1886, A., 315.  
 — artificial crystallised lead silicate, 1886, A., 317.  
 — two hitherto undescribed meteoric stones, 1887, A., 120.  
**Dana, Edward Salisbury**, and **Horace Lemuel Wells**, beryllonite, 1889, A., 470.  
 — selenium and tellurium minerals from Honduras, 1891, A., 153.  
**Dana, Edward Salisbury**. See also **George Jarvis Brush**, **William Francis Hillebrand**.  
**Dana, James Dwight**, metamorphism of massive crystalline rocks, 1883, A., 562.  
 — sand and kaolin from quartzite, 1885, A., 360.  
**Dankwort, Wilhelm**, derivatives of morphine, 1891, A., 332.  
**Dancy, Frank Batile**, estimation of phosphoric acid in fertilisers, 1892, A., 1029.  
**Danger, L.** (and others), parasitic diseases of plants and their prevention, 1883, A., 110.  
**Danguy, R.**, nitrogen in leather waste, 1885, A., 930.  
**Daniel, L.**, inulin in the capitula of Composites, 1890, A., 191.  
**Danilewsky, Alexander L.**, albuminoids, 1884, A., 1388.  
**Dannenberg, E.**, detection of blood-stains in presence of iron-rust, 1887, A., 408.  
**Danner, Edgar William**. See **Frank Austin Gooch**.  
**Darapsky, L.**, Chilian alums, 1887, A., 558.  
 — zeolites from Chili, 1888, A., 235.  
 — kroehnite, 1889, A., 680.  
 — atacamite in Chili, 1890, A., 111.  
 — minerals from Atacama, 1890, A., 155.  
 — castanite, 1891, A., 405.  
**D'Arcy, R. F.**, compound of boric acid with sulphuric anhydride, 1889, T., 155; P., 4.  
**Darton, Nelson H.**, new locality for hayesine, 1883, A., 162, 1062.  
 — ammonia process for water analysis, 1884, A., 696.  
**Dastre, A.**, influence of bile on the digestion of fats, 1888, A., 618.  
**Dastre, A.**, physiological rôle of lactose, 1890, A., 186.  
 — formation of sugar in the organism when oxygen is deficient, 1892, A., 362.  
**Dastre, A.**, and **Maurice Arthus**, glycogenesis in icterus, 1889, A., 1233.  
**Dastre, A.**, and **Emile Elié Bourquelot**, assimilation of maltose, 1884, A., 1392.  
**Dathe, J. H. Ernst**, culm conglomerate containing variolite at Hausdorf in Silesia, 1884, A., 408.  
 — kersantite from Wüstewaltersdorf in Silesia, 1887, A., 562.  
 — amphibolite from Habendorf in Silesia, 1891, A., 23.  
**Daubrée, Gabriel Auguste**, meteorite of Louans, 1883, A., 449.  
 — the Nogoya meteorite, 1884, A., 977.  
 — note on a meteorite in a tertiary lignite, 1887, A., 22.  
 — meteorite at Djati Pengilon, Java, 1887, A., 1024.  
 — native iron from Cañon Diablo, 1892, A., 947.  
**Daubrée, Gabriel Auguste**, and **Etienne Stanislas Mennier**, native iron of terrestrial origin from Berezwosk, 1891, A., 1434.  
**Davenport, Bennet F.**, milk analysis, 1890, A., 670.  
**Davey, Robert Roscoe Felix**, obituary notice of, 1884, T., 615.  
**David, J.**, estimation of glycerol in fatty matters, 1883, A., 123.  
**Davidoff, D.**, methysticin, 1888, A., 1207.  
**Davidoff, (Miss) Olga**, formation of ethyl succinate, 1886, A., 444.  
**Davidson, examination of cane-sugar for sulphurous anhydride**, 1888, A., 326.  
**Davidson, Nils**. See **Adolph Claus**.  
**Davidson, Robert**, estimation of iron in chars, 1888, A., 196.  
**Davies, Herbert E.**, calcium phosphate from solution in acetic acid, 1892, A., 407.  
**Davies, Howard Owen**. See **Wilmot Parker Herringham**.  
**Davies, Robert Higgins**, three Chinese fixed oils, 1885, A., 1022.  
 — iodine absorption of essential oils, 1890, A., 199.  
**Davies, S. H.**, alkyl and acidyl sulphides, 1892, A., 300, 581.  
**Davies, S. H.** See also **Emil Feith**.  
**Davis, George R.**, bye-product from coal distillation, 1884, A., 525.  
**Davis, I. Thomas**, separation of aluminium and zirconium, 1889, A., 550.

- Davison, John M.**, kamacite, taenite, and plessite from the Welland meteoric iron, 1892, A., 24.
- Davy, Edmund William**, estimation of nitrites, 1883, A., 515.
- Day, Albert Wodehouse**, and **Siegmund Gabriel**, *o*-cyanobenzyl chloride, 1890, A., 1249.
- Day, D. T.**, changes effected in ethylene by heat, 1886, A., 781.
- Day, Thomas Cuthbert**, new method of estimating nitrites, either alone or in presence of nitrates or chlorides, 1888, T., 422; P., 40.
- influence of temperature on germinating barley, 1891, T., 664; P., 123.
- Day, William Cuthbert**. See **Ira Remsen**.
- Deane, S. Manderville**, estimation of manganese and of phosphorus in iron and steel, 1887, A., 183.
- Debout, C.** See **Alexei E. Faworsky**.
- Debray, Jules Henri**, artificial production of iridosmin, 1883, A., 298.
- preparation of cerium oxide, 1883, A., 713.
- solubility of cupric sulphide in alkaline thiomolybdates, 1883, A., 1054.
- a compound of rhodium, 1884, A., 400.
- purple of Cassius, 1885, A., 875.
- crystalline alloys of tin and the platinum metals, 1887, A., 779.
- action of acids on alloys, 1887, A., 779.
- products of the action of acids on alloys of the platinum metals, 1887, A., 900.
- Debray, Jules Henri**, and **Jean Alexandre Joannis**, decomposition of cupric oxide by heat, 1885, A., 21.
- oxidation of copper, 1885, A., 22.
- Debray, Jules Henri**, and **Alexandre Joly**, ruthenium oxides, 1888, A., 426.
- ruthenium peroxide, 1888, A., 559.
- ruthenates and per-ruthenates, 1888, A., 920.
- Debray, Jules Henri**, and **E. Péchard**, alterations of the carbon electrodes used for the electrolysis of acids, 1887, A., 1009.
- Debray, Jules Henri**. See also **Etienne Henri Sainte-Claire Deville**.
- Debraye and Legrain**, biogenesis of hydrogen sulphide, 1891, A., 102.
- Debus, Heinrich**, chemical theory of gunpowder, 1883, A., 258.
- Debus, Heinrich**, chemical investigation of Wackenroder's solution and explanation of the formation of its constituents, 1888, T., 278; P., 18.
- Deby, Julien**, cyprusite, 1887, A., 644.
- Decastro, J. W.** See **E. Aug. Mebus**.
- Decaux**, action of sunlight, daylight, and the arc-light on colours used in dyeing and painting, 1884, A., 700.
- Dechan, Martin**, gallein as an indicator, 1885, A., 1012.
- detection and estimation of iodine, bromine, and chlorine, 1886, T., 682; P., 227.
- carmine, 1886, A., 398.
- improved form of apparatus for the separation of iodine, chlorine, and bromine, 1887, T., 690.
- Dechan, Martin**, and **Thomas Mabon**, milk analysis, 1885, A., 446.
- formation of basic salts in the saponification of fats and oils, 1886, A., 186.
- Dechant, J.**, refractive indices of condensed gases, 1885, A., 621.
- Dechen, Heinrich von**, silver amalgam from Oberlahnstein, 1885, A., 219.
- Decker, Hermann**, ethyl phenylhydrazineacetylacrylate, 1889, A., 49.
- substituted ammonium compounds, 1891, A., 736, 1247.
- so-called  $\gamma$ -bromoquinoline, 1892, A., 630.
- some ammonium compounds, 1892, A., 729.
- action of alkalis on alkyl iodides of the quinoline and acridine series, 1892, A., 879.
- Decker, Hermann**. See also **Adolph Claus**.
- Deckers, Alfons**, and **Alfred Einhorn**, *l*-cocaines, 1891, A., 475.
- Deering, William Henry**. See **Sir Frederick Augustus Abel**.
- Degen, Jos.**, indoles from methylphenylhydrazine, 1887, A., 149.
- Degener, Paul**, influence of chlorides of the alkalis and alkaline earths on the precipitation of lime saccharate, 1883, A., 692.
- power of certain salts to decompose calcium saccharate, 1886, A., 185.
- Degener, Paul**, and **Felix Allihn**, estimation of sugar by alkaline copper solutions, 1883, A., 519.
- Degener, Paul**, and **J. Lach**, treatment of animal charcoal, 1885, A., 1170.
- Degener, Paul** (and others), separation of sugar from molasses, 1884, A., 447.
- Degener, Paul**. See also **Karl Stammer**.

- Dehérain, Pierre Paul**, influence of the electric light on the development of plants, 1883, A., 105.
- loss and gain of nitrogen in arable land, 1883, A., 373, 749.
- report on experimental plots at Grignon in 1882, 1884, A., 204.
- assimilation of the organic matter by soils, 1884, A., 208.
- effect of potassium and sodium nitrates on the growth of potatoes, 1884, A., 361.
- sodium nitrate and ammonium sulphate as manures, 1884, A., 491.
- stable manure, 1884, A., 924.
- use of superphosphates, 1884, A., 925.
- preparation of farmyard manure, 1884, A., 1412.
- fermentation of farmyard manure, 1884, A., 1412.
- cultivation of sugar-beet, 1885, A., 184.
- on rotations, 1885, A., 185.
- cultivation of sugar-beet at Grignon in 1884, 1885, A., 423.
- butyric fermentation in the diffusion vessels of sugar factories, 1885, A., 464.
- experimental culture of wheat at Grignon in 1884, 1885, A., 928.
- increase of nitrogen in grass land, 1886, A., 276.
- valuation of manures, 1887, A., 174.
- production of nitrates in arable soil, 1887, A., 993; 1889, A., 70.
- experimental cultivation of sugar-beet in 1887, 1888, A., 383.
- farmyard manure, 1888, A., 748.
- field experiments at Grignon in 1888, 1889, A., 541.
- loss and gain of nitrogen in soils, 1889, A., 745.
- causes of the exhaustion of arable soil by cropping without manures, 1890, A., 406.
- experimental plots at Grignon in 1889, 1890, A., 820.
- exhaustion of cultivated but unmanured soils: drainage waters, 1890, A., 1459.
- experimental plots of mangold and sugar-beet at Grignon in 1890, 1891, A., 493.
- composition of drainage waters, 1891, A., 765.
- drainage waters from bare and cultivated soils, 1891, A., 859.
- phosphoric acid of the soil, 1892, A., 233.
- Dehérain, Pierre Paul**, and **Léon Maquenne**, reduction of nitrates in the soil, 1883, A., 229, 503.
- reduction of nitrates in arable soil, 1883, A., 229.
- butyric ferment in arable soils, 1883, A., 610.
- fermentation of cane-sugar in contact with arable soil, 1884, A., 351.
- butyric fermentation excited by garden soil, 1884, A., 1063.
- evolution of carbonic anhydride and absorption of oxygen by leaves in the dark, 1885, A., 927.
- respiration of leaves in the dark, 1886, A., 170, 273.
- absorption of carbonic anhydride by leaves, 1886, A., 1062; 1887, A., 172.
- Dehérain, Pierre Paul**, and **Arthur Meyer**, development of wheat, 1883, A., 493.
- Dehérain, Pierre Paul** (and others), results of the experimental plots at Grignon in 1883, 1884, A., 1068.
- Dehoff, L. H.**, nitro- and chloro-derivatives of  $\beta$ -methyl- $\delta$ -oxyquinazoline, 1890, A., 802; 1891, A., 84.
- Deichmüller, August, F. Szymanski**, and **Bernhard Tollens**,  $\beta$ -hydroxybutyric acid in diabetic urine, 1885, A., 830.
- Deike, Wilhelm**. See **Oscar Georg Jacobsen**.
- Dekkers, Pieter Johannes**, tetramethylene glycol, 1891, A., 164.
- De la Bellone**. See **Ferry de la Bellone**.
- Delachanal, Bénédicte**, asphalt of bitumen of Judæa, 1884, A., 281.
- Delachanal, Bénédicte**. See also **Camille Vincent**.
- Delacharlonny, Marguerite**. See **Marguerite-Delacharlonny**.
- Delacre, Maurice**, dichlorethyl alcohol, 1887, A., 713.
- trichloroalcohol: action of zinc ethyl on aldehydes, 1888, A., 663.
- chloro-derivatives of ethyl acetate, 1888, A., 672.
- constitution of benzopinacoline, 1891, A., 456.
- synthesis of *s*-triphenylbenzene, 1892, A., 993.
- De la Croix, Woldemar**, influence of dilution on the rate of chemical reactions, 1884, A., 1090.
- De la Escosura, Luis**, electrolytic estimation of mercury, 1886, A., 650.
- Delafond**, steel from pig-iron containing phosphorus, 1883, A., 403.
- Delage, Auguste**. See **Paul De Rouville**.

- De la Harpe, Ch., and Frédéric Reverdin**, nitrosonitrososorcinol, 1888, A., 679; 1889, A., 41.  
 ——— analytical notes, 1889, A., 1087.
- De la Harpe, Ch.** See also *Frédéric Reverdin*.
- De la Rue, Warren, and Heinrich Wilhelm Hugo Müller**, electric discharge with the chloride of silver battery, 1885, A., 322.
- De la Rue, Warren**, obituary notice of, 1890, T., 441.
- De la Source**. See **Magnier de la Source**.
- De la Tréhonuais**, cotton cake as fodder for milch cows, 1884, A., 1411.
- Delattre, Charles**, treatment of the washings from wool, 1883, A., 940.
- Delauney**, equivalents of the elements, 1888, A., 902.  
 ——— relation between the atomic weights of the elements, 1889, A., 1104.
- Delebecque, André**. See **Louis Duparc**.
- Délépine, Auguste Sheridan**, calcium urate, 1887, A., 469.  
 ——— cystin in the urine, 1890, A., 1018.  
 ——— normal storage of iron in the liver, 1890, A., 1177.  
 ——— cutaneous pigment as an antecedent of hæmoglobin, 1891, A., 480.  
 ——— deposits of iron and glycogen in the tissues, 1891, A., 1274.
- Délépine, Marcel**, alcoholic solutions of ammonia, 1892, A., 1049.
- Délexinier, A. M.**, new ptomaine, 1889, A., 1075.
- Delisle, Alfred**, action of sulphur dichloride on ethyl acetoacetate, 1887, A., 915.  
 ——— ketosulphides and ketosulphide-acids, 1889, A., 488.  
 ——— reduction of *o*-sulphobenzoic acid, 1889, A., 1183.  
 ——— new potash apparatus for use in elementary analyses, 1891, A., 621.  
 ——— conversion of unsaturated acids into their stereochemical isomerides by soda, 1892, A., 297.  
 ——— thetinocarboxylic acid, 1892, A., 1433.
- Delisle, Alfred, and Georg Lagai**, methoxyphenylsulphonic acid, 1891, A., 310.
- Delisle, Alfred**. See also **Rudolph Fittig**.
- Del Lungo, Carlo**, pressure and specific volume of saturated vapours, 1892, A., 263.
- Delory, Gust.**, dyeing with alizarin colours on indigo-blue cloth, 1885, A., 106.
- Demant, Bernhard**, influence of strychnine and curare on the glycogen of the liver and muscles, 1886, A., 1051.  
 ——— glycogen in the liver of new-born dogs, 1887, A., 167.
- Demarcay, Eugène Anatole**, thorium sulphate, 1883, A., 1053.  
 ——— reactions of tellurium, 1884, A., 663.  
 ——— methods of spectrum analysis, 1885, A., 465.  
 ——— separation of titanium from niobium and zirconium, 1885, A., 639.  
 ——— colour reaction of rhodium, 1886, A., 125.  
 ——— spectra of didymium and samarium, 1886, A., 837; 1887, A., 1008.  
 ——— action of carbon tetrachloride on metallic oxides, 1887, A., 329.  
 ——— spark spectra from coils of low tension, 1887, A., 537.  
 ——— cerite earths, 1887, A., 551.  
 ——— spectrum of gold, 1888, A., 765.
- Demarchi, L., and O. Fodera**, production of pozzolana, 1883, A., 529.
- Demarteau, Jules**. See **Walthère Spring**.
- Demek, W.**, dopplerite from Aussee, 1883, A., 160.
- Demjanoff, Nicolaus I.**, hexylene dibromide from diallyl, 1891, A., 160.  
 ——— pentamethylene glycol and its oxides, 1892, A., 1292.
- Demjanoff, Nicolaus I.** See also **V. Aristoff, Gabriel Gustavson**.
- Demme, W.**, new albumin from protoplasm, 1892, A., 86.
- Dement, Louis**, compound of alcohol and sodium bisulphide, 1891, A., 1170.  
 ——— action of alkali sulphides on chloroform, 1892, A., 421.
- Demski, Hans, and Theodor Morawski**, estimation of resin oils in mineral oils, 1886, A., 282.
- Demski, Hans**. See also **Theodor Morawski**.
- Demuth, Robert**, methylacetoethionone, 1886, A., 228, 871.  
 ——— acetyl and carboxyl derivatives of thiophen, 1886, A., 588.  
 ——— a second thioxylene, 1886, A., 871.
- Demuth, Robert, and Max Dittrich**, oximes of haloid benzophenones, 1891, A., 314.
- Demuth, Robert, and Victor Meyer**, sulphuranes, 1887, A., 906.  
 ——— isodibromosuccinic acid, 1888, A., 360.  
 ——— nitrethyl alcohol, 1889, A., 866; 1890, A., 857.  
 ——— determination of vapour densities of substances below their boiling-points, 1890, A., 440.

- Demuth, Robert**, and **Victor Meyer**, action of oxygen on zinc ethyl, 1890, A., 481.
- Guinocbet's isomeric tricarballic acid, 1890, A., 595.
- Denaeayer, Alphonse**, analysis of peptones, 1890, A., 1351.
- behaviour of albumin when subjected to pressure, 1891, A., 1269.
- Denaro, Antonio**, dichlorovinyl methyl ether, 1884, A., 1282.
- naphtholazobenzene, 1886, A., 246.
- dichloropyromucic acid, 1887, A., 34.
- decomposition of silicic acid by leaves, 1887, A., 70.
- Denaro, Antonio**. See also **Teodoro Leone**, **Vincenzo Oliveri**, **Salvatore Scichilone**.
- Denigès, Georges**, test for uric acid, 1888, A., 1347.
- action of sodium hypobromite on nitrogen derivatives of the benzene series, 1889, A., 139.
- reagents for mercaptans, 1889, A., 655.
- formation of cuprous chloride and bromide from cupric sulphate, 1889, A., 675.
- reaction for copper, 1889, A., 747.
- phosphorus trichloride and oxychloride, 1890, A., 664.
- characteristic reaction of hydrogen peroxide, 1890, A., 1185.
- distinction between arsenic and antimony, 1891, A., 364.
- detection of chlorides, bromides, and iodides, 1891, A., 495.
- potassium bromide as an indicator in chlorimetry, 1891, A., 615.
- compounds of metallic sulphites with aniline, 1891, A., 1030.
- combination of metallic sulphites with amines of the benzene series, 1891, A., 1031.
- detection of chlorine, and of chlorides in presence of bromides, 1891, A., 1288.
- test for hydrogen peroxide, 1891, A., 1549.
- preparation of bromoform from acetone and sodium hypobromite, 1892, A., 126.
- microscopic detection of sulphurous anhydride, 1892, A., 237.
- action of pyridine bases on sulphites, 1892, A., 1103.
- preservation of solutions of *m*-phenylenediamine and its employment as a reagent, 1892, A., 1124.
- Denigès, Georges**, and **Edmond Bonnans**, rotatory and reducing power of lactose, 1888, A., 933.
- Denigès, Georges**. See also **Charles Blarez**.
- Deninger, Albert**, dicresoldicarboxylic acid, 1888, A., 838.
- action of nascent nitrous acid on various amines and phenols, 1890, A., 38.
- nitration of hydroxybenzoic acids, 1891, A., 307.
- Denner, C.**, testing Peru balsam, 1889, A., 196.
- Dennig, Adolph**, determination of the rate of consumption of oxygen in the tissues by means of the spectroscope, 1884, A., 1391.
- Dennis, L. M.** See **Walther Hempel**.
- Dennstedt, M.**, process for hardening castings in gypsum, 1886, A., 401.
- hardening of plaster casts, 1891, A., 1421.
- Dennstedt, Maximiliano**, conversion of pyrroline derivatives into indole derivatives, 1889, A., 400.
- dimethylpyrrolines, 1889, A., 1209.
- dimethylpyrrolines in Dippel's oil, 1889, A., 1209.
- action of acetone on pyrroline, 1890, A., 999.
- conversion of pyrroline into its homologues, 1890, A., 1428.
- action of methyl alcohol on pyrroline, 1891, A., 1501.
- Etard's glycoline and Stoehr's dimethyldiazine, 1892, A., 638.
- Dennstedt, Maximiliano**, and **Adolf Lehne**,  $\alpha$ - and  $\beta$ -methylpyrroline, 1889, A., 1209.
- Dennstedt, Maximiliano**, and **J. Zimmermann**, conversion of pyrroline into pyridine, 1886, A., 367.
- action of acetic chloride on pyridine, 1886, A., 368.
- reduction of acetylpyrroline, 1886, A., 1042.
- action of *p*-aldehyde on pyrroline, 1886, A., 1048.
- action of phthalic anhydride on methylpyrrolines, 1886, A., 1044.
- action of acetone on pyrroline, 1887, A., 598, 1052.
- action of propionic anhydride on pyrroline, 1887, A., 844.
- action of methylamine and ethylamine on salicylaldehyde, 1888, A., 836.
- bases formed by the action of hydrochloric acid on pyrrolines, 1888, A., 849.

- Dennstedt, Maximiliano, and J. Zimmermann**, reduction of pyrrolinophthalide, 1888, A., 849.
- Dennstedt, Maximiliano**. See also *Giucomo Luigi Ciamician*.
- Denucé, D.**, preservation of wine by salicylic acid, 1883, A., 535.
- Derby, Orville A.**, Brazilian specimens of martite, 1883, A., 559.
- gold in Brazil, 1885, A., 356.
- Santa Catharina meteorite, 1885, A., 362.
- monazite as an accessory constituent of rocks, 1889, A., 573.
- xenotime as an accessory constituent of rocks, 1891, A., 993.
- magnetite ore districts in Brazil, 1891, A., 994.
- Deros, A.**, detection and estimation of zinc and lead in presence of iron, 1884, A., 367.
- Dervin, E.**, preparation of phosphorus oxychloride, 1884, A., 155.
- phosphorus sulphides, 1884, A., 1258.
- Desains, Paul**, distribution of heat in the ultra-red region of the solar spectrum, 1883, A., 143.
- Desch, Cecil Henry**. See *Raphael Meldola*.
- Des Cloizeaux, Alfred Louis Olivier Legrand**, optical properties of Nevada hübnerite, 1884, A., 407.
- new mineral from Barbin, near Nantes, 1884, A., 408.
- pachenolite and thomsenolite, 1884, A., 716.
- herderite, 1884, A., 827.
- endnophite, 1885, A., 641.
- crystalline form and optical characters of sismondine, 1885, A., 1118.
- optical properties of albite, 1886, A., 210.
- manganese silicates, 1886, A., 320.
- crystalline system of cryolite, 1886, A., 430.
- oligoclase and andesine, 1886, A., 776.
- monoclinic form and optical properties of arsenious anhydride, 1887, A., 1015.
- Des Cloizeaux, Alfred Louis Olivier Legrand, and Augustin Alexis Damour**, chalcocite (selenite of copper), 1883, A., 31.
- chemical composition of herderite, 1887, A., 19.
- Des Cloizeaux, Alfred Louis Olivier Legrand, and Edouard Jannettaz**, nepheline in the oligoclase of Denise, 1883, A., 1067.
- Des Cloizeaux, Alfred Louis Olivier Legrand, and Felis Pisani**, oligoclase, 1887, A., 20.
- Des Cloizeaux, Alfred Louis Olivier Legrand**. See also *Augustin Alexis Damour, William Earl Hidden*.
- Desesquelle, Edouard**, passage of naphthol into the urine, 1891, A., 98.
- Desgrez, Alexandre**. See *Auguste Béhal*.
- Deslandres, Henri**, relation between the ultra-violet spectrum of water and the telluric bands, A, B, a, 1885, A., 713.
- band-spectrum of nitrogen, 1886, A., 189.
- spectrum of nitrogen at the negative pole, 1886, A., 957.
- wave-lengths of two red lines in the spectrum of potassium, 1888, A., 637.
- ultra-violet band-spectrum of carbon compounds, 1888, A., 637.
- method of investigating faint bands in the spectra of hydrocarbons, 1891, A., 773.
- Despeissis, L. H.**, treatment of syrups by electricity, 1885, A., 205.
- Desprax, P.**, method of estimating the alkalinity of limed beet-syrup, 1883, A., 689.
- Despret, G.** See *G. Cesaro*.
- Dessauer, Hans**. See *Edouard Buchner*.
- Destrem, A.**, action of the induction spark on benzene, toluene, and aniline, 1884, A., 1243.
- displacement of copper by zinc, 1888, A., 555.
- Destrem, A.** See also *G. Berson*.
- Destremx, L.** See *P. Marguerite-Dela-charlonny*.
- Desvignes, Paul**. See *Auguste Béhal*.
- Detmer, Wilhelm**, action of various gases, especially nitrous oxide, on plant cells, 1883, A., 105.
- contributions to the dissociation-hypothesis, 1883, A., 489.
- influence of foreign matter on the conversion of starch by diastase, 1883, A., 631.
- development of starch-transforming ferments in the cells of the higher plants, 1884, A., 917, 1063.
- formation of diastatic ferments in the cells of the higher plants, 1884, A., 1402.
- formation of hydrochloric acid in plants, 1885, A., 683.
- Dettweiler, A.**, cost of production of stable manure, 1884, A., 637.

- Deutzmann, A.**, furfurylamine, 1892, A., 43.
- Devarda, Arthur**, action of superphosphates on nitrates, 1889, A., 72.
- Jodlbauer's modification of Kjeldahl's method for the estimation of nitrogen in nitrates, 1890, A., 292.
- Deventer, Charles Marius van**, and **Jacobus Henricus van't Hoff**, potassium hypiodite, 1888, A., 911.
- Deventer, Charles Marius van**, and **Lodewyk Theodor Reichert**, formation of salts in alcoholic solution, 1890, A., 553; 1892, A., 262.
- Deventer, Charles Marius van**, and **Hendrik Justus van de Stadt**, theory of the solubility curve, 1892, A., 558.
- Deventer, Charles Marius van**. See also **Jacobus Henricus van't Hoff**, **Lodewyk Theodor Reichert**.
- Dewille, Sainte-Claire**. See **Sainte-Claire Deville**.
- Devoto, Luigi**, quantitative estimation of proteids, 1891, A., 1304.
- Dewalque, Gustave**, hatchettine from Sernais, 1885, A., 220.
- Dewar, James**, critical volumes of liquids, 1885, A., 331.
- Weldon-Pechiney process for manufacturing chlorine from magnesium chloride, 1888, A., 411.
- Dewar, James**, and **Alexander Scott**, atomic weight of manganese, 1883, A., 856.
- molecular weight of the amines, 1884, A., 257.
- Dewar, James**. See also **Gerrard Ansell**, **George Downing Living**.
- Dewey, Fred. P.**, estimation of cuprous oxide in metallic copper, 1889, A., 1033.
- Dézaunay, V.** See **Ambroise Andouard**.
- Diakonoff, D.**, heat of combustion of organic substances, 1886, A., 115.
- Diakonoff, N. W.**, activity of fungoid ferments, 1886, A., 1060.
- molecular respiration of plants, 1887, A., 988.
- Dianin, Alexander P.**, condensation products of acetone and its homologues with phenol, 1889, A., 1187.
- Dickhuth, Max**. See **Carl Theodor Liebermann**.
- Dickie, Adam**, chemical composition of the water of the Clyde sea area, 1888, A., 569; 1889, A., 359.
- Dickinson, William Lee**, action of leech extract on blood, 1891, A., 482.
- Dickinson, William Lee**. See also **John Newport Langley**, **Arthur Sheridan Lea**.
- Dickmann, F.**, examination of water for contamination by gas-works, 1891, A., 117.
- Dicocco, Amos**. See **Furusto Sestini**.
- Didier, P.**, sulphides of cerium and lanthanum, 1886, A., 955.
- anhydrous cerium chloride and cerium silicate, 1886, A., 123.
- cerium tungstates and chlorotungstates, 1886, A., 595.
- Dieckmann, W.**, amidine picrates, 1892, A., 705.
- Dieckmann, W.** See also **Eugen Bamberger**.
- Diéff, Woldemar**, bye-product of the preparation of allyldimethylcarbinol, 1883, A., 1076.
- action of silver acetate on tetrabromodiallylcarbinol, 1887, A., 353.
- oxidation of ricinoleic acid, 1889, A., 1147.
- Diéff, Woldemar**, and **Alexander N. Reformatsky**, oxidation of ricinoleic and linoleic acids, 1887, A., 716.
- Dieffenbach, Otto**, heat of combustion and constitution of organic compounds, 1890, A., 1206.
- Diehl, Ludwig**, and **Alfred Einhorn**, condensation products of cinnamaldehyde with acetone, 1885, A., 1221.
- preparation of *o*- and *p*-nitrocinnamaldehyde, 1885, A., 1221.
- condensation products of *o*-nitrocinnamaldehyde with acetone, 1885, A., 1222.
- derivatives of *o*-amidophenylvaleric acid, 1887, A., 485.
- Diehl, W.**, volumetric estimation of peroxides, 1888, A., 242.
- estimation of manganese, 1886, A., 101.
- aluminium sub-fluoride, 1889, A., 677.
- Diesterweg, Julius**. See **Rudolf Nietzki**.
- Dieterich, Eugen**, examination of fats and oils, 1886, A., 1083.
- estimation of morphine in opium, 1891, A., 511.
- Dieterici, Konrad**, specific volume of aqueous vapour, 1890, A., 207.
- vapour pressures of some aqueous salt solutions at 0°, 1891, A., 783.
- theory of heat of dissolution and of osmotic pressure, 1892, A., 676, 765.
- Dieterle, Wilhelm**, and **Carl Hell**, adipic acid, 1885, A., 43.
- Dietrich**, undecorticated cotton-seed meal, 1884, A., 100.
- cattle foods, 1886, A., 1067.

- Dietrich, E.**, opium testing, 1887, A., 310.
- Dietrich, Emile**, manufacture of asphalt, 1885, A., 309.
- Dietrich, Franz**, and **Carl Paal**, pyro-tartaric acid derivatives, 1887, A., 658.
- Dietrich, P.**, treating raw phosphates, 1886, A., 108.
- Dietrich, Th.**, composition of East Indian wheats, 1889, A., 184.
- Dietze, August**, Chilean minerals—darap-kite, lanarite, iodochromite, 1892, A., 124.
- Dietze, August**. See also **Rudolf Nietzki**.
- Dietzel, Adolf**, ethyl acetoacetate and pyruvic acid, 1889, A., 593.
- Dietzell, B. E.**, preservation of milk, 1883, A., 254.
- source of the nitrogen of the Leguminosæ, 1885, A., 418.
- prevention of the loss of nitrogen in farmyard manure, 1888, A., 873.
- Dieudonné, Hermann**, estimation of tannin, 1887, A., 187.
- Dieulafait, Louis**, lithium, strontium, and boric acid in the mineral waters of Contrexeville and Schinznach, 1883, A., 301.
- manganese in sea water and in certain marine deposits, 1883, A., 725.
- occurrence, association, and probable mode of formation of barytes, celestine, and anhydrite, 1884, A., 25.
- manganese in the cipolin marbles of the primary formation, 1884, A., 716.
- rubidium, cesium, lithium, and boric acid in Chili saltpetre, 1884, A., 968.
- origin of phosphorites and ferruginous clays in limestone, 1884, A., 1272.
- origin of the phosphorites in the South-west of France, 1885, A., 30.
- origin and formation of masses of calcium phosphate in sedimentary rocks, 1885, A., 127.
- composition of the ash of the Equisetaceæ, 1885, A., 583.
- concentration of zinc carbonate in dolomites, 1885, A., 640.
- origin of iron, manganese, and zinc minerals in the older secondary limestones, 1885, A., 644.
- non-volcanic origin of boric acid, 1885, A., 876.
- origin of boric acid, 1885, A., 876.
- origin of manganese minerals, 1885, A., 1119.
- Dieulafait, Louis**, application of thermochemistry to geology, 1886, A., 35.
- application of thermochemistry to geology: zinc, 1886, A., 132.
- Diez, K.**, quantitative estimation of glycerol, 1887, A., 750.
- Diller, Joseph Silas**, fulgurite from Mt. Thielson, Oregon, 1885, A., 493.
- peidotite of Elliot Co., Kentucky, 1886, A., 993; 1889, A., 630.
- gehlenite in a furnace slag, 1889, A., 681.
- native gold in calcite, 1890, A., 569.
- Diller, Joseph Silas**, and **James Edward Whitfield**, dumortierite from Harlem, New York, and Clip, Arizona, 1889, A., 681.
- Diller, Joseph Silas**. See also **Frank Wigglesworth Clarke**.
- Dingwall, John**. See **Percy Faraday Frankland**.
- Dircks, V.**, myronic acid and estimation of mustard oil in the seeds of Crucifere and in oil-cakes, 1883, A., 245.
- Dircks, V.**, and **F. H. Werenskiold**, estimation of reduced phosphate, 1888, A., 628.
- Discalzo, Giulio**, thymolphosphoric acid, 1886, A., 52.
- Discalzo, Giulio**. See also **Girolamo Mazzara**.
- Ditte, Alfred**, decompositions of salts by fused substances, 1883, A., 11.
- compounds of tin disulphide and diselenide, 1883, A., 156.
- stannous oxide and some of its compounds, 1883, A., 294.
- formation of crystallised uranates in the dry way, 1883, A., 296.
- crystallisation of chlorine hydrate, 1883, A., 550.
- production of brom-apatites, and bromo-wagnerites, 1883, A., 648, 783.
- crystallised stannates, 1883, A., 716.
- sodo-apatites, 1883, A., 784.
- production of crystallised vanadates in the dry way, 1883, A., 784.
- action of hydrochloric acid on stannous sulphide, 1884, A., 18.
- production of crystalline borates, 1884, A., 711.
- uranium compounds, 1884, A., 824.
- action of potassium sulphide on mercuric sulphide, 1884, A., 893.
- action of cupric sulphide on potassium sulphide, 1884, A., 963.
- action of mercuric sulphide on potassium sulphide, 1884, A., 964.
- fluor-apatites, 1885, A., 126, 225.

- Ditte, Alfred**, vanadic anhydride, 1886, A., 18.  
 — double nitrates of silver and the alkalis, 1886, A., 122.  
 — action of reducing agents on vanadic anhydride, 1886, A., 307.  
 — action of antimony sulphide on potassium sulphide, 1886, A., 309.  
 — antimony sulphide, 1886, A., 429.  
 — combination of vanadic anhydride with oxy-acids, 1886, A., 599.  
 — ammonium vanadates, 1886, A., 671.  
 — action of vanadic acid on ammonium salts, 1886, A., 672.  
 — action of hydracids on vanadic acid, 1886, A., 772.  
 — action of vanadic anhydride on haloid salts, 1886, A., 855.  
 — compounds of stannic oxide, 1887, A., 336.  
 — metallic vanadates, 1887, A., 639, 705, 898, 899.  
 — estimation of vanadic acid, 1887, A., 691.  
 — action of carbonic anhydride on aromatic amines, 1888, A., 49.  
 — action of vanadic anhydride on potassium fluoride, 1888, A., 114.  
 — aniline salts, 1888, A., 137.  
 — action of vanadic anhydride on alkaline fluorides, 1888, A., 558.  
 — action of sulphuric acid on aluminium, 1890, A., 701.  
 — action of nitric acid on aluminium, 1890, A., 702.  
 — action of the haloid compounds of the alkalis on those of mercury, 1890, A., 1059.  
 — action of sulphuric acid on metals, 1891, A., 260.  
 — metallic borates, 1892, A., 565.  
 — iodic acid and its salts, 1892, A., 1388.
- Dittmar, M.**, reactions of iodine chloride with alkaloids, 1886, A., 158.
- Dittmar, William**, nickel alkali-proof vessels, 1884, A., 1071.  
 — instability of the double sulphates of the magnesium series, 1888, A., 554.
- Dittmar, William**, and **Charles A. Fawcitt**, physical properties of methyl alcohol, 1889, A., 578.
- Dittmar, William**, and **John McArthur**, atomic weight of platinum, 1888, A., 425.
- Dittrich, Alfred**, and **Carl Paal**,  $\gamma$ -ketonic acids, 1889, A., 257.
- Dittrich, E.**, action of picric chloride on ethyl sodacetoacetate, 1890, A., 1418.
- Dittrich, Max**, ethers of benziloximes, 1891, A., 317.  
 — *s-p*-dichlorobenzophenone and its oximes, 1891, A., 1237.
- Dittrich, Max**, and **Victor Meyer**, derivatives of ethyl dinitrophenyl acetate, 1891, A., 1224; 1892, A., 178.
- Dittrich, Max**. See also **Karl Auwers**, **Robert Demuth**.
- Ditzler, Franz**, strychnine chromate, 1886, A., 564.  
 — behaviour of morphine with potassium chromate, 1886, A., 1047.
- Divers, Edward**, production of hydroxylamine from nitric acid, 1883, T., 443.  
 — the Leclanché cell and the reactions of manganese oxides with ammonium chloride, 1883, A., 272.  
 — the origin of calcium thiosulphate: an emendatory note to a paper on the calcium hydrosulphides, 1884, T., 696.  
 — constitution of the fulminates, 1885, T., 77.  
 — constitution of non-saturated oxygenous salts: reaction of phosphorus oxychloride with sulphites and nitrites, 1885, T., 205; P., 26; discussion, P., 29.  
 — formation of hyponitrites, 1887, P., 119.
- Divers, Edward**, and **Tamemasa Haga**, on hyponitrites, 1884, T., 78.  
 — conversion of Pelouze's nitrosulphates into hyponitrites and sulphites, 1885, T., 203; P., 25; discussion, P., 26.  
 — formation of hyponitrites from nitric oxide, 1885, T., 361; P., 45.  
 — existence of barium and lead nitrosulphates, 1885, T., 364.  
 — behaviour of stannous chloride towards nitric oxide and nitric acid, 1885, T., 623; P., 94.  
 — reactions between mercurous nitrate and nitric oxide or nitrites, 1885, P., 95.  
 — reduction of nitrates to hydroxylamine by hydrogen sulphide, 1886, P., 250; 1887, T., 48.  
 — relation between sulphites and nitrites of metals other than potassium, 1887, T., 659; P., 100.  
 — oxyamidodisulphonates and their conversion into hyponitrites, 1889, T., 760; P., 146.  
 — imidosulphonates, 1892, T., 943; P., 147.
- Divers, Edward**, and **Michitada Kawakita**, on the constitution of the fulminates, 1884, T., 13.

- Divers, Edward, and Michitada Kawakita**, on Liebig's production of fulminating silver without the use of nitric acid, 1884, T., 27.
- on the decomposition of silver fulminate by hydrochloric acid, 1884, T., 75; 1885, T., 69.
- composition of Japanese bird-lime, 1888, T., 268; P., 13.
- Divers, Edward, and Teikichi Nakamura**, hydrocarbon from Japanese petroleum, 1885, T., 924.
- Divers, Edward, and Tetsukichi Shimidzu**, on calcium hydrosulphides, 1884, T., 270.
- magnesium hydrosulphide solution, and its use in chemico-legal cases as a source of hydrogen sulphide, 1884, T., 699.
- red sulphur of Japan, 1884, A., 391.
- reactions of selenious acid with hydrogen sulphide, and of sulphurous acid with hydrogen selenide, 1885, T., 441; P., 52.
- action of sulphuric and nitric acids on zinc in the production of hydroxylamine, 1885, T., 597; P., 90.
- constitution and reactions of liquid nitric peroxide, 1885, T., 636; P., 93.
- action of pyrosulphuric acid on certain metals, 1885, T., 637; P., 92.
- use of sulphuric acid to oxidise metallic sulphides in analysis, 1885, A., 836.
- mercury sulphites and the constitution of sulphites, 1886, T., 533; P., 139.
- Divers, Edward, and Masachika Shimosé**, on a new oxide of tellurium, 1883, T., 319.
- on tellurium sulphoxide, 1883, T., 323.
- on a new reaction of tellurium compounds, 1883, T., 329.
- on the reaction between hydrogen chloride and selenium sulphoxide, 1884, T., 194.
- selenium selenochloride, 1884, T., 198.
- selenium sulphoxide, 1884, T., 201.
- lead chamber deposit from Japanese sulphuric acid, 1884, A., 392.
- quantitative separation of tellurium from selenium, 1885, T., 439; P., 53.
- Dixon, Augustus Edward**, action of isothiocyanates on the aldehyde-ammonias, 1888, T., 411; P., 38.
- benzylidithiourethane, 1888, P., 34.
- isothiocyanates, 1889, T., 300; P., 45.
- thiocarbimides, 1889, T., 618.
- semithiocarbazides, 1890, T., 257; P., 25.
- phenyl salt of phenylthiocarbamic acid, 1890, T., 268; P., 33.
- new benzyl derivatives of thiocarbamide, 1891, T., 551; P., 84.
- chemistry of the compounds of thiourea and thiocarbimides with aldehyde-ammonias, 1892, T., 509; P., 73.
- isomerism amongst the substituted thioureas, 1892, T., 536; P., 111.
- action of bromine on allylthiocarbimide, 1892, T., 545; P., 124.
- di-substituted semithiocarbazides, 1892, T., 1012; P., 153.
- Dixon, Harold Bailey**, velocity of explosion of a mixture of carbonic oxide and oxygen with varying quantities of aqueous vapour, 1883, A., 12.
- influence of aqueous vapour on the explosion of carbonic oxide and oxygen, 1888, A., 12.
- the combustion of carbonic oxide and hydrogen, 1885, P., 128; 1886, T., 94.
- conditions of chemical change in gases, 1885, A., 479.
- the combustion of cyanogen, 1886, T., 384; P., 171; discussion, P., 172.
- preservation of gases over mercury, 1887, A., 105.
- Dixon, Harold Bailey, and Hubert Foster Lowe**, decomposition of carbonic anhydride by the electric spark, 1885, T., 571; P., 83; discussion, P., 84.
- Dixon, Harold Bailey, and Harry Wood Smith**, imperfect combustion in gaseous explosions, 1889, A., 337.
- Dixon, W. A.**, inorganic constituents of some epiphytic ferns, 1883, A., 108.
- constitution of acids, 1887, A., 443.
- Dobbie, James Johnstone**, variety of saponite, 1885, A., 229.
- Dobbie, James Johnstone, and George Gerald Henderson**, red resins known as dragon's blood, 1884, A., 462.
- red resin from *Dracucena cinnabari*, 1885, A., 308.
- Dobbie, James Johnstone, and John B. Hutcheson**, easy method of determining the specific gravity of solids, 1885, A., 332.

- Dobbie, James Johnstone**, and **Alexander Lauder**, corydaline, 1892, T., 244, 605; P., 13, 123.
- Dobbie, James Johnstone**. See also **Thomas Gray**.
- Dobbin, Leonard**, tertiary butyl mercaptan, 1890, T., 639; P., 105.
- detection and estimation of alkaline hydroxides in presence of alkaline carbonates, 1890, A., 293.
- Dobbin, Leonard**, and **David Orme Masson**, action of the halogens on salts of trimethylsulphine, 1885, T., 56.
- action of halogens on tetramethylammonium salts, 1886, T., 846; P., 239.
- Dobreff, N.**, *o*-dibenzylidicarboxylic acid, 1887, A., 958.
- Dobriner, Paul**, boiling-points and specific volumes of the normal fatty ethers, 1888, A., 334.
- specific volumes of normal alcoholic iodides, 1888, A., 334.
- Dobrzycki, J. v.**, *p*-isobutylhydroxybenzoic acid, 1888, A., 368.
- Dodge, Frank Despard**, Indian grass oils, 1890, A., 231; 1891, A., 285.
- diphenylfurazan and some derivatives of oximes, 1891, A., 1237.
- Dodge, Frank Despard**. See also **Charles Edwards Colby**.
- Doebner, Oscar Gustav**, compounds of benzotrichloride with phenols and phenylamines, 1883, A., 861.
- $\alpha$ -alkylcinchononic acids, 1887, A., 504.
- $\alpha$ -alkylcinchononic acids and  $\alpha$ -alkylquinolines, 1888, A., 299.
- $\alpha$ -alkylcinchononic acids and  $\alpha$ -alkylquinolines, 1889, A., 410.
- compounds of benzotrichloride with naphthols, 1890, A., 901.
- formation of racemic acid by the oxidation of unsaturated acids, 1890, A., 1274.
- $s$ -alkylisophthalic acids, 1890, A., 1283; 1891, A., 1064.
- formation of inactive tartaric acid by the oxidation of phenol with potassium permanganate, 1891, A., 1020.
- Doebner, Oscar Gustav**, and **Adolf Foerster**, pyrogallolbenzein, 1890, A., 899.
- Doebner, Oscar Gustav**, and **M. Gieseke**,  $\alpha$ -phenylcinchononic acid and its homologues, 1888, A., 300.
- Doebner, Oscar Gustav**, and **P. Kuntze**,  $\alpha$ -phenylnapthacinchononic acids, 1889, A., 411.
- 2:6-diphenylpyridine, 1889, A., 1212.
- Doebner, Oscar Gustav**, and **Wilhelm von Miller**, quinaldine, 1883, A., 602.
- phenylquinoline, 1883, A., 1149.
- quinaldine bases, 1884, A., 183, 1373.
- 2'-quinolinecarboxylic acid, 1884, A., 185.
- quinaldinecarboxylic acids, 1884, A., 1200.
- homologues of quinaldine, 1884, A., 1374.
- methylquinolines, 1885, A., 1079.
- bye-products of quinaldine, 1886, A., 370.
- derivatives of  $\alpha$ -phenylquinoline, 1886, A., 721.
- Doebner, Oscar Gustav**, and **Theodor Peters**,  $\alpha$ -cinnamenylcinchononic acid and  $\alpha$ -quinolinedicarboxylic acid, 1890, A., 176.
- formation of  $\alpha$ - and  $\beta$ -phenyleneppyridineketonecarboxylic acids, 1890, A., 1007.
- Doebner, Oscar Gustav**, and **Georg Petschow**, compounds of ketones with dimethylaniline and diethylaniline, 1888, A., 287.
- Döhn, W.**, cultivation and feeding value of some varieties of vetches, 1883, A., 612.
- Döll, Eduard**, pseudomorphs, 1885, A., 221; 1886, A., 21.
- Doelter, Cornelius**, crystalline form of idocrase, 1883, A., 441.
- volcanic rocks of the Cape Verde islands, 1883, A., 720.
- synthesis of pyroxene, 1884, A., 1105.
- effect of heat on vesuvian, apatite, and tourmaline, 1885, A., 26.
- relation between the optical properties and chemical composition of pyroxene, 1885, A., 229.
- augites, 1885, A., 735.
- artificial production of sulphides, 1886, A., 207.
- synthetical studies, 1886, A., 517.
- synthesis of pyrrhotine, 1888, A., 430.
- artificial production of micas and scapolite, 1888, A., 1045.
- artificial formation of mica, 1889, A., 25.
- constitution of certain zeolites, 1890, A., 717.
- solubility of minerals, 1890, A., 1070.
- Doelter, Cornelius**, and **Eugen Hussak**, action of fused magmas on various minerals, 1884, A., 401.

- Doelter, Cornelius**, and **Eugen Hussak**, synthetical mineral studies, 1884, A., 565.
- Döring, Adolfo** (and others), vanadates from the Argentine Republic, 1885, A., 641.
- Dörken, Carl**, derivatives of diphenyl-phosphorous chloride and diphenyl-phosphine, 1888, A., 832.
- Dössekkel**, hailstorms and their origin. 1883, A., 234.
- Dogiel, A.**, albuminoids of milk, 1885, A., 1149.
- Dogiel, Johann M.** See **Wladimir Nikolsky**.
- Dohme, Alfred Robert Louis**, coumaone, 1891, A., 455.
- Dohme, Alfred Robert Louis**. See also **Ira Remsen**.
- Dollfus, Armand**, new mode of treating casein, 1884, A., 1449.
- Dollfus, G.**, and **Etienne Stanislas Meunier**, mineral wax, 1888, A., 115.
- Dollfus, Walther**, configuration of aldoximes, 1892, A., 1174.
- configuration of  $\gamma$ -ketoximic acids, 1892, A., 1202.
- Domergue, A.**, and **Ch. Nicolas**, analysis of tea, 1892, A., 926.
- Donald, J. T.**, samarskite from Berthier Co., Quebec, 1884, A., 894.
- Donath, Eduard**, imitation of patina, 1884, A., 1444.
- barium manganate, 1887, A., 552.
- decomposition of chrome iron ore, 1887, A., 619.
- action of hot manganese dioxide on alcohol vapour, 1889, A., 230.
- detection of nitrogen in organic compounds, 1890, A., 663.
- separation and estimation of tellurium, 1891, A., 242.
- separation of manganese and zinc, 1892, A., 384.
- analytical application of barium and hydrogen peroxides, 1892, A., 1031.
- Donath, Eduard**, and **Georg Hattensaur**, volumetric estimation of zinc and copper, 1891, A., 112.
- Donath, Eduard**, and **Rudolf Jeller**, estimation of ferric oxide in presence of alumina, 1886, A., 1076.
- detection and estimation of traces of chromium, 1887, A., 531.
- Donath, Eduard**, and **Joseph Mayrhofer**, affinity and its relation to atomic volume, atomic weight, and specific gravity, 1883, A., 1048.
- Donath, Eduard**, and **Franz Müllner**, separation of tin oxide from tungstic acid, 1888, A., 531.
- Donath, Eduard**, and **Franz Müllner**, simple formation of thiosulphates, 1888, A., 649.
- Donath, Eduard**. See also **Rudolf Schöffel**.
- Donath, Julius**, dehydromorphine (oxydimorphine), 1886, A., 899.
- reactions of morphine, 1886, A., 899.
- Donle, Wilhelm**, thermoelectric relations of electrolytes, 1886, A., 960.
- Donner, Albert**, benzeneazo- $\alpha$ -naphthylglycocine, 1892, A., 191, 1100.
- Donner, Albert**. See also **Hugo Eckenroth**, **Eugen Lellmann**.
- Doremus, Charles A.**, elephants' milk, 1891, A., 98.
- Dormeyer, Carl**. See **Martin Freund**.
- Doroshenko, S.**, aromatic hydrocarbons in Caucasian petroleum, 1886, A., 142.
- Dorp, Willem Arne van**. See **Sebastiaan Hoogewerff**.
- Dorsch, Robert**, halogen derivatives of isatoic acid, 1886, A., 359.
- Doss, Karl Bruno**, felspar and olivine from Syria, 1888, A., 432.
- meteorite of Misshof, Kurland, Russia, 1892, A., 1059.
- Dott, David Brown**, estimation of spirit of nitrous ether, 1885, A., 1013.
- solubility of salicin, 1886, A., 366.
- morphine lactate, 1886, A., 813.
- acid morphine acetate, 1887, A., 505.
- morphine hydrate, 1888, A., 506.
- estimation of urea, 1890, A., 931.
- assay of opium, 1892, A., 926.
- Dott, David Brown**, and **Ralph Stockman**, formula of morphine, 1888, A., 506.
- Dott, David Brown**. See also **Ralph Stockman**.
- Dougherty, George T.**, estimation of antimony, 1885, A., 297.
- Douglas, Paul**, nitrogenous derivatives of thiophen and furfuran, 1892, A., 831.
- Doumer, Emmanuel**, refractive power of solutions of simple salts, 1890, A., 433.
- refractive power of solutions of double salts, 1890, A., 433.
- refractive powers of salts in solution, 1890, A., 1033.
- Doyer, Jacob Weybrand**, determination of solubility coefficients, 1891, A., 387.
- Dragendorff, Georg**, physiological action of convolvulin and jalapin, 1887, A., 291.
- Dragendorff, Georg**, and **Edm. Blumenbach**, thallin 1887, A., 871.

**Dragendorff, Georg, and Woldemar Jacobson**, isolation and detection of phenol, 1887, A., 867.

**Dragendorff, Georg, and Herm. von Rosen**, alkaloids of Lobelia, 1887, A., 854.

**Dragendorff, Georg, and Salomon Salomonowitsch**, myoctonine, 1887, A., 858.

**Dragendorff, Georg, and H. Spohn**, alkaloids of *Aconitum Lycocotum*, 1885, A., 403.

**Dragendorff, Georg, and (Burton) Hildebr. Tiesenhausen**, chloral hydrate, 1887, A., 866.

**Dragounis, E. J.**, method of determining thermal expansion for equal quantities of heat, 1891, A., 142.

**Drake, Bernard, and J. Marshal Gorham**, electric accumulators, 1887, A., 418.

**Dralle, Christian**, oxidation of purpurin, 1884, A., 1040.

— hematoxyliln and brazilin, 1884, A., 1043.

**Dralle, Christian**. See also *Joh. Friedrich Carl Schall*.

**Draper, Carter Napier**, insolubility of barium chloric in presence of lithium chloride, 1886, A., 422.

— solubility of lithium carbonate, 1887, A., 699.

— action of sea water on cast-iron, 1888, A., 421.

**Draper, Harry Napier**, preparation of hydrogen sulphide, 1885, A., 346.

— use of carbon bisulphide in prisms, 1885, A., 853.

— lakmoid and carminic acids as reagents for alkalis, 1885, A., 931.

— silver ammonio-nitrate, 1887, A., 331.

**Draper, Harry Napier, and Carter Napier Draper**, behaviour of alkaline solutions of phenolphthalein in presence of alcohol, 1887, A., 618.

**Drasche, E.**, analysis of Persian eruptive rocks, 1887, A., 223.

— mineral from Krems, Austria, 1888, A., 233.

**Drawe, Paul**, hypophosphoric acid and its salts, 1889, A., 341.

**Drechsel, Edmund**, ammonioplutonium diammonium compounds, 1883, A., 28.

— action of phthalic anhydride on amido acids, 1883, A., 1126.

— experiments on the small scale in sealed tubes, 1883, A., 1167.

— use of phosphoric acid in Pettenkofer's reaction for bile acids, 1883, A., 1176.

**Drechsel, Edmund**, electrolysis of phenol, 1884, A., 1136.

— a new ingredient of the liver, 1886, A., 636.

— electrolysis of *n*-caproic acid, 1886, A., 1008.

— nitrous acid, 1887, A., 698.

— argentous compounds, 1887, A., 699.

— formation of complex inorganic acids, 1887, A., 703.

— electrolysis with alternating currents, 1888, A., 1234.

— electrolysis of phenol with alternating currents, 1888, A., 1276.

— can the mucous membrane of the stomach decompose bromides and iodides? 1889, A., 426.

— decomposition products of casein, 1889, A., 1021.

— formation of carbamide from albumin, 1891, A., 95.

— decomposition of albumin, 1892, A., 515.

— cystin and xanthine in the horse's liver, 1892, A., 516.

— new reaction of xanthine and allied compounds, 1892, A., 1534.

**Drechsel, Edmund, and Theodor Richard Krüger**, lysine, 1892, A., 1500.

**Drechsel, Edmund**. See also *John J. Abel*.

**Drechsler, G.**, specific gravity of cereal grains, 1883, A., 111.

— manuring experiments, 1885, A., 186.

— notes on manuring, 1885, A., 187.

**Drecker, Joseph**, expansion, compressibility, and specific heat of solutions of the chlorides of potassium and calcium, 1888, A., 1010.

**Dreden, Friedrich von**. See *Adolph Claus*.

**Dreher, August**. See *Adolph Claus*.

**Drehschmidt, Heinrich**, absorption of carbonic oxide by cuprous chloride, 1888, A., 88, 1028.

— gas analysis, 1889, A., 185.

**Dreser, Heinrich**, histological chemistry and physiology of the kidney, 1885, A., 923.

— chemistry of the retinal rods, 1886, A., 375.

— acid nicotine tartrate, 1889, A., 730.

**Dressel, Oskar**. See *Max Guthzeit*.

**Drewes, Dietrich**. See *Robert Otto*.

**Drews, Ad.** See *Carl Graebe*.

**Drewsen, Viggo Beutner**, methylquinoline, 1883, A., 1149.

**Drewsen, Viggo Beutner**. See also *Adolf von Baeyer*.

- Dreyfus**, rate of oxidation of carbon compounds by potassium permanganate, 1888, A., 24.
- Dreyfus, Edmond**, estimation of the total nitrogen in manure, 1884, A., 639.
- constitution of bleaching-powder, 1885, A., 19.
- Dreyfus, Sylvain**. See *Arthur Bower Griffiths*.
- Drory, Alexander**, *o*-cyanobenzyl chloride and *o*-cyanobenzal chloride, 1891, A., 1460.
- Drory, William L.**, salts and derivatives of the truxillic acids, 1889, A., 1196.
- Drory, William L.** See also *Carl Theodor Liebermann*.
- Drouin, René**, succinamonitrile, 1889, A., 686.
- new method of hæmato-alkalimetry: relative alkalinity of the blood of vertebrates, 1891, A., 348.
- Drouin, René**. See also *Emile Justin Armand Gautier*.
- Drown, Thomas M.**, sulphur in coal, 1883, A., 383.
- funnel for filtering carbon, 1888, A., 1129.
- loss on ignition in water analysis, 1889, A., 551.
- estimation of phosphorus in iron in presence of silicon, 1889, A., 1245.
- Drown, Thomas M.**, and *Alexander G. McKenna*, direct estimation of aluminium in iron and steel, 1892, A., 102.
- Drown, Thomas M.**, and *Henry Martin*, estimation of organic nitrogen in natural waters by Kjeldahl's method, 1889, A., 1035.
- Drude, Paul**, and *Walther Nernst*, influence of temperature and the state of aggregation on the behaviour of bismuth in the magnetic field, 1891, A., 779.
- Dryer, Charles R.**, biucine as a test for tin, 1884, A., 498.
- Dubaele, A.** See *Henri Pellet*.
- Dubelir, Dimitrij P.**, influence of water and sodium chloride on nitrogenous excretion, 1892, A., 904.
- Dubernard**, volumetric estimation of potassium, 1885, A., 1262.
- Dubinewitsch, W.**, pentatomic alcohol, and saturated glycerol from diallyl-carbinol, 1890, A., 729.
- Dubiquet, Auguste**. See *François Auguste Frédéric Combemale*.
- Duboin, André**, yttrium compounds, 1888, A., 1249.
- Duboin, André**, yttrium-potassium and yttrium-sodium phosphates, 1889, A., 18.
- artificial reproduction of leucite, 1892, A., 1161.
- artificial formation of potassium nepheline, 1892, A., 1286.
- Du Bois, H. E. J. G.**, and *Heinrich Rubens*, refraction and dispersion in certain metals, 1891, A., 373.
- Du Bois Reymond, Emile Henry**, impure chloroform, 1892, A., 745.
- Dubois, Ch.**, and *Léon Padé*, natural fats, 1885, A., 844; 1886, A., 495.
- Dubois, Hermann**. See *Rudolph Fittig*.
- Dubois, Raphael**, preservative effect of ether and chloroform vapour on organic substances, 1884, A., 932.
- decolorisation of tincture of litmus in closed vessels, 1889, A., 67.
- colouring matter of yellow silk and its relation to vegetable carotene, 1891, A., 98.
- Dubois, Raphael**, and *Paul Roux*, action of ethylene chloride on the cornea, 1888, A., 517.
- Dubois, Raphael**, and *Léo Vignon*, physiological action of *p*- and *m*-phenylenediamine, 1889, A., 66.
- Dubourg, Elisée**. See *Ulysse Gayon*.
- Ducher, L.** See *Paul Cazeneuve*.
- Duclaux, Emile**, milk, 1884, A., 762.
- vitality of germs of microbes, 1885, A., 417.
- germination in soil rich in organic matter but free from microbes, 1885, A., 428.
- method of estimating the purity of volatile liquids, 1886, A., 322.
- butter, 1886, A., 685.
- chemical changes produced by sunlight, 1887, A., 93.
- actinometry, 1887, A., 189.
- comparative action of heat and solar radiation, 1887, A., 411.
- butter from various districts, 1887, A., 996.
- preparation of valeric acid, 1887, A., 1028.
- supposed reaction of spermine, 1892, A., 1300.
- Ducrotet**, apparatus for collecting solid carbonic anhydride, 1884, A., 1253.
- Duden, Paul**. See *Ludwig Knorr*.
- Dudgeon, Patrick**, occurrence of linarite in slag, 1885, A., 226.
- Dudley, William L.**, modifications in the methods of organic analysis, 1889, A., 190.
- curious occurrence of vivianite, 1891, A., 156.

- Dudley, William L.**, colours and absorption spectra of thin metallic films and of incandescent metallic vapours: electrical volatility, 1892, A., 1037.
- Düll, Georg**, derivatives of levulosecarboxylic acid, 1891, A., 547.
- Düll, Georg**. See also **Heinrich Kiliani**.
- Dünschmann, Max**, and **Hans (Freiherr) von Pechmann**, substitution products of acetonedicarboxylic acid, 1885, A., 1201.
- synthesis of citric acid from acetonedicarboxylic acid, 1891, A., 672.
- alkyl derivatives of acetonedicarboxylic acid, 1891, A., 673.
- Dürkopf, Ernst**, aldehydecollidine hexahydride, 1884, A., 1054.
- reduction and oxidation products of aldehydecollidine, 1885, A., 817.
- constitution of aldehydecollidine, 1886, A., 257.
- preparation of pyridine bases, 1887, A., 499.
- pyridine and piperidine bases formed from acetone, 1888, A., 1313.
- belladonine, 1890, A., 271.
- Dürkopf, Ernst**, and **Heinrich Göttisch**, pyridine derivatives from propaldehyde and propaldehyde-ammonia, 1890, A., 794, 1002.
- a new lutidine, 1890, A., 1002.
- Dürkopf, Ernst**, and **M. Schlaugk**, constitution of aldehydecollidine, 1887, A., 737; 1888, A., 499.
- a new parvoline, 1888, A., 607.
- parvoline obtained from propaldehyde-ammonia and *p*-aldehyde, 1888, A., 1314.
- Dürr, Felix**. See **Conrad Willgerodt**.
- Dufet, Henri**, variation of the indices of refraction of water and quartz with the temperature, 1883, A., 762.
- crystalline forms of sodium pyrophosphates and hypophosphates, 1886, A., 768.
- pharmacolite, 1888, A., 794.
- Dufet, Henri**. See also **Alexandre Joly**.
- Dufour, Jean**, soluble starch and its physiological function in vegetation, 1886, A., 903.
- Dufourt, E.**, influence of alkalis on the glycogen of the liver, 1891, A., 758.
- Dufton, Samuel Felix**, *o*-quinolinehydrazine, 1891, T., 756; P., 124.
- hydrazines of quinoline, 1892, T., 782; P., 142.
- Dufton, Samuel Felix**. See also **Sigfried Ruhemann**.
- Dugast**, composition of different varieties of fodder-cabbage, 1883, A., 373.
- Dugast**, the chemical study of soils, 1884, A., 677.
- commercial assay of native phosphates, 1884, A., 1075.
- Duggan, Charles William**. See **John Berry Hayercraft**.
- Duggan, James Reynolds**, relation of antiseptic power to chemical constitution, 1885, A., 1016.
- determination of diastatic action, 1886, A., 483.
- determination of absolute neutrality, 1886, A., 765.
- Duhem, Pierre**, laws of chemical equilibrium, 1888, A., 548, 646.
- some properties of solutions, 1888, A., 1016.
- osmotic pressure, 1888, A., 1022.
- a theorem of Willard Gibbs, 1891, A., 1407.
- Duisberg, Carl**, addition of bromine to ethyl acetoacetate, 1883, A., 656.
- formation of *p*-tolyl-*p*-methylisatinimide from dichloroacetic acid and *p*-toluidine, 1885, A., 543.
- Duisberg, Carl**. See also **Friedrich Bayer, John Peter Griess, Hans (Freiherr) von Pechmann, Wilhelm Pfützing**.
- Dujardin, A.** See **Joseph Béchamp**.
- Dujardin-Beaumetz, and G. Bardet**, hypnotic properties of methyl phenyl ketone, 1886, A., 169.
- Dulk, L.**, gravitation and atomic weight, 1885, A., 722; 1886, A., 591.
- Dumas, Jean Baptiste André**, history of the preparation of artificial sodium carbonate from common salt, 1884, A., 16.
- Dumas, Léon**, retentive capacity for plant food possessed by soils, 1883, A., 681.
- Dumont**. See **Schmitz-Dumont**.
- Du Moulin**, copper compounds as poisons, 1886, A., 483.
- Dumreicher, Oscar (Freiherr) von**, action of aluminium chloride on the monohalogen derivatives of benzene, 1883, A., 53.
- Duncan, Cecil Cooke**, production of pure metallic copper in a crystalline condition, 1890, P., 95.
- Duncan, William**, solubility of iodine in chloroform, 1892, A., 769.
- Dunlap, F. L.** See **Paul C. Freer**.
- Dunn, John**. See **Thomas Carnelley**.
- Dunnington, Francis P.**, formation of deposits of oxides of manganese, 1889, A., 21.
- use of hydrogen peroxide in analysis, 1889, A., 546.

- Dunnington, Francis P.**, distribution of titanate oxide on the earth's surface, 1892, A., 791.
- Dunstan, Wyndham Rowland**, action of polyhydric alcohols on borax, 1884, A., 278.
- scatole in the vegetable kingdom, 1890, A., 191.
- Musscenda coffee, 1890, A., 285.
- double cyanides of zinc and mercury, 1890, A., 855.
- mercuric zinc cyanide; a study of the mode of formation and properties of an insoluble double salt, 1892, T., 666; P., 51; discussion, P., 53.
- Dunstan, Wyndham Rowland, and Olaf Frederick Bloch**, artificial salicylic acid, 1891, A., 454.
- Dunstan, Wyndham Rowland, and (Miss) Lucy Everest Boole**, tartar emetic, 1889, A., 445.
- Dunstan, Wyndham Rowland, and Alfred Edward Chaston**, chemical constituents of *Scopolia carniolica*, 1890, A., 402.
- Dunstan, Wyndham Rowland, and Thomas Southall Dymond**, formation of hyponitrites, 1887, T., 646; P., 73, 121.
- alleged existence of a second nitroethane, 1887, P., 125; 1888, T., 134.
- decomposition of nitroethane by alkalis, 1888, P., 117.
- preparation of ethyl nitrite, 1888, A., 1048.
- conditions under which hydrogen peroxide is formed from ether, 1890, T., 574, 988; P., 69; discussion, P., 70.
- estimation of nitrites, 1890, A., 193.
- action of alkalis on the nitrocompounds of the paraffin series: formation of isoxazoles, 1891, T., 410; P., 77.
- the existence of two crystalline acetaldoximes, 1892, T., 470; P., 89, 135.
- Dunstan, Wyndham Rowland, and Walter H. Ince**, aconite alkaloids. Part I. Crystalline alkaloid of *Aconitum Napellus*, 1891, T., 271; P., 36; discussion, P., 38.
- Dunstan, Wyndham Rowland, and Francis W. Passmore**, the aconite alkaloids. Part III. The formation and properties of aconite and its conversion into aconitine, 1892, T., 395; P., 44; discussion, P., 46.
- Dunstan, Wyndham Rowland, and Francis Ransom**, constitution of *liquor sudæ chlorate*, 1883, A., 647.
- action of chlorine on solution of sodium carbonate, 1883, A., 647.
- detection of alkaloids in the root of *Atropa Belladonna*, 1885, A., 1448.
- estimation of alkaloids in the leaves of *Atropa Belladonna*, 1886, A., 105.
- Dunstan, Wyndham Rowland, and William Frederick John Shephard**, identity of caffeine and theine and the interactions of caffeine and auric chlorides, 1892, P., 212; discussion, P., 213.
- Dunstan, Wyndham Rowland, and Frederick William Short**, analysis of nux-vomica, 1883, A., 689, 1175.
- glucoside from *Strychnos Nux-vomica*, 1885, A., 395.
- *Strychnos Nux-vomica* indigenous to Ceylon, 1885, A., 583.
- Dunstan, Wyndham Rowland, and John C. Umney**, the aconite alkaloids. Part II. The alkaloids of true *Aconitum Napellus*, 1892, T., 385; P., 42.
- Dunstan, Wyndham Rowland, and W. Lloyd Williams**, the metameric amyl nitrites, 1889, A., 365.
- Dunstan, Wyndham Rowland, and Edmund James Wooley**, isobutyl nitrite, 1889, A., 364.
- Dunstan, Wyndham Rowland**. See also *John Theodore Cash*.
- Dunwoody, R. Gaillard**, turpentine, 1891, A., 217.
- Duparc, Louis**, reduction of *o*-nitrophenylglycollic acid, 1887, A., 948.
- Duparc, Louis, and André Delebecque**, waters and basins of the lakes of Aiguebelette, Paladru, Nantua, and Sylans, 1892, A., 1061.
- Duparc, Louis**. See also *Amé Pictet*.
- Dupetit, Gabriel**, poisonous principle of edible mushrooms, 1883, A., 611; 1884, A., 204.
- Dupetit, Gabriel**. See also *Ulysse Gayon*.
- Dupré, August**, battery with two liquids, 1885, A., 853.
- estimation of dissolved oxygen in water, 1886, A., 579.
- permanganate test in water analysis, 1886, A., 581.
- Dureau, G., and Henri Pellet**, sorgho-sugar making in America, 1884, A., 699.

- Durham, William**, solution, 1888, A., 21.
- Durin**, recovery of paraffin and heavy oils from petroleum residues, 1885, A., 463.
- Durin, E.**, hydrocarbons from peat, 1883, A., 652.
- rôle of sugar and its development during the growth of the beetroot, 1890, A., 1020.
- Dussaud, Frantz**, refraction and dispersion of sodium chlorate, 1892, A., 1.
- Dutaillly, Gabriel**. See **Charles Lauth**.
- Duter, E.**, electrical conductivity of sulphur, 1888, A., 640.
- electrolysis of distilled water, 1889, A., 1094.
- Dutt, U. K.**,  $\alpha$ -naphthonitrilesulphonic acid, 1883, A., 1001.
- Duvillier, Edouard**, compounds of the creatinine group, 1883, A., 220, 1153.
- creatines and creatinines, 1884, A., 613; 1885, A., 819; 1887, A., 850.
- amidated acids of  $\alpha$ -caproic acid, 1884, A., 664.
- $\alpha$ -ethylamidopropionic acid, 1885, A., 373.
- diethylamido- $\alpha$ -butyric acid, 1885, A., 750.
- ethylamidoacetocycamidine, 1886, A., 1046.
- trimethyl- $\alpha$ -amidobutyrobetaine, 1887, A., 792.
- action of triethylamine on  $\alpha$ -bromobutyric acid, 1888, A., 249.
- diethylamido- $\alpha$ -propionic acid, 1889, A., 1139.
- action of triethylamine on ethyl  $\alpha$ -bromobutyrate and ethyl  $\alpha$ -bromopropionate, 1890, A., 284.
- preparation of betaines, 1890, A., 747.
- action of ethyl iodide on amido-acids, 1890, A., 956.
- action of trimethylamine on ethyl bromoisovalerate, 1890, A., 956.
- dimethacrylic acid from isovaleric acid, 1891, A., 1011.
- diethylamidocaproic acid, 1892, A., 294.
- dimethylamidopropionic acid, 1892, A., 1302.
- Duvillier, Edouard**, and **Alexandre Félix Chancel**, action of ammonia on bromoisobutyric acid, 1892, A., 1302.
- Duvillier, Edouard**, and **H. Malbot**, action of ammonia gas on methyl nitrate, 1884, A., 577.
- tetramethylammonium nitrate, 1885, A., 370.
- Dvořák, Vinko**, researches in statical electricity, 1883, A., 763.
- Dvorkovitch, Paul S.**, examination of Chinese tea, 1891, A., 1302.
- Dyer, Bernard**, comparison of dissolved and undissolved phosphates, 1884, A., 774.
- manuring turnips, 1885, A., 589.
- estimation of iron oxide and alumina in phosphates, 1886, A., 491.
- Dyer, Hubert Paul**. See **George Elden Colby**.
- Dyer, Joseph Osterman**, and **William Gilbert Mixer**, halogen derivative of oxanilide, 1887, A., 251.
- Dymond, Thomas Southall**, pure benzoic acid from urine, 1884, A., 904.
- estimation of ethyl nitrite in spirit of nitrous ether, 1885, A., 842.
- the existence of hyoscyamine in the lettuce, 1891, P., 165; discussion, P., 166; 1892, T., 90.
- Dymond, Thomas Southall**. See also **Richard Augustus Cripps**, **Hyndham Rowland Dunstan**.
- Dyson, Gibson**, on some compounds of phenol with amido-bases, 1883, T., 466.
- action of salicylic aldehyde on sodium succinate in presence of acetic anhydride, 1887, T., 61; P., 249.
- apparatus for determining vapour-densities, 1887, A., 431.
- Dyson, Septimus**, on certain brominated carbon compounds obtained in the manufacture of bromine, 1883, T., 36.
- examination of gas liquor, 1884, A., 928.

## E.

"E. B." See "B. E."

- Eakins, L. G.**, allanite and gadolinite, 1886, A., 779.
- thianthimonites from Colorado, 1889, A., 218.
- new stone meteorite, 1890, A., 574.
- meteoric iron from North Carolina, 1890, A., 1081.
- astrophyllite and tscheffkinite, 1892, A., 22.
- triplite and kaolin from the United States, 1892, A., 1406.
- Eakins, L. G.** See also **Whitman Cross**.
- East, Frederick James**. See **Raphael Meldola**.
- Easterfield, Thomas Hill**, phenylbromacetic acid, an apparent exception to the Le Bel-van't Hoff hypothesis 1890, P., 151; 1891, T., 71.
- trough for Hofmann's vapour-density apparatus, 1890, A., 681.

- Easterfield, Thomas Hill**, oxidation of mannitol by nitric acid:  $\alpha$ -mannosaccharic acid, 1891, T., 306; P., 44.
- Easterfield, Thomas Hill**, and **William James Sell**, anhydro-derivatives of citric and aconitic acids, 1892, T., 1003; P., 153.
- Eastes, Ernest J.**, and **Walter H. Ince**, analyses of tumbeki, 1886, A., 644.
- Eastman, John Robie**, new meteorite, 1885, A., 494.
- Ebel, Fr.**, antimonates, 1890, A., 216.
- Ebeling, A.**, electromotive force of some thermo-elements, 1887, A., 414.
- Ebell, Paul**, similarity of behaviour of ultramarine in a very fine state of division to that of metallic sulphides in the colloidal state, 1884, A., 147.
- examination of lead dioxide, 1886, A., 742.
- Eberhard, Arwed**, the meteorite of Sewrjukowo, 1884, A., 417.
- Eberhardt, L. A.**, black pepper oil, 1887, A., 969.
- Eberhardt, Paul**. See **Gustav Kraemer**.
- Ebermayer, Ernst**, oxygen in the air of forests, 1886, A., 1066.
- absence of nitrates in forest trees, 1889, A., 541.
- Ebert, Gustav**, coumarin, 1883, A., 471.
- action of hydrobromic acid and bromine on coumarin, coumarone, and o-coumaric acid, 1885, A., 391.
- Ebert, Gustav**. See also **Rudolph Fittig**.
- Ebert, Hermann**, constitution of ethyl succinosuccinate, 1885, A., 1122.
- application of the method of high interferences to quantitative spectrum analysis, 1888, A., 766.
- Ebert, Robert**, and **Ed. Kleiner**, naphthylene dihydrosulphide and dithiocyanate, 1891, A., 460.
- Ebert, Robert**. See also **L. Braun**.
- Ebner, Victor von**, difference between crystalline and anisotropic structures, 1885, A., 631.
- Ebstein, Wilhelm**, physiological action of pentoses, 1892, A., 1506.
- Ebstein, Wilhelm**, and **Arthur Nicolaier**, artificial preparation of sphaeroliths of uric acid and its salts, 1891, A., 760.
- Eckart, Carl Ulrich**, German and Turkish rose oils, 1892, A., 203, 625.
- Eckenroth, Hugo**, mixed observations, 1885, A., 786.
- phenolurea, 1886, A., 946.
- synthesis of dimethylindigo from *p*-chloracetotoluidide and *p*-tolylglycin, 1891, A., 722.
- Eckenroth, Hugo**, and **Albert Donner**, *p*-chloracetotoluidide and *m*-*p*-nitrochloracetotoluidide, 1891, A., 195.
- Eckenroth, Hugo**, and **J. Buckel**, action of phenylamine and diphenylamine hydrochlorides on some fatty amines, 1888, A., 942.
- diphenyl carbonate, 1890, A., 750.
- Eckhardt, Franz**, *m*-quinaldineacrylic acid and *m*-quinaldinealdehyde, 1889, A., 521.
- Eckhardt, Franz**. See also **Carl Joseph Lintner**.
- Eckhardt, Friedrich**. See **Max Conrad**.
- Edeleanu, Lazar**, derivatives of phenylmethacrylic acid and of phenylisobutyric acid, 1887, A., 583.
- derivatives of phenylmethacrylic acid, 1888, T., 558; P., 55.
- action of sulphur chloroide on aniline, 1891, A., 1202.
- preparation of unsaturated aromatic acids, 1891, A., 1225.
- action of phenylhydrazine on carbamide, 1892, A., 1323.
- Edeleanu, Lazar**, and **Demetre Budisteanu**, preparation of unsaturated aromatic acids, 1890, A., 891.
- Edeleanu, Lazar**. See also **Constantin I. Istrati**.
- Eder, Josef Maria**, behaviour of the haloid compounds of silver to the solar spectrum, 1885, A., 703.
- spectrographic investigation of different standards of light, 1885, A., 1026.
- chemical action of light, 1885, A., 1173.
- connection between absorption and photographic sensitiveness, 1886, A., 405, 958.
- sensitising action of dyes on silver chloride and bromide, 1886, A., 497.
- practical methods of photographing the spectrum, 1887, A., 93.
- new bands and lines in the emission spectrum of the ammonia-oxygen flame, 1891, A., 1305.
- Edinger, Albert**, pyridines, their relation to quinoline, isoquinoline, and the alkaloids, 1890, A., 794.
- Edinger, Albert**, and **Eugen Bossung**, substitution products of isoquinoline, 1891, A., 580.
- Edinger, Albert**. See also **Adolph Claus**.
- Edinger, Ludwig**, reaction of the living mucous lining of the stomach, 1883, A., 815.
- Edkins, John Sydney**, modified fat extraction apparatus, 1891, A., 625.

- Edkins, John Sydney**, action of pancreatic and rennet extracts on casein, 1891, A., 1272.  
 — absorption of water from the alimentary canal, 1892, A., 1258.
- Edkins, John Sydney**. See also *John Newport Langley*.
- Edlefsen**, behaviour of urine after the ingestion of naphthalene, 1888, A., 1822.
- Edler**, manuring potatoes with potassium nitrate, 1888, A., 117.
- Edler, Emil**, 1:3:4:5-nitro- $\psi$ -cumene,  $\psi$ -cumidine, and  $\psi$ -cumenol, 1885, A., 771.
- Edler, Johannes**. See *Anton Oberbeck*.
- Edlund, Eric**, on the heat changes at the poles of a voltmeter, 1883, A., 767.
- Edwards, George Selwyn**. See *William de Wilesleslie Abney*.
- Edwards, H. W.** See *I. H. Manning*.
- Edwards, Vincent**, estimation of insoluble phosphates, 1889, A., 747.  
 — Kjeldahl's process, 1891, A., 862.  
 — estimation of phosphoric acid in slags, 1892, A., 382.  
 — estimation of nitrogen, 1892, A., 1125.
- Effront, Jean**, isomeric isobutyl-*o*-amidotoluenes, 1884, A., 899; 1885, A., 151.  
 — estimation of starch and sugars, 1887, A., 867.  
 — action of hydrofluoric acid on diastase, 1891, A., 477.  
 — action of mineral acids on the lactic and butyric fermentations, 1891, A., 488.  
 — action of hydrogen fluoride and of fluorides on yeast, 1891, A., 1532.  
 — new method of yeast purification, 1892, A., 905.  
 — conditions influencing the action of fluorides on fermentation, 1892, A., 906.
- Eger, Emil**, *p*-nitro-*m*-amidobenzene-sulphonic acid, 1888, A., 1301.  
 — derivatives of *p*-nitro-*m*-amidobenzene-sulphonic acid, 1889, A., 708.
- Eggeling**, various cattle diseases, 1885, A., 78.
- Egger, E.**, contributions to a knowledge of rye-grain, 1884, A., 532.  
 — action of dilute acids on bottle glass, 1885, A., 459.  
 — testing wine for added water, 1885, A., 842.  
 — detection of free sulphuric acid in aluminium sulphate, 1889, A., 648.  
 — indirect estimation of extractive matters in wine, 1889, A., 1091.
- Egger, Leo**. See *Guido Goldschmiedt*.
- Eggertz, Carl Gustaf**, humous compounds in soil, 1889, A., 543.
- Eggertz, Carl Gustaf**, and *Lars Fredrik Nilson*, moorland and peat soils, 1890, A., 192.
- Egleston, Thomas**, tellurium in copper, 1883, A., 531.
- Egli, Karl**, isomeric thiotolens, 1885, A., 766.  
 — dry distillation of ammonium benzenesulphonate, 1885, A., 799.
- Egoroff, Nik. G.**, absorption spectrum of the earth's atmosphere, 1883, A., 137.  
 — absorption spectrum of oxygen, 1886, A., 189.
- Ehlinger, Joseph**. See *Friedrich August Flückiger*.
- Ehrenberg, Alexander**, experiments on mercury fulminate, 1884, A., 419; 1885, A., 38.  
 — sodium fulminate, 1885, A., 1191.  
 — fulminuric acid, 1885, A., 1192.  
 — chloro- and bromo-fulminuric acids, 1885, A., 1192.  
 — analysis of gases by combustion, 1885, A., 1261.  
 — is free nitrogen formed during putrefaction? 1887, A., 172, 746; 1888, A., 185.  
 — sausage poisoning, 1887, A., 392.  
 — substituted methylenediamines, 1887, A., 1026.
- Ehrenberg, Alexander**, and *Carl Purfürst*, aconitine, 1892, A., 1254.
- Ehrenstein, Siegmund von**, lime in the separation of beet-juice, 1885, A., 1170.
- Ehrhardt, Ernest Francis**. See *Ludwig Claisen*.
- Ehrhardt, Otto**, specific heat and latent heat of fusion, 1885, A., 625.
- Ehrhardt, Robert**. See *Ludwig Gattermann*.
- Ehrlich, Alw.**, *m*-toluidine, 1883, A., 54.  
 — glycocines, glycocine ethers, and oxethylene carbamides of the tolyl and xylyl series, 1883, A., 593.  
 — *o*-tolylhydantoin, 1883, A., 1106.
- Ehrlich, Edmund**, rosazoin and resorufin, 1888, A., 145.  
 — oxidation of  $\beta$ -naphthol, 1889, A., 1001.  
 — oxidation of *o*-carboxycinnamic acid, 1890, A., 54.
- Ehrlich, Edmund**, and *Rudolf Benedikt*, oxidation of  $\beta$ -naphthol to *o*-carboxycinnamic acid, 1888, A., 1306.
- Ehrlich, Edmund**. See also *Rudolf Benedikt*.
- Eichbaum, F.**, preparation of cheap cocoanut toilet soaps, 1885, A., 944.  
 — curd soaps, 1885, A., 944.

- Eichelbaum, Georg**,  $\alpha$ -benzylhomo-*o*-phthalic acid, 1888, A., 1300.  
 — action of hydroxylamine on *o*-cyanobenzyl cyanide, 1890, A., 146.  
**Eichengrün, Arthur**, and **Alfred Einhorn**, *p*-methoxydihydroxydihydroquinoline and a new case of stereochemical isomerism, 1890, A., 1127.  
 — dihydrobenzaldehyde, 1891, A., 65.  
 — hydrobromanhydroecgonine, 1891, A., 94.  
 — methoxydihydroxydihydroquinoline, 1891, A., 1098.  
**Eichengrün, Arthur**. See also **Carl Graebe**.  
**Eichhorn**, universal gas-holder, 1891, A., 1414.  
**Eichkoff**, hydroxylamine hydrochloride, 1890, A., 558.  
**Eicker, Karl**, phenazines, 1891, A., 470.  
**Eigel, Franz**, trachytic rocks from the island of San Pietro, 1887, A., 904.  
**Eigel, Georg**, *p*-coumaric acid, 1887, A., 1109.  
**Eijkman, C.**, tropical anæmia, 1892, A., 368.  
**Eijkman, Johan Frederik**, poisonous principle of *Andromeda japonica*, 1883, A., 215, 348.  
 — the alkaloid of *Macleaya cordata*, 1885, A., 404.  
 — the poisonous constituents of *Scopolia japonica*, 1885, A., 404.  
 — active constituents of *Skimnia japonica*, 1885, A., 553.  
 — active constituents of *Nandina domestica*, 1885, A., 565.  
 — *Illicium religiosum*, 1886, A., 95.  
 — glucosides from Japanese Oleaceæ, 1886, A., 1040.  
 — poison of the tetrodon, 1886, A., 1049.  
 — substances from *Illicium religiosum*, 1887, A., 497.  
 — hydrastine, 1887, A., 505.  
 — cinnamic acid in plants of the Ericaceæ family, 1887, A., 517.  
 — apparatus for determining the reduction of the freezing-point, 1889, A., 336.  
 — Raoult's law of freezing-points, 1889, A., 566.  
 — determination of the latent heat of fusion from the reduction of the freezing-point, 1889, A., 666.  
 — apparatus for making vapour density determinations under reduced pressure, 1890, A., 101.  
 — ethereal oil of betel leaves, 1890, A., 135.  
**Eijkman, Johan Frederik**, constitution of asarone, 1890, A., 244.  
 — cryoscopic method of determining molecular weights, 1890, A., 324.  
 — conversion of allylbenzene into propenylbenzene-derivatives, 1890, A., 748.  
 — shikimic acid, 1891, A., 919.  
 — cryoscopic behaviour of aqueous cane-sugar solutions, 1891, A., 972.  
**Eiloart, Arnold**, bromine as a test for quinine, narcotine, and morphine, 1885, A., 96.  
 — reactions with carbonic anhydride, carbon bisulphide, and sulphurous anhydride, 1886, A., 16.  
 — absorbents for carbon bisulphide vapour, 1886, A., 16.  
 — reduction of carbonic anhydride by potassium cyanide, 1886, A., 1000.  
 — calorimetric bomb as a combustion furnace for ultimate analysis, 1889, A., 301.  
 — chlorine compounds of toluene, 1890, A., 899.  
 — relative motion of singly-bound carbon atoms, 1891, A., 533.  
 — stereochemical models of organic molecules, 1892, A., 679.  
**Eiloart, Arnold**. See also **George Stillingfleet Johnson**.  
**Einhorn, Alfred**, derivatives of *o*-nitrocinnamic acid, 1884, A., 65.  
 — *o*-nitrophenyl- $\beta$ -alanine, 1884, A., 304.  
 — preparation of *o*-nitrobenzaldehyde, 1884, A., 744.  
 — hydroxydehydrocambostyryl, 1884, A., 1338.  
 — condensations with *o*-nitrocinnamaldehyde, 1884, A., 1345.  
 — quinolinealdehyde, 1886, A., 264.  
 — trimethylquinolinealdehyde, 1886, A., 264.  
 — phenyldihydroquinolylmethane, 1886, A., 720.  
 — quinolyl- $\alpha$ -hydroxypropionic acid, 1886, A., 721.  
 — ecgonine, 1887, A., 741; 1889, A., 1018.  
 — cocaine, 1888, A., 381; 1889, A., 168.  
 — a metameric cocaine and its homologues, 1889, A., 420.  
 — alkaloids occurring with cocaine, 1889, A., 628.  
 — conversion of anhydroecgonine into pyridine, 1889, A., 909.  
 — ecgonine and anhydroecgonine, 1889, A., 1018.

- Einhorn, Alfred**, synthesis of alcohol-acids of the pyridine series, 1890, A., 520.
- reaction between cocaine and atropine, 1890, A., 1010.
- tropidine, 1891, A., 90.
- preparation of  $\alpha$ - and  $\beta$ -pyridylactic acid from  $\alpha$ -picoline, 1892, A., 75.
- Einhorn, Alfred**, and **Louis Fischer**, nitroatropine, 1892, A., 1014.
- action of hypochlorous acid on tropine, 1892, A., 1014.
- Einhorn, Alfred**, and **Vemans Gehrenbeck**, *p*-nitrophenylbutinecarboxylic acid, 1889, A., 396.
- derivatives of *p*-nitrocinnamaldehyde, 1890, A., 161.
- action of *o*-nitrocinnamaldehyde on malonic acid, 1890, A., 163.
- Einhorn, Alfred**, and **Joseph Ph. Grabfield**, *p*-methoxyphenylacrylic acid, 1888, A., 477.
- Einhorn, Alfred**, and **Wilhelm Hess**,  $\beta$ -lactone of isopropylnitrophenylacetic acid, 1884, A., 1351.
- Einhorn, Alfred**, and **Otto Klein**, action of acid chlorides on the methyl salts of ecgonine hydrochloride, 1889, A., 283.
- Einhorn, Alfred**, and **Richard Lauch**, action of hypochlorous acid on quinoline-derivatives, 1886, A., 370.
- action of hypochlorous acid on quinoline and its derivatives, 1888, A., 501.
- Einhorn, Alfred**, and **Paul Lehnkering**, a  $\beta$ -lactone of the quinoline series, 1888, A., 1208.
- Einhorn, Alfred**, and **Arthur Liebrecht**, action of chloral on  $\alpha$ -picoline, 1887, A., 845.
- Einhorn, Alfred**, and **Albert Marquardt**, *o*-cocaine, 1890, A., 646, 913.
- Einhorn, Alfred**, and **Volthold Pransnitz**, etherification of the three isomeric nitrophenyl- $\beta$ -lactic acids, 1884, A., 1351.
- Einhorn, Alfred**, and **Berthold Bassow**, dihydroxyanhydroecgonine, 1892, A., 1015.
- Einhorn, Alfred**. See also **Eugen Carlier**, **Alfons Deckers**, **Ludwig Diehl**, **Arthur Eichengrün**.
- Eisele, Fr.**, action of *p*-aldehyde on quinaldine, 1887, A., 975.
- Eisenmann, Richard**, galvanic element, 1887, A., 757.
- Eitner, Paul**, action of sulphuric anhydride on nitriles, 1892, A., 713.
- Eitner, Paul**, and **Friedrich Kraft**, mechanism of the formation of tri-cyanides from nitriles and acid chlorides in presence of aluminium chloride, 1892, A., 1183.
- Ekblom, Alfred**, action of hydriodic acid on 1:4'-nitronaphthalenesulphonamide, 1890, A., 994.
- *m*-dinitrodiphenyldisulphine, 1891, A., 567.
- action of hydriodic acid on 1:3'-nitronaphthalenesulphonamide, 1891, A., 573.
- Ekblom, Alfred**, and **Robert Mauzelius**, fluoronaphthalenes, 1889, A., 999.
- Ekman, F. L.**, amount and estimation of fusel oil in spirits, 1889, A., 190.
- Ekstrand, Åke Gerhard**, dioxyretistene, 1884, A., 1041.
- derivatives of naphthoic acid, 1884, A., 1360.
- a sulphoxide of naphthalene, 1885, A., 170.
- mononitro- $\alpha$ -naphthoic acids, 1885, A., 548.
- mononitro- $\beta$ -naphthoic acids, 1885, A., 904.
- mononitronaphthoic acids, 1886, A., 155.
- naphthoic acids, 1886, A., 715, 948; 1887, A., 373, 840; 1889, A., 52, 152; 1891, A., 77, 932.
- Ekstrand, Åke Gerhard**, and **Carl J. Johanson**, carbohydrates, 1888, A., 246, 439.
- Ekstrand, Åke Gerhard**, and **Robert Mauzelius**, molecular weights of maltose and of several inulin-like substances, 1890, A., 227.
- Elbel, Karl**, derivatives of normethyl-nitro-opianic acid, 1887, A., 49.
- Elbers, Alfred**, compounds of benzaldehyde with aniline hydrochloride and stannic chloride, 1885, A., 528.
- compounds of hydrazines with ketonic and aldehydic acids, 1885, A., 534.
- Elbers, Wilhelm**, decomposition of antimony sulphide by boiling water, 1889, A., 108.
- Elborne, William**, English rhubarb, 1885, A., 582.
- *Strophanthus*, 1887, A., 991.
- *Strophanthus* and *strophanthin*, 1887, A., 1116.
- Elbs, Karl**, syntheses with chloropicrin, 1883, A., 1000.
- reactions of triphenylmethyl bromide, 1884, A., 1030.
- amido-derivatives of triphenylmethane, 1884, A., 1031.

- Elbs, Karl**, aromatic ketones, 1886, A., 461; 1887, A., 940.  
 — synthesis of homologues of anthracene, 1886, A., 557.  
 — naphthanthraquinone and naphthanthracene, 1886, A., 1087.  
 — formation of substituted stilbenes, 1887, A., 151.  
 — homologues of anthracene and anthraquinone, 1890, A., 511.  
 — quantitative investigation of reduction processes, 1891, A., 431.  
 — *p*-anthracene, 1892, A., 347.  
**Elbs, Karl, and Felix Bauer**, substituted stilbenes, 1887, A., 151.  
**Elbs, Karl, and Heinrich Eürich**, 2:3-dimethylanthraquinone, 1887, A., 841.  
**Elbs, Karl, and Hans Förster**, diphenyltrichlorethane, 1889, A., 713.  
**Elbs, Karl, and Manfred Günther**, 1:3-dimethylanthraquinone, 1887, A., 841.  
**Elbs, Karl, and Otto Hoermann**, diphenoltrichlorethane and *p*-dihydroxystilbene, 1889, A., 997.  
**Elbs, Karl, and Einar Larsen**, phenyl *p*-xylyl ketone, 1885, A., 261.  
**Elbs, Karl, and Gustav Olberg**, di-*p*-xylyl ketone, 1886, A., 463.  
**Elbs, Karl, and Georg Steinike**, phenyl  $\alpha$ -naphthyl ketone, 1886, A., 947.  
**Elbs, Karl, and Ernst Tölle**, triphenylacetic acid, 1886, A., 352.  
**Elbs, Karl, and Otto Wittich**, action of chloropierin and chloroform on toluene, 1885, A., 517.  
**Elbs, Karl**. See also **Adolph Claus**.  
**Efeldt, Paul**, oxazolines and pentoxazolines, 1892, A., 213.  
**Efeldt, Paul**. See also **Siegmund Gabriel**.  
**Eliasberg, Jacob, and Paul Friedländer**, condensation of  $\alpha$ -amidobenzaldehyde, 1892, A., 1106.  
**Eliasberg, S.**, separation of zinc from cadmium by electrolysis, 1886, A., 281.  
 — use of hydrogen peroxide in volumetric analysis, 1886, A., 488.  
**Eliasson, IV.**, fate of morphine in the organism, 1885, A., 577.  
**Eliön, Hartog**, detection and estimation of salicylic acid, chiefly in beer, 1889, A., 195.  
 — preparation and properties of ethyl sodacetate and ethyl sodethylacetate, 1891, A., 171.  
 — analysis of wort and beer, 1891, A., 368.  
 — manufacture of pure yeast, 1891, A., 1532.  
 — estimation of maltose, dextrose, and dextrin in beer wort, 1892, A., 248.
- Elkan, Theodor**, isomeric aldehydophenoxyacetic acids, 1887, A., 258.  
 — vanillinaxyacetic acid, 1887, A., 259.  
**Elkeles, G.**, cineolic acid, 1892, A., 1480.  
**Ellenberger, Wilhelm**, results of the suppression of perspiration of animals, 1883, A., 817.  
**Ellenberger, Wilhelm, and Victor Hofmeister**, the digestive fluids and digestion of the horse, 1883, A., 487; 1884, A., 472.  
 — effects of copper on the organism of ruminants, 1884, A., 474.  
 — effects of lead on ruminants, 1885, A., 74.  
 — researches on the digestion of the horse, 1885, A., 178, 679, 1148.  
 — gastric juice and the histology of the gastric mucous membrane, 1886, A., 271.  
 — digestion in the pig, 1887, A., 512; 1890, A., 183.  
 — period required for digestion in the pig, 1887, A., 684.  
 — digestion and digestive secretions in the horse, 1887, A., 744.  
 — nitrogenous contents of the digestive juices, 1887, A., 1129.  
 — proteolytic and other ferments in oats and their action on the digestive organs, 1888, A., 867.  
 — sugar-contents of the horse's stomach, 1889, A., 176.  
 — digestion of starch by dogs, 1892, A., 516.  
**Ellinger, Heinrich Oscar Günther**, strength of solutions estimated by their refraction, 1891, A., 1305.  
 — optical analysis of butter-fat, 1891, A., 1401.  
 — optical estimation of albumin in urine, 1891, A., 1403.  
**Elliot, Arthur H.**, apparatus for the rapid analysis of gas, 1884, A., 211.  
 — anthracene from water-gas tar, 1885, A., 549.  
**Elliott, Walter John**. See **Siegfried Ruhemann, Charles Muddock Stuart**.  
**Ellis, Charles James**, Maumené's test for oils, 1887, A., 89.  
**Ellis, George E. R.**, use of soap in solution, 1886, A., 1076.  
 — estimation of copper by titration with potassium cyanide, 1890, A., 547.  
**Ellon, Ludwig**. See **Conrad Willgerodt**.  
**Elsässer, Emil**, specific volumes of the ethereal salts of fatty acids, 1883, A., 967.  
**Elsas, Adolph**, Nobili's rings and allied electrochemical phenomena, 1887, A., 759.

- Elsbach, Leo**,  $\alpha$ -naphthaquinone-ethyl-anilide, 1883, A., 70.
- Elster, Julius**, and **Hans Geitel**, electricity of flame, 1883, A., 141, 412; 1881, A., 1238.
- the simplest form of induction machine, 1885, A., 1098.
- electrical conductivity of air due to the formation of ozone, 1890, A., 676.
- Eltzoff, Alexander P.**, some oxides of the ethylene series and their action on water, 1883, A., 566.
- Eltzbacher, Fritz**. See **Richard Anschütz**.
- Elworthy, Herbert Samuel**, modification of Traube's capillarity meter, 1887, P., 119; 1888, T., 102.
- Ely, John Slade**. See **Russell H. Chittenden**.
- Emde, B.**, detection of iron in oil, 1889, A., 448.
- Emden, Robert**, vapour tensions of saline solutions, 1887, A., 764.
- vapour pressure of aqueous solutions, 1890, A., 323.
- Emerson, William Henry**, oxidation of nitromesitylene, 1887, A., 132.
- Emerson, William Henry**. See also **Ira Remsen**.
- Emery, William Orren**, tricarballic acid, 1890, A., 133; 1891, A., 680.
- constitution of succinic chloride, 1890, A., 236.
- action of ammonia, isobutylamine, and aniline on ethyl acetonedicarboxylate, 1891, A., 422.
- ethyl  $\beta$ -acetyltricarballicylate, 1891, A., 423.
- synthesis of tricarballic acid and of certain ethereal salts, 1891, A., 423.
- action of ammonia and of amines on ethyl acetosuccinate and its homologues, 1891, A., 544.
- action of ethyl  $\beta$ -bromopropionate on ethyl malonate and ethyl acetate, 1891, A., 547.
- action of ammonia and aniline on ethyl  $\alpha$ -acetoglutarate, 1891, A., 1187.
- Emery, William Orren**. See also **Richard Anschütz**.
- Emich, Friedrich**, biguanide, 1883, A., 973; 1891, A., 1180.
- ethylbiguanide and its compounds, 1883, A., 974.
- behaviour of the bile acids with gelatin and gelatin peptones, 1885, A., 822.
- natural purification of waters, 1885, A., 846.
- Emich, Friedrich**, amides of carbonic acid, 1888, A., 1063; 1889, A., 1060.
- guanidine, 1891, A., 1180.
- preparation of nitric oxide, 1892, A., 939.
- behaviour of nitric oxide at high temperatures, 1892, A., 940.
- reaction between nitric oxide and oxygen, 1892, A., 940.
- action of potassium hydroxide on nitric oxide, 1892, A., 940.
- Emich, Friedrich**. See also **Richard L. Maly**.
- Emmerich, Otto**, hydroxybenzylidene compounds, 1888, A., 50.
- Emmerich, Rudolf**, estimation of milk fat, 1883, A., 246.
- Emmerling, Adolph**, valuation of fodder, 1884, A., 100.
- manuring experiments at Kiel, 1884, A., 211.
- contributions to a knowledge of the chemical processes in the plant, 1884, A., 670.
- presence of mildew, etc., in cattle foods, 1884, A., 1411.
- formation of albumin in green plants, 1885, A., 289; 1887, A., 615.
- new method of estimating soluble phosphate, 1886, A., 741.
- action of nitrous acid on urea, uric acid, and ammonium sulphate, 1886, A., 747.
- basic slag as a manure for oats, 1888, A., 1223.
- earth-nut meal, 1892, A., 92.
- Emmerling, Adolph**, and **Gustav Loges**, different soils rich in humus and their behaviour with water, 1884, A., 632.
- composition and digestibility of the proteids of various grasses, 1890, A., 657.
- Emmerling, Adolph** (and others), manuring of grain, 1884, A., 1213.
- manurial value of freshly fallen leaves, 1885, A., 686.
- Emmerling, Adolph**. See also **Stephan Orendahl Metger**.
- Emmert, A.**, two dihydroxynaphthalenes, 1888, A., 57.
- Emmert, Aug.**, and **Arthur Richard Friedrich**,  $\gamma$ -diethylbutyrolactone, 1883, A., 139.
- Emmerton, Frederic A.**, estimation of phosphorus in pig-iron, steel, and iron ores, 1892, A., 529.
- Emo, Angelo**. See **Stefano Pagliani**.
- Enckhausen**, manuring with sea-mud and peat-compost, 1884, A., 867.
- Endemann, Hermann**, formation of grape sugar from starch, 1885, A., 104.

**Endemann, Hermann**, examination of glycerol, 1885, A., 443.

**Enebuske, Olaus**, platinum compounds of methyl sulphide, 1889, A., 229.

**Engel, Rodolphe**, allotropic arsenic, 1883, A., 554; 1889, A., 211.

— analogy between the allotropic modifications of phosphorus and arsenic, 1883, A., 901.

— new group of nitrogen compounds, 1884, A., 725.

— formulae of certain ammonium salts, 1884, A., 729.

— solubility of magnesium carbonate in carbonic acid, 1885, A., 484.

— magnesium hydrocarbonate, 1885, A., 724.

— combination of magnesium and potassium hydrogen carbonates, 1885, A., 372; 1886, A., 121.

— solubility of calcium carbonate in water containing carbonic anhydride, 1886, A., 120.

— normal magnesium carbonate, 1886, A., 121.

— production of ozone by the slow oxidation of phosphorus, 1886, A., 302.

— solubility of cupric sulphate in presence of ammonium sulphate, 1886, A., 305.

— guanidine thiocyanate, 1886, A., 330.

— manganese cyanacetate, 1886, A., 332.

— lead glycollate chloride, 1886, A., 335.

— indicators of the relative energies of polybasic acids, 1886, A., 420.

— influence of ammonium hydrogen oxalate on the solubility of the normal salt, 1886, A., 443.

— indicator for weak acids, 1886, A., 486.

— titration of the acids of phosphorus with various indicators, 1886, A., 489.

— variations in the solubility of chlorides in presence of hydrochloric acid, 1886, A., 505.

— combination of zinc chloride with hydrogen chloride, 1886, A., 665.

— hydrates of zinc chloride, 1886, A., 665.

— alcoholate of potassium hydroxide, 1886, A., 979.

— compounds of stannic chloride with hydrogen chloride, 1886, A., 984.

— effect of hydrochloric acid on the solubility of chlorides, 1887, A., 445.

— effect of sulphuric acid on the solubility of sulphates, 1887, A., 546.

**Engel, Rodolphe**, condensation of acetone with chloroform, 1887, A., 569.

— effect of nitric acid on the solubility of nitrates, 1887, A., 632.

— solubility of calcium and magnesium chlorides in water at 0°, 1887, A., 771.

— action of ammonia on chlorethanes: direct union of ammonia with unsaturated compounds, 1887, A., 793.

— hydrochloride of ferric chloride, 1887, A., 894.

— conversion of fumaric and maleic acids into aspartic acid, 1887, A., 917.

— action of hydrogen chloride on cupric chloride, 1888, A., 558.

— influence of hydrochloric acid on the solubility of stannous chloride, 1888, A., 918.

— hydrochlorides of bismuth and antimony chlorides, 1888, A., 1042.

— formation of amidobutyric acid by the action of ammonia on crotonic acid, 1888, A., 1063.

— aspartic acids, 1888, A., 1065.

— hydrochlorides of cupric and cobalt chlorides, 1888, A., 1248.

— normal platinum chloride, 1889, A., 20.

— volumetric estimation of acids, 1889, A., 306.

— hydrochlorides of chlorides, 1890, A., 106.

— influence of hydrogen chloride on the solubility of cuprous chloride and of lead chloride, 1890, A., 109.

— oxidation of hypophosphorous acid by spongy palladium, 1890, A., 690.

— two new modifications of sulphur, 1891, A., 976.

— influence of alkaline bases on the solubility of alkaline salts, 1891, A., 1318.

— influence of ammonia on the solubility of ammonium chloride, 1892, A., 276.

— reaction between potassium permanganate and hydrogen peroxide, 1892, A., 277.

— the variations in colour of cobalt chloride, 1892, A., 569.

**Engel, Rodolphe, and Paul Louis Kiener**, formation and elimination of a ferruginous pigment in poisoning with tolylenediamine, 1888, A., 81.

— urobilinuria and icterus, 1889, A., 637.

**Engel, Rodolphe, and Jules Ville**, estimation of hydroxides in presence of carbonates, 1885, A., 931.

- Engel, Rodolphe.** See also *Marcellin Berthelot*.
- Engel, Wulfried,** new cumidine, 1885, A., 215.
- organic basis of various shells, 1891, A., 236.
- Engelke, J.,** dialkyl disulphoisethionic acids, 1883, A., 972.
- Engelhardt, Hermann.** See *Robert Otto*.
- Engelmann, Franz,** action of the homologues of acetaldehyde with ammonia and ethyl acetoacetate, 1886, A., 258.
- Engelmann, Friedrich Franz.** See *Rudolf Wilhelm Schmitt*.
- Engelmann, Th. Wilhelm,** elimination of oxygen from plant-cells, 1883, A., 105.
- assimilation by *Hermatococcus*, 1883, A., 611.
- colour and assimilation, 1883, A., 819.
- colour of leaves in relation to the assimilation of carbon, 1888, A., 381.
- bacterio-purpurin, 1889, A., 180.
- blood pigment as a gauge of gaseous exchange in plants, 1889, A., 182.
- Engels, Carl.** See *Josif Messinger*.
- Engels, Paul, and Otto Wallach,** decomposition of amylene nitrosate with sodium ethoxide, 1891, A., 1005.
- Engelsing, Hugo,** preparation of anthraquinone compounds, 1881, A., 945.
- Engländer, Paul.** See *Siegmond Levy*.
- Engler, Carl,** utilisation of human excreta, 1884, A., 1418.
- $\psi$ -cume and mesitylene in different mineral oils, 1885, A., 1209.
- direct nitration of acetophenone, 1885, A., 1223.
- connection between illuminating power, flashing point, and boiling-point of petroleum, 1886, A., 402.
- dust explosions, 1886, A., 401.
- formation of petroleum, 1888, A., 928.
- decomposition of fatty acid by heating under pressure, 1889, A., 586.
- pyridyl ketones, 1891, A., 1503.
- $\beta$ -ketone derivatives of pyridine, 1891, A., 1505.
- Engler, Carl, and Adolf Bauer,** action of acetone on *o*- and *p*-amidophenol, 1889, A., 524.
- Engler, Carl, and Franz Wilhelm Bauer,**  $\alpha$ -ethyl pyridyl ketone and its conversion into  $\psi$ -conhydrine, 1891, A., 1504.
- Engler, Carl, and Max Boehm,** vaseline, 1887, A., 456.
- Engler, Carl, and Ernst Hassenkamp,** derivatives of dibromacetophenone, 1885, A., 1223.
- Engler, Carl, and Wilhelm Kiby,**  $\beta$ -methyl pyridyl ketone, 1889, A., 623.
- Engler, Carl, and Heinrich Majmon,**  $\alpha$ -propyl pyridyl ketone, 1891, A., 1505.
- Engler, Carl, and Paul Riehm,** action of acetone on aniline, 1885, A., 1246; 1886, A., 235.
- action of acetophenone on ammonia, 1886, A., 369.
- Engler, Carl, and Peter Rosumoff,**  $\alpha$ -methyl pyridyl ketone, 1891, A., 1503.
- Engler, Carl, and Constantin Schestopal,** action of acetone on *p*-amidoazobenzene, 1887, A., 479.
- Engler, Carl, and Ernst Wöhrl,** preparation of mandelic acid and its derivatives, 1887, A., 948.
- Engler, Carl, and Oskar Zielke,** acetophenone derivatives, 1889, A., 505.
- preparation of nitromandelic acid, 1889, A., 508.
- Engler, Carl.** See also *Leo Strippelmann*.
- Enke, Ernst,** ethereal salts of alkyloxy-quartenylic acids, 1890, A., 865.
- Enklaar, J. E.,** osmosis of salts, 1883, A., 420.
- ammonia and nitrous acid in potable water, 1889, A., 1234.
- Enoch, Carl.** See *Julius Tafel*.
- Ensign, Joseph Ralph.** See *Frank Austin Gooch*.
- Ephraim, Julius,** dithioamide, 1889, A., 1142.
- derivatives of deoxybenzoin, 1890, A., 1143; 1891, A., 1492.
- action of aldehydes on thioamides, 1891, A., 831.
- preparation of amidoquinoline, 1891, A., 1509.
- amidoquinolines, 1892, A., 1488.
- Eppens, August.** See *Wilhelm Koenigs*.
- Epstein, Wilhelm,** synthetical lutiline, 1885, A., 815.
- condensation of cinnamaldehyde with ammonia and ethyl acetoacetate, 1886, A., 257.
- Epstein, Wilhelm.** See also *Max Conrad, Max Guthzeit*.
- Eraud, Jules.** See *Louis Hugounenq*.
- Erb, L.** See *J. V. Janovsky*.
- Erban, F.** See *Max von Schmidt*.
- Erben, Bodan,** Bohemian minerals, 1887, A., 644.
- Ereck, Adolf.** See *Karl von Buchka*.
- Eckmann, G.,** dissociation tension of ammonium carbamate, 1885, A., 859.

- Erdélyi, J.**, detection of foreign fats in butter, 1892, A., 1532.
- Erdmann, Eduard**, change of colour in felspar under the influence of light, 1883, A., 438; 1886, A., 27.
- Erdmann, Ernst**, action of sulphuric acid on cinnamic acid, 1883, A., 474.
- Erdmann, Ernst**, and *Gustav Theodor August Otto Schultz*, hæmatoxylin and hæmatein, 1883, A., 349.
- Erdmann, Hugo**, phenylisocrotonic acid and nitric acid; phenylnitroethylene, 1884, A., 906.
- constitution of phenylparaconic acid, 1884, A., 906.
- action of sulphuric acid on the phenylcrotonic acids, 1885, A., 528.
- nitration in the side chains in aromatic compounds, 1885, A., 662.
- conversion of lactic acids into lactones, 1885, A., 963.
- nitration of phenylparaconic acid, 1886, A., 67.
- benzallevulinic acid, 1886, A., 241.
- conversion of naphthylaminesulphonic acid into dichloronaphthalene, 1888, A., 290.
- ketonaphthol (aceto- $\alpha$ -naphthol), 1888, A., 488.
- $\beta$ -naphthylamine- $\delta$ -sulphonic acid and  $\beta$ -naphthylaminesulphonic acid F, 1888, A., 491.
- constitution of isomeric naphthalene derivatives, 1889, A., 156.
- constitution of certain dichloronaphthalenes, 1889, A., 265.
- derivatives of benzallevulinic acid, 1890, A., 375.
- $\beta$ - and  $\delta$ -benzallevulinic acids, 1890, A., 1129.
- preparation of 1:2:4- and 1:3:4-dichlorotoluenes, 1891, A., 1462.
- action of chlorine on aceto- $p$ -toluidide; preparation of  $m$ -chloro- $p$ -toluidine, 1891, A., 1466.
- nitration of cinnamic acid and phenylmethacrylic acid in the side chain, 1891, A., 1483.
- condensation of levulinic acid with aldehydes, 1892, A., 147.
- Erdmann, Hugo**, and *Richard Kirchhoff*, disubstituted naphthalenes from the isomeric chlorophenylparaconic acids, 1889, A., 150.
- Erdmann, Hugo**, and *Eduard Schwechten*, chloro-derivatives of benzaldehyde, 1891, A., 448.
- Erdmann, Hugo**. See also *Rudolph Fittig*, *Jakob Volhard*.
- Eremin, F. A.**, action of concentrated sulphuric acid on solutions of iron and aluminium sulphates, 1889, A., 347.
- Erhart, Ferdinand**, glycidic pyronacetate, 1885, A., 1201.
- Erlenbach, Arnold**, preparation of  $\alpha$ -dichloroacetone, 1892, A., 952.
- action of sodium on ethyl chloroacetate, 1892, A., 953.
- Erlenbach, Arnold**. See also *Rudolph Fittig*.
- Erlenmeyer, Emil**, derivatives of cinnamic acid, 1883, A., 196.
- constitution of the nitrosamines, 1883, A., 1103.
- constitution of methylene-blue, 1884, A., 595.
- formation of pyrotartaric acid, 1885, A., 753.
- isomerism in the cinnamic acid series, 1886, A., 945.
- conversion of cinnamic into isocinnamic acid, 1891, A., 200.
- Erlenmeyer, Emil**, and *Andreas Lipp*, cinnamic acid derivatives, 1883, A., 992.
- synthesis of tyrosine, 1883, A., 994.
- Erlenmeyer, Emil**, and *Josef Rosenhek*, carbostyryl, 1886, A., 244.
- action of hypochlorous acid on quinoline and substituted quinolines, 1886, A., 559.
- phenyliodohydracrylic acid, 1887, A., 45.
- Erlenmeyer, Emil, junior**, Plöchl's phenylglycidic acid, 1887, A., 112.
- constitution of phenyl- $\alpha$ - and phenyl- $\alpha\beta$ -hydroxypropionic acids, 1887, A., 1046.
- substituted glycolic anhydrides, 1889, A., 708.
- behaviour of ammonia and organic bases with sodium phenoxycarrylate, 1889, A., 988.
- synthesis of phenylpyruvic acid, 1889, A., 990.
- benzallevulinic acid, 1890, A., 495.
- optically active phenylbromolactic acids and phenoxycarrylic acids, 1891, A., 1482.
- Erlenmeyer, Max**, milking of cows twice and thrice daily, 1883, A., 227.
- Erlor, Max**. See *Adolph Claus*.
- Erlich, Stanislas**. See *Amé Pictet*.
- Erman**, adipocere, 1883, A., 818.
- Ernert, Paul**. See *Robert Behrend*.
- Ernst, Carl**, putrefaction of bile, 1892, A., 518.

- Ernst, Fritz**, reduction of *aa*-thiophenedicarboxylic acid, 1887, A., 237.  
 ———— synthetical investigations in the thiophen series, 1887, A., 238.  
 ———— reduction of  $\alpha$ -thiophenic acid, 1887, A., 471.
- Ernst, Heinrich W.** See *Heinrich Goldschmidt*.
- Ernst, Otto**, derivatives of diphenylamine, 1891, A., 299.
- Ernst, Otto**. See also *Rudolf Nietzki*.
- Erofeeff**. See *Jerofeoff*.
- Errera, Giorgio**, action of chlorine on boiling cymene, 1884, A., 300; 1885, A., 655.  
 ————  $\alpha$ -phenylpropylene and  $\alpha$ -*p*-totylpropylene, 1885, A., 772.  
 ———— ethylphenol, 1885, A., 775.  
 ———— resorcinol derivatives, 1886, A., 50.  
 ———— chloropropylbenzene, 1887, A., 35.  
 ———— reaction of stilbene, 1887, A., 53.  
 ———— decomposition of mixed ethers by nitric acid and heat, 1887, A., 1103.  
 ———— ethyl *p*-bromobenzoate and *p*-bromobenzoic acid, 1887, A., 1107.  
 ———— table of vapour tensions of solutions of potassium hydroxide, 1889, A., 205.  
 ———— derivatives of *p*-bromo- and *p*-chloro-benzyl alcohols, 1889, A., 247.  
 ———— nitrobenzyl ethyl ether, 1889, A., 248.  
 ———— separation and estimation of chlorine, bromine, iodine, and cyanogen, 1889, A., 304.  
 ———— action of chromyl dichloride on cymene, 1890, A., 1254.  
 ———— nitrocymenesulphonic acids, 1890, A., 1287.  
 ———— substitution of halogens in aromatic hydrocarbons, 1891, A., 1020.  
 ———— action of chromyl chloride on cymene, 1891, A., 1020.  
 ———— some ketones, 1891, A., 1052.  
 ———— nitrocymenesulphonic acids, 1891, A., 1066.  
 ———— action of potassium hypobromite on the amide of camphoric acid, 1892, A., 1345.
- Errera, Giorgio, and Giacomo Baldracco**, *p*-methylhydratropic acid, 1892, A., 605.
- Errera, Leo**, glycogen in plants, 1884, A., 354.  
 ———— glycogen in beer yeast, 1885, A., 1151.  
 ———— glycogen in ferments, 1885, A., 1254.  
 ———— accumulation and consumption of glycogen in fungi, 1888, A., 980.  
 ———— relation between atomic weight and magnetism, 1891, A., 518.
- Erwig, Emil, and Wilhelm Koenigs**, pentacetyldextrose, 1889, A., 952.  
 ———— acetyl-derivatives of quinic acid, 1889, A., 991.  
 ———— pentacetylgalactose and pentacetyldextrose, 1889, A., 1131.  
 ———— pentacetyllevulose, 1890, A., 732.
- Escales, Richard**, action of phenylhydrazine on sulphinic acids, 1885, A., 798.
- Escales, Richard, and Eugen Baumann**, compounds of phenyl mercaptan with ketonic acids, 1886, A., 878.  
 ———— disulphones, 1887, A., 123.
- Eschellmann, George**, loss of nitre in the manufacture of sulphuric acid, 1884, A., 1222.
- Eschellmann, George**. See also *Edmund Knowles Muspratt*.
- Eschweiler, Wilhelm**, estimation of formaldehyde by titrating with ammonia, 1889, A., 1250.  
 ———— formaldehyde, 1890, A., 954.
- Eschweiler, Wilhelm**. See also *Karl Kraut*.
- Escosura**. See *De la Escosura*.
- Eser, Carl**, influence of physical and chemical properties of the soil on evaporation, 1885, A., 80.
- Essner, Jules Charles**, action of hydrogen on acetamide, 1885, A., 245.  
 ———— siphon for hot liquids, etc., 1892, A., 270.  
 ———— precipitation of copper by iron and the action of iron on ferric solutions, 1892, A., 276.  
 ———— composition of some natural subterranean waters near Port Vendres, 1892, A., 285.
- Essner, Jules Charles, and Eugène Gossin**, acetyl-toluene, 1885, A., 252.  
 ———— action of benzoic chloride on isodurene in presence of  $AlCl_3$ , 1885, A., 253.  
 ———— action of amyl chlorides and amylene on toluene, 1885, A., 517.
- Etard, Alexandre Léon**, transformations of cuproscopic sulphites, 1883, A., 20.  
 ———— benzylene-*o*-tolylamine and methylphenanthridine, 1883, A., 179.  
 ———— conversion of hydrocarbons into aldehydes by the action of chromyl dichloride, 1884, A., 312.  
 ———— hydronicotine and oxytrinicotine, 1884, A., 464.  
 ———— solubility curves of salts, 1884, A., 807.  
 ———— solubility of salts, 1884, A., 887.  
 ———— solubilities of haloid salts, 1884, A., 960.

- Etard, Alexandre Léon**, solubility of copper sulphate, 1887, A., 772.  
 — decrease in the solubility of sulphates, 1888, A., 548, 646.  
 — preparation of hydriodic acid, 1889, A., 14.  
 — relation between the solubility of salts and their melting-points, 1889, A., 460.  
 — simultaneous solubility of sodium and potassium chlorides, 1890, A., 103.  
 — solubility of saline mixtures, 1890, A., 442.  
 — substitution of salts in mixed solutions, 1890, A., 443.  
 — coloration of solutions of cobalt and the state of the salts in the solutions, 1892, A., 278.  
 — state of salts in solution; sodium sulphate and strontium chloride, 1892, A., 397.  
 — organic liquids as solvents for metallic salts, 1892, A., 558.  
 — compounds that accompany chlorophyll in leaves, 1892, A., 746.  
 — formation of bromaldehydes and bromoketones by the action of bromine on alcohols of the ethyl series, 1892, A., 809.  
 — the chlorophyllic substances of the pericarp of the grape, 1892, A., 874.  
 — method of analysis of chlorophyllic extracts; nature of chlorophyllane, 1892, A., 1136.  
**Etard, Alexandre Léon**, and *Gustave Bémont*, hydroferrocyanic acid and its derivatives, 1885, A., 233.  
 — alkaline ferrocyanides and their compounds with ammonium chloride, 1885, A., 364.  
 — green ferrocyanides or glauciferrocyanides, 1885, A., 496.  
**Etard, Alexandre Léon**, and *Pierre Lambert*, terpene in the oil from compressed gas, 1891, A., 1085.  
**Etard, Alexandre Léon**, and *Paul Lebeau*, volumetric estimation of copper, 1890, A., 665.  
**Etard, Alexandre Léon**, and *Louis Olivier*, reduction of sulphates by living organisms, 1883, A., 229.  
**Etard, Alexandre Léon**, and *Charles Richet*, estimation of the reducing power of urine and of the extractive matter which it contains, 1888, A., 751.  
**Etard, Alexandre Léon** (and others), reduction of sulphates by *Algæ*, 1883, A., 680.  
**Etard, Alexandre Léon**. See also *Emile Justin Armand Gautier*.
- Etienne, Emil**. See *Wilhelm Venator*.  
**Etti, Carl**, compounds of vanillin with pyrogallol and with phloroglucinol, 1883, A., 61.  
 — tannic acids of oak-bark, 1883, A., 994.  
 — behaviour of tannin and oak-bark tannin towards various reagents, 1884, A., 1355.  
 — kinoin in Malabar kino, 1885, A., 59.  
 — tannins, 1890, A., 164, 257.  
**Ettingshausen, Albert von**, influence of magnetic forces on the nature of the heat conductivity of bismuth, 1888, A., 400.  
**Ettingshausen, Albert von**, and *Walther Nernst*, thermal and electrical behaviour of some bismuth tin alloys in the magnetic field, 1888, A., 546.  
**Etz, Peter**. See *Paul Ehrhardt Janasch*.  
**Euctis, W. E.**, gibbsite from Brazil, 1884, A., 23.  
 — chrysocolla from Arizona, 1884, A., 28.  
**Eugling, Wilh.**, composition of Alpine and meadow hay, 1885, A., 929.  
 — experiments with nitrogenous and peaty soils, 1885, A., 929.  
 — casein in milk, and on the action of rennet, 1885, A., 1083.  
 — effect of rain on the quality of hay, 1885, A., 1154.  
 — melted butter, 1885, A., 1171.  
**Eugling, Wilh.**, and *L. Mähr*, inorganic constituents of cheese, 1886, A., 290.  
**Eugling, Wilh.** See also *Ferdinand Hueppe*.  
**Eurich, Heinrich**. See *Karl Elbs*.  
**Evans, Charles Seth**. See *Frank Wiglesworth Clarke*.  
**Evans, Franklin P.**, and *William Ramsay*, the halogen compounds of selenium, 1884, T., 62.  
**Evans, Norman Philip**. See *Richard Anschütz*.  
**Evans, Reginald Edward**. See *Raphael Meldola*.  
**Evans, William Percival**, rate of decomposition and stereochemistry of chlorhydrins, 1891, A., 796.  
 — attempts to prepare metallic chromium from chromic fluoride, 1892, A., 19.  
**Everhart, Edgar**. See *Albert R. Leeds*.  
**Evers, Ferd.**, bases from dinaphthylthiocarbamide, 1888, A., 600.  
 — new condenser for laboratory purposes, 1892, A., 400.  
**Evershed, Frank**. See *Arthur George Green*.

- Ewald, August**, digestion of elastic fibres and allied structures, 1889, A., 912.
- Ewald, August**, and *C. Fr. W. Krukenberg*, guanine in fish, 1884, A., 623.
- Ewald, Carl Anton**, and *Isidor Boas*, physiology of digestion, 1886, A., 727.
- Ewan, Thomas**, and *Julius Berend Cohen*, oxidation products of acenaphthene, 1889, T., 578; P., 123.
- Ewan, Thomas**, and *William Reginald Ormandy*, a method of measuring the vapour pressures of solutions, 1892, T., 769; P., 141.
- Ewell, Edwin E.**, and *Albert B. Prescott*, estimation of foreign acids in artificial salicylic acid, 1889, A., 447.
- Ewer and Pick**, producing sulpho-colouring matters by electrolysis, 1886, A., 187.
- Ewing, A. L.**, erosion of limestone, 1885, A., 358.
- Exner, Franz**, new method for determining the size of molecules, 1885, A., 951.
- theory of researches on contact-electricity, 1888, A., 208.
- electrochemical investigations, 1891, A., 1309.
- Exner, Franz**, and *Josef Tuma*, chemical theory of the galvanic element, 1889, A., 456.
- Exner, Karl**, velocity of light in quartz, 1886, A., 653.
- Eyerman, John**, mineralogy of the French Creek mines, 1890, A., 113.
- calamine and apophyllite from the United States, 1890, A., 113.
- Eykman**. See *Eijkman*.
- Eymonnet, Léon**, glycerol-phosphoric acid in the urine, 1884, A., 1058.
- elimination of hypophosphites by the mine, 1884, A., 1058.
- Eynern, Fritz von**, condensation of ethyl acetate and succinic acid, 1889, A., 592.
- Eyster, George S.**, determining left-handed rotation with the Scheibler-Ventzke-Soleil polariscope, 1884, A., 691.
- qualitative estimation of the bases without hydrogen sulphide, 1885, A., 1012.
- F.**
- “*F. von T.*” See “*T. F. von.*”
- Faber, Harald**, lactocrito: an apparatus for determining fat in milk, 1887, A., 1144.
- Faber, Harald**, changes in the composition of milk, 1888, A., 862.
- condensed milk and the estimation of casein and lactalbumin, 1890, A., 92.
- Fabingi and Farkas**, constant battery with a negative electrode of carbon, 1888, A., 1001.
- Fabini, Edward**, colouring matter of red carbolic acid, 1891, A., 1198.
- Fabinyi, Rudolf**, Raoult's law of freezing-points, 1889, A., 565.
- Fabre, Ch.**, potassium and sodium selenides, 1886, A., 505, 589.
- heat of transformation of vitreous into metallic selenium, 1886, A., 840.
- selenides of the alkaline earths, 1886, A., 840.
- heat of formation of hydrogen selenide, 1886, A., 961.
- thermochemistry of selenides, 1886, A., 961.
- heats of formation of crystallised and amorphous selenides, 1886, A., 962.
- heat of formation of crystallised tellurides, 1887, A., 1010.
- selenium alums, 1887, A., 1014.
- specific heat of tellurium, 1888, A., 332; 1889, A., 203.
- Fabre, Ch.** See also *Marcellin Berthelot*.
- Fabris, Guido**, violet chromium fluoride, 1891, A., 271.
- Fabris, Guido**. See also *Stanislaw Cannizzaro, G. de Negri*.
- Fabris, Luigi**, detection of atropine, 1892, A., 1534.
- Faé, Giuseppe**, variations in the electrical resistance of antimony and cobalt in a magnetic field, 1887, A., 760.
- Fahlberg, Constantin**, preparation from bauxite of aluminium sulphate free from iron, 1883, A., 130.
- Fahlberg, Constantin**, and *R. Barge*, sulphobenzoic acid and its derivatives, 1889, A., 709.
- Fahlberg, Constantin**, and *Reinhold List*, ethylbenzoic sulphinide and ethyl o-sulphaminebenzoate, 1887, A., 835.
- o-sulphaminocarboxylic acids, 1888, A., 367.
- Fahrig, Ernst**, phosphorescence produced by the contact of ozone with certain waters, 1890, A., 1202.
- Fahrion, Wilhelm**. See *Adolph Claus*.
- Failyer, G. H.** See *J. J. Willard*.
- Fairley, Thomas**, estimation of sulphur and impurities in coal-gas, 1887, A., 297.
- detection of minute quantities of hydrogen peroxide and of uranium, 1891, A., 360.

- Falck, Ernst**, action of ethyl chlorocarbonate, etc., on benzenylamidoxime, 1885, A., 1216.  
 — products from benzenylamidoxime, 1886, A., 797.
- Falières. See L. Barthe.**
- Falières, E.**, rapid estimation of nitrates, 1884, A., 1074.  
 — volumetric estimation of carbon bisulphide in thiocarbonates, 1884, A., 1077.  
 — titration of potassium iodide, 1885, A., 1011.
- Falkenberg, Wilhelm**, poisoning by aniline, chlorates and mercuric chloride, 1891, A., 853.
- Famintzin, A., and Stanislas A. Przybytek**, ash of the pollen of *Pinus sylvestris*, 1886, A., 172.
- Fankhausen, Franz**, comparative meteorological observations in forests, 1883, A., 614.
- Fankhauser, Johann**, diastase, 1886, A., 1061; 1888, A., 867.
- Farbaky, Stefan. See Stefan Schenck.**
- Farkas. See Fabingi.**
- Farnsteiner, K.**, action of certain inorganic salts on the specific rotatory power of cane-sugar, 1891, A., 288.  
 — volumetric estimation of combined sulphuric acid, 1892, A., 1515.
- Farr, Edward Henry. See John Oldham Braithwaite.**
- Farrington, Oliver Cummings**, crystallised azurite from Arizona, 1891, A., 992.  
 — chemical composition of iolite, 1892, A., 793.
- Farrington, Thomas**, mixture of alcohol and water, 1890, A., 856.
- Farsky, Franz**, chlorine as a plant food, 1883, A., 497.  
 — influence of superphosphates on the quality of the crop, 1884, A., 360.  
 — manuring with potash, 1884, A., 774.  
 — action of sulphuric acid as a manure, 1884, A., 775; 1885, A., 83; 1886, A., 954.  
 — fine and coarse grained superphosphates, 1885, A., 82.
- Fasbender, Heinrich**, compounds of aldehydes and ketones with mercaptan, 1887, A., 462.  
 — ethylene disulphides and ethylene-disulphones, 1886, A., 804.  
 — diethylene tetrasulphide, 1888, A., 805.
- Fasnacht, A. E., and C. R. Lindsey**, decahydrated lead acetate, 1890, A., 862.
- Fauconnier, Adrien**, second anhydride of mannitol, 1883, A., 305; 1884, A., 1111.  
 — reduction of mannitol, 1885, A., 743.  
 — action of aniline on epichlorhydrin, 1888, A., 586, 1280.  
 — action of ammonia on epichlorhydrin, 1888, A., 1265.  
 — propylphycite, 1889, A., 81.  
 — preparation of ethylene cyanide, 1889, A., 227.  
 — preparation of epichlorhydrin, 1889, A., 232.  
 — action of phosphoric chloride on ethyl oxalate, 1892, A., 588.
- Fauconnier, Adrien, and J. Sanson**, action of hydrogen chloride on glycerol, 1888, A., 244.
- Fauconnier, Adrien (and others)**, derivative of mannitol, 1884, A., 573.
- Faulenbach, C.**, estimation of starch and glucose in food, 1884, A., 980.
- Faulkner, Frank, and William Virtue**, biological test for malt, 1888, A., 1228.
- Faure, A.**, preparation of metallic chlorides from oxides, 1888, A., 1250.
- Faurie, G. A.**, reduction of aluminium oxide, 1888, A., 28.
- Fausser, Géa**, estimation of hydrogen sulphide in aqueous solution, 1889, A., 1031.
- Fawitzky, Alexander P.**, detection and estimation of hydrochloric acid in gastric juice, 1891, A., 787.
- Faworsky, Alexei E.**, condensation of crotonylenes, 1885, A., 645.  
 — isomerism of acetylenic hydrocarbons, 1885, A., 736.  
 — isomeric change of acetylenic hydrocarbons by heating them with alcoholic potash, 1888, A., 798.  
 — isomeric change of disubstituted acetylenes and of dimethylallene under the influence of metallic sodium: synthesis of acetylenecarboxylic acids, 1888, A., 1168.  
 — action of alcoholic potash on allylene, 1889, A., 360.  
 — dimethylacetylene and its tetrabromides, 1890, A., 1220.  
 — isomeric change in unsaturated hydrocarbons, 1891, A., 1330.
- Faworsky, Alexei E., and C. Debout**, the geometrical isomerism of the bromo-derivatives of  $\psi$ -butylene, 1890, A., 1218.
- Fawsitt, Charles A.**, wood-naphtha, 1886, A., 289.  
 — action of sulphur chloride on oils, 1889, A., 317.

- Fawsitt, Charles A.** See also *William Dittmar*.
- Fawssett, Theodore**, estimation of cinchona alkaloids, 1890, A., 309.
- Fay, Irving Wetherbee**, relation between the heats of formation of chlorides and sulphates in aqueous solution, 1888, A., 401.
- Federer, Ernest Charles**, test for oil of peppermint, 1887, A., 1001.
- Feemster, Joseph Hall**, average amount of caffeine in the guarana of commerce compared with that in the seeds, 1888, A., 232.
- Feer, Adolf, and Wilhelm Koenigs**, derivatives of carbostyil, 1885, A., 1235.
- derivatives of methylhydroquinoline, 1885, A., 1245.
- hydroxypyridine, 1886, A., 1044.
- Feer, Adolf, and Heinrich Müller**, dyes from diamidoethoxydiphenylsulphonic acid, 1889, A., 258.
- Feer, Adolf**. See also *Carl Graebe*.
- Fehrenbach, Georg**. See *Alfred Bernhard Nobel*.
- Fehrlin, Henry Charles**, bidesyls, 1889, A., 623.
- isomeric hydrazones of *o*-nitrophenylglyoxylic acid, 1890, A., 1117.
- Fehrmann, Albert**, preparation of lead dioxide, 1883, A., 157.
- Fehrmann, W.**, auramines, 1888, A., 156.
- Feinstein, Boleslaw**. See *Stanislaus von Kostanecki*.
- Feist, Franz**, dehydracetic acid, 1889, A., 957; 1892, A., 584.
- dehydrobenzoylacetic acid, 1891, A., 458.
- ethyl diphenylpyrinedicarboxylate, 1891, A., 459.
- dehydracetic chloride, 1892, A., 587.
- constitution of dehydracetic acid, 1892, A., 587.
- chlorinated diacetylacetone, 1892, A., 811.
- Feist, Franz**. See also *Adolph Fittig*.
- Feist, Paul**, salts of uric, carbuvic, and ethylcarbuvic acids, 1889, A., 593.
- Feist, Paul**. See *Adolph Claus*.
- Feit, W.**, tungsten compounds, 1888, A., 344.
- potassium magnesium bromide, 1889, A., 827.
- estimation of thallium and mercury, 1889, A., 927.
- kaliborite, a new boron mineral, 1890, A., 341.
- Feit, W.**, heintzite, 1892, A., 791.
- ascharite, a new borate, 1892, A., 792.
- Feit, W., and C. Kubierschky**, thio-derivatives of antimonic acid, 1888, A., 789.
- preparation of hydrobromic acid, 1891, A., 1320.
- use of bromic acid in quantitative analysis, 1892, A., 910.
- extraction of rubidium and caesium compounds from carnallite, 1892, A., 1395.
- Feith, Emil**, derivatives of mesitylene, 1892, A., 329.
- methyl mesitylenecarboxylate, 1892, A., 715.
- Feith, Emil, and S. H. Davies**, action of hydroxylamine on acetylmesitylene, 1892, A., 314.
- Feitler, Sigmund**, molecular volumes of aromatic compounds, 1889, A., 1047.
- Feldmann, Alf.**, preparation of ammonia, 1885, A., 1017.
- Feldmann, Marc**. See *Petr G. Melnikoff, Nicolai D. Zelinsky*.
- Fels, Th.**, testing mercury oxide for chlorides, 1888, A., 873.
- Fenton, Henry John Horstman**, limited hydration of ammonium carbamate, 1886, A., 501.
- detection of bromides, 1886, A., 833.
- Fényes, Desider**, barytes from Pésey, 1885, A., 733.
- Ferko, Muc.** See *Conrad Willgerodt*.
- Ferko, Paul**, pyrogenic reactions, 1887, A., 572.
- Fermi, Claudio**, gelatin as a reagent for the detection of enzymes, 1891, A., 1523.
- solubility of fibrin, 1892, A., 897.
- Fernandez-Krug, Pedro**, arsenovanadic acid, 1884, A., 1266.
- Fernbach, Aug.**, apparatus for the cultivation of pure yeast, 1891, A., 352.
- Ferrari, Ugo**, influence of the weather on crops, 1885, A., 80.
- Ferrari, Prospero**, trustworthiness of Berthelot and Fleurieu's method for the estimation of tartaric acid, 1884, A., 371.
- detection of sulphuric acid in wine, 1885, A., 692.
- Ferratini, A.** See *Carlo Zatti*.
- Ferreira da Silva, Antonio Joaquim**, reaction of cocaine, 1891, A., 134.
- ammonium selenite as a reagent for alkaloids, 1891, A., 1562.
- Ferry, René**, sugars present in fungi, 1891, A., 954.

- Ferry de la Bellone, detection of blood stains, 1888, A., 1140.
- Fert, *Jean*. See *Amé Pietet*.
- Féry, *C.* See *J. B. Baillie*.
- Fesca, *Max*, and *H. Imai*, Japanese tobaccos, 1889, A., 69.
- Fessenden, *Reginald A.*, volumetric analysis of copper, 1890, A., 926.
- Festing, *Edvard Robert*. See *William de Wiveleslie Abney*.
- Fèvre, *Albert*, mononitroresorcinol, 1883, A., 733.
- Fiala, *Franz*, mixed ethers of quinol, 1884, A., 1138; 1886, A., 454.
- derivatives of methylethylquinol, 1886, A., 454.
- Fick, *Richard*, formation and properties of inosite and its occurrence in the vegetable kingdom, 1887, A., 1089.
- Fickert, *Emil*. See *Adolph Claus*.
- Field, (*Miss*) *Eleanor*, chronic acid, 1892, T., 405; P., 17.
- Fielding, *E.* See *Henry Bassett*.
- Fielinsky, *N.*, additive products of methylamine and  $\beta$ -methylglycidic acid, 1885, A., 752.
- Figuier, *Albin*, compounds obtained by means of gas batteries and the silent discharge, 1884, A., 1242.
- synthesis of hydrocyanic acid, 1886, A., 521.
- synthesis of ammonium cyanide by the silent discharge, 1886, A., 604.
- Filehne, *Wilhelm*, kairine and kairoline, 1884, A., 474.
- transformation of hæmoglobin in the bile, 1891, A., 482.
- constitution of pseudephedrine, 1891, A., 1264.
- Filehne, *Wilhelm*. See also *Eugen Bamberger*.
- Filemonowicz, *Jak*. See *Bronislaw Pawlewski*.
- Fileti, *Michele*, transformation of scatole into indole and preparation of indole, 1884, A., 458.
- synthesis of scatole, 1884, A., 458.
- cumyl ether, 1885, A., 776.
- *o*-isopropylphenol, 1886, A., 789.
- reciprocal transformation of cymene and cumene derivatives, 1887, A., 36, 471.
- preparation of aromatic amides, 1887, A., 42.
- bromoterephthalic acid, 1887, A., 52.
- *p*-dipropylbenzene, 1891, A., 1022.
- *p*-propylisopropylbenzene, 1891, A., 1023.
- constitution of cymene, 1891, A., 1344.
- Fileti, *Michele*, analysis of the barium group, 1892, A., 660.
- Fileti, *Michele*, and *V. Abbona*, hydroxy-derivative of cumonitrile, 1892, A., 595.
- Fileti, *Michele*, and *G. Amoretti*, phenylisopropylglycollic acid and its derivatives, 1891, A., 1059.
- Fileti, *Michele*, and *G. Basso*, homocumic and homoterephthalic acids, 1891, A., 1057.
- Fileti, *Michele*, and *L. Boniscontro*, oxidation products of *p*-dibromohomocumic acid, 1892, A., 604.
- Fileti, *Michele*, and *F. Crosa*, chlorocymene and bromocymene from thymol, 1887, A., 37.
- nitrobromocymene and nitrochlorocymene, 1889, A., 493.
- oxidation of the chlorocymene and bromocymene from thymol and from cymene, 1889, A., 495.
- preparation of hydrobromic acid, 1891, A., 976.
- derivatives of cumic acid, 1891, A., 1055.
- Filhol, *Edouard*, and *J. B. Senderens*, neutral phosphates of the alkalis, 1883, A., 151.
- action of sulphur on oxides, 1883, A., 710; 1884, A., 959.
- action of sulphur on alkaline phosphates, 1883, A., 783.
- Filsinger, *F.*, estimation of glycerol, 1888, A., 1133.
- estimation of glycerol in crude glycerol, 1889, A., 748.
- iodine numbers for cocoa butter, 1891, A., 869.
- analysis of crude glycerol, 1892, A., 544.
- Findeisen, feeding horses with flesh-meal, 1883, A., 102.
- Finger, *Hermann*, benzazimide, 1888, A., 948.
- Finger, *Hermann*. See also *Anton Weddige*.
- Fink, *E.*, phosphopalladious compounds, 1892, A., 1285.
- Fink, *Isidor*, bromination of allyl alcohol, 1888, A., 244.
- Fink, *J.*, influence of pressure on the resistance of electrolytes, 1886, A., 586.
- Fink, *Richard*, affinity of certain bivalent metals for sulphuric acid, 1887, A., 885.
- Finkener, *Rud.*, distinction of castor oil from other fatty oils, 1887, A., 402.
- action of carbonic anhydride on the dihydrate of strontium oxide, 1887, A., 217.

- Finkener, Emil**, points of difference between linseed oil and linseed-oil varnish, 1888, A., 327.
- Fino, Vincenzo**, rhodonite from Vitt, 1884, A., 164.
- Fiquet, Edmond**, synthesis of unsaturated nitriles, 1892, A., 1340.
- Firbas, Richard**, bases contained in the young shoots of *Solanum tuberosum*, 1890, A., 75.
- Firket, Adolphe**, artificial fayalite, 1890, A., 20.
- Firth, Robert Hamnill**, poisonous ptomaine in milk, 1887, A., 389.
- Firtsch, Georg**, rumpflite, 1892, A., 417.  
— a new method for testing the purity of butter, 1891, A., 868.
- Fischedick, Frank H.**, strychnine citrate, 1886, A., 1047.
- Fischel, Wilhelm**, occurrence of peptone in hens' eggs during incubation, 1886, A., 166.  
— occurrence of peptones in fibromata of the uterus, 1886, A., 167.
- Fischer, Silesian farm** without cattle, 1884, A., 636.
- Fischer, Bernhard** (Breslau), diazamidobenzene, 1884, A., 1011.  
— demercuring gold, 1886, A., 109.  
— dimethylethylcarbinol, 1887, A., 1142.  
— impurities in commercial salicylic acid, 1890, A., 88.
- Fischer, Bernhard** (Breslau), and **Otto Philipp**, dimethylamidazo-benzene as an indicator in alkalimetry, 1885, A., 1159.
- Fischer, Bernhard** (Breslau), and **Hermann Wimmer**, diazomidocompounds, 1887, A., 819.  
— hydroxyazo-compounds, 1887, A., 819.
- Fischer, Bernhard** (Kiel), and **Bernhard Proskauer**, disinfection with chlorine and bromine, 1885, A., 816.
- Fischer, Emil**, caffeine, theobromine, xanthine, and guanine, 1883, A., 354.  
— triacetanamine, 1883, A., 790.  
— triacetonealkamine, 1883, A., 1153.  
— diacetanamine, 1884, A., 53.  
— formation of methylene-blue as a reaction for hydrogen sulphide, 1884, A., 109.  
— uric acid, 1884, A., 996, 1308.  
— phenylhydrazine a reagent for aldehydes and ketones, 1884, A., 1150.  
— triacetanamine and its homologues, 1884, A., 1290.  
— compounds of glucoses and sucroses with phenylhydrazine, 1885, A., 53.
- Fischer, Emil**, constitution of the hydrazines, 1885, A., 257.  
— naphthalene as an insecticide, 1885, A., 454.  
— chemical examination of nocerine, 1885, A., 957.  
— naphthylhydrazines, 1886, A., 554.  
— synthesis of indole derivatives, 1886, A., 805; 1887, A., 148.  
— isoglucosamine, 1886, A., 933.  
— hydrazines, 1887, A., 138, 932.  
— indoles from phenylhydrazine, 1887, A., 149.  
— action of aldehydes, anhydrides, and diazo-compounds on the three methylindoles, 1887, A., 265.  
— compounds of phenylhydrazine with sugars, 1887, A., 567; 1888, A., 590, 1267; 1889, A., 484.  
— carbamide derivatives of dibromopyruvic acid, 1887, A., 918.  
— methylketole, 1888, A., 283.  
— hydrazones, 1888, A., 590.  
— reduction of acids of the sugar group, 1889, A., 1149; 1890, A., 597.  
— some reactions of phenylhydrazine and hydroxylamine, 1889, A., 1163.  
— trinitrohydrazobenzene, 1890, A., 40.  
— synthesis of inannose, dextrose, and levulose, 1890, A., 466.  
— syntheses in the sugar group, 1890, A., 1223.  
— optical isomerides of grape sugar, gluconic acid, and saccharic acid, 1890, A., 1389.  
— acids of the sugar group, 1890, A., 1398.  
— reduction of fruit sugar, 1891, A., 412.  
— synthesis of a new glucobiose, 1891, A., 412.  
— *d*- and *l*-mannosaccharic acids, 1891, A., 678.  
— configuration of grape sugar and its isomerides, 1891, A., 1178, 1444.  
— new isomeride of mucic acid and the so-called *p*-mucic acid, 1891, A., 1193.  
— new isomeride of galactonic acid and of mucic acid, 1892, A., 299.
- Fischer, Emil**, and **Friedrich Ach**, phenylhydrazone, 1890, A., 40.
- Fischer, Emil**, and **Carl Bülow**, benzoylacetone, 1885, A., 1237.
- Fischer, Emil**, and **Richard S. Curtiss**, optically isomeric gulonic acids, 1892, A., 822.
- Fischer, Emil**, and **Johann Nicolaus Hertz**, reduction of mucic acid, 1892, A., 824.

- Fischer, Emil**, and *Otto Hess*, synthesis of indole derivatives, 1884, A., 1180.
- Fischer, Emil**, and *Josef Hirschberger*, mannose, 1888, A., 934; 1889, A., 480, 687; 1890, A., 224.
- Fischer, Emil**, and *Friedrich Jourdan*, hydrazines of pyroracemic acid, 1884, A., 52.
- Fischer, Emil**, and *Oskar Knoevenagel*, compounds of phenylhydrazine with aldehyde, mesitylic oxide, and allyl bromide, 1887, A., 932.
- Fischer, Emil**, and *Hermann Koch*, ethyl phthalylacetoacetate, 1888, A., 806.
- trimethylenediamine, 1884, A., 1289.
- trimethylene- and ethylene-diamine derivatives, 1886, A., 527.
- Fischer, Emil**, and *Hans Kuzel*, ethyl *o*-nitrocinnamylacetoacetate, 1883, A., 587, 588.
- quinazole compounds, 1883, A., 812.
- ethylhydrocarbazonstyryl, 1883, A., 1132.
- benzoylacetone, 1884, A., 59.
- hydrazines of cinnamic acid, 1884, A., 440.
- Fischer, Emil**, and *Karl Landsteiner*, glycollic aldehyde, 1892, A., 1424.
- Fischer, Emil**, and *William Frederick Laycock*, metacetone, 1889, A., 487.
- Fischer, Emil**, and *Jacob Meyer*, oxidation of milk sugar, 1889, A., 485.
- oxidation of maltose, 1889, A., 1132.
- methylation of the indoles, 1890, A., 1421.
- Fischer, Emil**, and *Francis W. Passmore*, formation of acrose from formaldehyde, 1889, A., 483.
- formation of phenylhydrazides, 1890, A., 152.
- sugars richer in carbon from  $\alpha$ -mannose, 1890, A., 1230.
- Fischer, Emil**, and *Franz Penzoldt*, sensitiveness of the sense of smell, 1887, A., 983.
- Fischer, Emil**, and *Oscar Piloty*, sugars derived from rhamnose, 1891, A., 31.
- reduction of saccharic acid, 1891, A., 677.
- new pentonic acid and the second inactive trihydroxyglutaric acid, 1892, A., 437.
- Fischer, Emil**, and *Ludwig Reese*, caffeine, xanthine, and guanine, 1884, A., 466.
- Fischer, Emil**, and *Theodor Schmidt*, 2'-phenylindole, 1888, A., 698.
- 3'-phenylindole, 1888, A., 958.
- Fischer, Emil**, and *Rudolph Stahel*, xylose, 1891, A., 667.
- *l*-sorbitol, 1891, A., 1173.
- Fischer, Emil**, and *Albert Steche*, methylation of indole-derivatives, 1887, A., 588.
- methylation of indole, 1887, A., 976.
- conversion of indoles into hydroquinolines, 1888, A., 298.
- Fischer, Emil**, and *A. J. Stewart*, aromatic sugars, 1892, A., 1447.
- Fischer, Emil**, and *Julius Tafel*, hydrazines of cinnamic acid, 1885, A., 540.
- oxidation of polyatomic alcohols, 1887, A., 651.
- synthetical experiments in the sugar group, 1888, A., 39, 358.
- isodulcitol, 1888, A., 806, 1049.
- oxidation of glycerol, 1888, A., 1264; 1889, A., 478.
- synthetical experiments within the sugar group, 1889, A., 484.
- Fischer, Emil**, and *Philipp Wagner*, rosindoles, 1887, A., 588.
- Fischer, Emil** (and others), sugars richer in carbon from glucose, 1892, A., 1164.
- Fischer, Emil**. See also *Franz Penzoldt*.
- Fischer, Ferdinand**, application of electricity in metallurgy, 1883, A., 398.
- practical application of thermoelectricity, 1883, A., 625.
- flameless combustion, 1883, A., 626.
- contributions to the knowledge of sewer gases, 1883, A., 886.
- investigation on boiler fires, 1883, A., 942.
- influence of artificial lighting on the atmosphere of dwellings, 1884, A., 122.
- illuminating gas and gas-engines, 1884, A., 508.
- retort furnaces with gaseous fuel, 1884, A., 509.
- an evaporation experiment, 1884, A., 510.
- application of electricity in chemical industry, 1884, A., 785, 933.
- electrolytic production of metals and chlorine, 1885, A., 941.
- gas analyses, 1886, A., 107.
- composition of generator-gas and water-gas, 1887, A., 1078.

- Fischer, Gustav.** See **Otto Fischer.**
- Fischer, Hermann,** working up of Stassfurt potash liquors containing a large excess of sodium chloride, 1887, A., 1079.
- Fischer, Leopold Heinrich,** tin ores, aventurine glass, and green aventurine quartz from Asia, and crocydolite quartz from Greenland, 1883, A., 435.
- pectolite from Alaska, 1886, A., 210.
- Fischer, Louis.** See **Ludwig Claisen, Alfred Einhorn.**
- Fischer, Otto,** hydroxyquinolines, 1883, A., 91.
- acridine, 1883, A., 1134.
- derivatives of hydroxyquinoline, 1883, A., 1146.
- reduction of hydrobenzamide, 1886, A., 546.
- flavaniline, 1886, A., 631.
- *o*- and *m*-quinolinesulphonic acids, 1887, A., 601.
- reduction products of benzylidene compounds, 1888, A., 50.
- harmine and harmaline, 1889, A., 780.
- new class of fluorescent colouring matters of the quinoxaline series, 1891, A., 747.
- *o*-diamines, 1892, A., 1472.
- Fischer, Otto, and Max Busch,** new class of fluorescent colouring matters of the quinoxaline series, 1891, A., 1109, 1514.
- Fischer, Otto, and Gustav Fischer,** *p*-amidocarbinals, 1891, A., 695.
- Fischer, Otto, and Adolf Fränkel,** diphenylquinolylmethane, 1886, A., 561.
- *o*-amidotriphenylmethane, 1888, A., 56.
- Fischer, Otto, and Eduard von Gerichten,** morphine, 1886, A., 563.
- Fischer, Otto, and Ludwig German,** the violet derivatives of triphenylmethane, 1888, A., 1097.
- new synthesis of scatole, 1883, A., 1132.
- Fischer, Otto, and Eduard Hepp,** pyrroline derivatives, 1886, A., 1041.
- action of alcoholic hydrogen chloride on nitrosamines, 1887, A., 244.
- nitrosamines, 1887, A., 729, 1114.
- azophenines and indulines, 1887, A., 1105; 1888, A., 1291.
- dibromonitrosophenol, 1888, A., 456.
- *p*-nitrosoaniline, 1888, A., 460.
- Fischer, Otto, and Eduard Hepp,** azophenine and quinoneanilide, 1888, A., 472.
- oxidation of *o*-phenylenediamine, 1889, A., 499; 1890, A., 800.
- *p*-nitrosodiphenyl-*m*-phenylenediamine, 1890, A., 613.
- indulines, 1890, A., 764, 908; 1891, A., 1044; 1892, A., 341.
- oxidation products of *o*-diamines and *o*-amidophenols, 1890, A., 1444.
- fluorindine, 1890, A., 1444.
- formation of indulines, 1892, A., 1476.
- Fischer, Otto, and Georg Körner,** violet derivatives of triphenylmethane, 1884, A., 606, 749.
- new method for producing acridine, 1884, A., 748.
- chrysaniline, 1884, A., 748; 1885, A., 260.
- derivatives of quinoline-*m*-carboxylic acid, 1884, A., 1197.
- Fischer, Otto, and Henry van Loo,** formation of diquinoline, 1884, A., 1372.
- formation of  $\beta$ -diquinoline, 1887, A., 63.
- Fischer, Otto, and Edward Renouf,** derivatives of quinoline and pyridine, 1884, A., 1048.
- derivatives of hydroxypyridine from pyridinesulphonic acid, 1884, A., 1370.
- derivatives of *o*-hydroxyquinoline, 1884, A., 1370.
- Fischer, Otto, and Carl Riemerschmid,** pyridinesulphonic acid, 1883, A., 923.
- Fischer, Otto, and Carl Schmidt,** condensation products of aromatic bases with aldehydes, 1884, A., 1315.
- Fischer, Otto, and Ludwig Sieder,** *o*-amido-*p*-ditolylamine, 1891, A., 434.
- Fischer, Otto, and Ernst Täuber,** flavaniline, 1885, A., 400.
- harmine and harmaline, 1885, A., 820.
- Fischer, Otto, and Leonhard Wacker,** action of nitroso-bases on phenylhydrazine, 1888, A., 1286; 1889, A., 702.
- Fischer, Otto, and Charles A. Wittmack,** *p*-quinolinesulphonic acid and its homologues, 1884, A., 1051.
- Fischer, Otto, and Hugo Wreszinski,** action of formaldehyde on *o*-diamines, 1892, A., 1496.
- Fischer, Otto.** See also **Emil Besthorn.**
- Fischer, Otto W.,** two tin organic compounds, 1885, A., 377.

- Fischer, Otto IV.**, diquinolines, 1885, A., 399, 1246.
- Fischer, Otto W.** See also *Zidenko Hanns Skraup*.
- Fischer, Paul**, chloronitrobenzenesulphonic acids, 1892, A., 182.
- action of ammonia and aniline on negatively substituted halogenised benzenesulphonic acids, 1892, A., 331.
- Fischer, Richard**, separation of nickel from cobalt, 1889, A., 653.
- Fischer, Walter**. See *Paul Jacobson*.
- Fischer, Wilhelm**, tension of saturated vapours over liquid and solid substances, 1886, A., 846.
- Fisher, Davenport**, meteorite from St. Croix Co., Maine, 1888, A., 352.
- Fisher, John Hutchison**, corrosion of zinc by ammonium chloride and potassium nitrate, 1887, A., 889.
- Fisher, Walter William**, anhydrous oxalic acid, 1892, P., 186.
- Fittbogen, J.**, action of various forms of phosphoric acid, 1885, A., 1009; 1886, A., 1069.
- Fittbogen, J.**, and *Otto Foerster*, ensilage of frozen potatoes, 1885, A., 184.
- Fittbogen, J.**, and *A. Salfeld*, manuring with basic slag, 1887, A., 524.
- Fittbogen, J.** (and others), cultivation of various crops, 1883, A., 235.
- influence of calcium sulphide on barley, 1885, A., 1154.
- Fittica, Friedrich Bernhard**, a fourth monobromophenol, 1884, A., 55; 1887, A., 134.
- the second monobromobenzene, 1887, A., 134; 1890, A., 962.
- Fittig, Rudolph**, non-saturated acids, 1883, A., 454.
- action of water on lactones, 1883, A., 730.
- conversion of unsaturated acids into the isomeric lactones, 1883, A., 730.
- so-called tetric, pentic, and hexic acids, 1883, A., 1085.
- Perkin's reaction, 1883, A., 1122; 1885, A., 663.
- lactones, 1884, A., 744; 1888, A., 251; 1890, A., 583; 1892, A., 812, 956.
- condensation products of the lactones, 1885, A., 375.
- constitution of vinaconic acid, 1885, A., 653.
- condensation of acetoacetates with bibasic acids, 1886, A., 47.
- condensation of aldehydes with bibasic acids, 1886, A., 47.
- constitution of carbopyrotritaric acid, 1886, A., 225.
- Fittig, Rudolph**, lactones and lactic acids, 1888, A., 251; 1890, A., 583; 1892, A., 812, 956.
- oxidation of unsaturated acids, 1888, A., 595.
- condensation of ethereal salts of  $\beta$ -ketonic acids with bibasic acids, 1889, A., 592.
- lactic acids, lactones, and unsaturated acids, 1890, A., 583; 1892, A., 812, 956.
- action of sodium and sodium ethoxide on ethereal salts of lactone acids and on lactones, 1890, A., 866.
- action of ammonia on lactones, 1890, A., 879.
- action of bromine on angelic and maleic acids, 1891, A., 39.
- intramolecular change in unsaturated acids, 1891, A., 452.
- decomposition of dibromides of unsaturated acids by warm water and dilute alkalis, 1892, A., 959.
- Fittig, Rudolph**, and *Henry C. Brown*, salicylaldehyde and pyrotartaric acid, 1890, A., 777.
- Fittig, Rudolph**, and *Constantin Christ*, some new  $\delta$ -lactones, 1892, A., 962.
- Fittig, Rudolph**, and *Richard Claus*, new derivatives of coumarin, 1892, A., 988.
- Fittig, Rudolph**, and *M. Caspar Clutterbuck*, tetrolic acid, 1892, A., 961.
- Fittig, Rudolph**, and *Carl Daimler*, action of ethyl chloracetate and zinc on ethyl oxalate, 1887, A., 361.
- Fittig, Rudolph**, and *Alfred Delisle*, propaldehyde and succinic acid, 1890, A., 587.
- Fittig, Rudolph**, and *Hermann Dubois*, caprolactone, 1890, A., 868.
- $\gamma$ -hydroxycapronamide, 1890, A., 880.
- Fittig, Rudolph**, and *Gustav Ebert*, coumarilic acid, 1883, A., 474.
- Fittig, Rudolph**, and *Hugo Erdmann*, synthesis of  $\alpha$ -naphthol, 1883, A., 595; 1885, A., 545.
- Fittig, Rudolph**, and *Arnold Erlenbach*, action of sodium on ethyl chloracetate, 1888, A., 1052, 1269.
- Fittig, Rudolph**, and *Franz Feist*, valeraldehyde and pyrotartaric acid, 1890, A., 591.
- Fittig, Rudolph**, and *Ignaz Fränkel*, acetaldehyde and succinic acid, 1890, A., 584.
- Fittig, Rudolph**, and *Arthur Rudolf Hantzsch*, identity of methronic acid with sylvanecarboxyacetic acid, 1889, A., 126.

- Fittig, Rudolph**, and **Joseph Hillert**, oxidation of hydrosorbic acid, 1892, A., 959.
- decomposition of dibromocaproic acid, 1892, A., 960.
- Fittig, Rudolph**, and **William D. Hoeffken**, divalolactone, 1892, A., 814.
- Fittig, Rudolph**, and **Harry W. Jayne**, phenylhydroxypivalic acid, 1888, A., 471.
- Fittig, Rudolph**, and **Ewald Kochs**, oxidation of crotonic acid and isocrotonic acid, 1892, A., 957.
- Fittig, Rudolph**, and **Jacob Kraencker**, ethyl isobutylparaconate, 1890, A., 874.
- Fittig, Rudolph**, and **Hugo Leoni**, ethyl phenylparaconate, 1890, A., 894.
- Fittig, Rudolph**, and **Siegmund Levy**, ethyl terpenylate, 1890, A., 873.
- Fittig, Rudolph**, and **Louis Liebmann**, benzaldehyde and pyrotartaric acid, 1890, A., 775.
- Fittig, Rudolph**, and **Richard Marburg**, vinaconic acid, 1886, A., 224.
- Fittig, Rudolph**, and **Ernst Mayer**, oxidation of hydrocinnamenylacrylic acid, 1892, A., 986.
- Fittig, Rudolph**, and **Harry East Miller**, chloral and succinic acid, 1890, A., 586.
- Fittig, Rudolph**, and **Lemuel J. Morris**, phenyl- $\gamma$ -hydroxybutyramide, 1890, A., 890.
- action of halogen acids on phenylbutyrolactone, 1890, A., 891.
- Fittig, Rudolph**, and **Paul Obermüller**, oxidation of phenylisocrotonic acid, 1892, A., 986.
- Fittig, Rudolph**, and **Gordon Parker**, condensation of ketonic acids with bibasic acids, 1889, A., 1146.
- condensation of ketonic acids with dicarboxylic acids, 1890, A., 1102.
- condensation of pyruvic acid with dicarboxylic acids, 1892, A., 814.
- Fittig, Rudolph**, and **Johannes Politis**, anisaldehyde and succinic acid, 1890, A., 770.
- Fittig, Rudolph**, and **Hermann Rasch**, valerolactone, 1890, A., 867.
- $\gamma$ -hydroxyvaleramide, 1890, A., 879.
- Fittig, Rudolph**, and **Rudolf Rieselmann**, cenanthaldehyde and pyrotartaric acid, 1890, A., 593.
- Fittig, Rudolph**, and **Friedrich Roeder**, a non-saturated acid isomeric with itaconic acid, 1883, A., 730.
- new acid isomeric with crotonic acid, 1884, A., 295.
- Fittig, Rudolph**, and **Paul Röders**, phenylparaconic acid, 1890, A., 621.
- phenylitaconic acid, 1890, A., 895.
- Fittig, Rudolph**, and **Moritz Rühlmann**, action of water and hydriodic acid on valerolactone and isocapro lactone, 1885, A., 375.
- Fittig, Rudolph**, and **Rudolf Ruer**, oxidation of ethylcrotonic acid, 1892, A., 958.
- oxidation of cinnamic acid, 1892, A., 986.
- Fittig, Rudolph**, and **Augustus Schloesser**, condensation of ethyl benzoylacetate, 1888, A., 1089.
- Fittig, Rudolph**, and **Albrecht Schmidt**, butaldehyde and succinic acid, 1890, A., 588.
- ethyl propylparaconate, 1890, A., 872.
- Fittig, Rudolph**, and **August Schneegans**, valeraldehyde and succinic acid, 1890, A., 590.
- Fittig, Rudolph**, and **Jacob Stern**, decomposition of phenyldibromovaleric acid, 1892, A., 987.
- hydrocinnamenylacrylic acid, 1892, A., 988.
- Fittig, Rudolph**, and **Knut Torsteinson Ström**, action of sodium ethoxide on butyrolactone, 1892, A., 813.
- Fittig, Rudolph**, and **Karl Urban**, oxidation of allylacetic acid, 1892, A., 958.
- decomposition of dibromovaleric acid, 1892, A., 960.
- Fittig, Rudolph**, and **Adolf Zanner**, isobutaldehyde and succinic acid, 1890, A., 589.
- Fittig, Rudolph**, **Carl Daimler**, and **Harry Frederick Keller**, diacetyldicarboxylic acid (ketipic acid) and diacetyl, 1889, A., 490.
- Fittig, Rudolph**, **Paul Obermüller**, and **Christian Schiffer**, decomposition of phenyldibromobutyric acid, 1892, A., 987.
- Fitz, Albert**, *Bacillus butylicus*, 1884, A., 765.
- schizomycetic fermentation, 1884, A., 1062.
- Fitzgerald, George Francis**, theory of solution, 1891, A., 788.
- Fitzpatrick, Thomas Cecil**, action of the solvent in electrolytic conduction, 1888, A., 101.
- Fjord, N. J.**, comparison of various systems of butter-making, 1884, A., 185.

- Fjord, N. J.**, comparison of cream separators, 1884, A., 1447.  
 — feeding of calves and pigs, 1888, A., 1319.  
 — feeding of milch cows, 1889, A., 1076.
- Flavitzky, Flavian M.**, relation between the boiling-points of the monatomic alcohols and their constitutions, 1887, A., 879.  
 — conversion of dextrorotatory terpenes from Russian turpentine by means of hydration and dehydration, 1887, A., 968.  
 — dextrorotatory terpene from *Pinus Cembra*, 1890, A., 789.  
 — correlation of oxygen and hydrogen compounds of the elements, 1892, A., 1270.
- Flechaig, E.**, composition of lupines, 1884, A., 1405.  
 — analysis of varieties of lupines, beans, and maize grown under like conditions, 1886, A., 95.
- Flechaig, E.** See also *Bernhard Schulze, Hugo Weiske*.
- Fleck, Hermann**, recognition of nitric acid stains on textures, 1885, A., 595.  
 — oxidation of ammonia in spring water, 1885, A., 704.  
 — colour reactions of picric acid and dinitrocresol, 1887, A., 624.
- Fleichtinger**, cause of the acid reaction exhibited by some kinds of paper, 1883, A., 696.
- Fleischer, E.**, on desiccators, 1884, A., 491.
- Fleischer, Hermann Anton Moritz**, manurial value of sewer slime, 1884, A., 107.  
 — kainite as potato manure, 1884, A., 108.  
 — analysis of peat litter, 1884, A., 925.  
 — comparison of peat and straw litter, 1884, A., 1418.  
 — hop-culture in peat soils, 1885, A., 185.  
 — use of phosphatic slag from the Thomas' process in agriculture, 1886, A., 277.  
 — comparison of manure made with straw and with turf litter, 1888, A., 319.  
 — manuring with nitre, 1888, A., 1223.
- Fleischer, Hermann Anton Moritz, and Richard Kissling**, application of insoluble phosphates to soils, 1883, A., 822.
- Fleischer, Hermann Anton Moritz** (and others), moss and turf-fibre as cattle litter, 1884, A., 105.  
 — sea mud, 1884, A., 106.  
 — action of sea-sand on peaty and sandy soils, 1885, A., 929.  
 — manuring of high-lying moorlands, 1886, A., 578.
- Fleischer, Richard**. See *Franz Penzoldt*.
- Fleischhauer, H.**, condensation of cyanides with ethereal salts, 1892, A., 431.
- Fleischl von Marxow, Ernst**, double refraction of liquids, 1885, A., 318.  
 — production of monochromatic light, 1890, A., 549.
- Fleischmann, Wilhelm**, preserved milk, etc., 1883, A., 254.  
 — preserved butter, 1884, A., 534.  
 — butter-making, 1884, A., 534.  
 — loss of weight during the ripening of cheese, 1884, A., 1448.  
 — C. Thiel's pasteurising apparatus for milk, 1885, A., 105.  
 — notes on milk, 1885, A., 849.
- Fleischmann, Wilhelm, and Johannes Berendes**, creaming of milk, 1885, A., 944.
- Fleischmann, Wilhelm, and August Morgen**, Scherff's preserved milk, 1883, A., 757.
- Fleischmann, Wilhelm, and Rudolph Sachtleben**, Becker's creaming process, 1883, A., 253.  
 — Jacobsen's testing-churn, 1883, A., 253.  
 — experiments with Nielsen and Petersen's centrifugal separator, 1884, A., 135.
- Fleischmann, Wilhelm** (and others), estimation of fat in skim milk, 1884, A., 1435.
- Fleissner, Franz**. See *Eduard Lippmann*.
- Flemming, H.**, glycerolphosphoric acid, 1883, A., 682.
- Flessa, Rud.**, derivatives of naphthalene, 1884, A., 1185.
- Fletcher, Fredrick William**, quinine hydrate, 1886, A., 371.
- Fletcher, Herbert Morley**. See *John Newport Langley*.
- Fletcher, Lazarus**, dilatation of crystals on change of temperature, 1884, A., 1096.  
 — cliftonite, a cubic form of graphitic carbon, 1888, A., 30.  
 — meteoric iron from Nejed, Central Africa, 1888, A., 662.  
 — meteoric iron from Greenbrier Co., West Virginia, 1888, A., 662.

- Fletcher, Thomas**, flameless combustion, 1883, A., 523.  
 — coal gas as a source of heat, 1884, A., 697.
- Fleurent, Emile Charles Albert**, ammonio-copper ammonium cyanide, 1892, A., 420.  
 — action of potassium cyanide on ammoniacal cupric chloride, 1892, A., 1065.
- Fleury, Gustave Clément**, gum of Grevillea, 1885, A., 238.  
 — density of porous bodies, 1885, A., 334.  
 — action of iodine on iron, 1888, A., 654.  
 — estimation of tannin, 1892, A., 1135.
- Flight, Walter**, two new aluminous mineral species, evigtokite and liskeardite, 1883, T., 140.  
 — examination of certain meteorites, 1883, A., 169.  
 — meteorite at Alfianello, 1884, A., 276.  
 — the Cranbourne meteorite, 1884, A., 416.  
 — the Rowton and Middlesborough meteorites, 1884, A., 977.
- Flight, Walter**. See also (*Baron*) *Heinrich von Foullon*.
- Flimm, W.**, synthesis of indigo from bromacetanilide, 1890, A., 383.
- Flink, Gustav**, a series of diopside varieties from Nordmarken, 1886, A., 777.  
 — schefferite from Långban and Pajsberg, 1886, A., 778.  
 — rhodonite from Långban and Pajsberg, 1886, A., 778.  
 — längbanite, 1887, A., 782.  
 — mineralogical notes, 1888, A., 232.  
 — Swedish minerals, 1889, A., 221.  
 — rhodotilite and heliophyllite from Sweden, 1890, A., 459.  
 — pinakiolite and trimmerite, new Swedish minerals, 1891, A., 404.  
 — ochrolite from Pajsberg, 1891, A., 1168.  
 — braunite and friedelite from Sweden, 1892, A., 1406.
- Flink, Gustav**, and *Axel Hamberg*, crystals of sarkinite, 1890, A., 715.
- Flink, Gustav**. See also *Woldemar Christofer Brögger*.
- Flöel, Otto**, action of potassium and sodium salts on unstriated muscle, 1885, A., 578.
- Flourens, G.**, products of the saccharification of amylaceous substances by acids, 1890, A., 1089.
- Flückiger, Friedrich August**, American storax, 1883, A., 407.  
 — potassium carbonate, 1883, A., 902.  
 — caraway oil, 1884, A., 1138.  
 — testing oil of roses, 1885, A., 934.  
 — estimation of morphine in opium, 1885, A., 1165; 1890, A., 94.  
 — tests for atropine, 1886, A., 397.  
 — cocaine and atropine, 1886, A., 632.  
 — notes on quinine hydrate, 1886, A., 138.  
 — reaction of thiosulphates, 1887, A., 689.  
 — safrole, 1887, A., 990.  
 — iodine estimation in *Laminaria*, 1887, A., 996.  
 — lithium carbonate, 1887, A., 1000.  
 — test for acetanilide, 1888, A., 761.  
 — ash determination, 1889, A., 80.  
 — detection of minute quantities of arsenic, 1889, A., 650.
- Flückiger, Friedrich August**, and *Joseph Ehlinger*, santolin estimation, 1886, A., 495.
- Flückiger, M.**, the copper oxide reducing constituent of normal urine, 1885, A., 924.
- Flug**. See *Pflug*.
- Fock, Albert**. See *Ferdinand Tiemann*.
- Fock, Andreas**, new thermo-regulator, 1885, A., 950.  
 — explanation of optical activity, 1891, A., 513.
- Fock, Andreas**, and *Karl Klüss*, thio-sulphates, 1890, A., 210, 330, 564, 1057; 1891, A., 879; 1892, A., 12.  
 — potassium tetrathionate and pentathionate, 1890, A., 1210.  
 — double chloride and dithionate of barium, 1891, A., 16.  
 — ammonium pyrosulphite, 1891, A., 151.  
 — ammonium dithionate hydrochloride, 1892, A., 13.
- Focke, Hermann**, testing for mineral and resin oils in fatty oils, 1886, A., 581.  
 — separation of morphine and strychnine from fatty matters, 1887, A., 187.  
 — estimation of alkaline chlorides in potash, 1887, A., 1138.
- Fodera, O.** See *L. Demarchi*.
- Foecking, C. G. Ludwig**. See *Adolph Claus*.
- Föhlisch, Eduard**. See *Adolph Claus*.
- Föhr, Carl Friedrich**, sources of error in estimating iron in ores by the stannous chloride method, 1883, A., 242.  
 — chemical composition of the phonolites of Hegau, 1884, A., 568.  
 — estimation of minute quantities of silver, 1885, A., 84.

- Fölsing, August**, action of hydrobromic acid on the ethereal salts of hydroxy-acids, 1884, A., 897.  
 — boiling-points of the ethereal salts of glycollic and salicylic acids, 1884, A., 897.
- Foerster, Adolf**. See *Oscar Gustav Doebner*.
- Foerster, Fritz**, tautomerism of thiocarb-amides, 1888, A., 944.  
 — estimation of camphor, 1891, A., 131.  
 — derivatives of carbonyl chloropla-tinites, 1892, A., 352.  
 — action of superheated water and solutions of alkalis and salts on glass, 1892, A., 1401.
- Foerster, Fritz**. See also *Franz Mylius*.
- Förster, Hans**. See *Karl Elbs*.
- Förster, Max von**, experiments with compressed gun-cotton, 1884, A., 948.
- Foerster, Otto**, apparatus for the extrac-tion of fat in the cold, 1888, A., 760.  
 — estimation of mustard oil in seeds of the Crucifere, 1888, A., 1350.  
 — estimation of nitrogen in nitrates by Kjeldahl's method, 1889, A., 547, 746.  
 — purification of litmus, 1889, A., 1086.  
 — apparatus for drying fodders con-taining drying oils, 1890, A., 670.  
 — Kjeldahl's method for the estima-tion of nitric and total nitrogen, 1890, A., 1466.  
 — estimation of nitrogen in sodium nitrate, 1891, A., 107.  
 — lacmoid, 1891, A., 241.  
 — estimation of phosphoric acid by the molybdate process, 1892, A., 1519.
- Foerster, Otto**. See also *J. Fittbogen*.
- Förstner, H.**, the felspars of Pantelleria, 1884, A., 1104.  
 — artificial physical changes in the felspars of Pantelleria, 1886, A., 601.
- Fogh, Johann**, dimethylanilinequinone-imide, 1888, A., 592.  
 — thermochemistry of thiosulphates, 1890, A., 679.  
 — action of sodium thiosulphate on silver salts, 1890, A., 694.  
 — lead thiosulphate, 1890, A., 700.  
 — decomposition of lead thiosulphate by heat: lead trithionate, 1890, A., 700.  
 — lead sodium thiosulphates, 1890, A., 700.  
 — sugars, 1892, A., 938.
- Fogh, Johann**. See also *Marcellin Ber-thelot*.
- Fokker, Abraham Pieter**, hygienic im-portance of the detection of carbonic oxide, 1885, A., 415.  
 — fermentation by protoplasm from recently killed animals, 1887, A., 984.
- Folkard, Charles Watson**, molecular calcium compounds, 1884, A., 892.  
 — bacteriological examination of water, 1887, A., 619.
- Folkers, Bernhard**, utilisation of skim milk, 1884, A., 534.
- Follows, Harold**. See *Arthur Bower Griffiths*.
- Fontaine, Wm. F.**, certain minerals in Amelia Co., Virginia, 1888, A., 959.
- Foot, Albert E.**, twin-crystals of zircon, 1885, A., 222.  
 — discovery of diamonds in meteoric iron, 1892, A., 284.  
 — new meteoric iron from Maryland, 1892, A., 794.
- Foot, Hubert U.**, apparatus used for precipitating copper by electrolysis, 1885, A., 597.
- Forbes, John D.**, Colorado beetle, 1884, A., 350.
- Forbes, Matthew**, apparatus for washing precipitates, 1892, A., 1513.
- Forerand, Robert de**, heat of formation of solid glycolates, 1883, A., 644.  
 — heat of formation of glycolates, 1883, A., 708.  
 — neutralisation of glycollic acid by bases, 1883, A., 774.  
 — salts of glycollic acid, 1883, A., 775.  
 — compounds of hydrogen sulphide with ethers, 1883, A., 961.  
 — formation of disodium glycolate, 1883, A., 1085.  
 — barium alcoholates, 1884, A., 4.  
 — sodium alcoholates, 1884, A., 142.  
 — heat of formation of alcoholates, 1884, A., 546; 1885, A., 1102; 1887, A., 318.  
 — glycolide, 1884, A., 547.  
 — disodium glycolate, 1884, A., 548.  
 — normal and acid sodium sulphites, 1884, A., 803.  
 — transformation of glyoxal into gly-collic acid, 1884, A., 898.  
 — potassium and barium glyoxal-hydrogen sulphites, 1884, A., 989.  
 — heat of formation of ammonium sulphite, 1885, A., 471.  
 — glyoxal-ammonium hydrogen sul-phite, 1885, A., 627, 648.  
 — sodium methoxide, 1885, A., 1081.  
 — heat of formation of alkaline al-ccoholates, 1885, A., 1102.

- Forcrand, Robert de**, thermochemistry of glyoxylic acid, 1886, A., 297.
- combination of methyl alcohol with cupric sulphate, 1886, A., 524.
  - combination of methyl alcohol with barium oxide, 1886, A., 781.
  - hydrated barium dioxide, 1886, A., 850.
  - action of barium oxide on methyl alcohol, 1886, A., 861.
  - sodium glyceroxide, 1887, A., 8.
  - heats of formation of potassium methoxide and ethoxide, 1887, A., 201.
  - heats of formation of potassium alcoholates, 1887, A., 318.
  - heats of formation of sodium alkyl oxides, 1887, A., 319.
  - potassium glyceroxide, 1887, A., 320.
  - alcoholates of sodium glyceroxide, 1887, A., 426.
  - alcoholates of potassium glyceroxide, 1887, A., 427.
  - action of ethylene bromide on alkyl metallic oxides, 1887, A., 544.
  - bibasic glyceroxides, 1888, A., 642.
  - sodium glycol oxide, 1888, A., 1238.
  - polybasic glyceroxides, 1888, A., 1264.
  - compound of sodium glycol with glycol, 1889, A., 367.
  - alcoholates of monosodium glycol, 1889, A., 562.
  - combination of chloral with glycol, 1889, A., 689.
  - preparation and heat of formation of sodium erythroxide, 1890, A., 935, 950.
  - action of erythritol on alkali alkyl oxides, 1890, A., 935, 950.
  - alkaline derivatives of erythritol, 1891, A., 657.
  - preparation of disodium erythroxide, 1891, A., 999.
  - constitution and heat of formation of bibasic erythroxides, 1891, A., 1312.
  - disodium glycol, 1892, A., 421.
  - thermal value of the hydroxyl groups in glycol, 1892, A., 576.
  - thermochemistry of sodium isopropoxide, 1892, A., 674.
  - sodium isopropoxide, 1892, A., 691.
  - value of the primary alcoholic function, 1892, A., 799.
  - monosodium mannitol, 1892, A., 800.
  - thermal function of phenol, 1892, A., 1042.
  - sodiotrimethylcarbinol: value of the tertiary alcoholic function, 1892, A., 1066.
- Forcrand, Robert de**, monosodium catechol, 1892, A., 1184.
- sodium resorcinol and sodium quinol, 1892, A., 1184.
  - dimetallic derivatives of dihydric phenols, 1892, A., 1185.
  - sodium pyrogallol, 1892, A., 1313.
  - constitution of pyrogallol, 1892, A., 1446.
- Forcrand, Robert de**, and **P. Villard**, hydrate of hydrogen sulphide, 1888, A., 644, 897.
- hydrates of gases, 1888, A., 644.
  - hydrate of methyl chloride, 1888, A., 897.
- Forel, Sylvestre**. See **Emilio Nölting**, **Otto Nikolaus Witt**.
- Forest**. See **Lucien Bondonneau**.
- Formánek, Emanuel**, formation of uric acid from cyanacetic acid and carbamide, 1892, A., 149.
- influence of hot baths on the excretion of nitrogen and uric acid from the human system, 1892, A., 1503.
- Formánek, Julius**, solubility of lead chloride in solutions of mercuric chloride, 1887, A., 772.
- quantitative separation of chromium and uranium, 1888, A., 531.
  - dithioxamide (cyanogen disulphide), 1890, A., 29.
  - estimation of inverted sugar, 1890, A., 836.
  - uranyl chromate and its double salts, 1890, A., 852.
- Formento, Ettore**, behaviour of some vegetable substances towards copper and some of its compounds, 1891, A., 491.
- Forney, McCallan**, action of iodine pentabromide on essential oils, 1884, A., 370.
- Forrer, Carl**, derivatives of phenylacetaldehyde, 1884, A., 1020.
- indirubin, 1884, A., 1028.
- Forsling, Sven Emil**,  $\beta$ -naphthylamine-sulphonic acid, 1886, A., 890; 1887, A., 962.
- Brønner's  $\beta$ -naphthylaminesulphonic acid, 1887, A., 375.
  - $\beta$ -chloronaphthalenesulphonic acid, 1889, A., 54.
  - action of fuming sulphuric acid on Brønner's  $\beta$ -naphthylamine- $\beta$ -sulphonic acid, 1889, A., 275.
  - constitution of  $\beta$ -naphthylamine- $\alpha$ -sulphonic acid, 1889, A., 718.
  - $\beta$ -bromonaphthalenesulphonic acids, 1889, A., 894.

- Forsell, Gideon**, action of ethylenediamine on thiamides, 1891, A., 1003; 1892, A., 1247.
- action of ethylenediamine on ethyl dibromosuccinate, 1891, A., 1004.
- Forster, Josef**, use of boric acid for preserving food, 1883, A., 1178; 1884, A., 782.
- Forster, Martin Onslow**. See *Raphael Meldola*.
- Forster, W. G.**, preparation of hop-extract, 1884, A., 800.
- Fort, J. A.**, physiological action of coffee, 1883, A., 745.
- Forte, Oreste**, naphthylamidoacetic acid, 1890, A., 900.
- Forte, Oreste**. See also *Agostino Ogliaro-Todaro*.
- Forti, C.**, presence of cholesterol and a soluble carbohydrate in melon seeds, 1891, A., 357.
- Fossek, Wilhelm**, preparation of isobutaldehyde free from acetone, 1884, A., 37.
- a derivative of isobutaldehyde analogous to hydrobenzoin, 1884, A., 37.
- synthesis of dihydric alcohols from mixtures of aldehydes, 1884, A., 882.
- action of phosphorus trichloride on aldehydes, 1884, A., 833.
- hydroxyphosphinic acids, 1885, A., 504; 1886, A., 529.
- carbonic anhydride in the air of school-rooms, 1887, A., 888.
- Fossek, Wilhelm**. See also *Edm. Swoboda*.
- Foster, Ernest le Neve**, thiobismuthite of lead and silver, 1886, A., 515.
- Foster, William**, behaviour of the nitrogen of coal during destructive distillation, with some observations on the estimation of nitrogen in coal and coke, 1883, T., 105.
- note on the carbon deposited from coal-gas flames, 1892, P., 46.
- Foth, G.**, nitrotoluidinesulphonic acid, 1886, A., 152.
- Foullon, (Baron) Heinrich von**, crystalline schists of Kaisersberg in Styria, 1884, A., 412.
- crystallised copper from Schneeberg, 1885, A., 220.
- products of the alteration of pitchblende, 1885, A., 222.
- native tellurium from Fačzebaja, 1885, A., 1116.
- antimonite from Czerwenitzka, 1886, A., 22.
- crystallised tin, 1886, A., 124.
- Foullon, (Baron) Heinrich von**, new discoveries of minerals, 1888, A., 429.
- meteorites of Shalka and Manbhoom, 1889, A., 574.
- minerals from the Tyrol—bleedite, brucite, and red manganese ore, 1890, A., 339.
- breunerite and bleedite from Hall in the Tyrol, 1891, A., 648.
- Foullon, (Baron) Heinrich von**, and *Walter Flight*, the Alfanello meteorite, 1884, A., 976.
- Foullon, (Baron) Heinrich von**, and *Viktor Goldschmidt*, epidote and muscovite, 1890, A., 344.
- Foullon, (Baron) Heinrich von**. See also *Maximilian Josef Schuster*.
- Fouqué, F.**, triclinic felspar from Quatre Ribeiras, 1885, A., 642.
- a crystallised slag, 1888, A., 794.
- Fouqué, F.**, and *Auguste Michel-Lévy*, artificial formation of various rocks, 1883, A., 448.
- Fouquet**, action of hydrocyanic acid on calomel, 1890, A., 223.
- Fourmont**, new method of testing for chlorates, 1885, A., 430.
- Fourneaux, Emile**, nitro-*p*-toluquinoline, 1885, A., 400.
- Fourquignon, L.**, decomposition of white-iron by heat, 1884, A., 1444.
- Foussereau, Georges Ernest Marie**, influence of temper on the electrical resistance of glass, 1883, A., 701.
- electrical resistance of insulators, 1884, A., 245.
- electrical conductivity of distilled water, 1884, A., 1241.
- electrical resistance of alcohol, 1885, A., 1100.
- decomposition of ferric chloride by water, 1886, A., 844.
- decomposition of chlorides in dilute solution, 1886, A., 975.
- effect of pressure on the decomposition of chlorides, 1887, A., 697.
- decomposition of acetates by water, 1887, A., 767.
- decomposition of thiosulphates by acids, 1887, A., 883.
- Fowler, Gilbert John**, and *James Grant*, influence of different oxides on the decomposition of potassium chlorate, 1890, T., 272; P., 20; discussion, P., 21.
- Fowler, Gilbert John**. See also *George Herbert Bailey*.
- Fox, Joseph J.** See *Percy Faraday Frankland*.
- Fox, William**, action of petroleum on lead, 1888, A., 1249.

- Fox, William, and James Alfred Wanklyn**, butter analysis, 1885, A., 446.  
 ——— determination of glycerol, 1886, A., 395.
- Fox, William.** See also *James Alfred Wanklyn*.
- Fränkel, Adolf.** See *Otto Fischer*.
- Fraenkel, Albert, and Julius Geppert**, effects of rarefied air on the animal organism, 1884, A., 470.
- Fränkel, Ignaz.** See *Rudolph Fittig*.
- Fraenkel, Nahem,** derivatives of thiobiphenylamine, 1885, A., 1130.
- Fraenkel, Sigmund.** See *Richard Kerry*.
- Fragner, Carl,** imperialine, 1889, A., 284.  
 ——— amarylline and bellamarine, two new alkaloids, 1891, A., 1122.
- Franco, C. A.,** new method for effecting discharges on fibre dyed with indigo, 1886, A., 291.
- Franceschi, Giambattista,** volumetric estimation of arsenic acid, 1892, A., 1519.  
 ——— volumetric estimation of gold, 1892, A., 1526.
- Francesconi, L.,** santonic acid, 1892, A., 1352.
- Franchimont, Antoine Paul Nicolas,** action of anhydrides on aldehydes, ketones, and oxides, 1883, A., 452.  
 ——— *p*-aldehyde, 1883, A., 453.  
 ——— reduction of nitrodimethylamino, 1885, A., 963.  
 ——— action of nitric acid on certain dibasic acids, 1885, A., 964; 1887, A., 466.  
 ——— action of nitric acid on methylsulphonamides, 1885, A., 969.  
 ——— amides and their nitro-derivatives, 1886, A., 448.  
 ——— action of nitric acid on substituted malonic acids, 1886, A., 533.  
 ——— action of nitric acid on amides and alkyl amides, 1888, A., 447.  
 ——— influence of negative groups on the properties of compounds, 1888, A., 1052.  
 ——— ureides, 1888, A., 1064.  
 ——— sulphacetic acid and its derivatives, 1888, A., 1175.  
 ——— influence of certain groups on the behaviour of organic compounds with nitric acid, 1889, A., 1145.  
 ——— action of nitric acid on the amidines, 1892, A., 951.  
 ——— acetaldoxime, 1892, A., 951.
- Franchimont, Antoine Paul Nicolas, and Eduard August Klobbie,** amides of ethylsulphonic acid, 1887, A., 468.
- Franchimont, Antoine Paul Nicolas, and Eduard August Klobbie,** methylamides and ethylamides of trichloroacetic and trimethylacetic acids, 1888, A., 1062.  
 ——— methylamides and ethylamides of heptylic acid, 1888, A., 1063.  
 ——— derivatives of carbamide, 1888, A., 1179.  
 ——— methyl and ethyl ethyleneamidoformates and their nitro-derivatives, 1889, A., 124.  
 ——— ureides and their nitro-derivatives, 1889, A., 125.  
 ——— some nitramines and their derivatives, 1889, A., 492.  
 ——— action of nitric acid on organic compounds, 1889, A., 1148.  
 ——— action of nitric acid on ethyl methenyltricarboxylate, 1891, A., 426.  
 ——— action of nitric acid on methane-di- and tri-sulphonic acids, 1891, A., 426.
- Francis, Ernest E. H.,** toughened filter paper, 1885, T., 183; P., 19.
- Francke, G.,** estimation of starch in grain, 1883, A., 624.
- Francksen, Aug.,** derivatives of propylphenylamine, 1884, A., 1007.
- Frank, A.,** process for the recovery of slag, 1884, A., 1226.
- Frank, Adolph,** bromine as a disinfectant, 1884, A., 512.
- Frank, Albert Bernhart,** hypochlorin and its formation, 1883, A., 483.  
 ——— formation and physiological significance of gum, 1885, A., 684.  
 ——— origin and fate of nitric acid in plants, 1888, A., 979.  
 ——— loss and gain of nitrogen in agriculture, 1889, A., 71.  
 ——— detection of nitrates in soil, 1889, A., 649.  
 ——— the fungussymbiosis of the Leguminosae, 1890, A., 1020; 1891, A., 353.  
 ——— assimilation of nitrogen from the air by *Robinia pseud-acacia*, 1891, A., 764.  
 ——— assimilation of free nitrogen by plants in its dependence on species, on nutrition, and on soil, 1892, A., 370.  
 ——— to what extent is atmospheric nitrogen assimilable? 1892, A., 1507.
- Frank, Albert Bernhart, and Richard Otto,** assimilation of nitrogen by plants, 1891, A., 855.
- Franke, Br.,** hydroxylated solid hydrogen phosphide, 1887, A., 635.  
 ——— new gas-burette, 1887, A., 687.

- Franke, Br.**, action of sulphuric acid on potassium permanganate, 1887, A., 893.  
 — manganese compounds, 1887, A., 1016; 1888, A., 229.  
 — fire-damp, 1888, A., 570.
- Franke, Ernst**, benzenesulphone-*o*-amidobenzamide and its anhydride, 1890, A., 1289.  
 — action of sulphonic chlorides on *o*-amidobenzamide, 1892, A., 334.
- Frankel, Lee K.**, electrolysis of metallic thiocyanates and the decomposition of alkali thiocyanates, 1891, A., 1170.  
 — oxidation of arsenic by the electric current, 1892, A., 752.
- Frankel, Lee K.** See also **Edgar Francis Smith**.
- Frankenbacher, Alexander.** See **Paul Jacobson**.
- Frankfeld, H.**, cinnamic acid in the products of decomposition of crude cocaine, 1889, A., 419.
- Frankland, Edward**, chemistry of storage batteries, 1883, A., 839; 1890, A., 842.  
 — chemical changes in relation to micro-organisms, 1885, T., 159; P., 9; discussion, P., 12.
- Frankland, (Mrs.) Grace C.**, morphological characterisation of *Bacillus ethacetosuccinicus*, 1892, T., 275.
- Frankland, (Mrs.) Grace C.** See also **Percy Faraday Frankland**.
- Frankland, Percy Faraday**, the illuminating power of ethylene when burnt with non-luminous combustible gases, 1884, T., 30.  
 — the composition of coal and cannel gas in relation to their illuminating powers, 1884, T., 189.  
 — the influence of incombustible diluents on the illuminating power of ethylene, 1884, T., 227.  
 — illuminating power of hydrocarbons, 1885, T., 235; P., 31.  
 — removal of micro-organisms from water, 1886, A., 573.  
 — a gasometric method of determining nitrous acid, 1888, T., 364; P., 23.  
 — action of some specific micro-organisms on nitric acid, 1888, T., 373.  
 — action of gases on the development of micro-organisms, 1889, A., 738.
- Frankland, Percy Faraday**, and **John Dingwall**, decomposition of potassium chlorate and perchlorate by heat, 1887, T., 274; P., 14.
- Frankland, Percy Faraday**, and **Joseph J. Fox**, fermentation of mannitol and glycerol, 1890, A., 915.
- Frankland, Percy Faraday**, and (Mrs.) **Grace C. Frankland**, the nitrifying process and its specific ferment, 1891, A., 352.
- Frankland, Percy Faraday**, and **William Frew**, fermentation of calcium glycerate by *Bacillus ethaceticus*, 1890, P., 178; 1891, T., 81.  
 — optically active glyceric acid, 1890, P., 174; 1891, T., 96.  
 — a pure fermentation of mannitol and dulcitol, 1892, T., 254; P., 11.
- Frankland, Percy Faraday**, and **Fredrick John Hambly**, composition of the milk of the bottle-nose whale, 1890, A., 812.
- Frankland, Percy Faraday**, and **Frank Jordan**, on the gases evolved during the conversion of grass into hay, 1883, T., 294.
- Frankland, Percy Faraday**, and **John S. Lumsden**, decomposition of mannitol and dextrose by the *Bacillus ethaceticus*, 1892, T., 432; P., 70; discussion, P., 71.
- Frankland, Percy Faraday**, and **John MacGregor**, fermentation of asiabiose with the *Bacillus ethaceticus*, 1892, T., 737; P., 132.
- Frankland, Percy Faraday**, and **Thomas Turner**, note on the action of allyl iodide upon phenol in presence of zinc or aluminium foil, 1883, T., 357.
- Frankland, Percy Faraday**, **Arthur Stanley**, and **William Frew**, fermentations induced by the *Pneumococcus* of Friedlander, 1891, T., 253; P., 30.
- Franzek, Carl J.** See **Paul Ehrhardt Jannasch**.
- Franzenau, August**, amphibole from the Aranyer Mountain, 1885, A., 226.  
 — anglesite from Felső-Vissó, 1885, A., 733.
- Fraser, Thomas Richard**, strophanthin, 1887, A., 1115; 1888, A., 606.  
 — *Strophanthus hispidus*, 1890, A., 262.
- Frear, William**, the time element in gluten determinations, 1885, A., 1014.  
 — digestibility of soiling rye, 1889, A., 735.
- Freda, Giovanni**, mineralogical notices, 1884, A., 272.  
 — chrysocolla from Etna, 1885, A., 643.  
 — composition of the piperno of the Collina del Vomero, 1889, A., 222.  
 — composition of saline sublimates from Vesuvius, 1890, A., 571.  
 — recent Vesuvian lavas, 1890, A., 573.

- Fredericq, Léon**, influence of changes in the composition of the air on respiratory changes, 1885, A., 407.  
 — preservation of oxyhæmoglobin, 1891, A., 591.  
 — preservation of hæmocyannin, 1891, A., 591.  
 — hæmocyannin, 1892, A., 1370.  
**Freer, Paul C.**, action of sodium on acetone, 1890, A., 956.  
 — constitution of aliphatic ketones and the action of sodium on acetone, 1891, A., 1181.  
 — ethyl acetoacetate, 1892, A., 953.  
 — lecture experiment illustrating the effusion of gases, 1892, A., 1150.  
**Freer, Paul C.**, and **F. L. Dunlap**, hydrolysis of substituted ethyl acetates, 1892, A., 1148.  
**Freer, Paul C.**, and **George O. Higley**, action of ethyl chlorocarbonate on acetone-sodium, 1891, A., 1182.  
**Freer, Paul C.**, and **William Henry Perkin, junior**, action of ethylene bromide on the sodium derivatives of ethyl acetoacetate, benzoylacetate, and acetonedicarboxylate, 1887, T., 820; P., 95.  
 — attempt to synthesize heptamethylene-derivatives, 1887, P., 96; discussion, P., 97.  
 — synthesis of hexamethylene-derivatives, 1887, P., 96.  
 — — — — — synthetical formation of closed carbon chains: derivatives of hexamethylene, 1888, T., 202.  
 — — — — — synthetical formation of closed carbon chains; experiments on the synthesis of heptamethylene, 1888, T., 215.  
**Freer, Paul C.** See also **Arthur Michael, William Henry Perkin, junior**.  
**Freinkel, Moses.** See **Friedrich Kehrmann**.  
**Freire, Domingos**, alkaloid from *Solanum grandiflorum*, 1888, A., 166.  
**Fremery, J. L. de**, analysis of two Californian wines, 1885, A., 812.  
**Fremery, M.**, arsenotungstic acids, 1884, A., 965.  
**Fremy, Edmond**, artificial formation of rubies, 1887, A., 556.  
**Fremy, Edmond**, and **V. Urbain**, cutose, 1885, A., 369.  
**Fremy, Edmond**, and **A. Verneuil**, action of fluorides on alumina, 1887, A., 1556.  
 — — — — — artificial rubies, 1888, A., 561.  
 — — — — — synthesis of rubies, 1891, A., 158.
- French, Andreu**, peculiar crystalline alloy of copper, tin, and lead, 1890, A., 335.  
**French, William**, estimation of gold, tin, and cadmium in alloys, 1892, A., 1030.  
**Frentzel, Johannes**, *n*-primary-hexyl alcohol, 1883, A., 1075.  
**Frentzel, Waldemar**, polymerisation products of the tolyl cyanates, 1888, A., 454.  
 — — — — — aromatic cyanates and their polymerides, 1889, A., 241.  
**Frenzel, August**, rezbanyite, a new mineral species, 1884, A., 266.  
 — — — — — alloclasite, 1884, A., 266.  
 — — — — — turquoise found at Alexandria, 1884, A., 269.  
 — — — — — mineralogical notes, 1888, A., 923.  
 — — — — — analysis of hohmannite, 1888, A., 924.  
**Frenzel, August.** See also **Andreas Arzruni**.  
**Frenzel, Johannes**, and **Theodor Weyl**, estimation of casein in cows' milk, 1885, A., 936.  
**Frerichs, E.**, formation of hydrochloric acid in the stomach, 1886, A., 639.  
**Fresenius, Carl Remigius**, new reaction of titanio acid, 1886, A., 181.  
 — — — — — estimation of arsenic and boric acids in mineral waters, 1886, A., 649.  
 — — — — — separation of gold and platinum from tin, antimony, and arsenic, 1886, A., 651.  
 — — — — — hot springs at Wiesbaden, 1887, A., 352; 1888, A., 928.  
 — — — — — preparation of hydrogen sulphide free from arsenic, 1887, A., 885.  
 — — — — — mineral spring in the Admiralsgartenbad, Berlin, 1889, A., 27.  
 — — — — — separation of barium from strontium, 1890, A., 826, 924; 1891, A., 110.  
 — — — — — separation of barium from calcium, 1891, A., 500, 1552; 1892, A., 100.  
 — — — — — Julianen and Georgen springs at Eilsen, 1892, A., 796.  
**Fresenius, Carl Remigius**, and **Eugen Borgmann**, analyses of pure wines, 1883, A., 518.  
**Fresenius, Carl Remigius**, and **Th. Wilhelm Fresenius**, detection of adulteration in Portland cement, 1884, A., 876.  
 — — — — — Portland cement and its adulteration, 1885, A., 616.  
**Fresenius, Carl Remigius**, and **E. Hintz**, estimation of tin in hardhead, 1886, A., 180.

- Fresenius, Carl Remigius**, and **E. Hintz**, detection of arsenic in fabrics, paper, etc., 1888, A., 754.
- estimation of silicon and iron in cryolite, 1889, A., 927.
- analysis of chrome-iron ore, 1890, A., 828.
- Fresenius, Heinrich**, analysis of the Schützenhof Quelle, Wiesbaden, 1887, A., 647.
- estimation of arsenic in pyrites, 1888, A., 322.
- arsenic in bone-phosphate used for cattle-feeding, 1889, A., 548.
- Fresenius, Heinrich**, and **Stocks**, sulphuric acid as a manure, 1884, A., 926.
- Fresenius, Th. Wilhelm**, arsenic in glass, 1884, A., 220.
- use of asbestos to aid the subsidence of suspended matter, 1888, A., 320.
- estimation of phosphoric acid in sweet wines, 1889, A., 547.
- examination and valuation of spirituous liquors, 1890, A., 1194.
- the true or Mohr's litre for volumetric analysis, 1891, A., 1548.
- recognition of potato starch sugar in wines, 1892, A., 922.
- Fresenius, Th. Wilhelm**, and **F. Ruppert**, solubility of calcium and strontium chromates in dilute alcohol, and the separation of these metals as chromates, 1892, A., 914.
- Fresenius, Th. Wilhelm**. See also **Eugen Borgmann**, **Carl Remigius Fresenius**.
- Freundberg, A.**, influence of acids and alkalis on the alkalinity of human blood and on the reaction of the urine, 1891, A., 1528.
- Freudenberg, H.**, a new principle of electrolytic separation of metals, 1892, A., 1521.
- Freund, August**, formation of sorbose from the juice of mountain-ash berries, 1891, A., 658.
- Freund, Ernst**, volumetric estimation of sulphuric acid in urine, 1892, A., 1377.
- Freund, Ernst**, and **Fritz Obermayer**, the blood in leucocythæmia, 1891, A., 1124.
- Freund, Martin**, malonic acid, 1884, A., 728.
- malonic and tartronic acids, 1884, A., 1123.
- ethyl ferrocyanide, 1888, A., 571.
- ethyl platincyanide, 1888, A., 571.
- hydrastine, 1889, A., 627, 908, 1221; 1890, A., 534.
- Freund, Martin**, conversion of trinitrohydrazobenzene into nitrosodinitroazobenzene, 1889, A., 977.
- hydrazines, 1890, A., 148.
- Freund, Martin**, and **Carl Dormeyer**, hydrastine, 1891, A., 1518; 1892, A., 223.
- Freund, Martin**, and **Byron B. Goldsmith**, derivatives of ethylmalonic acid, 1888, A., 675.
- action of carbonyl chloride on hydrazides, 1888, A., 686.
- derivatives of carbizine and thiocarbazine, 1888, A., 1187.
- Freund, Martin**, and **Edward Gudeman**, tetramethylene derivatives, 1888, A., 1271.
- Freund, Martin**, and **Max Heim**, hydrastine, 1891, A., 92.
- Freund, Martin**, and **Paul Herrmann**, new hexylamine and a new hexyl alcohol, 1890, A., 473.
- Freund, Martin**, and **Paul Immerwahr**, reduction of nitriles, 1890, A., 1407.
- Freund, Martin**, and **Walter Josephi**, alkaloids of the root of *Corydalis cava*, 1892, A., 1366.
- Freund, Martin**, and **Felix Kuh**, constitution of carbizines, 1890, A., 1440.
- Freund, Martin**, and **Siegbert Lachmann**, hydrastine, 1889, A., 1220.
- Freund, Martin**, and **Friedrich Lenze**, tertiary-butylcarbinol, 1890, A., 1388.
- polymeride of trimethylacetone, 1891, A., 1170.
- attempt to prepare tertiary-butylcarbinol, 1891, A., 1172.
- Freund, Martin**, and **Alfred Philips**, hydrastine, 1891, A., 93.
- Freund, Martin**, and **Paul Remse**, reduction of nitriles, 1890, A., 1422.
- Freund, Martin**, and **Albert Rosenberg**, hydrastine, 1890, A., 532.
- Freund, Martin**, and **Vladimir Rosenstein**, cinchouine, 1892, A., 892.
- Freund, Martin**, and **Franz Schönfeld**, interaction of nonylamine and nitrous acid, 1892, A., 132.
- Freund, Martin**, and **Wilhelm Will**, substances contained in the roots of *Hydrastis canadensis*, 1887, A., 174.
- hydrastine and its derivatives, 1887, A., 383, 1057.
- Freund, Martin**, and **Hans Wolf**, action of thiocarbonyl chloride on aromatic thiocarbamides, 1892, A., 983.
- Freund, Martin** (and others), biazolones, 1892, A., 508.
- Frew, William**. See **Thomas Carnelley**, **Percy Faraday Frankland**.

- Frey, Hans, and M. Horowitz**, new method for obtaining aromatic carb-oxylic acids, 1891, A., 565.
- Freydl, Julian**, dry distillation of tartaric and citric acids with excess of lime, 1883, A., 658.
- constitution of quinoline deriva-tives, 1888, A., 296.
- new synthesis of rhodanic acid, 1889, A., 961.
- loss of nitrogen in some analyses by Will and Varrentrapp's method, 1890, A., 1194.
- Freyer, Frans, and Victor Meyer**, boiling-point of zinc chloride and bromide and ignition temperature of electro-lytic gas, 1892, A., 680.
- Freyss, Georg**. See **Richard Brasch**.
- Freytag, Carl Emil Clemens, and von der Becke**, feeding horses on earth-nut meal, 1884, A., 100.
- Freytag, Wilhelm**. See **Heinrich Beckurts**.
- Fricke**, estimation of sulphuric acid in water, 1887, A., 862.
- Fricke, E.**, estimation of nitrogen in nitrates, 1892, A., 527.
- Frickhinger, H.**, oxalic acid from the residue of *Spiritus atheris nitrosi*, 1887, A., 360.
- Fridolin, Alexander**, chebulinic acid, 1885, A., 396.
- tannin from various plants, 1885, A., 808.
- Friedburg, L. H.**, carbon bisulphide, 1883, A., 535.
- manufacture of tartaric acid, 1883, A., 1178.
- preparation of thiophen, 1890, A., 1400.
- formation of anthraquinone, 1890, A., 1425.
- Friedburg, L. H., and John A. Mandel**, action of nitrous anhydride on various substances in solution in carbon bisul-phide, 1890, A., 1401.
- Friedel, Charles**, brucite of Cogné, Vale of Aosta, 1884, A., 162.
- combustion of diamonds, 1884, A., 1090.
- reply to remarks by Troost con-cerning chloral hydrate, 1885, A., 746.
- crystalline form of quercin, 1887, A., 1026.
- cinchonamine, 1888, A., 165.
- mesocamphoric acid, 1889, A., 898.
- crystalline form and optical pro-perties of Engel's crystalline modi-fication of sulphur, 1891, A., 977.
- benzene hexachloride, 1891, A., 1196.
- Friedel, Charles**, ethyl camphorates and isocamphorates, 1892, A., 500.
- Friedel, Charles, and Max Balsohn**, artificial production of mellite, 1883, A., 427.
- Friedel, Charles, and James Mason Crafts**, action of methylene chloride on toluene and benzene, 1884, A., 1812.
- decomposition of sulphonic acids, 1885, A., 268.
- decomposing action of alu-minium chloride on hydrocarbons, 1885, A., 654.
- separation of mixtures of hydrocarbons of the benzene series, 1886, A., 229.
- action of methyl chloride on o-dichlorobenzene in presence of aluminium chloride, 1887, A., 1101.
- action of methylene chloride on methylbenzene in presence of aluminium chloride, 1887, A., 1102.
- vapour density and molecular weight of aluminium chloride, 1888, A., 1040.
- vapour density of gallium chloride, 1888, A., 1250.
- vapour density of chlorine and of ferric chloride, 1888, A., 1251.
- new general method for the synthesis of aromatic compounds, 1889, A., 241.
- decomposition of sulphonic acids in presence of phosphoric acid, 1889, A., 1200.
- Friedel, Charles, and Jacques Curie**, pyroelectricity of quartz, 1883, A., 897.
- pyroelectricity of blende, sodium chlorate, and boracite, 1884, A., 3.
- pyroelectricity of the topaz, 1885, A., 469.
- Friedel, Charles, and Georges Friedel**, action of solutions of alkalis, &c. on mica, 1890, A., 1080.
- Friedel, Charles, and Léon Roux**, action of aluminium on aluminium chloride, 1885, A., 878.
- Friedel, Charles, and Edmond Sarasin**, artificial production of phosgenite, 1883, A., 481.
- formation of albite in the wet way, 1884, A., 163.
- Friedel, Charles (and others)**, composi-tion of dawsonite, 1883, A., 430.
- Friedel, Charles**. See also **Marcellin Berthelot**.
- Friedel, Georges**, melanophlogite, 1891, A., 648.

- Friedel, Georges.** See also *Charles Friedel*.
- Friedheim, Carl,** estimation of sulphur, 1886, A., 739.
- Weil's method for estimating sulphides, 1887, A., 396, 749.
- von der Pfordten's silver suboxide, 1887, A., 1079.
- silver suboxide and the action of potassium permanganate on silver, 1888, A., 415.
- meteorites of Alfanello and Concepcion, 1890, A., 115.
- separation of vanadic and tungstic acids, 1890, A., 666.
- tungstovanadic acids, 1890, A., 1066.
- molybdoivanadates, 1891, A., 884.
- Friedheim, Carl, and Hans Leo,** estimation of free hydrochloric acid in the presence of acid phosphates by means of calcium carbonate, 1891, A., 1288.
- Friedheim, Carl, and W. Schmitz-Dumont,** arsenovanadic acids, 1890, A., 1380.
- Friedheim, Carl, and M. Szamatolski,** so-called phosphovanadic acid and its salts, 1890, A., 1067.
- Friedl, W.,** staurolite, 1886, A., 32.
- Friedländer, Emil,** derivatives of  $\alpha$ - and  $\beta$ -naphthols, 1884, A., 79.
- Friedländer, Paul,**  $\alpha$ -amidobenzaldehyde, 1888, A., 331.
- substitution derivatives of quinoline, 1888, A., 351.
- $p$ -amidobenzyl cyanide, 1884, A., 737.
- nitration of cinnamic acid derivatives, 1885, A., 1137.
- aromatic amido-compounds, 1889, A., 606.
- Friedländer, Paul, and Otto Boekmann,** naphthaquinonedichlorodiimide, 1889, A., 614.
- Friedländer, Paul, and C. F. Göhring,** preparation of substituted quinolines, 1888, A., 1148.
- $\alpha$ -amidobenzaldehyde, 1884, A., 1019.
- Friedländer, Paul, and Robert Henriques,** reduction of  $\alpha$ -nitrobenzaldehyde, 1888, A., 187.
- Friedländer, Paul, and Maurice Julius Lazarus,** nitration of  $m$ - and  $o$ -nitrocinnamic acids, etc., 1885, A., 1138.
- Friedländer, Paul, and Jacob Mähly,** isindole, 1888, A., 918.
- nitration of  $p$ -nitrocinnamic acid, 1885, A., 1137.
- Friedländer, Paul, and Ferdinand Müller,** derivatives of  $\psi$ -carbostyryl, 1887, A., 977.
- Friedländer, Paul, and Stanislas von Szymanski,** nitration of  $\beta$ -naphthylamine, 1892, A., 1232.
- Friedländer, Paul, and Arthur Weinberg,** constitution of carbostyryl and hydrocarbostyryl, 1888, A., 204.
- carbostyryl, 1885, A., 989.
- Friedländer, Paul, and Peter Welmann,** dimethyl- $\alpha$ -naphthylamine and diethyl- $\alpha$ -naphthylamine, 1889, A., 150.
- Friedländer, Paul, and Severin Wiegand,** constitution of anthranil, 1884, A., 61.
- Friedländer, Paul.** See also *Jacob Eliasberg*.
- Friedreich, A.** See *Karl Hazura, Alois Smolka*.
- Friedrich, Arthur Richard,** monohalogen derivatives of crotonic acids, 1883, A., 968.
- Friedrich, Arthur Richard.** See also *Aug. Emmert*.
- Friedrich, I.,** lead tetrachloride, 1890, A., 699.
- Friedrichs, F.,** new galvanic battery, 1888, A., 99.
- Friedrichs, F.** See also *Greiner*.
- Friend, Walter M.** See *William Dobinson Halliburton*.
- Fries, Harold,** cyanuric derivatives, 1886, T., 314; P., 167.
- cyanuric chloride and other cyanuric derivatives, 1886, T., 739.
- Fries, Leonard.** See *Henry Bungener*.
- Frische, Paul,** nitro-derivatives of  $p$ -cresyl benzyl ether, 1884, A., 1837.
- Friswell, Richard John,** toughened glass beakers, 1885, P., 86.
- note on the action of dilute nitric acid on coal, 1892, P., 9.
- Friswell, Richard John, and Arthur George Green,** relation of diazobenzene-anilide to amidoazobenzene, 1885, T., 917; P., 102; 1887, P., 26.
- constitution of diazobenzene-anilide and its relation to amidoazobenzene, 1886, T., 746.
- Fritsch, Paul,** salts of dichlorhydrin with aromatic acids, 1891, A., 707.
- triglycerides of aromatic acids, 1891, A., 708.
- Fritsch, Paul.** See also *Adolf von Baeyer*.
- Fritts, Charles E.,** selenium battery, 1886, A., 107.
- Fritz, H.,** mutual relations of the physical properties of the elements, 1885, A., 117.

- Fröhlich, Emanuel**, derivatives of  $\psi$ -cumidine, 1884, A., 1318.  
 — derivatives of benzoyl- $\psi$ -cumidine, 1885, A., 154.  
**Fröhlich, G.**, measurements of solar heat, 1885, A., 326.  
**Fröhlich, C.** See *Theodor Zincke*.  
**Froelich, Oscar**, action of bromine on nitric oxide, 1884, A., 1257.  
**Fromentin, A.** (and others), recovery of beet-juice by lime, etc., 1885, A., 709.  
**Fromm, Emil**, disulphones, 1888, A., 357.  
 — disulphones and trisulphones, 1890, A., 55.  
 — phenyldithiobiuret, 1892, A., 844.  
**Fromm, Emil**, and *Eugen Baumann*, thio-derivatives of ketones, 1889, A., 852.  
**Fromm, Emil**. See also *Eugen Baumann*.  
**Fromme, Carl**, electrical researches, 1883, A., 697, 766.  
 — the tempering of steel, 1885, A., 26.  
 — electrolytic polarisation produced by feeble electromotive forces, 1887, A., 317, 541.  
 — maximum galvanic polarisation, 1888, A., 390.  
 — maximum polarisation of platinum electrodes in sulphuric acid, 1890, A., 316, 675.  
**Fromme, Georg**, and *Robert Otto*,  $\beta$ -dichloropropionic acid, 1887, A., 912.  
 — synthesis of xeronic acid from  $\alpha$ -dibromobutyric acid, 1887, A., 917.  
**Frost, Bruno**, constitution of terebic and teraconic acids, 1885, A., 393.  
**Frost, Howard V.**, condensation of benzyl cyanide and its substitution products with aldehydes and amyl nitrite, 1889, A., 597.  
**Frost, O. J.**, estimation of arsenic by Pearce's process, 1884, A., 115.  
**Frowein, P. C. F.**, dissociation of hydrated salts, 1888, A., 337.  
**Früh, J. J.**, morphology and chemistry of natural and artificial ulmin, 1884, A., 923.  
**Frühling, Joseph**,  $\gamma$ -hydroxybutyric acid, 1883, A., 42.  
**Frühling, Joseph**. See also *Emilio Nötling*.  
**Früstück, Ernst**. See *Otto Wallach*.  
**Fubino, Simone**, detection of vegetable fibre in silk or woollen tissue, 1892, A., 667.  
**Fuchs, Fritz**, behaviour of certain gases at low pressures in relation to Boyle's law, 1889, A., 98.  
**Fuchs, Fritz**, method of estimating the basicity of acids, 1889, A., 463.  
 — behaviour of phenols and hydroxy-acids towards alkali hydrosulphides, 1889, A., 496; 1891, A., 46.  
 — improvement in the method of estimating carbonic anhydride by volume, 1890, A., 194.  
 — a new combustion furnace, 1892, A., 1514.  
**Fuchs, Oskar**. See *Theodor Zincke*.  
**Fürth, Alfred**, isonitroso acids, 1884, A., 42.  
**Fürth, Ernst**, preparation of *n*-valeric acid and dipropylacetic acid from ethyl malonate, 1888, A., 1053.  
**Fürth, Hugo**, cochineal dye-stuffs, 1884, A., 84.  
**Fulda, Heinrich**, sulphonation of quino-line and phenol, 1891, A., 391.  
**Funaro, Angiolo**, felspars from Elba, 1887, A., 560.  
 — sénégin from *Polygala Senega*, 1890, A., 262.  
 — composition of limestones from the "Montagnola Senese," 1890, A., 712.  
**Funaro, Angiolo**, and *Luigi Busatti*, chemico-mineralogical studies on Italian minerals, 1884, A., 270.  
**Funaro, Angiolo**. See also *Fausto Sestini*.  
**Furry, Frank Eugene**, iodic acid as an indicator, 1885, A., 592.

## G.

- Gabba, Luigi**, reaction with ferric chloride, 1889, A., 947.  
**Gabriel, Naro**, nutritive value of different proteids, 1890, A., 394.  
 — action of hot water on proteids, 1890, A., 535.  
 — crystalline egg-albumin, 1891, A., 1122.  
 — estimation of cellulose, 1829, A., 923.  
**Gabriel, Siegmund**, *o*-amidobenzaldehyde, 1883, A., 62.  
 — phenylacetic acid, 1883, A., 64.  
 — hydrocinnamic and cinnamic acids, 1888, A., 195.  
 — so-called nitrosomethylbenzene compounds, 1883, A., 581.  
 — nitrobenzaldoxime, 1883, A., 916.  
 — aromatic nitroso-compounds, 1883, A., 919.  
 — *m*-amidobenzaldoxime, 1883, A., 1105.  
 — constitution of phthalylacetic acid, 1883, A., 1127; 1885, A., 164.

- Gabriel, Siegmund**, condensation products from phthalic anhydride, 1884, A., 1176.  
 — phthalacene derivatives, 1884, A., 1189.  
 — action of sulphuric acid on acetophenone-*o*-carboxylic acid, 1885, A., 166.  
 — benzylidenephthalide, 1885, A., 902, 1228.  
 — action of phthalic anhydride on benzyl cyanide, 1885, A., 902.  
 — methylenephthalide, 1885, A., 1223.  
 — derivatives of *isoquinoline*, 1886, A., 266; 1887, A., 61.  
 — action of nitrous and hyponitric acids on unsaturated compounds, 1886, A., 620.  
 — phenyl*isoquinoline*, 1886, A., 630.  
 — synthesis of *isoquinoline*, 1886, A., 812.  
 — homo-*o*-phthalimide and its derivatives, 1887, A., 50, 725, 1112.  
 — homologue of *isoquinoline*, 1887, A., 739.  
 — formation of primary amines from the corresponding halogen derivatives, 1887, A., 1037.  
 — benzylidenephthalide and *isobenzal*phthalide, 1888, A., 143.  
 — ethylamine derivatives, 1888, A., 439; 1891, A., 815.  
 — vinylamine, 1888, A., 668.  
 — vinylamine and bromethylamine, 1888, A., 1267.  
 — derivatives of trimethylenediamine, 1889, A., 486.  
 — bromethylamine and its derivatives, 1889, A., 848, 1134.  
 — amidomercaptan, 1889, A., 870.  
 — ethylene bases, 1889, A., 1166.  
 — intramolecular change of allylcarbamides into isomeric bases, 1890, A., 127.  
 —  $\gamma$ -amidobutyric acid, 1890, A., 360.  
 — synthesis of homopiperic and piperic acids, 1890, A., 1129.  
 —  $\gamma$ -chlorobutyronitrile, 1890, A., 1221.  
 — thio-derivatives of ethylamine, 1892, A., 130.  
 —  $\delta$ -chlorobutylamine: synthesis of pyrrolidine, 1892, A., 131.  
 — preparation of primary amines by means of potassium phthalimide, 1892, A., 157.  
 —  $\epsilon$ -chloramylamine and synthesis of piperidine, 1892, A., 717.  
**Gabriel, Siegmund, and Wolter Aschan**, a product of the putrefaction of proteids, 1891, A., 948.
- Gabriel, Siegmund, and Otto Borgmann**, benzyl derivatives, 1883, A., 1121.  
**Gabriel, Siegmund, and Georg Cohn**, diphenylmaleic anhydride, 1892, A., 178.  
**Gabriel, Siegmund, and Paul Elfeldt**, mesophenylpentoxazoline, 1892, A., 212.  
**Gabriel, Siegmund, and Julius Hausmann**, action of *o*-cyanobenzyl chloride on ethyl sodacetoacetate, 1889, A., 1172.  
**Gabriel, Siegmund, and Hugo Hendess**, benzyl derivatives, 1888, A., 144.  
**Gabriel, Siegmund, and Martin Herzberg**, *p*-nitrobenzaloxime and amidobenzaldehyde, 1883, A., 1104.  
 — derivatives of cinnamic and hydrocinnamic acids, 1883, A., 1123.  
**Gabriel, Siegmund, and Philibert Heymann**, preparation of anhydro-bases from amidomercaptans of the fatty series, 1890, A., 524.  
 — oxazolines, 1890, A., 1267.  
 — action of alkylene bromides on thiamides, 1891, A., 701.  
**Gabriel, Siegmund, and Robert Jansen**, quinazolines, 1890, A., 1442; 1892, A., 217.  
**Gabriel, Siegmund, and Max Koppe**, phenylnitromethane, 1886, A., 693.  
**Gabriel, Siegmund, and Karl Krosberg**, preparation of glycocine, 1889, A., 590.  
**Gabriel, Siegmund, and William Eggleston Lauer**, derivatives of propylamine, 1890, A., 472.  
**Gabriel, Siegmund, and Albert Neumann**, formation of oxazolines, 1892, A., 1331.  
**Gabriel, Siegmund, and Richard Otto**, *o*-cyanotoluene, 1887, A., 1035.  
**Gabriel, Siegmund, and Jean Weiner**, derivatives of propylamine, 1888, A., 1292.  
**Gabriel, Siegmund, and Bruno Weise**, *o*-cyanotoluene, 1888, A., 261.  
**Gabriel, Siegmund**. See also *Virgil Coblentz, Albert Wodehouse Day, August Wilhelm von Hofmann*.  
**Gaçon, Adrien**, blasting powder, 1885, A., 315.  
**Gad, Johannes, and Jean François Heymans**, myelin, 1891, A., 846.  
**Gadd, Magnus**. See *Edvard Immanuel Hjelt*.  
**Gadd, W. Lawrence, and Samuel Lees**, estimation of grease, 1891, A., 1144.  
**Gäbel, D.**, margarimeter of Lenne and Harbulet, 1883, A., 247.  
 — on creaming, 1883, A., 253.

- Gäbel, *D.*, composition of cows' milk in Holland, 1881, A., 1396.
- Gärtner, *Ludwig*. See *Adolph Claus*.
- Gaess, *Fr.*, nitro- and amido-derivatives of  $\beta$ -naphthyl ethyl ether, 1891, A., 459.
- nitro- $\beta$ -naphthol, 1892, A., 1229, 1841.
- Gaglio, *Giuseppe*, stability of carbonic oxide and oxalic acid in the animal organism, 1888, A., 619.
- Gagnaire, effect of fresh stable manure on potatoes, 1885, A., 189.
- Gaiffe, *A.*, standard volt, 1885, A., 1099.
- Gaines, *R. H.*, liquid nitrous anhydride, 1884, A., 15.
- Gal, *Henri*, passage of alcoholic liquids through porous vessels, 1883, A., 279.
- passage of alcoholic liquids through membranes, 1883, A., 549.
- action of zinc ethyl on amines and phosphines, 1883, A., 653; 1884, A., 985.
- metallic derivatives of amides; method of distinguishing between monamides and diamides, 1883, A., 913.
- Gal, *Henri*, and *Eugène Werner*, heats of neutralisation of homologous and isomeric acids, 1887, A., 95.
- heats of neutralisation of malonic, tartaric, and malic acids, 1887, A., 96.
- heats of neutralisation of glyceric and camphoric acids, 1887, A., 205.
- heats of neutralisation of malic and citric acids, 1887, A., 205.
- heats of neutralization of meconic and mellitic acids, 1887, A., 206.
- Gal, *Jules*, formation of plastic sulphur from sulphur vapour, 1892, A., 1150.
- Galewsky, *P.*, action of ammonia on di- and tri- halogen substitution products of hydrocarbons, 1890, A., 952.
- diphenylene oxide, 1891, A., 1234.
- Galitzin, (*Prince*) *Boris B.*, sphere of action of molecular forces, 1890, A., 105.
- Dalton's law, 1891, A., 378.
- Galle, *Karl*, tetraethylbenzene and hex-ethylbenzene, 1883, A., 1091.
- Gallia, *Jos.*, meteorites of Alfianello, 1883, A., 1071.
- Gallinek, *A.*, and *Victor von Richter*, sulphonation of phenylhydrazines, 1886, A., 236.
- Gallois, *E.* See *Adrian*.
- Gallois, *François Narcisse*. See *Ernest Hardy*.
- Galloway, *Robert*, estimation of coke and volatile products in coal, 1883, A., 517.
- Galloway, *William*, influence of coal dust on colliery explosions, 1883, A., 127; 1885, A., 463.
- Ganelin, *S.*, and *Stanislaus von Kostanecki*, constitution of *o*-hydroxyazodyes, 1892, A., 506.
- Gans, *Juan*, purification of molasses, 1885, A., 103.
- Gans, *Leopold*. See *Rudolf Benedikt*.
- Gans, *Paul F.* See *Ludwig Wolff*.
- Gans, *Robert*, estimation of potassium hydrogen tartrate and of tartaric and malic acids in wine, 1890, A., 427.
- Gans, *Robert*, and *Bernhard Tollens*, quince and salep mucus, 1889, A., 541.
- Gans, *Robert*, *Winthrop E. Stone*, and *Bernhard Tollens*, formation of saccharic acid as an indication of dextrose, and of furfuraldehyde as an indication of arabinose in carbohydrates, 1888, A., 1059.
- Gantter, *Friedrich*, colouring matter of wine, 1883, A., 1141.
- estimation of tartaric acid, 1888, A., 535.
- estimation of the dry residue and fat in milk and butter, 1888, A., 537.
- estimation of tannin, 1888, A., 540.
- estimation of tannin by permanganate, 1890, A., 430.
- Gantter, *Friedrich*, and *Carl Hell*, occurrence of pimelic acid amongst the oxidation products of castor oil, 1885, A., 44.
- Garbe, *Paul*, Joule's laws, 1884, A., 881.
- Garbe, *Paul*. See also *André Crova*.
- Gardiner, *Walter*, function of tannin in vegetable cells, 1884, A., 1209.
- Gardner, *John Adlyman*, compounds of tertiary amines with acetic acid, 1890, A., 1156.
- Gardner, *John Adlyman*. See also *Karl Auwers*, *James Ernest Marsh*, *Frank Fullinger*.
- Garelli, *Felice*, action of phenylhydrazine and hydroxylamine on some ketonic acids, 1891, A., 711.
- oximes of some ketonic acids, 1892, A., 327.
- derivatives of cyanacetophenone, 1892, A., 845.
- Garnier, *Jules*, artificial production of a chromium blue, 1891, A., 271.
- volatilisation of nickel and iron in presence of carbonic oxide, 1891, A., 1429.

- Garnier, Léon**, albumin from urine coagulated by nitric acid and soluble in alcohol, 1883, A., 247.  
 — standard soap solution, 1884, A., 1072.  
 — arsenic in bleaching powder and in potassium chlorate, 1886, A., 99.  
 — action of the pulmonary tissue in the expiration of carbonic anhydride, 1886, A., 1052.  
 — estimation of nitrogen in urine, 1887, A., 863.  
 — estimation of proteids in liquids from cysts, etc., 1887, A., 872.  
**Garnier, Léon**. See also *Charles Frédéric Schlagdenhauffen*.  
**Garny, Fritz**, action of hydroxylamine on derivatives of succinic and glutaric acids, 1892, A., 136.  
**Garret, J. C.**, the two bidesyls, 1889, A., 162.  
**Garrod, (Sir) Alfred Baring**, formation of uric acid in the animal economy, 1883, A., 878.  
 — physiology of uric acid, 1885, A., 414.  
 — place of origin of uric acid in the animal organism, 1887, A., 388.  
**Garrod, Archibald Edward**, uro-hæmatoporphyrin, 1892, A., 744.  
 — hæmatoporphyrinuria, 1892, A., 1506.  
**Gartenmeister, Rudolf**, boiling-points and specific volumes of ethereal salts of normal fatty acids, 1886, A., 966.  
 — Liebreich's inactive space, 1888, A., 783.  
 — viscosity of liquid carbon compounds and its relation to chemical constitution, 1891, A., 380.  
**Garzarolli-Thurnlackh, Karl (Edler) von**, action of zinc ethyl and zinc methyl on chlorinated aldehydes, 1884, A., 1118.  
 — strychnine, 1889, A., 626.  
 —  $\gamma$ -trichloro- $\beta$ -hydroxybutyric acid: synthesis of malic acid, 1892, A., 429.  
**Garzarolli-Thurnlackh, Karl (Edler) von**, and *Alfred Popper*, action of zinc propyl and zinc isobutyl on butyl-chloral, 1884, A., 1117.  
**Garzarolli-Thurnlackh, Karl (Edler) von**, and *Gustav Schacherl*, chlorine monoxide, 1886, A., 118.  
**Garzino, Luigi**, bromodichlorophenol and dibromodichlorobenzene, 1888, A., 585.  
 — bromotrimethylcarbinol, 1889, A., 951.  
 — *m*-dichlorophenol and *m*-dibromophenol, 1890, A., 1107.  
**Garzino, Luigi**, chlorodibromo- and bromodichloro-phenol and their conversion into quinones, 1890, A., 1108.  
 — tetrahydropyrazine, 1892, A., 633.  
**Garzino, Luigi**. See also *Scilio Guar-eschi*.  
**Gasch, Rob.**, estimation of ferrocyanides in the bye-products of gas works, 1890, A., 834.  
**Gasiorowski, Kasimir**, and *Victor Merz*, nitriles and carboxylic acids from aromatic amines, 1884, A., 734.  
 — nitriles from aromatic formamides, 1885, A., 772.  
**Gasiorowski, Kasimir**, and *Anton H. Wajss*, diazo-compounds, 1885, A., 525.  
 — chlorinated and brominated hydrocarbons from aromatic amines, 1885, A., 1060.  
**Gasiorowski, Kasimir**. See also *Carl Culmann*, *Carl Dahm*, *Victor Merz*.  
**Gaskell, Holbrook**, and *Ferdinand Hurter*, preparation of sodium bicarbonate, 1884, A., 712.  
**Gasparin, P. de**, estimation of phosphoric acid in arable soils, 1883, A., 619; 1884, A., 871.  
 — submersion of vineyards, 1883, A., 1164.  
 — phosphatic deposits in the south-east of France, 1885, A., 127.  
 — phosphoric acid in the soil, 1885, A., 588.  
 — complementary manures, 1885, A., 930.  
**Gassaud**, organic nitrogen in chemical manures, 1887, A., 863.  
**Gassend and Campredon**, estimation of phosphoric acid in manures, 1884, A., 217.  
**Gassend, A.**, presence of boric acid in products of the soil, 1892, A., 93.  
 — detection of sesame oil in olive oil, 1892, A., 1183.  
**Gastiger, Victor**, ethyl-*p*-tolynitrosamine, 1885, A., 381.  
**Gastine, Gabriel**, detection and estimation of small quantities of carbon bisulphide in air, gases, etc., 1884, A., 1431.  
 — preparation of starch solution for use in volumetric analysis, 1889, A., 73.  
**Gatellier, Emile**, growth of wheat after sugar-beet, and after potatoes, 1886, A., 906.  
 — manuring experiments with various phosphates, 1888, A., 749.  
**Gatellier, Emile**, and *Louis Désiré L'Hôte*, gluten in wheat, 1889, A., 740, 919.

- Gatenby, Richard**, volumetric estimation of alumina, 1887, A., 865.
- Gattermann, Ludwig**, *s*-tribromaniline, 1888, A., 796.
- toluene tetrachloride, 1885, A., 167.
- derivatives of *m*-nitro-*p*-toluidine, 1885, A., 975.
- $\alpha$ - and  $\beta$ -thienone, 1886, A., 228.
- action of halogenated amines on phenylcarbimide, 1886, A., 795.
- nitrogen chloride, 1888, A., 412.
- chloroformamide and its use in synthesis, 1888, A., 574.
- silicon and boron, 1889, A., 342.
- action of sulphur on toluidine, 1889, A., 602.
- isomerism of organic substances containing nitrogen, 1890, A., 1112.
- new dyes of the anthraquinone series, 1891, A., 935.
- method for the isolation of aromatic sulphonic acids, 1891, A., 1226.
- Gattermann, Ludwig**, and **August Cantzler**, aromatic isocyanates, 1892, A., 832.
- Gattermann, Ludwig**, and **Friedrich Wilhelm Hermann Hager**, action of ethylene bromide on nitraniline and on nitrotoluidine, 1884, A., 1142.
- Gattermann, Ludwig**, and **Wilhelm Haussknecht**, formation of thiocyanates from amide compounds, 1890, A., 749.
- spontaneously inflammable hydrogen phosphide, 1890, A., 942.
- Gattermann, Ludwig**, and **Richardt Hölzle**, replacement of the hydrazine group by halogens, 1892, A., 842.
- Gattermann, Ludwig**, and **Paul Jacobson**, history of primuline, 1889, A., 868.
- Gattermann, Ludwig**, and **Adolf Kaiser**, *p*-chloro-*m*-nitrotoluene and its reduction products, 1886, A., 49.
- constitution of quinoline derivatives from meta-substituted amines, 1886, A., 79.
- Gattermann, Ludwig**, and **Oscar Neuberg**, synthesis of dehydrothiotoluidine, 1892, A., 839.
- Gattermann, Ludwig**, and **A. Ritschke**, azoxyphenol ethers, 1890, A., 1119.
- Gattermann, Ludwig**, and **Melchior Bömer**, action of acetic chloride on halogen derivatives of thiophen, 1886, A., 537.
- Gattermann, Ludwig**, and **Alexander Rossolymo**, modification of the chloroformamide synthesis, 1890, A., 974.
- Gattermann, Ludwig**, and **Georg Schmidt**, preparation of alkyl amidoformic chlorides and alkyl isocyanates, 1887, A., 358.
- chloroformamide: synthesis of aromatic acids, 1887, A., 569.
- Gattermann, Ludwig**, and **Georg Wichmann**, two bye-products in the technical preparation of amidoazobenzene, 1888, A., 829.
- aldehyde-blue, 1889, A., 503.
- Gattermann, Ludwig**, and **Eduard Wrampelmeyer**, *p*- and *m*-phenylene cyanate, 1886, A., 50.
- Gattermann, Ludwig**, **Robert Ehrhardt**, and **Henry Charles Christian Maisch**, alkylene derivatives of phenylic ethers, 1889, A., 862.
- synthesis of ketones from phenol ethers by Friedel and Craft's method, 1890, A., 962.
- Gattermann, Ludwig**, **Edward Sullivan Johnson**, and **Richardt Hölzle**, acid hydrazides, 1892, A., 843.
- Gattermann, Ludwig**, **Adolf Kaiser**, and **Victor Meyer**, constitutional formula of thiophen, 1886, A., 227.
- Gattermann, Ludwig**, **Wilhelm Haussknecht**, **August Cantzler**, and **Robert Ehrhardt**, diazo-compounds, 1890, A., 970.
- Gattermann, Ludwig**. See also **Wilh. Pfitzinger**, **Robert Edward Schmidt**.
- Gaube**, reducing substance in urine, 1890, A., 188.
- uro-phosphates and hippuric-phosphates, 1891, A., 98.
- Gaunersdorfer, Joh.**, poisoning of plants by lithium salts, 1887, A., 991.
- Gautier, Emile Justin Armand**, formation of alkaloids from normal human fluids, 1883, A., 101.
- new method for the synthesis of nitrogenous organic compounds, 1885, A., 275.
- sterilisation of fermentable liquids in the cold, 1885, A., 287.
- leucomaines, 1885, A., 676.
- constitution of the proteids, 1885, A., 1082.
- ptomaines and leucomaines, 1886, A., 634; 1888, A., 303.
- formation of carbon oxysulphide, 1889, A., 212.
- note on Maurice Hamiot's paper, "Assimilation of carbohydrates," 1892, A., 742.
- origin of the colouring matters of the vine; ampelochroic acid, 1892, A., 1242.

- Gautier, Emile Justin Armand**, and **René Drouin**, absorption of nitrogen by soils and plants, 1888, A., 746, 871, 1127.
- — — fixation of atmospheric nitrogen by arable soils, 1892, A., 522.
- Gautier, Emile Justin Armand**, and **Alexandre Léon Etard**, bases formed by putrefaction, 1883, A., 100.
- — — putrid fermentation and the alkaloids produced by it, 1883, A., 224.
- — — products of the bacterial fermentation of albuminoids, 1884, A., 89.
- — — acid products of the bacterial fermentation of albuminoids, 1884, A., 188.
- — — observation on the poison of batrachians, 1884, A., 764.
- Gautier, Emile Justin Armand**, and **L. Hallopeau**, metallic sulphides, 1889, A., 677, 831.
- Gautier, Emile Justin Armand**, and **Louis Mourgues**, alkaloids from cod liver oil, 1888, A., 1315; 1889, A., 63.
- — — acid from cod liver oil, 1889, A., 170.
- Gautier, Ferdinand**, manganese steel, 1885, A., 307.
- — — influence of silicon on the condition of carbon in cast-iron, 1887, A., 220.
- Gautier, Henri**, *p*-monochloroacetophenone, 1885, A., 1061.
- — — action of chlorine on anhydrous chloral, 1886, A., 221.
- — — chlorination of acetophenone, 1886, A., 800.
- — — chlorine derivatives of acetophenone, 1887, A., 141.
- — — influence of light and temperature on chlorination, 1887, A., 922.
- — — apparatus for distillation under reduced pressure, 1890, A., 329.
- Gautier, Henri**, and **Georges Charpy**, iodine in solution, 1890, A., 446.
- — — affinities of iodine in solution, 1891, A., 148.
- — — action of nitric acid on iron, 1891, A., 1426.
- — — direct combination of chlorine and bromine with metals, 1892, A., 118.
- Gautier, Henri**. See also **Albert Colson**, **Henri Moissan**.
- Gautrand**, estimation of ethylsulphuric acid in Rabel water, 1886, A., 1079.
- Gavazzi**. See **Cavazzi**.
- Gawalowski, A.**, estimation of tannin, 1888, A., 391.
- Gawalowski, A.**, an indicator showing the neutral point in alkalimetry and acidimetry, 1884, A., 363, 1215.
- — — modification of Zulkowsky's azotimeter, 1885, A., 593.
- — — bottles for reagents, 1885, A., 835.
- — — new burette, 1885, A., 835.
- — — soap analysis, 1885, A., 844.
- — — an aspirator, 1886, A., 15.
- — — a new ammonium magnesium phosphate, 1886, A., 204.
- — — aluminium sulphate, 1886, A., 204.
- — — filters with greased edge, 1887, A., 295.
- — — separation of mineral oils from saponifiable fats, 1887, A., 1001.
- — — volumetric estimation of sulphuric acid, 1888, A., 751; 1890, A., 825.
- — — separation of ethereal solutions from aqueous liquids, 1889, A., 1086.
- — — block support for tubes, 1892, A., 9.
- Gay, Jules**, absorption of nitric oxide by ferrous salts, 1885, A., 1109.
- Gayon, Ulysse**, fermentation of manure, 1884, A., 773.
- — — detection and estimation of aldehydes in commercial alcohols, 1888, A., 326.
- Gayon, Ulysse**, and **Elisée Dubourg**, abnormal secretion of nitrogenous substances by yeasts and moulds, 1886, A., 733.
- — — alcoholic fermentation of dextrin and starch, 1887, A., 171.
- — — alcoholic fermentation of invert sugar, 1890, A., 950.
- Gayon, Ulysse**, and **Gabriel Dupetit**, fermentation of nitrates, 1883, A., 230.
- — — reduction of nitrates and nitrites, 1883, A., 609.
- — — reduction of nitrates by micro-organisms, 1886, A., 823.
- — — method of preventing secondary fermentation, 1887, A., 171.
- Gayon, Ulysse** (and others), a denitrifying ferment in soils, 1883, A., 679.
- Gayon, Ulysse**. See also **Alexis Millardet**.
- Gaze, Rudolf**, berberine and hydroberberine, 1890, A., 1011; 1891, A., 332.
- — — propionates, 1892, A., 140.
- Gazzarrini, A.**, action of sulphur on benzaldehyde, 1888, A., 950.
- Gebek, Leopold**, azo-compounds of salicylic acid, 1889, A., 780.
- Gebhardt, Wilibald**, secondary amines, 1884, A., 1320; 1885, A., 383.
- — — action of ammonia and amines on thiocarbamide, 1885, A., 387.
- Gedölst, L.**, preparation of picrocarmine, 1887, A., 1117.

- Geault, Robert**, estimation of reducing sugar, 1888, A., 876.
- Gee, William Wmson Haldane, and H. Holden**, electrolysis, 1888, A., 887.
- irreciprocal conductivity, 1889, A., 3.
- Geelmuyden, H. Chr.**, estimation of uric acid, 1892, A., 1032.
- Geer, Gerhard Jakob (Freiherr) de**, a manganese mineral from Upsala, 1883, A., 429.
- Gehrenbeck, Clemens**, simultaneous estimation of hydrogen and nitrogen, 1889, A., 1031.
- Gehrenbeck, Clemens**. See also **Alfred Einhorn**.
- Gehring, Gustave**, butyl monochloracetate, 1886, A., 784.
- octyl mono-, di-, and tri-chloracetates, 1887, A., 653.
- butyl sebacate, 1887, A., 801.
- perchloramyl and perchlorobutyl perchlorosebacates, 1887, A., 801.
- aniline sebacate and diphenylsebacamide, 1887, A., 822.
- sebacoelinttranilide, 1887, A., 935.
- Geibel, P.** (and others), removal of the leaves of roots, 1883, A., 613.
- Geigy, Rudolf, and Wilhelm Koenigs**, derivatives of benzophenone, 1885, A., 1236.
- Geigy, Rudolf**. See also **Wilhelm Koenigs**.
- Geikie, (Sir) Archibald**, the supposed pre-Cambrian rocks of St. David's, 1884, A., 411.
- Geinitz, Franz Eugen**, phyllite from Rimogens in the Ardennes, 1883, A., 447.
- pseudomorph of nacrite after fluorspar, 1883, A., 1069.
- Geisenheimer, G.**, iridium dioxide, 1890, A., 948.
- iridium phosphorus chlorides, 1890, A., 1068.
- combination of iridium phosphochlorides with arsenic chloride, 1890, A., 1069.
- iridium phosphorus bromides, 1890, A., 1383.
- Geisenheimer, G., and F. Leteur**, new form of ammonium chloride, 1890, A., 694.
- Geisler, Carl**. See **Adolph Claus**.
- Geissler, Erwald**, estimation of fat in milk, 1885, A., 1014.
- Geissmann, C'elestin**. See **Ennilio Nölting**.
- Geitel, Adolf C.**, Boneo tallow, 1888, A., 447.
- Geitel, Adolf C.**, action of sulphuric acid on oleic acid and tioleim, 1888, A., 578.
- Geitel, Adolf C.** See also **H. Fessel de Schepper**.
- Geitel, Hans**. See **Julius Elster**.
- Geldermann, Hugo**. See **Richard Anschütz**.
- Gélis, Alfred, and Thommeret-Gélis**, sulphocarboimeta, 1883, A., 386.
- Geller, Werner**. See **Eugen Lellmann**.
- Gelzer, Carl**, derivatives of *p*-amidoisobutylbenzene, 1888, A., 266; 1889, A., 42.
- Gelzer, Carl**. See also **Pedro N. Arata**.
- Gendron**, galvanic dichromate cell, 1890, A., 1354.
- Genieser, Adolf**, estimation of the specific gravity of frothy syrups, 1891, A., 142.
- Genieser, Adolf**. See also **Conrad Willgerodt**.
- Gent, Joseph Franklin**, use of maize in brewing, 1884, A., 527.
- Genth, Carl**, excretion of carbamide, 1885, A., 830.
- Genth, Frederick Augustus**, zinc blende and prehnite from Cornwall, Lebanon Co., Pa., 1884, A., 266.
- artificial alisonite, 1884, A., 266.
- kupfernickel from Colorado, 1884, A., 266.
- corundum, 1884, A., 267; 1890, A., 570.
- galunite, 1884, A., 268.
- rutile and zircon from the itacolumite of Edge Hill, 1884, A., 270.
- alteration of talc into anthophyllite, 1884, A., 272.
- alteration of orthoclase into albite, 1884, A., 273.
- talc pseudomorphous after magnetite, 1884, A., 273.
- pyrophyllite in anthracite, 1884, A., 273.
- beryl and allanite from Alexander Co., N.C., 1884, A., 274.
- herderite, 1885, A., 488.
- mineralogical notes, 1887, A., 342; 1888, A., 563.
- lansfordite, a new mineral, 1888, A., 793.
- an undescribed meteoric iron from East Tennessee, 1890, A., 115.
- gadolinite, cacoclasite, and monazite, 1890, A., 457.
- corundum from Patrick Co., Virginia, 1890, A., 570.
- jarosite from Utah, 1890, A., 573.
- tetradymite, iron pyrites, quartz pseudomorphs, scapolite, allanite, &c., 1891, A., 154.

- Genth, Frederick Augustus**, picropharm-acolite, pitticite, and gibbsite, 1891, A., 275.
- gahnite and columbite from Delaware Co., Pennsylvania, 1891, A., 1168.
- aquilaite, a new species, 1891, A., 1327.
- seleniferous bismuthinite and guanajuatite, 1891, A., 1328.
- hubnerite, hessite, bismutite, and natrolite, 1892, A., 793.
- Genth, Frederick Augustus**, and **Samuel Lewis Penfield**, lansfordite and nesquehonite, 1890, A., 571.
- — ferrie sulphates from Chili, 1891 A., 274.
- Genth, Frederick Augustus**, and **Gerhard vom Rath**, vanadates and silver iodide from New Mexico, 1886, A., 26.
- Genth, Frederick Augustus**, **Samuel Lewis Penfield**, and **Louis V. Pirsson**, notes on axinite, endialyte, titanite, and monticellite, 1891, A., 1329.
- Gentil, Carl**,  $\beta$ -naphthoquinolinesulphonic acid, 1885, A., 561.
- Gentil, L.** See **H. Malbot**.
- Genivresse, P.**, combination of aluminium chloride with acetonitrile and chloroacetonitriles, 1888, A., 932.
- action of chloroacetonitrile on benzene in presence of aluminium chloride, 1888, A., 951.
- chloro-derivatives of ethyl acetate, 1889, A., 122.
- synthesis of tartaric acid, 1892, A., 822.
- Genzken, Ulrich**. See **Carl Arnold August Michaelis**.
- Georges**, peptones in the blood and urine, 1887, A., 188.
- Georgescu, M.**, action of sulphuric acid on tribromophenol, 1890, A., 883.
- benzenesulphonates of aromatic radicles, 1891, A., 568.
- tetrahydroketoquinoxalines, 1892, A., 886.
- Georgescu, M.**, and **C. Mineu**, francem from 1:3:4:5-tetrachlorobenzene, 1889, A., 970.
- Georgescu, M.** See also **Constantin I. Istrati**.
- Georgeson, C. C.**, manuring of rice, 1889, A., 646.
- Georgievič, P.**, boric acid, 1888, A., 1247.
- Georgievics, Georg von**, action of ammonia on anthragallo, 1886, A., 69.
- action of sulphuric acid on quinoline, 1888, A., 296, 501.
- oxidation of quinoline derivatives, 1891, A., 1389.
- Georgievics, Georg von**, action of carbonic anhydride and ferric hydroxide on tricalcium phosphate, 1892, A., 408.
- Georgievics, Georg von**. See also **Hugo Weidel**.
- Geppert, Julius**, gas analysis apparatus, 1883, A., 378.
- Geppert, Julius**. See also **Albert Fraenkel**.
- Gérard, Ernest**, acid of the acetic series, 1890, A., 1395.
- fats from the fungi *Lactarius vellereus* and *L. piperratus*, 1891, A., 606.
- derivatives of datunic acid, 1892, A., 582.
- vegetable cholesterol, 1892, A., 1294.
- Gerber, A.**, derivatives of *o*-toluidine, 1888, A., 484.
- Gerber, Maximilien**, Pinet's hypothesis, 1884, A., 550.
- Gerber, Maximilien**. See also **Auguste Rosenstiehl**.
- Gerber, Nicolas**, addition of goats' milk to cows' milk, 1886, A., 924.
- Gerdeissen, Ferd.**, *m*-amidoquinaldine, 1889, A., 520.
- Gerdes, Bruno**, electrolysis of ammonium carbamate and carbonate, 1883, A., 27.
- Gerhard, Alfred**, so-called soda-granites, 1888, A., 236.
- Gerhard, F.**, new base,  $C_9H_{12}N_2O$ , from epichlorhydrin and phenylhydrazine, 1891, A., 582.
- Gerichten, Eduard von**, and **Hugo Schrötter**, morphine, 1883, A., 221.
- Gerichten, Eduard von**. See also **Otto Fischer**.
- Gerlach, G. Th.**, specific gravity, boiling point, and vapour pressure of aqueous glycerol, 1885, A., 499.
- alcohol and mixtures of alcohol with water, 1886, A., 193.
- boiling-points of salt solutions, 1887, A., 1012.
- specific gravity of aqueous solutions, 1888, A., 894; 1889, A., 1044.
- the density numbers of Groshaus, 1889, A., 813.
- Gerlach, M.**,  $\beta$ -ethylthiophen and thiophen- $\alpha\beta$ -dicarboxylic acid, 1892, A., 829.
- Gerland, Conrad**. See **Theodor Zincke**.
- German, Ludwig**. See **Otto Fischer**.
- Gernet, Adolph von**. See **Arthur Joachim von Oettingen**.
- Gernez, Désiré**, velocity of solidification of bodies in a state of superfusion, 1883, A., 546.

- Gernez, Désiré**, solidification of super-fused sulphur, 1884, A., 389.  
 — duration of the solidification of superfused sulphur, 1884, A., 553.  
 — crystallisation of sulphur, 1884, A., 889.  
 — rate of transformation of prismatic into octahedral sulphur, 1885, A., 952.  
 — nacreous crystals of sulphur, 1885, A., 1087.  
 — transformations of sulphur, 1885, A., 1109.  
 — rotatory power of compounds formed in solutions of tartaric acid, 1887, A., 540.  
 — action of ammonium molybdate on the rotatory power of solutions of tartaric acid, 1888, A., 97.  
 — action of normal alkaline tungstates on the rotatory powers of solutions of tartaric acid, 1888, A., 938.  
 — combination of normal molybdates with tartaric acid, 1889, A., 859.  
 — action of malic acid on ammonium molybdate, 1889, A., 1147.  
 — rotatory power of compounds of malic acid with normal lithium and magnesium molybdates, 1890, A., 744.  
 — combination of malic acid with normal potassium and sodium tungstates, 1890, A., 1102.  
 — combinations of malic acid with alkali molybdates, 1891, A., 291.  
 — combination of malic acid with alkaline phosphomolybdates, 1891, A., 545.  
 — rotatory power of compounds of mannitol with acid molybdates, 1891, A., 1443.  
 — compounds of sorbitol and perseitol with molybdic acid, 1892, A., 422.  
 — rotatory power of compounds of perseitol with sodium hydrogen and ammonium hydrogen molybdates, 1892, A., 800.  
**Gerock, J. E.**, separation of strychnine from brucine, 1889, A., 748.  
**Gerrard, Alfred W.**, crystalline substance from jambosa root, 1885, A., 396.  
 — apparatus for estimating urea, 1885, A., 610.  
 — reaction of atropine and related alkaloids, 1886, A., 284.  
 — reaction of atropine with mercurous salts, 1886, A., 632.  
 — ulexine, 1886, A., 1048.  
 — *Strophanthus* and strophantin, 1887, A., 970.  
 — percentage glucosometer, 1890, A., 300.  
**Gerrard, Alfred W.**, and *William Henry Symons*, ulexine, 1890, A., 180.  
 — ulexine and cytisine, 1891, A., 334.  
**Gerson, George**, derivatives of pyruvic acid, 1887, A., 260.  
**Gerssdorf**, maize as food for horses, 1884, A., 355.  
**Gessard, C.** chromogenic function of *Bacillus pyocyaneus*, 1890, A., 655.  
**Gessner, August**. See *Heinrich Goldschmidt*.  
**Geuther, Anton**, affinity value of carbon, 1883, A., 779.  
 — constitution of the compounds of the sulphonates with alkyl sulphates; constitution and dimorphism of sulphates, 1883, A., 973.  
 — new derivative of mannitol, 1884, A., 36.  
 — action of phosphorus trisulphide on phenols, 1884, A., 54.  
 — yellow and red lead monoxide, 1884, A., 824.  
 — constitution of ethylic acetoacetate and benzene, 1884, A., 836.  
 — compounds of sulphurous anhydride, 1884, A., 1256.  
 — constitution of polysulphides and polyoxides, 1884, A., 1260.  
 — calcium oxysulphides, 1884, A., 1263.  
 — a new ethylic phosphate, 1884, A., 1282.  
 — action of lead hydroxide and silver oxide on aqueous solutions of sodium pentasulphide and thiosulphate, 1885, A., 217.  
 — derivatives of *s-isodichlorethyl* ether, 1885, A., 227.  
 — arsenic, 1887, A., 888.  
 — polyiodides, 1887, A., 910.  
 — constitution of ethyl propiopionate, 1887, A., 915.  
 — bitter principle of calamus root, 1887, A., 972; 1888, A., 162.  
 — constitution of acetoacetic, succino-succinic, and quinonedicarboxylic acids, 1888, A., 579.  
 — nitrous anhydride and nitrosyl chloride, 1888, A., 785.  
 — action of ammonia on ethylidene oxyacetate, 1888, A., 814.  
 — action of iodobenzene on silver nitrate, 1888, A., 821.  
 — obituary notice of, 1890, T., 448.  
**Gevekoht, Heinrich**, preparation of the three isomeric nitracetophenones, 1883, A., 191.  
 — the three nitracetophenones, 1884, A., 445.

- Geyger, Adolf.** See *Albert Töhl*.  
**Gfeller, Ernst.** See *Carl Graebe*.  
**Giacosa, Piero,** albuminoids of the vitreous humour of the human eye, 1884, A., 198.  
 — composition of the egg and its envelopes in the common frog, 1884, A., 198.  
 — existence of germs in the air at great heights, 1884, A., 225.  
 — transformation of nitriles in the organism, 1884, A., 1061.  
**Giacosa, Piero,** and **Adolfo Monari,** alkaloids from the bark of *Xanthoxylon senegalense*, 1888, A., 167.  
**Giacosa, Piero,** and **M. Soave,** bark of *Xanthoxylon senegalense*, 1890, A., 918.  
**Giannetti, Carlo,** colorimetric estimations, 1886, A., 738.  
**Gibbins, Bevington H.,** estimation of iron and aluminium by the Glaser method, 1892, A., 755.  
**Gibbons, Walter,** uranium oleate, 1883, A., 692.  
**Gibbs, Oliver Wolcott,** complex inorganic acids, 1884, A., 161, 713; 1885, A., 875; 1886, A., 205, 426, 511; 1887, A., 113.  
 — electrolytic estimation of metals as amalgams, 1892, A., 753.  
**Gibbs, Oliver Wolcott,** and **Anory Hobart Hare,** action of related compounds on animals, 1890, A., 280, 313, 1018.  
**Gibbs, Oliver Wolcott,** and **Edward T. Reichert,** action of related compounds on animals, 1891, A., 1280, 1393.  
**Gibson, Charles,** differences in the estimation of reverted phosphoric acid by the American official method, 1892, A., 1126.  
**Gibson, Howard Beirs,** and **Charles Francis Kahnweiler,** derivatives of furfuralacrylic acid, 1890, A., 959.  
**Gibson, John,** laboratory fittings, 1888, A., 26.  
 — action of sodium carbonate and bromine on solutions of nickel and cobalt salts, 1890, A., 568.  
**Gibson, John,** and **Robert Milner Morrison,** peroxides of zinc, cadmium, magnesium, and aluminium, 1886, A., 305.  
**Gibson, John.** See also *Alexander Crum Brown*.  
**Giersbach, Julius,** and **Arthur Kessler,** nitration of benzene, 1889, A., 10.  
**Gieseke, M.** See *Oscar Gustav Doebner*.  
**Giesel, Fritz,** cinnamylecocaine occurring in coca leaves, 1890, A., 390.  
 — methylcocaine, 1890, A., 1011.

- Giesel, Fritz,** alkaloid from Javan coca leaves, 1892, A., 361.  
**Giesel, Fritz.** See also *Carl Theodor Liebermann*.  
**Gigli, Torquato,** detection of copper in wine, 1888, A., 873.  
 — estimation of iodates in potassium iodide, 1892, A., 657.  
**Gigli, Torquato.** See also *Giovanni Briosi*.  
**Giglioli, Italo,** phosphorite of Capo di Leuca, 1883, A., 1259.  
**Gilbault, Henri,** compressibility of saline solutions, 1892, A., 766.  
**Gilbert, H.,** estimation of boric acid, 1886, A., 742.  
 — examination of oil of cassia, 1890, A., 423.  
 — examination of castor oil, 1890, A., 429.  
**Gilbert, James P.,** estimation of silica in silicates by fusion with alkaline carbonates, 1890, A., 1026.  
**Gilbert, (Sir) Joseph Henry,** presidential address, 1883, T., 224.  
 — conditions of the development and of the activity of chlorophyll, 1886, A., 92.  
 — experiments at Rothamsted on the growth of potatoes, 1890, A., 409.  
**Gilbert, (Sir) Joseph Henry.** See also *(Sir) John Bennet Lawes*.  
**Gildemeister, Edward.** See *Julius Bertram, Otto Wallach*.  
**Giles, Wm. B.,** and **A. Schearer,** percentage of sulphurous anhydride in aqueous solutions, 1886, A., 199.  
**Gill, Adon Capen,** minerals from the chrome iron ore deposits of Maryland, 1892, A., 1057.  
**Gill, Augustus H.,** improved pipette for gas absorptions, 1892, A., 1121, 1371.  
**Gill, J. M.,** citric acid derivatives of p-toluidine, 1887, A., 40.  
**Gillet, Albert,** detection of olive husks in ground pepper, 1889, A., 88.  
**Gillet, Camille.** See *Richard Anschütz*.  
**Gilpin, Joseph Elliott,** mercurous hypochlorosulphite, 1892, A., 780.  
**Gilson, Eugen,** lecithin, 1888, A., 1214.  
 — suberin and cork cells, 1891, A., 465.  
**Gilson, John.** See *Robert Irvine*.  
**Gimbel, Adolf,** nitrosoanthrone, 1887, A., 675.  
 — derivatives of dianthryl, 1887, A., 1049.  
**Gimbel, Adolf.** See also *Carl Theodor Liebermann*.  
**Ginsberg, Isidor,** apiole, 1888, A., 722, 1206; 1890, A., 518.

- Ginsberg, Siegmund**, absorption of sugar from the small intestine, 1890, A., 276.
- Ginsburg, Jacob**, and **Stanislas Bondzyski**, rhodanic acid, 1886, A., 325.
- Gintl, Wilhelm Friedrich**, estimation of carbon in iron and steel, 1886, A., 98.
- Gintl, Wilhelm Friedrich**, and **Friedrich Reinitzer**, constituents of the leaves of *Fraxinus excelsior*, 1883, A., 216.
- Gintl, Wilhelm Friedrich**, and **Ludwig Storch**, cegonine, 1887, A., 682.
- Giorgis, Giovanni**, action of hydrogen peroxide and of water saturated with carbonic anhydride on magnesium, 1892, A., 17.
- siliceous sand of Monte Soratte, 1892, A., 23.
- Giorgis, Giovanni**. See also **Augusto Piccini**.
- Girard, Adam Charles**, estimation of sugar by Fehling's solution as conducted at the municipal laboratory in Paris, 1885, A., 1163.
- Girard, Adam Charles**, and **Louis Désiré L'Hôte**, combinations of aniline with chromic acid, 1887, A., 927.
- aniline chlorate and perchlorate, 1889, A., 497.
- heat of formation of aniline dichromate, 1889, A., 562.
- Girard, Adam Charles**, and **Jean Albert Pabst**, azo-derivatives, 1883, A., 583.
- absorption spectra of some colouring matters, 1885, A., 1098.
- Girard, Adam Charles**, and **Xavier Rocques**, analysis of alcohols, 1889, A., 445.
- Girard, Adam Charles**. See also **Eugène Caventon**.
- Girard, Aimé**, destruction and utilisation of the bodies of animals which have died from contagious diseases, 1884, A., 106.
- formation and accumulation of saccharose in the beet, 1884, A., 476.
- quality of the flour obtained by various methods of grinding, 1884, A., 1447.
- formation of sugar in beets, 1885, A., 75.
- alimentary value of the different parts of the wheat grain, 1885, A., 678.
- fermentation of bread, 1886, A., 185.
- development of the sugar-beet, 1886, A., 1063.
- destruction of the nematoids of beet-root, 1887, A., 617.
- Girard, Aimé**, estimation of starch in potatoes, 1887, A., 868.
- cultivation of potatoes, 1889, A., 647.
- rotatory power of matezite and matezo-dambose, 1890, A., 471.
- Girard, Charles Antoine**. See **Achille Müntz**.
- Girard, H.**, post mortem formation of sugar in the liver, 1889, A., 176.
- influence of chlorides on the composition of the gastric juice, 1889, A., 1227.
- Girard, Joseph de**, phosphine derivatives of the aldehydes, 1884, A., 1118.
- action of phosphonium iodide on ethylene oxide, 1885, A., 1121.
- combination of hydrogen phosphide with chloral hydrate, 1886, A., 684.
- Girard, Julien**, thermal-springs of Hammam Salahine, 1886, A., 996.
- Girardin** (and others), phylloxera and insecticides, 1884, A., 481.
- Girard**. See **L. Roos**.
- Giraud, H.**, action of ammonia on solutions of potassium salts, 1885, A., 1038.
- physical peculiarity of triphenylguanidine, 1887, A., 366.
- volumetric estimation of antimony in presence of tin, 1887, A., 400.
- methylacetanilide, 1889, A., 704.
- action of aluminium chloride on dimethylaniline, 1890, A., 137.
- analysis of methylanilines, 1890, A., 309.
- Giraud, Victor**. See **Louis Aubert**.
- Gisevius, Paul**, specific gravity of minerals and their mechanical separation, 1883, A., 1031.
- Gissmann, Rudolph**, oxidation of durenne by chromic acid: dinitrodurylic acid, 1883, A., 333.
- Giunti, Michele**, sources of error in the estimation of nitrates in soils, 1889, A., 438.
- action of light on the acetic fermentation, 1890, A., 1181.
- Giurleo, Porta**, quinine phenolsulphonate, 1884, A., 339.
- Giustiniani, Ercole**, action of heat on the hydrogen malates of methylamine and benzylamine, 1892, A., 820.
- Gladding, Thomas S.**, estimation of phosphoric acid as magnesium pyrophosphate, 1883, A., 240.
- reverted phosphoric acid, 1884, A., 1075, 1424.
- quantitative separation of rosin and fats, 1885, A., 603.

- Gladding, Thomas S.**, examination of lead for adulteration, 1890, A., 93.
- Gladstone, George**, refraction of fluoiline, 1886, A., 497.
- Gladstone, George**. See also *John Hall Gladstone*.
- Gladstone, John Hall**, refraction-equivalents of organic compounds, 1884, T., 241.
- specific refraction and dispersive energy of essential oils, 1886, T., 609; P., 216; discussion, P., 218.
- specific refraction and dispersion of the alums, 1886, A., 293.
- dispersion equivalents, 1888, A., 389.
- molecular refraction and dispersion of various substances, 1891, T., 290; P., 85.
- molecular refraction and dispersion of various substances in solution, 1891, T., 589; P., 103; discussion, P., 104.
- theory of solution, 1891, A., 787.
- Gladstone, John Hall**, and **George Gladstone**, refraction and dispersion of fluorobenzene and allied compounds, 1891, A., 774.
- Gladstone, John Hall**, and **Walter Hibbert**, optical and chemical properties of caoutchouc, 1888, T., 679; P., 72.
- atomic weight of zinc, 1889, T., 443; P., 101.
- molecular weight of caoutchouc and other allied colloid substances, 1889, A., 1207.
- chemistry of secondary batteries, 1891, A., 3, 777.
- Gladstone, John Hall**, and **William Henry Perkin, senior**, correspondence between the magnetic rotation and the refraction and dispersion of light by compounds containing nitrogen, 1889, T., 750; P., 114.
- Gladstone, John Hall**, and **Alfred Tribe**, laboratory notes, 1883, T., 341.
- note on the preparation of marsh-gas, 1884, T., 154.
- electrolyses of dilute sulphuric acid and hydrated salts, 1884, A., 654.
- action of the copper-zinc couple on benzylic bromide, 1885, T., 448; P., 60.
- aluminium *o*-cresylate and its products of decomposition by heat, 1885, P., 111; 1886, T., 25.
- Gladysz, Thadée**, preparation of calcium and potassium tartrates, 1887, A., 571.
- Gläser, G.** See *Hugo Weidel*.
- Gläser, Moriz**, action of potassium permanganate on sodium thiosulphate, 1885, A., 957; 1887, A., 336.
- Gläser, Moriz**, and **Wilhelm Kalmann**, analysis of Roncegno water, 1888, A., 796; 1889, A., 28.
- Gläser, Moriz**, and **Theodor Morawski**, action of lead peroxide on organic substances in alkaline solution, 1890, A., 20.
- Gläser, Moriz**. See also *Theodor Morawski*.
- Glaser, Chas.**, estimation of phosphoric acid, 1885, A., 837.
- estimation of reverted phosphoric acid, 1885, A., 837.
- estimation of reverted phosphoric acid by the ovalate method, 1885, A., 838.
- estimation of aluminium phosphate, 1892, A., 1523.
- Glaser, Chas.** See also *Arthur Petermann*.
- Glaser, Eugen**, estimation of ferric oxide and alumina in phosphatic manures, 1890, A., 420.
- Glaser, F. C.**, separation of arsenic from saline solutions, 1884, A., 1083.
- manufacture of zinc oxide, 1885, A., 1270.
- Glaser, Friedrich**, gasometric estimation of nitric acid, 1892, A., 1375.
- Glaser, L.**, forests as a protection against hailstorms, 1884, A., 632.
- Glatzel, Emanuel**, preparation of manganese from manganese chloride and magnesium, 1890, A., 110.
- preparation of crystallised iron disulphide (iron pyrites), 1890, A., 338.
- preparation of chromium from potassium chromium chloride and magnesium, 1891, A., 152.
- antimony thiophosphate, 1892, A., 413.
- Glaue, A.**, and **Balthasar Luchsinger**, physiological action of some ammonium bases, 1885, A., 415.
- Gleditsch, A.**, and **H. Moeller**, three isomeric toluic acids, 1889, A., 708.
- Gleichmann, Ludwig**. See *Carl Arnold August Michaelis*.
- Gleiss, W.**, lactic acid in pale and red muscle, 1889, A., 177.
- Glendinning, Tom Aldrich**. See *Edward Ralph Moritz*.
- Glenk, Robert**, *Cicuta maculata*, 1892, A., 232.
- Gley, Eugene**, toxic action of ouabain and strophantin, 1888, A., 1326.

- Gley, Eugène**, and **Charles Richet**, hourly excretion of urea and total nitrogen in urine, 1888, A., 179.
- Gley, Eugène**, and **P. Rondeau**, physiological and therapeutical action of hyoscine hydrochloride, 1888, A., 182.
- Glinka, Sergei F.**, crystalline form of calcium hydroxide, 1886, A., 120.
- Glock, G.** See **Carl Theodor Liebermann**.
- Glock, Gustav**, *p*-tolenylimido ethyl ether, 1888, A., 1289.
- phenylene-*p*-diacetoinido ethyl ether, 1888, A., 1290.
- Glogner, Max**, specific gravity of the blood of Europeans living in the tropics, 1892, A., 363.
- Glücksman, Carl**, oxidation of ketones with potassium permanganate in alkaline solution, 1890, A., 237, 1416.
- $\beta$ -trimethylethylidenelactic acid, 1892, A., 38.
- Glyckherr, Franz**. See **Adolph Claus**.
- Gnehm, Robert**, chlorobenzaldehyde and chlorindigo, 1884, A., 1028.
- Gnezda, Julius**, cyanogen reaction of proteins, 1890, A., 1032.
- Gniewosz, St.**, and **M. Walfisz**, absorption of gases by petroleum, 1888, A., 342.
- Gockel, Albert**, relation of "Peltier's heat effect" to the available energy of a galvanic element, 1885, A., 856.
- seat of the variation of electromotive force with temperature, 1890, A., 1036.
- Godchaux, Eugen**, action of selenyl chloride on aromatic tertiary amines, 1891, A., 696.
- Godchaux, Eugen**. See also **Carl Arnold August Michaelis**.
- Godefroy, R.**, and **M. Coulon**, estimation of wood fibre in paper, 1890, A., 670.
- Godefroy (l'Abbe)**, combined action of potassium dichromate and chlorine on ethyl alcohol, 1884, A., 660.
- double chlorides of chromium, 1884, A., 1266.
- hydrates of chromic chloride, 1885, A., 852.
- chloroethers, 1886, A., 606.
- detection of impurities in commercial alcohols, 1888, A., 875.
- Godlewski, Emil**, respiration of plants, 1883, A., 498.
- circulation of the sap in plants, 1885, A., 927.
- Goebel, Franz**. See **Theodor Curtius**.
- Goebel, Hugo**, estimation of morphine, 1887, A., 869.
- Goebel, Hugo**, volumetric estimation of sodium carbonate and hydroxide in commercial caustic soda, 1890, A., 293.
- Goedeckemeyer, Carl**, action of potassium phthalimide on oxyhalogen compounds, 1888, A., 1294.
- Göhring, C. F.**, action of aldehyde on *p*-nitrobenzaldehyde, 1885, A., 527.
- action of aldehyde on *m*-nitrobenzaldehyde, 1885, A., 791.
- preparation of oxygen, 1889, A., 465.
- Göhring, C. F.** See also **Paul Friedländer**.
- Goeldner, M.**, detection of cocaine hydrochloride, 1890, A., 96.
- Goercki, Carl**. See **Theodor Poleck**.
- Göring, Theodor**, preparation of concentrated acetic acid, 1885, A., 105.
- Görz, Adolph**, reduction of gold chloride by wood charcoal, 1888, A., 1042.
- Goessmann, Charles A.**, annual value of tobacco stems, 1885, A., 589.
- analysis of onions, 1887, A., 1137.
- analysis of white soja beans, 1890, A., 192.
- Göttig, Christian**, behaviour of the alkaline hydrosulphides with alkyl salts, 1886, A., 332.
- hydrated sodium sulphide, 1886, A., 980.
- water of crystallisation of sodium monosulphide, 1887, A., 381.
- new hydrate of sodium hydroxide, 1887, A., 550.
- hydrates of potassium hydroxide, 1887, A., 636.
- crystallisation of alkalis from alcohol, 1887, A., 889.
- hydrates of lithium hydroxide, 1888, A., 106.
- compounds of sodium hydroxide and methyl alcohol, 1888, A., 437.
- compound of potassium hydroxide with methyl alcohol, 1888, A., 933.
- compound of calcium chloride with *n*-propyl alcohol, 1890, A., 465.
- crystallisation of sodium hydroxide from isobutyl alcohol, 1890, A., 1222.
- ethereal salts of chlorhydrins, 1891, A., 707.
- $\beta$ -dichlorhydrin *m*-hydroxybenzoate, 1891, A., 1482.
- isomeric dichlorhydrin *m*-hydroxybenzoate, 1892, A., 471.
- dichlorhydrin *p*-hydroxybenzoate, 1892, A., 715.
- Göttig, Joseph**. See **Friedrich Krafft, Rudolf Nietzki**.

- Götting, Gustav**, constitution of nitroethane, 1888, A., 355.
- Göttsch, Heinrich**. See **Ernst Dürkopf**.
- Götz, J.**, andalusite from Marabastad, Transvaal, 1887, A., 562.
- Goguel, Henri**, chrysotile from the Pyrenees, 1891, A., 407.
- Goldbeck, Otto**, nitrogenous derivatives of *p*-homosalicylic acid, 1892, A., 318.
- Goldberg, Alwin**, estimation of nitrogen in nitro-, azo-, and diazo-compounds, 1884, A., 364.
- Goldberg, B.**, formation of rosaniline, 1892, A., 340.
- Goldberg, Boris, Ph. Kunz, and Karl Krant**, glycocine and its derivatives, 1892, A., 294.
- Goldberg, Georg**, isophthalenediamid-oxime, 1890, A., 147.
- Goldenring, Alfred**, derivatives of trimethylenediamine, 1890, A., 976.
- Goldmann, Edwin**, fate of cystein and formation of sulphuric acid in the animal body, 1885, A., 922.
- Goldmann, Edwin, and Eugen Baumann**, cystin in normal urine, 1888, A., 519.
- Goldmann, Friedr.**, action of bromine on anthranol, 1887, A., 1049.
- derivatives of anthranol, 1888, A., 714, 1202.
- mesoanthramine, 1890, A., 1426.
- Goldschmidt, Carl**. See **Eugen Bamberger**.
- Goldschmidt, Harald**, the diastatic ferment in saliva, 1886, A., 726.
- gastric digestion in the horse, 1886, A., 952.
- intestinal digestion in the horse, 1887, A., 610.
- absorption in the stomach of the horse, 1887, A., 743.
- Goldschmidt, Heinrich**, strychnine, 1883, A., 99.
- action of hydroxylamine on diketones, 1884, A., 62.
- nitrosophenols, 1884, A., 735, 1137.
- carvole, 1884, A., 1138.
- the so-called oxycamphor of Kachler and Spitzer, 1885, A., 270.
- camphylamine, 1886, A., 249.
- reduction of aldoximes and acetoximes, 1887, A., 249, 568.
- camphoroxime derivatives, 1887, A., 496.
- oximes, 1890, A., 251, 1412.
- isomeric oximes, 1890, A., 1261.
- diazo-compounds, 1891, A., 193.
- cryoscopic experiments, 1891, A., 1211.
- Goldschmidt, Heinrich, and Victor Badl**, diazoamido-compounds, 1889, A., 774.
- Goldschmidt, Heinrich, and Bruno Bardach**, diazoamido-compounds, 1892, A., 977.
- Goldschmidt, Heinrich, and Robert Brubacher**, hydroxyazo-compounds, 1891, A., 1209.
- Goldschmidt, Heinrich, and Emil Joseph Constam**, pyridine bases from coal-tar, 1884, A., 611.
- Goldschmidt, Heinrich, and Heinrich W. Ernst**, *o*-anisamine and salicylamine, 1890, A., 1411.
- Goldschmidt, Heinrich, and August Gessner**, cumylamine, 1887, A., 1039; 1889, A., 773.
- Goldschmidt, Heinrich, and Moritz König**, nitrochlorotoluene and chlorotoluidine, 1886, A., 1022; 1887, A., 363.
- Goldschmidt, Heinrich, and Julien Holm**, mixed diazo-compounds, 1888, A., 685.
- Goldschmidt, Heinrich, and Elias Kisser**, carvole derivatives, 1887, A., 475, 923.
- Goldschmidt, Heinrich, and Carl Kjellin**, isomeric *p*-nitrobenzaldoximes, 1891, A., 1476.
- additive compounds of alkylaldoximes, 1891, A., 1477.
- Goldschmidt, Heinrich, and Richard Koreff**, camphor, 1885, A., 1071.
- Goldschmidt, Heinrich, and Aloys Meissler**, experiments to determine the constitution of tautomeric compounds, 1890, A., 499.
- Goldschmidt, Heinrich, and Victor Meyer**, benzil, 1883, A., 1120.
- Goldschmidt, Heinrich, and Ettore Molinari**, diazoamido-compounds, 1888, A., 1283.
- Goldschmidt, Heinrich, and Alfred Pollak**, hydroxyazo-compounds, 1892, A., 974.
- Goldschmidt, Heinrich, and Natalia Polonowska**, diphenylhydroxyethylamine, 1887, A., 492.
- anisamine, 1887, A., 1041.
- Goldschmidt, Heinrich, and August Poltzer**, derivatives of *o*-amidazo-compounds, 1891, A., 839.
- Goldschmidt, Heinrich, and Yngve Rosell**, hydroxyazo- and amidazo-compounds, 1890, A., 614.
- Goldschmidt, Heinrich, and Hans Schmid**, nitrosophenols, 1881, A., 1327; 1885, A., 775, 1238.
- *o*-nitrosanaphthols, 1884, A., 1859.
- Goldschmidt, Heinrich, and Leo Schulhof**, camphylamine, 1886, A., 557,

- Goldschmidt, Heinrich**, and *Walter Schulthess*, thienethylamine, 1887, A., 718.
- Goldschmidt, Heinrich**, and *Hermann Stöcker*, homologues of benzhydrylamine, 1891, A., 1479.
- Goldschmidt, Heinrich**, and *Julius Strauss*, dinitrosorcinol and dinitrosoresorcinol, 1887, A., 808.
- Goldschmidt, Heinrich**, and *Eugen Zanoli*, oximes of furfuraldehyde, thiophenalddehyde, and cenanthaldehyde, 1892, A., 1433.
- Goldschmidt, Heinrich**, and *Robert Zürzer*, camphor, 1884, A., 1364.
- carboxime derivatives, 1885, A., 1058.
- carboxime, 1885, A., 1210.
- Goldschmidt, Heinrich**. See also *Emil Joseph Constan*.
- Goldschmidt, Viktor**, application of a solution of potassium and mercury iodides to mineralogical and petrographical researches, 1883, A., 159.
- chemico-mineralogical theories, 1890, A., 219.
- Goldschmidt, Viktor**. See also (*Baron Heinrich von Foulon*).
- Goldschmiedt, Guido**, products of the distillation of calcium *p*-hydroxybenzoate, 1883, A., 664.
- products of the distillation of salicylic anhydrides, 1883, A., 664.
- pyrenequinone, 1883, A., 869.
- papaverine, 1884, A., 186; 1885, A., 1080; 1886, A., 83, 478; 1887, A., 163; 1888, A., 1116; 1889, A., 167.
- action of sodium on bromo-derivatives of benzene, 1886, A., 541.
- new dimethoxyquinoline, 1887, A., 1119.
- oxidation products of piperidine, 1888, A., 302.
- optical rotatory power of papaverine, 1888, A., 611.
- isoquinoline, 1889, A., 165.
- action of potash on alkyl derivatives of papaverine, 1890, A., 179.
- opianic acid, 1892, A., 179.
- Goldschmiedt, Guido**, and *Leo Egger*, action of potassium cyanide on ethyl opianate, 1891, A., 1371.
- Goldschmiedt, Guido**, and *Rudolf Jahoda*, action of benzylamine on glycol chlorhydrin, 1891, A., 1351.
- substances contained in the petals of *Gentiana verna*, 1892, A., 205.
- ellagic acid, 1892, A., 990.
- Goldschmiedt, Guido**, and *Oscar Osterseizer*, papaverine derivatives, 1889, A., 166.
- Goldschmiedt, Guido**, and *Hugo Strache*, pyridine-*o*-dicarboxylic acid, 1889, A., 1016.
- papaverinic acid and pyropapaverinic acid, 1890, A., 180.
- Goldschmiedt, Guido**, and *Rudolf Wegscheider*, pyrene derivatives, 1883, A., 1001.
- Goldsmith, Byron B.** See *Martin Freund*.
- Goldstein, Eugen**, electric discharge in rarefied gases, 1883, A., 266.
- Goldstein, Michael T.**, rise of salt solutions in capillary tubes, 1889, A., 205; 1890, A., 684.
- Goldstein, Michael T.**, and *Albert W. Damski*, rise of solutions in capillary tubes, 1885, A., 115.
- Goldzweig, A.**, and *A. Kaiser*, hydroxyketones from fatty acids and phenols, 1891, A., 447.
- Golenkin, Michel**, hydrogenation of triphenylmethane, 1888, A., 483.
- Goll, Otto**. See *Rudolf Nietzki*.
- Goller, Erwin**, oligoclase and biotite from Gailbach, 1891, A., 1437.
- Golubeff, Porphiri Grigor**, reduction of isodinitrobenzene, 1885, A., 660.
- Gondoin, J.**, estimation of sodium chloride in wine, 1891, A., 1398.
- Gonnard, Ferdinand**, the granite on the banks of the Saône, 1883, A., 36.
- existence of apatite in the pegmatites of Lyons, 1883, A., 432.
- gedrite in the gneiss of Beaunan, near Lyons, 1883, A., 444.
- formation of zeolites in the cold, 1884, A., 405.
- vaugnerite at Irigny, 1884, A., 405.
- anorthitic rock at Saint-Clement, Puy de Dôme, 1884, A., 411.
- zeolites in the dolerites of Chaux-de-Bergonne, 1884, A., 829.
- pegmatite containing large crystals of chlorophyllite, 1885, A., 34.
- pegmatite on the borders of Vizézy near Montbrison, 1885, A., 131.
- mineralogical notes on the environs of Pontgibaud, 1885, A., 220.
- peperite of the Puy de la Piquette, 1888, A., 121.
- pseudomorphs in the lead mines of the Puy de Dôme, 1888, A., 348.
- genesis of the plumbiferous phosphates and arseno-phosphates of Roure and de Rosiers, Pontgibaud, 1888, A., 429.
- association of fluorspar with Babel quartz at Ville-Vieille near Pontgibaud, 1888, A., 561.
- offretite, 1891, A., 407.

- Gonnet.** See **Jablin-Gonnet.**
- Gonzalez, Carlos p-tungstates,** 1887, A., 895.
- Gooch, Frank Austin,** separation of titanium from aluminium and iron, 1885, A., 1265.
- method of filtration with easily soluble and volatile filters, 1886, A., 96.
- separation of titanium and aluminium, and of titanium and iron, 1886, A., 492.
- separation and estimation of boric acid, 1887, A., 299.
- separation of sodium and potassium from lithium, magnesium, and calcium, 1887, A., 528.
- Gooch, Frank Austin, and Frank Terry Brooks,** detection of iodine, bromine, and chlorine in presence of one another, 1891, A., 361.
- Gooch, Frank Austin, and Philip Embury Browning,** estimation of iodine in haloid salts, 1890, A., 1186.
- reduction of arsenic acid in analysis, 1891, A., 244.
- Gooch, Frank Austin, and Edgar William Danner,** separation of antimony from arsenic, 1892, A., 541.
- Gooch, Frank Austin, and Joseph Ralph Ensign,** direct estimation of bromine in mixtures of alkaline bromides and iodides, 1891, A., 361.
- Gooch, Frank Austin, and Hippolyte Washington Gruener,** estimation of antimony, 1892, A., 242.
- Gooch, Frank Austin, and Theodor Stuart Hart,** detection and estimation of potassium spectroscopically, 1892, A., 913.
- Gooch, Frank Austin, and Frederick William Mar,** direct estimation of chlorine in mixtures of alkaline chlorides and iodides, 1890, A., 920.
- Gooch, Frank Austin, and Clement Grubb Smith,** estimation of chlorates, 1892, A., 236.
- Gooch, Frank Austin, and James Edward Whitfield,** waters of the Yellowstone National Park, 1889, A., 682.
- Goodwin, Ralph.** See **Russell H. Chittenden.**
- Goodwin, Wm. Lawton,** nature of solution, 1883, A., 550; 1885, A., 865.
- Goossens, B. J.,** the metallic galvanic circuit of Ayrton and Perry, 1883, A., 141.
- Goppelsroeder, Friedrich,** application of electrolysis in preparing indigo vats, 1884, A., 942, 1448.
- Goppelsroeder, Friedrich,** preparation of persulphocyanogen by electrolysis, 1885, A., 107.
- bleaching indigo blue and Turkey-red by electrochemical means, 1885, A., 108.
- formation of hydroxy- and chloro-cellulose electrochemically, 1885, A., 208.
- Goppert, Heinrich Robert,** means of protecting plants against frost, 1884, A., 1067.
- Gorboff, Alexander I.,** oxytetric and hydroxytetric acids, 1888, A., 1179.
- Gorboff, Alexander I., and Alex. Kessler,** apparatus for fractional distillation under reduced pressure, 1885, A., 950.
- action of iodoform, methylene iodide, and iodine on sodium isobutoxide, 1888, A., 814.
- Goresix, Henri,** green mica in the quartzites of Ouro Preto, 1884, A., 408.
- minerals from the metamorphic rocks of Ouro Preto, Brazil, 1885, A., 30.
- monazite sands from Caravellas, Province of Bahia, Brazil, 1885, A., 489.
- hydrated titanium oxide from Diamantina, 1885, A., 640.
- phillipsite from Brazil, 1886, A., 319.
- zeolite from a pyroxenic rock of Brazil, 1886, A., 519.
- xenotime from Minas Geraes, Brazil, 1886, A., 676.
- Gordon, Hugh,** formation of isomeric toluenesulphonic acids, 1888, P., 78.
- studies on the formation of substitution derivatives, 1891, P., 62; discussion, P., 65.
- Gordon, John,** physiological action of sulphonal, 1890, A., 542.
- Gore, George,** reduction of metallic solutions by means of gases, etc., 1884, A., 393.
- absorption of an iodine compound by aluminium, 1884, A., 655.
- electrolysis of silver fluoride, chlorate, and perchlorate, 1885, A., 110.
- electro-deposition of carbon and silicon, 1885, A., 110.
- reactions with carbon and some of its compounds, 1885, A., 119.
- magnesium suboxide, 1885, A., 123.
- estimation of ammonia in potable water, 1885, A., 194.
- some phenomena of electrolysis, 1885, A., 324.

- Gore, George**, unequal electric conduction resistance at cathodes, 1885, A., 324.  
 — relation of chemical corrosion to voltaic current, 1885, A., 324.  
 — relation of heat to voltaic and thermoelectric action of metals, 1885, A., 325.  
 — reduction of metallic solutions by means of gases, 1885, A., 1112.  
 — effect of heat on ammonium and potassium fluorochromates, 1885, A., 1114.  
 — voltaic balance, 1888, A., 1230.  
 — effect of chlorine on the electromotive force of a voltaic couple, 1889, A., 90.  
 — minimum point of change of potential of a voltaic couple, 1889, A., 200.  
 — change of potential of a voltaic couple, 1889, A., 200.  
 — influence of the chemical energy of electrolytes on the minimum point of change of potential, 1889, A., 200.  
 — effects of different positive metals on the change of potential of a voltaic couple, 1889, A., 201.  
 — voltaic energy of electrolytes, 1889, A., 665.  
 — detection of the combining proportions of compounds by the voltaic balance, 1889, A., 665.  
 — loss of voltaic energy of electrolytes by chemical union, 1889, A., 810.  
 — molecular constitution of isomeric solutions, 1890, A., 207.  
 — voltaic energy of dissolved chemical compounds, 1890, A., 317.  
 — rate of chemical change, 1890, A., 327.  
 — sensitive test for impurities in mercury, 1890, A., 827.  
 — rate of decomposition of chlorine water by light, 1890, A., 849.  
 — solution compounds, 1890, A., 941.  
 — new method and department of chemical research, 1890, A., 1035.  
 — changes of properties of amalgams by repeated fusion, 1891, A., 8.  
 — changes of voltaic energy of alloys during fusion, 1892, A., 254.  
 — relation of E.M.F. to latent heat, sp. gr., etc. of electrolytes, 1892, A., 257.  
 — changes of E.M.F. and temperature by mixing electrolytes, 1892, A., 930.  
**Gorgeu, Alexandre**, manganese sulphite, 1883, A., 558.  
 — double sulphites of manganese and the alkalis, 1883, A., 718.
- Gorgen, Alexandre**, artificial hausmannite, 1883, A., 859.  
 — artificial production of barytes, celestine and anhydrite, 1883, A., 1062.  
 — artificial production of rhodonite and tephroite, 1884, A., 164.  
 — artificial production of spessartite, or manganese-garnet, 1884, A., 410.  
 — manganese chlorosilicate, 1884, A., 562.  
 — artificial pseudomorphism of silica, 1884, A., 895.  
 — calcium oxychloride, silicates, and chlorosilicates; artificial production of wollastonite, 1884, A., 1262.  
 — tricobalt tetroxide, 1885, A., 351.  
 — action of air, silicon, and kaolin on haloid salts of the alkalis, 1886, A., 664.  
 — aluminium potassium, and aluminium sodium silicates, 1886, A., 667.  
 — artificial zincite and willemite, 1887, A., 345.  
 — zinc ferrite: artificial formation of franklinite, 1887, A., 557.  
 — artificial production of magnetite, 1887, A., 708.  
 — action of aluminium and kaolin on calcium chloride, 1888, A., 223.  
 — effect of roasting on oxides and salts of manganese, 1888, A., 653.  
 — artificial formation of pyrolusite, 1888, A., 792.  
 — formation of manganese oxides in the wet way, 1889, A., 829.  
 — action of air on manganous carbonate, 1889, A., 830.  
 — alkali aluminium silicates, 1890, A., 13.  
 — artificial preparation of wollastonite, 1890, A., 18.  
 — psilomelanes and wads, 1890, A., 570.  
 — action of hydrogen peroxide on oxygen compounds of manganese, 1890, A., 946.  
 — manganous acid, 1890, A., 1060.  
 — action of hydrogen peroxide on permanganic acid and permanganates, 1890, A., 1062.  
 — manganese oxides, 1891, A., 270.  
 — decomposition of silver permanganate, 1892, A., 942.  
**Gorham, J.**, the pupil photometer, 1885, A., 320.  
**Gorham, J. Marshal.** See *Bernard Drake*.  
**Gorodetzky, Isak, and Carl Hell**, preparation of dibromosuccinic acid, 1888, A., 820.

- Gorodetzky, Isak**, and **Carl Hell**, action of silver on ethyl dibromosuccinate, 1888, A., 937.
- **dianilidosuccinic acid**, 1888, A., 951.
- Gorodetzky, Jul.**, estimation of fat in milk, 1891, A., 625.
- Gortaloff, Arsenius**, and **Alexander M. Saytzeff**, synthesis of methylpropylcarbinol, 1886, A., 437.
- Gosio, B.** See **A. Sclavo**.
- Goske, Adolf**, synthesis of carbazole, 1887, A., 372.
- Goske, Adolf**. See also **August Bernthsen**.
- Gossage, Alfred Milne**, volumetric estimation of uric acid, 1889, A., 450.
- Gossart, Emile**, the spheroidal state, 1887, A., 768.
- application of capillary phenomena to the analysis of liquids, 1892, A., 236.
- Gossels, William**, nitrates in animals and plants, 1887, A., 389.
- Gossin, Eugene**, action of isobutyl chloride on benzene, 1884, A., 1312.
- action of sulphuric acid on cyanogen iodide, 1885, A., 645.
- Gossin, Eugene**. See also **G. Calmels, Jules Charles Essner**.
- Gott, Benjamin Scaife**, and **M. M. Pattison Muir**, bismuth iodide and fluoride, 1887, P., 130; 1888, T., 137.
- Gottlieb, Emil**, composition of certain kinds of wood, 1884, A., 477.
- estimation of fat in milk, 1892, A., 549.
- Gottlieb, Rudolf**, excretion of iron, 1891, A., 1128.
- Gottschalk, M.**, action of nitric acid on pentamethylbenzene, 1888, A., 261.
- Gottstein, Leo**, two new caprolactones, 1883, A., 454.
- analysis of an English bottle-glass, 1884, A., 1443.
- Gouy, A.**, distortion of polarised electrodes, 1883, A., 897.
- velocity of light in carbon bisulphide, 1886, A., 957.
- standard galvanic cell, 1887, A., 541.
- electrocapillary phenomena, and differences of contact potential, 1892, A., 553.
- electrocapillary phenomena, 1892, A., 760.
- Gouy, A.**, and **G. Chaperon**, osmotic equilibrium and the concentration of solutions by gravitation, 1887, A., 1018.
- Gouy, A.**, and **H. Rigollet**, electrochemical actinometer, 1888, A., 883.
- Gowland, William**, and **Ishimasa Koga**, silver containing bismuth, 1887, T., 410; P., 45.
- Goyder, George Arthur**. See **Edward Henry Rennie**.
- Gozdorf, G. A.**, assay of minute quantities of gold, 1887, A., 184.
- Grabfield, Joseph Ph.** See **Alfred Einhorn**.
- Grabowski, Nicholas II.**, ozokerite and ceresin of Galicia, 1885, A., 487.
- Graebe, Carl**, acridine, 1884, A., 607.
- synthesis of anthraquinoline, 1884, A., 759.
- detection of nitrogen in organic compounds, 1884, A., 1072.
- formation of acridine, 1884, A., 1182.
- reduction of phthalimide and phthalide, 1885, A., 165.
- $\beta$ -sulphophthalic acid, 1885, A., 902.
- phthalimidine, 1885, A., 979; 1889, A., 140.
- formula of diphenic acid, 1887, A., 589.
- acenaphthene, 1887, A., 592.
- boiling-points of diphenylamine and its homologues, 1887, A., 812.
- tetrachlorophthalic acid, 1887, A., 832.
- auramine, 1888, A., 158.
- phenylsalicylic acid; diphenylene ketone oxide, 1888, A., 477.
- synthesis of euxanthone, 1889, A., 886.
- the euxanthone group, 1890, A., 504.
- benzil-*o*-carboxylic acid, 1890, A., 989.
- formation of quinalizarin from alizarin, 1891, A., 463.
- chloranil, 1891, A., 1027.
- Graebe, Carl**, and **Charles Aubin**, condensation of diphenic and *o*-diphenylcarboxylic acids, 1887, A., 580.
- diphenic anhydride and *o*-diphenyleneketonecarboxylic acid, 1889, A., 145.
- Graebe, Carl**, and **Ad. Drews**, dinitro- $\beta$ -naphthol, 1884, A., 1035.
- Graebe, Carl**, and **Arthur Eichengrün**, hydroxyketone dyes: dihydroxyxanthone, 1891, A., 706.
- action of heat on salicylic acid, 1892, A., 1208.
- hydroxyketone dyes, 1892, A., 1224.
- behaviour of aromatic hydroxyketones with sulphuric acid and with ammonia, 1892, A., 1226.

- Graebe, Carl, and Adolf Feer**, euxanthone group, 1887, A., 152.
- Graebe, Carl, and Ernst Gfeller**, oxidation of acenaphthene, 1892, A., 863.
- Graebe, Carl, and Philippe A. Guye**, hydrides of naphthalene, 1884, A., 608.
- diphthalyl, 1885, A., 267; 1886, A., 882.
- Graebe, Carl, and Paul Juillard**, diphtalic acid, 1888, A., 154.
- benzil-*o*-carboxylic acid, 1888, A., 1095.
- Graebe, Carl, and Kasimir Lagodzinski**, phenylanthranilic acid and acridone, 1892, A., 1086.
- Graebe, Carl, and Auguste Landriset**, action of potassium cyanide on phthalaldehydic acid, 1891, A., 1225.
- Graebe, Carl, and Alfred Philips**, oxidation of alizarin green and alizarin indigo-blue, 1891, A., 1240.
- Graebe, Carl, and Amé Pictet**, methylphthalimide, 1884, A., 1019.
- substituted phthalimides, 1889, A., 141.
- Graebe, Carl, and Alfred Rée**, compounds obtained by the aid of sulphophthalic acid, 1886, T., 522; P., 211.
- Graebe, Carl, and Hermann Schmalzgang**, diphthalyl, 1885, A., 797.
- Graebe, Carl, and Oscar Schultess**, thioxanthone, 1891, A., 1058.
- Graebe, Carl, and Leo Weltner**, bromanil, 1891, A., 1028.
- Graebe, Carl, and Bruno Zschokke**, thiophthalic anhydride, 1884, A., 1025.
- Graebe, Carl.** See also *René Bohn, Heinrich Brunn.*
- Graeff, Friedrich**, naphthalene derivatives, 1884, A., 80.
- action of reducing agents on nitro-toluidine, 1885, A., 1127.
- Graetz, Leo**, electrical conductivity of solids at high pressures, 1887, A., 5.
- internal friction of liquids, 1888, A., 776.
- electrical conductivity of fused and solid salts, 1890, A., 1037.
- Grätzel, A.**, creosote from beechwood tar, 1883, A., 393.
- Graetzel, Richard**, preparation of magnesium, 1885, A., 940.
- Graf, Bernhard**, Dammaria resin, 1889, A., 621.
- Graf, Paul**, constituents of cocoa fat, 1889, A., 35.
- Graffenberger, L.**, composition of the bones of aged rabbits, 1891, A., 1275.
- estimation of free hydrochloric acid in the stomach, 1892, A., 236.
- Graffenberger, L.**, decomposition of fibrin, gelatin, peptone, and asparagine in the human body, 1892, A., 904.
- Graham, Robert Orlando.** See *Iru Remsen.*
- Gram, Chr. A.**, active principles of *Asclepias curassavica*, *A. incarnata*, and *Vincetoxicum officinale*, 1887, A., 377.
- origin of ptomaines, 1887, A., 387.
- Gram, Johan**, *p*-diamidodiphenylmethane, 1892, A., 618.
- Gramont, (Comte) Armand de**, action of aldehyde on propyl glycol, 1884, A., 85.
- artificial production of boracite in the wet way, 1890, A., 1384.
- artificial datholite, 1891, A., 1437.
- Grande, Ernesto**, phenetoliphtaloylic acid, 1890, A., 1128.
- phenolphthalein ethyl ether, 1892, A., 1096.
- Grandean, Henry**, decomposition of phosphates by potassium sulphate at high temperatures, 1883, A., 151.
- phosphates, 1885, A., 872.
- Grandis, Valentino**, influence of muscular work, hunger, and temperature on the exhalation of carbonic anhydride, 1890, A., 1334.
- crystals occurring in the nuclei of liver cells, 1891, A., 587.
- action of glycerol on egg-albumin, 1891, A., 589.
- chrysophanic acid, 1892, A., 1354.
- Grandmougin, Eugène, and Oscar Michel**, homonuclear amidonaphthols and related derivatives, 1892, A., 861.
- Grandmougin, Eugène.** See also *Emilio Nölting, Otto Nikolaus Witt.*
- Grandval, Alexandre, and Henri Lajoux**, detection and estimation of nitric acid in the air, water, soils, etc., 1885, A., 1093.
- Grandval, Alexandre.** See also *Henri Lajoux.*
- Granger, A.**, copper phosphides, 1892, A., 410.
- mercury phosphide, 1892, A., 1398.
- Grant, James, and Julius Berend Cohen**, estimation of alkalis in presence of sulphites, 1890, A., 1468.
- Grant, James.** See also *Gilbert John Fowler.*
- Granval, and Valser**, falsification of oleic acid by linoleic acid, 1889, A., 799.
- Grasset, Joseph**, anæsthetic action of cocaine, 1885, A., 285.
- anæsthetic action of cocaine hydrochloride, 1885, A., 415.

- Grasset, Joseph**, and **Sidoine Jeannel**, physiological action of cocaine, 1885, A., 571.
- Grassi-Cristaldi, Giuseppe**, action of phenylhydrazine on santonin, 1888, A., 295.
- santoninphenylhydrazone, 1890, A., 904.
- Grassi-Cristaldi, Giuseppe**. See also **Pietro Gucci**.
- Grassmann, P.**, loss occasioned by improper methods of pickling wheat, 1887, A., 293.
- Gratama, Willem Digncs**, double sulphide of aluminium and potassium, 1885, A., 350.
- Graves, E. Ernest**. See **Richard Tayler Plimpton**.
- Gravill, Edward Day**, estimation of ammonium carbonate in *Spiritus amoniac aromaticus*, B. P., 1887, A., 398.
- Grawitz, Sam**, dyes from aniline chromates, 1888, A., 54.
- dyeing with aniline black in the dry way, 1892, A., 323.
- Gray, John**, obituary notice of, 1883, T., 252.
- Gray, John**, apparatus for determining the flashing point of heavy mineral oils, 1892, A., 542.
- Gray, Thomas Andrew**, electrolysis of silver and copper: application of electrolysis to the standardizing of electric current and potential meters, 1887, A., 315.
- electrolysis of copper, 1888, A., 545.
- Gray, Thomas Andrew**, and **James Johnstone Dobbie**, electric qualities of glass, 1885, A., 470.
- Green, Arthur George**, isomeric sulphonc acids of  $\beta$ -naphthylamine, 1888, P., 103; discussion, P., 103; 1889, T., 33.
- the constitution of primuline and allied sulphur compounds, 1889, T., 227; P., 46; discussion, P., 48.
- Green, Arthur George**, and **Frank Evershed**, volumetric estimation of nitrous acid, 1887, A., 396; 1892, A., 751.
- Green, Arthur George**, and **Thomas Atkinson Lawson**, o- and p-nitro-derivatives of p-toluidine, 1891, T., 1013; P., 129.
- Green, Arthur George**, and **Samuel Rideal**, new volumetric method for the estimation of nitrous acid, 1884, A., 870.
- Green, Arthur George**, **Charles Frederick Cross**, and **Edward John Bevan**, new photographic method, 1891, A., 138.
- Green, Arthur George**. See also **Richard John Friswell**, **Henry Forster Morley**.
- Green, Edgar Moore**, value of Brucke's method for the removal of interfering substances from urine in testing for glucose, 1886, A., 745.
- Green, Joseph Reynolds**, edible bird's nest, 1886, A., 635.
- proteid substance in latex, 1886, A., 828.
- changes in the proteids of seeds during germination, 1887, A., 987.
- action of sodium chloride in dissolving fibrin, 1888, A., 304.
- influence of calcium sulphate on the coagulation of the blood, 1888, A., 306.
- germination of the Jerusalem artichoke, 1890, A., 656.
- Green, Walter D.**, error in the estimation of urea by Russell and West's apparatus, 1886, A., 747.
- Green, Walter D.** See also **John Marshall**.
- Greenall, Thomas H.** See **Thomas Edward Thorpe**.
- Greene, William H.**, estimation of urea, 1884, A., 507.
- diethoxymethane, and preparation of methylene dichloride, 1885, A., 38.
- new synthesis of saligenin, 1885, A., 53.
- action of hydrochloric acid and of chlorine on acetylbenzoic anhydride, 1885, A., 55.
- formation of dibenzyl from ethylene dichloride and benzene in presence of aluminium chloride, 1885, A., 58.
- aceto-m-nitrobenzoic anhydride, 1890, A., 53.
- Greene, William H.**, and **Samuel C. Hooker**, lapschol in beth-a-barra wood, 1889, A., 794.
- Greene, William H.** See also **Samuel C. Hooker**.
- Greenish, Thomas**, pipitzalhoic acid, 1885, A., 396.
- Greenwood, Marion**, digestion in rhizopods, 1886, A., 1053; 1888, A., 79.
- digestion in Hydra, 1889, A., 287.
- action of nicotine on invertebrates, 1891, A., 485.
- Grégoire, J.**, cultivation of "gombo," 1883, A., 613.
- Gréhan, Nestor**, elimination of carbonic oxide after partial poisoning, 1886, A., 641.
- physiological action of the products of incomplete combustion of illuminating gas, 1888, A., 517.

- Gréhan, Nestor**, poisoning by carbonic oxide, 1888, A., 622.  
 — physiological action of hydrocyanic acid, 1889, A., 1232.  
 — poisoning by hydrocyanic acid applied to the surface of the eye, 1891, A., 99.  
 — detection of minute quantities of carbonic oxide, 1892, A., 99.  
 — absorption of carbonic oxide by the blood of a living mammifer, 1892, A., 743.  
**Gréhan, Nestor**, and **Jean Pierre Peyrou**, gas contained in floating and submerged leaves, 1885, A., 1153.  
**Gréhan, Nestor**, and **Ch. Eugène Quinquand**, estimation of chloroform in the blood of an anesthetised animal, 1884, A., 375.  
 — poisonous action of urea, 1884, A., 1898.  
 — formates in the organism, 1887, A., 513.  
 — respiration of yeast cells at different temperatures, 1888, A., 623.  
 — estimation of glucose by fermentation, 1888, A., 875.  
 — disengagement of carbonic anhydride by anaerobic yeast, 1889, A., 539.  
 — amount of urea in blood and muscle, 1889, A., 914.  
**Greiner**, and **F. Friedrichs**, instruments for measuring liquids, 1888, A., 1332.  
**Greinert**, ammonia, nitrous acid, and nitric acid in potable waters, 1885, A., 297.  
**Grenet**. See **A. Pagnoul**.  
**Greshoff, Maurits**, decomposition and estimation of iodoform by silver nitrate, 1889, A., 445.  
 — alkaloids and other active principles from plants growing in the Dutch Indies, 1891, A., 334.  
**Gresly, L.**, reduction of and condensation of homologues of benzoylbenzoic acid, 1886, A., 1028.  
 — triphenylmethanecarboxylic acid, 1886, A., 1085.  
**Gressly, O.**, and **Marcellus Nencki**, constitution of carbonyl-*o*-amidophenol, 1890, A., 1413.  
**Grete, Ernst August**, nitrogen estimation in saltpetre by potassium xanthate, 1883, A., 1031.  
 — estimation of phosphoric acid, 1883, A., 1031.  
 — volumetric estimation of phosphoric acid, 1888, A., 1841.  
**Grevingk, Ed.**, nitro- and amido-derivatives of *m*-xylene, 1885, A., 144.  
**Grevingk, Ed.**, azo-derivatives of *m*-xylene, 1886, A., 348.  
**Grewingk, Constantin Caspar Andreas**, iron containing nickel from Sanarka in the Ural Mountains, 1884, A., 401.  
**Griepenkerl, Julius**. See **Otto Wallach**.  
**Griepentrog, Hugo**, synthesis of triphenylmethane, 1886, A., 887.  
**Griesbach, H.**, coagulation of blood, 1892, A., 1112.  
**Griess, John Peter**, constitution of the azinido-compounds, 1883, A., 56.  
 — diazo-derivatives, 1883, A., 180, 1102; 1884, A., 1148; 1885, A., 788; 1886, A., 459; 1887, A., 817; 1888, A., 588, 826.  
 — creatine-compounds of the aromatic group, 1883, A., 669.  
 — introduction of the diazo-group into so-called aromatic para-compounds, 1884, A., 1013.  
 — action of potassium cyanate on *m*-nitramidobenzoic acid, 1885, A., 54.  
 — acid ammonium bases, 1885, A., 1220.  
 — derivatives of cyanocarbimido-amidobenzoic acid, etc., 1885, A., 1225.  
 — *m*- and *p*-hydroxynitrobenzoic acids, 1887, A., 485.  
 — detection of organic matter in water, 1888, A., 993.  
**Griess, John Peter**, and **Carl Duisberg**, benzidine and benzidinesulphonic acids, 1890, A., 57.  
**Griess, John Peter**, and **George H. Harrow**, presence of choline in hops, 1885, T., 298; P., 35.  
 — action of aromatic diamines on sugars, 1887, A., 475, 930; 1888, A., 267.  
 — hexamethylenetriamine, 1888, A., 1268.  
 — action of ethyl acetoacetate on hexamethylenetetramine, 1888, A., 1313.  
**Griessmayer, Victor**, loss of sugar by long steaming of the "mash," 1883, A., 186.  
 — the ferment of chic beer, 1883, A., 585.  
 — true nature of starch-cellulose, 1887, A., 686.  
**Griffith, Agnew**, detection of stannic sulphide in presence of antimonious sulphide, 1887, A., 183.  
**Griffiths, Arthur Bower**, chemico-microscopical researches on the cell-contents of certain plants, 1883, T., 195.  
 — analysis of a new guano from Australia, 1883, A., 375.

- Griffiths, Arthur Bower.** growth of plants under special conditions, 1883, A., 496.  
 — analysis of some minerals, 1883, A., 858.  
 — an ammonia-phosphatic deposit in the vicinity of Cape Town, 1883, A., 859.  
 — experiments on the value of iron sulphate as a manure for certain crops, 1884, T., 71.  
 — excretory product from the liver of the cuttle fish, 1884, A., 94.  
 — guano recently discovered in Australia, 1884, A., 107.  
 — analysis of the brine-spring of Stoke Prior, Worcestershire, 1884, A., 165.  
 — aldehydic nature of protoplasm, 1884, A., 202.  
 — chlorophyll; a compound of iron with a glucoside, 1884, A., 848.  
 — phenol in the stem, leaves, and cones of *Pinus sylvestris*, 1884, A., 863.  
 — paraffin-shale from Servia, 1884, A., 879.  
 — farmyard manure, 1884, A., 1070.  
 — application of iron sulphate in agriculture, 1885, T., 46; P., 130.  
 — platinum carbides formed at low temperatures, 1885, A., 487.  
 — uric acid from the green glands of *Astacus fluviatilis*, 1885, A., 680.  
 — pancreatic function of the cephalopod liver, 1885, A., 829.  
 — use of ferrous sulphate in agriculture, 1886, T., 114.  
 — agricultural experiments with iron sulphate as a manure during 1886, 1886, P., 260; 1887, T., 215.  
 — action of salicylic acid on ferments, 1886, A., 386.  
 — nephridia and liver of *Patella vulgata*, 1888, A., 178.  
 — existence of salicylic acid in certain genera of the Liliaceae, 1889, P., 122.  
 — direct absorption of ammoniacal salts by plants, 1892, A., 229.  
 — blood of Invertebrata, 1892, A., 648.  
 — hæmocyannin, 1892, A., 898.  
 — pinnaglobin, a new globulin, 1892, A., 1016.  
 — chlorocruorine, 1892, A., 1256.  
 — ptomaines of infectious diseases, 1892, A., 1258.  
 — leucomaine, 1892, A., 1367.  
 — pupin, 1892, A., 1501.  
**Griffiths, Arthur Bower, and Edwin Charles Conrad,** salicylic acid in the cultivated pansy, 1885, A., 75.
- Griffiths, Arthur Bower, and Sylvain Dreyfus,** calamine, 1886, A., 989.  
**Griffiths, Arthur Bower, and Harold Follows,** examination of the organ of Bojanus in *Anodonta*, 1885, A., 921.  
**Griffiths, Arthur Bower, and (Mrs.) Frances Elizabeth Griffiths,** influence of certain rays of the solar spectrum on root absorption, 1888, A., 623.  
**Griffiths, Ernest Howard,** determination of boiling and freezing points by means of the platinum thermometer, 1891, A., 251.  
**Griffiths, Ernest Howard.** See also *Hugh L. Callendar*.  
**Griffiths, (Mrs.) Frances Elizabeth.** See *Arthur Bower Griffiths*.  
**Grigorieff, Petr,** mineral manure deposits, 1883, A., 529.  
 — analyses of some Moscow waters, 1883, A., 622.  
**Grimaldi, Giovan Pietro,** variation of temperature of the maximum density of water with pressure, 1886, A., 9.  
 — expansion of ether at various pressures, 1886, A., 498.  
 — physical properties of thiophen, 1886, A., 613.  
 — thermic expansions of liquids at various pressures, 1887, A., 626.  
 — influence of a magnetic field on the thermoelectric properties of bismuth, 1888, A., 102.  
 — theory of liquids, 1888, A., 1113.  
 — measurement of the specific heat of liquids at temperatures above their boiling-points under ordinary pressures, 1892, A., 761.  
**Grimaldi, Giovan Pietro.** See also *Damiano Macaluso*.  
**Grimaldi, Siro,** methylnonylphenylhydrazone, 1890, A., 1394.  
 — diamylphenylhydrazone, 1891, A., 302.  
**Grimaldi, Siro.** See also *Giovanni Campani*.  
**Grimaux, Edouard,** some derivatives of morphine, 1883, A., 358.  
 — phenolquinoline, 1883, A., 668.  
 — ferric ethylate and colloidal ferric hydrate, 1884, A., 573.  
 — a nitrogenous colloid derived from amidobenzoic acid, 1884, A., 905.  
 — some reactions of albumin, 1884, A., 911.  
 — colloids, 1884, A., 957.  
 — colloidal derivatives of ferric hydroxide, 1884, A., 966.  
 — coagulation of colloids, 1884, A., 1250.

**Grimaux, Edouard**, proteids and the coagulation of colloids, 1885, A., 1146.  
 — glycerinaldehyde, 1887, A., 794.  
 — fermentation of glycerinaldehyde, 1888, A., 247.  
 — *m*-pyrazolones, 1889, A., 56.  
 — homofluorescein, 1890, A., 1111.  
 — reactions of oxy-alkyl derivatives of dimethylaniline, 1891, A., 693.  
 — quinine methiodides, 1892, A., 1863.  
**Grimaux, Edouard**, and **Albert Arnaud**, conversion of cupreine into quinine, 1891, A., 1121; 1892, A., 892.  
 — — quinethyline, 1891, A., 1518.  
 — — bases homologous with quinine, 1892, A., 1253.  
**Grimaux, Edouard**, and **Charles Cloëz**, erythrene derivatives, 1887, A., 352.  
 — — erythrene bromides, 1887, A., 789.  
 — — derivatives of erythritol, 1890, A., 730.  
**Grimaux, Edouard**, and **Léon Lefèvre**, conversion of glucoses into dextrins, 1886, A., 1003.  
 — — diethoxyacetone, 1889, A., 235.  
 — — nitro-derivatives of dimethyl-*o*-anisidine, 1891, A., 1031.  
**Grimbert, Léon**, rotatory dispersion, 1888, A., 329.  
 — detection of urobilin in urine, 1889, A., 324.  
**Grimbert, Léon**, and **Barré**, copper precipitate formed in ordinary water, 1890, A., 851.  
**Grimbert, Léon**. See also *Emile Cl. Jungfleisch*.  
**Griner, Georges**, isomeride of benzene, 1887, A., 1038.  
**Gripper, Harold**, rapid method of determining the composition of lubricating oils, 1892, A., 665.  
**Grissom, Robt. G.**, action of chlorous anhydride on heptylene, 1883, A., 929.  
**Grissom, Robt. G.**, and **B. Thorp**, new halogen compounds of lead, 1888, A., 916.  
**Grittner, Albert**, estimation of mineral oils in fat oils, 1891, A., 505.  
 — estimation of zinc and nitrogen in pickled railway sleepers, 1891, A., 620.  
 — detection of rosin oil in fatty and mineral oils, 1892, A., 548.  
**Grittner, Albert**, and **Jacob Szilasi**, estimation of resin in soaps and fats, 1886, A., 747.  
**Griveaux, F.**, electrochemical energy of light, 1884, A., 382.

**Griveaux, F.**, decomposition of the haloid salts of silver by the action of light, 1889, A., 199.  
**Grobert, J. v.**, estimation of the mineral matter in sugar, 1890, A., 670.  
**Grocco, Pietro**, creatinine in urine, 1887, A., 513.  
 — detection of albumin in urine, 1892, A., 667.  
**Groddeck, Albrecht von**, sericite rocks in ore deposits, 1883, A., 168.  
 — the kersantite vein of the Upper Harz, 1884, A., 409.  
 — topaz and tourmaline from Tasmania, 1886, A., 603.  
 — tin-ore deposits of Mt. Bischoff, 1888, A., 434.  
 — copper ores containing tourmaline: geological occurrence of boron minerals, 1888, A., 566.  
 — clay slate and sericite slate, 1888, A., 795.  
 — tourmaline-bearing copper ores from Chili, 1890, A., 114.  
**Grodzki, M.**, test for acetal, 1883, A., 790.  
 — occurrence of valerolactone in pyro-ligneous acid, 1884, A., 1118.  
**Gröger, Max**, hydrometer for demonstrating alterations in weight in chemical changes, 1884, A., 1253.  
 — oxidation of the fatty acids of tallow, 1885, A., 883.  
 — oxidation of palmitic acid, 1888, A., 250.  
 — dihydroxystearic acid, 1889, A., 690.  
 — new gas burners, 1890, A., 106.  
 — estimation of neutral fats, 1890, A., 200.  
 — iodometric estimation of acids and alkalis, 1891, A., 360.  
 — potassium iodate as original standard for iodometry, acidimetry, and alkalimetry, 1891, A., 614.  
 — a new oxyiodide of lead, 1892, A., 1280.  
**Groenewold, Emc**, aloin from Barbados, Curaçao, and Natal aloes, 1890, A., 639.  
**Grohmann, Alexander**, derivatives of *p*-bromo-*m*-nitrobenzoic acid, 1891, A., 305.  
 — action of ammonia and aniline on halogen substituted nitrobenzoic acids, 1892, A., 326.  
**Groll, Alexander**, *m*-nitrodimethylaniline, *m*-nitrodiethylaniline, and their reduction products, 1886, A., 347.  
**Groll, S.**, and **Ludimar Hermann**, amount of hæmoglobin in the blood during inanition, 1889, A., 531.

- Groneweg, Carl.** See **Adolph Claus.**
- Groos, Adolf,** compounds of pyridine and mercury salts, 1890, A., 643.
- Groschans, J. A.,** aqueous solution, 1884, A., 143.
- specific gravity of substances in the solid state and in aqueous solution, 1885, A., 333.
- the law of density numbers. 1886, A., 194, 411.
- extension of the law of density numbers to thermochemistry, 1886, A., 498.
- relation between the absolute boiling points and specific volumes of liquids. 1886, A., 590.
- formula for the molecular volumes of compounds at the boiling-point, 1889, A., 100.
- calculation of the molecular volumes of benzene, naphthalene, anthracene, etc., 1889, A., 336.
- Prout's hypothesis, especially in relation to the atomic weights of carbon and oxygen, 1889, A., 463.
- Grosjean, John Joseph Beaumont Jean-**  
**neret,** contributions to the chemistry of tartaric and citric acids, 1883, T., 331.
- obituary notice of, 1883, T., 253.
- Grosjean, Léonard,** *aa*-dithionaphthol, 1890, A., 1306.
- decylene and its derivatives, 1892, A., 691.
- Grosjean, Léonard.** See also **Friedrich Kraft, Armand Jorissen.**
- Gross, Friedrich,** phenylhydroxyethenylamidoxime, 1885, A., 898.
- derivatives of phenylhydroxyethenylamidoxime, 1885, A., 1218.
- Gross, Hermann.** See **Eugen Lellmann.**
- Gross, L.** See **Albert Hilger.**
- Grossast, Theodor.** See **Fedor F. Beilstein.**
- Grossmann, Gustav,** reduction of amarine, 1889, A., 1191.
- Grossmann, Gustav.** See also **Karl Kraut.**
- Grossmann, Max,** bismuth subnitrate, 1884, A., 1092.
- Groth, Lorentz Albert,** preparation of magnesium, 1885, A., 940.
- Groth, Paul Heinrich,** natural barium nitrate, 1883, A., 431.
- natural fluorine compounds, 1884, A., 265.
- Grothmann, Rudolf.** See **Eugen Lellmann.**
- Grouven, Hubert,** nitrogen estimation, a method of general application, 1883, A., 1028.
- Grouven, Hubert,** recovery of sulphur from soda waste, 1885, A., 614.
- Groves, Charles Edward,** contributions to the chemistry of the naphthalene series;  $\beta$ -naphthaquinone, 1884, T., 291.
- Groves, E. W.,** estimation of uric acid, 1892, A., 546.
- Groves, E. W.** See also **Wilnot Parker Herringham.**
- Gruber, Max,** elimination of nitrogen in the free state from the animal body, 1884, A., 1391.
- Volhard's volumetric estimation of the chlorides in wine, 1884, A., 1424.
- culture of anaerobic bacteria: morphology of butyric fermentation, 1887, A., 1135.
- Gruber, Oscar von,** preparation of sulphuric anhydride from nitrosyl sulphates, 1885, A., 199.
- estimation of ferric oxide and alumina in phosphates, 1891, A., 501.
- Glaser's method for the estimation of ferric oxide and alumina in phosphates, 1891, A., 963.
- Gründler, J.,** iodine in human urine after the external application of iodoform, 1885, A., 418.
- Grüne, Hans,** azo-opianic acid, 1887, A., 48.
- Grüneberg, Hermann.** See **Vorster.**
- Gruener, Hippolyte Washington.** See **Frank Austin Gooch.**
- Grünwald, W.,** *o*-thioxen and *o*-thiophendicarboxylic acid, 1888, A., 48.
- Grünwald, W.,** and **Victor Meyer,** vapour density of ferric chloride at various temperatures, 1888, A., 422.
- Gruenhagen, Alfred,** aqueous humour, 1889, A., 535.
- Gruenhagen, Alfred,** and **Isidor Krohn,** absorption of fat in the intestine, 1890, A., 183.
- Grünhagen, Heinrich,** action of methylene chloride on *p*- and *o*-toluidine, 1890, A., 887.
- Grünhut, Leo,** Rose's process for the estimation of alcohol, 1892, A., 1031.
- Grüning, Wilhelm,** chemistry of the Nymphaeaceae, 1883, A., 369.
- Grünwald, Anton Carl,** chemical structure of oxygen and hydrogen, and their dissociation in the sun's atmosphere, 1887, A., 1070.
- mathematical analysis of the spectra of magnesium and carbon, 1888, A., 389, 832.
- spectral analysis of cadmium, 1889, A., 455.

- Grünwald, Anton Carl**, spectroscopic evidence of an element occurring in tellurium and antimony, and also in copper, 1890, A., 434.
- Hasselberg's so-called second or compound hydrogen spectrum and the structure of hydrogen, 1892, A., 1881.
- Grünwald, Hermann**, estimation of glycerol by oxidation, 1890, A., 198.
- Grüssner, Anton**, and **Karl Hazura**, oxidation of unsaturated fatty acids, 1889, A., 956.
- Grüssner, Anton**. See also **Rudolf Benedikt, Karl Hazura**.
- Grützner, Bruno**, stability of potassium permanganate solution, 1892, A., 1524.
- Gruner, Louis Emmanuel**, relative oxidisability of cast and malleable iron and steel, 1883, A., 755.
- Grunmach, Leo**, influence of the state of aggregation of substances on their electrical resistance, 1889, A., 201.
- electrical conductivity of solid mercury, 1890, A., 98.
- Guareschi, Icilio**, localisation of arsenic in a case of poisoning, 1884, A., 199.
- thioaldehyde and carbovaleraldine, 1884, A., 291.
- naphthalene derivatives, 1884, A., 842; 1886, A., 807.
- $\alpha$ -chlorophthalic acid, 1886, A., 353.
- conversion of naphthalene derivatives into substituted phthalides, 1886, A., 807.
- $\gamma$ -dichloronaphthalene and chloronaphthalic acid, 1887, A., 887.
- strychninesulphonic acids, 1887, A., 853.
- Weyl's creatinine reaction, 1887, A., 1122.
- camphorimide, 1888, A., 496.
- ptomaines, 1888, A., 731.
- $\alpha$ -bromophthalic acid, 1888, A., 1300.
- $\beta$ -chloro- $\alpha$ -bromonaphthalene, 1889, A., 614.
- platinum thiocyanate and platinum thiocyanates, 1892, A., 286.
- $\gamma$ -substituted hydantoin: carb-amido-acids, 1892, A., 827.
- action of ethyl cyanacetate on organic bases, 1892, A., 1071.
- Guareschi, Icilio**, and **Pietro Biginelli**, chlorobromonaphthalene, 1887, A., 1113.
- Guareschi, Icilio**, and **Girolamo Dacomo**, chloronitro- and bromonitro-quinones, 1885, A., 891.
- Guareschi, Icilio**, and **Luigi Garzino**, isobutylene bromide: bromotimethylcarbinol, 1888, A., 436.
- Guareschi, Icilio**, and **Angelo Mosso**, ptomaines, 1883, A., 1156; 1884, A., 618.
- Gubbe, Otto**, optical rotatory power of invert sugar, 1885, A., 1194.
- Gubkin, J.**, electrolytic separation of the metal on the free surface of the solution of its salt, 1888, A., 101.
- Gucci, Pietro**, action of carbon bisulphide on *m*-phenylenediamine, 1885, A., 156; 1886, A., 1028.
- new method for separation of copper from cadmium, 1885, A., 193.
- separation of nickel from cobalt, 1886, A., 1077.
- reaction between *m*-phenylenediamine and carbon bisulphide, 1888, A., 588.
- separation of copper and arsenic, 1888, A., 630.
- santoninoxime and its derivatives, 1890, A., 902.
- Gucci, Pietro**, and **Giuseppe Grassi-Cristaldi**, derivatives of santonin, 1892, A., 869.
- Guckelberger, Gustav**, ultramarine, 1883, A., 714.
- Gudeman, Edward**, anhydro-bases from *as-m*-xylydine, 1888, A., 1282.
- aldine formation, 1889, A., 613.
- Gudeman, Edward**. See also **Martin Freund**.
- Gümbel, O. Wilhelm (Ritter) von**, the so-called andesites of South and Central America, 1883, A., 448.
- glauconite, 1888, A., 119.
- Guenez, E.**, volumetric estimation of tannin, 1890, A., 931.
- benzoic fluoride, 1891, A., 200.
- arsenic cyanide, 1892, A., 1164.
- Günther, August**, and **Bernhard Tollens**, quantitative estimation of furfuraldehyde and of pentaglucooses (pentoses), 1890, A., 1852.
- fucose, an isomeride of rhamnose, 1890, A., 1393.
- Günther, August**, **Guillaume J. L. de Chalmot**, and **Bernhard Tollens**, estimation of furfuraldehyde and of pentoses, 1892, A., 338.
- formation of furfuraldehyde from glyceronic acid derivatives, and from albumin, 1892, A., 1433.
- Günther, Ernst**, intramolecular change in benzildioximes, 1888, A., 485.
- intramolecular change of  $\alpha$ - and  $\beta$ -benzildioxime,  $\alpha$ -benzimonoxime, and deoxybenzoinoxime, 1889, A., 1067.

- Günther, Fritz**, iodoform and bromoform, 1887, A., 787.
- Günther, H. K.**, derivatives of *p*-cyanobenzyl chloride, 1890, A., 977.
- Günther, Manfred**. See **Karl Elbs**.
- Güntz, E.**, guano from Aves Island, 1884, A., 489.
- Günzberg, Alfred**, free hydrochloric acid in the stomach contents, 1888, A., 617.
- Gürber, August**, physiological action of lupetidine and allied substances in relation to their chemical constitution, 1891, A., 854.
- Guérin, Gabriel**. See **Raphael Lépine**.
- Gürke, Oskar**, preparation of gallein, 1885, A., 850.
- Guglielmo, Giovanni**, modification of the Sprengel pump, 1891, A., 524.
- Guignard, Léon**, localisation of active principles in the seeds of Crucifere, 1891, A., 490.
- Guignet, Charles Ernest**, existence of glycyrrhizin in several vegetable families, 1885, A., 395.
- chlorophyll and its compounds, 1885, A., 551.
- crystallisation by diffusion, 1887, A., 101.
- soluble Prussian blue, 1889, A., 475.
- colloidal cellulose, 1889, A., 847.
- combination of cupric oxide with starches, sugars, and mannitols, 1889, A., 1138.
- action of cuprammonium sulphate on sorbitol, 1890, A., 21.
- conversion of gallic acid and tannin into benzoic acid, 1891, A., 1481.
- Guilbert, Jules**. See **Maurice Hanriot**.
- Guillaume, L.**, mineral phosphates in arable soil, 1883, A., 118.
- chemical manures and farmyard manure, 1883, A., 501.
- Guillaume-Gentil, B.**, estimation of phosphoric acid in urine, 1891, A., 619.
- Guillemin, Georges**, alloys of copper and cobalt, 1885, A., 1114.
- micrographic analysis of alloys, 1892, A., 1399.
- Guimaraes, Aug. R.**, nutrition of dogs, 1884, A., 344.
- Guinard, L.**, effect of morphine on cats, 1891, A., 486.
- Guinochet, analysis** of the contents of a cyst formed under the tongue, 1885, A., 285.
- Guinochet, E.**, action of bromine on aconitic and carballylic acids, 1889, A., 588.
- Guinochet, E.**, isomeride of ticalballylic acid, 1890, A., 238.
- ticalballylates, 1890, A., 480.
- dibromoticalballylic acid, 1890, A., 594.
- Guitermann, A. L.**, *o*-azoxytoluene, 1887, A., 932.
- Guitermann, A. L.** See also **Rudolf Nietzki**.
- Guläberg, Otto M.**, laws of molecular volumes and of boiling-points, 1890, A., 1043.
- Gumlich, G.**, excretion of nitrogen in urine, 1892, A., 1508.
- Gumpert, Franz**, decomposition of benzonitrile by fuming sulphuric acid, 1885, A., 52.
- phenyl cyanate, 1885, A., 656.
- phenyl isocyanate, 1886, A., 342.
- Gundermann, Wilhelm**, purification of molasses, 1883, A., 835.
- Gunning, Jan William**, examination of potable water, 1885, A., 841.
- estimation of raffinose in the products of beet-sugar manufacture, 1889, A., 656.
- modification of Kjeldahl's method, 1889, A., 796.
- preparation of raffinose from molasses, 1892, A., 422.
- Gunter, Evan**, bromoxylic acid and hydroxyxylic acid, 1884, A., 1347.
- Guntz, Antoine**, heat of formation of potassium fluorides, 1884, A., 5.
- thermochemical study of hydrofluoric acid, 1884, A., 544.
- heat of formation of fluorides, 1881, A., 545.
- sodium fluorides, 1884, A., 546.
- hydrogen potassium fluoride in solution, 1884, A., 704.
- heat of formation of antimony oxychlorides, 1884, A., 707.
- thermochemistry of antimony fluoride, 1884, A., 884.
- transformation of prismatic antimony oxide into the octahedral oxide, 1884, A., 894.
- thermochemical researches on fluorine compounds, 1884, A., 1245.
- heat of formation of antimony, bromide, and iodide, 1885, A., 1101.
- non-metallic fluorides, 1886, A., 850.
- action of acids and bases on solutions of tartar emetic, 1886, A., 856.
- heat of formation of tartar emetic, 1887, A., 544.
- antimony tartrate, 1887, A., 657.
- heat of formation of zinc ethyl, 1888, A., 15.

- Guntz, Antoine**, silver sub-fluoride, 1890, A., 1055.  
 — — — argentous compounds, 1891, A., 983.  
 — — — silver sub-chloride, 1891, A., 1322.  
 — — — action of light on silver chloride, 1891, A., 1420.  
 — — — action of carbonic oxide on iron and manganese, 1892, A., 568.  
**Guntz, Antoine**. See also *Marcellin Berthelot, Ernest Bichat, and Albin Haller*.  
**Guradze, S.** (Kottlischowitz), artificial manures in potato-growing, 1881, A., 102.  
**Guradze (Kottulin)** (and others), potato culture, 1884, A., 483.  
**Gurkens, Franz**, physiological action of nickel salts, 1885, A., 681.  
**Gurlt**, meteorite in a tertiary lignite, 1887, A., 22.  
**Gustavson, Gabriel**, conversion of the propyl into the *iso*-propyl group, 1883, A., 565.  
 — — — action of aluminium chloride and bromide on hydrocarbons, 1883, A., 577.  
 — — — reactions of aluminium salts with organic compounds, 1885, A., 363.  
 — — — thermic data for the compounds of aluminium bromide with hydrocarbons, 1885, A., 472.  
 — — — action of aluminium bromide on ethylene and the alkyl bromides, 1886, A., 999.  
 — — — preparation of trimethylene, 1888, A., 240.  
 — — — conversion of trimethylene bromide into propylene bromide, 1888, A., 240.  
 — — — action of aluminium chloride on acetic chloride, 1888, A., 575.  
 — — — valency of boron, 1889, A., 465.  
 — — — action of chlorine on trimethylene, 1891, A., 159.  
 — — — rationale of reactions in the presence of aluminium chloride, and bromide, 1891, A., 182.  
 — — — reaction capacity of chlorotrimethylene and some allied compounds, 1891, A., 888.  
 — — — action of zinc dust and alcohol on chlor- $\alpha$ -dibromhydrin, 1892, A., 1293.  
**Gustavson, Gabriel, and Nicolas I. Demjanoff**, isonillylene, 1889, A., 29.  
 — — — pentamethylene and tetramethylene bromides, 1889, A., 950.  
**Guthrie, Frederick**, eutectia, 1885, A., 329.  
 — — — salt solutions and attached water, 1885, A., 337.  
**Guthrie, Frederick**, thermal and volume changes attending mixture, 1885, A., 339.  
 — — — physical molecular equivalent, 1886, A., 197.  
**Guthrie, Frederick Bickell**, solubility of salts in fused sodium nitrate, 1885, T., 94.  
**Guthzeit, Max**, diethylic acetylene-tetracarboxylate, 1883, A., 46.  
**Guthzeit, Max, and Oskar Dressel**, ethyl dicarboxyglutarate, 1888, A., 1061.  
 — — — ethyl ethoxy- $\alpha$ -pyrondicarboxylate, 1889, A., 860.  
 — — — synthesis of dialkyl-substituted glutaric acids and of compounds containing closed carbon chains, 1890, A., 877.  
 — — — alkyl derivatives of ethyl dicarboxyglutamate: synthesis of *aa*-dialkylglutaric acids, 1891, A., 178.  
 — — — synthesis of pyridine derivatives from derivatives of  $\alpha$ -pyrone, 1891, A., 939.  
**Guthzeit, Max, and Wilhelm Epstein**, action of phosphoric sulphide on ethyl dimethylpyrondicarboxylate, 1887, A., 920.  
**Guthzeit, Max**. See also *Max Conrad*.  
**Guttmann, Paul**, estimation of sugar in urine by fermentation, 1890, A., 836.  
**Gutzeit, H.**, occurrence of solid hydrocarbons in the vegetable kingdom, 1889, A., 68.  
**Gutzkow, F.**, Reynold's process for parting gold from bars, 1885, A., 708.  
 — — — estimation of bromine in sea water, 1889, A., 74.  
**Guyard, Antony**, nitrogen iodide, 1881, A., 152, 818.  
 — — — detection of manganese in commercial zinc and calamine; detection of bismuth in lead, 1884, A., 368, 640.  
 — — — use of boric acid and hematin in alkalimetry, 1884, A., 638.  
 — — — preparation of concentrated nitromolybdic acid solution, 1884, A., 638.  
 — — — synthesis of tartaric glucoside, 1884, A., 1304.  
 — — — furfuraldehyde, 1884, A., 1304.  
 — — — estimation of ammoniacal nitrogen in soils, 1884, A., 1423.  
 — — — estimation of calcium in presence of aluminium, iron, magnesium, and phosphates, 1884, A., 1427.  
 — — — action of air on solutions of tannin and the estimation of tannin, 1884, A., 1138.

- Guye, Philippe A.**, molecular constitution of compounds at their critical points, 1890, A., 443.  
 — chemical constitution of carbon compounds and the sign and variations of their rotatory power, 1890, A., 722.  
 — active amyl derivatives, 1891, A., 281.  
 — fluorene hydrides, 1891, A., 314.  
 — determination of the molecular weight at the critical point, 1891, A., 1411.  
 — molecular dissymmetry, 1892, A., 399, 758.  
 — stereochemistry and the laws of rotatory power, 1892, A., 759.  
**Guye, Philippe A.** See also *Carl Graebe*.  
**Guyot, Paul**, industrial value of crude alunite, 1883, A., 250.  
 — analyses of the coal of the Muaraze, 1883, A., 299.  
 — calcination of alunite, 1883, A., 397.  
 — commercial treatment of Roman alunite, 1886, A., 402.  
 — estimation of lime in animal charcoal, 1886, A., 1075.  
**Guyot-Dannechy**, analysis of potassium thiocarbonate, 1883, A., 241.  
**Guyot de Grandmaison, Edmond**, description of a crystal of euclase, 1885, A., 228.  
**Gylling, Hjalmar**, andesine at Oujärvi in Finland, 1884, A., 970.

## H.

- Haack, Konrad**, mercury arsenates and phosphates, 1891, A., 400.  
 — separation of phosphoric and arsenic acids from mercury, and of nitric acid, chlorine, and sodium from mercury, phosphoric, and arsenic acids, 1892, A., 530.  
**Haaf, Carl**, guanamines, 1891, A., 416.  
**Haarmann and Reimer**, preparation of vanillin, 1884, A., 1343.  
**Haarmann, Rudolf**. See *Ferdinand Tiemann*.  
**Haas, B.**, estimation of hydrogen potassium tartrate and free tartaric acid in wines, 1888, A., 1347.  
**Haas, Heinrich**, separation of titanium from tin, 1890, A., 1029.  
**Haas, Heinrich**. See also *Albert Hilger*.  
**Haas, Rob.**, peroxides of the zinc-magnesium group, 1885, A., 20.  
**Haase, Emil**. See *Wilhelm Stadel*.  
**Habel, Louis**, reddish coloration of cyanide solutions, 1885, A., 233.  
**Haber, Fritz**, pipereonal derivatives, 1891, A., 701.  
**Haber, Fritz**. See also *Carl Theodor Liebermann*.  
**Haberland, W.**, and **G. Hanekop**, sodium platossammonium sulphite, 1888, A., 790.  
**Habermann, Josef**, basic sulphates, 1884, A., 151.  
 — albutin, 1884, A., 175.  
 — diethyl alizain ether, 1884, A., 1187.  
 — acetonequinol, 1885, A., 53.  
 — basic salts, 1885, A., 351.  
 — fagine, 1885, A., 676.  
 — electrolysis of carbon compounds, 1887, A., 94.  
 — detection of methyl alcohol in wood spirit, 1889, A., 84.  
 — preparation of hydrogen, 1889, A., 465.  
**Habermann, Josef**, and **Mar Hönig**, (Brunn), action of cupric hydroxide on sugars, 1883, A., 38; 1881, A., 1111.  
**Haccius, C.**, kephir, 1885, A., 942.  
**Haedicke, Julius**, and **Bernhard Tollens**, formation of galactose and levulose from raffinose, 1887, A., 791.  
**Haedicke, Julius**, **Reinhardt W. Bauer**, and **Bernhard Tollens**, galactose from Carrageen moss, 1887, A., 791.  
**Hägele, Carl**. See *Carl Hell*.  
**Haegeler, E.**, condensation products of amidophenols, 1892, A., 1451.  
**Hähle, Friedrich Hermann**, *m*-nitro-*p*-amidophenol and its derivatives, 1891, A., 430.  
 — preparation of phenoldicarbonylic acids, 1891, A., 1367.  
**Hähle, Friedrich Hermann**. See also *Rudolf Wilhelm Schmitt*.  
**Hänisch, Emil**, and **Mar Schroeder**, obtaining sulphur from furnace gases, 1886, A., 288.  
**Hänsch**. See *Schmidt*.  
**Häpke, L.**, meteorite from Durango, 1885, A., 230.  
**Haerlin**, cause of the acid reaction exhibited by some kinds of paper, 1883, A., 260, 759.  
**Haessermann, Carl**, estimation of *p*-toluidine in *o*-toluidine, 1888, A., 203.  
**Haessermann, Carl**, and *Carl Beck*, action of chlorine on *o*-nitrotoluene, 1892, A., 1437.  
**Hafner, Albert**, compounds of the benzyl series, 1889, A., 982.  
 — derivatives of *p*-nitrobenzyl chloride, 1890, A., 486.

- Hafner, Richard**, chlorination and bromination of aniline, *o*-toluidine, and *p*-toluidine. 1890, A., 37.  
 — action of bromine on *p*-toluidine in the presence of concentrated sulphuric acid, 1890, A., 137.
- Haga, Hermannus**, amalgamation currents, 1883, A., 412.
- Haga, Tamemasa**, effects of dilution and the presence of sodium salts and carbonic anhydride on the titration of hydroxylamine by iodine, 1887, T., 794.
- Haga, Tamemasa**. See also *Edward Divers*.
- Hagelberg, Louis**, thiocyno- and seleno-cyano-derivatives, 1890, A., 949.
- Hagemann, Gustav Adolph**, avidity-formula, 1887, A., 633.
- Hagemann, Oskar**, reducing substances in horses' urine, 1889, A., 535.
- Hagemann, Oskar**. See also *Nathan Zuntz*.
- Hagemann, Wilhelm**, preservation of butter, 1883, A., 251.
- Hagen, A.** See *Carl Theodor Liebermann*.
- Hagen, Dietrich von**. See *Theodor Zincke*.
- Hagen, Max**, lupanine, 1886, A., 163.  
 — trimethyluracil, 1888, A., 582.
- Hagenbach, Eduard**, Stokes's law of fluorescence, 1883, A., 537.
- Hagenbach, Eduard**. See also *Rudolf Nietzki*.
- Hager, Friedrich Wilhelm Hermann**, action of ethyl chlorocarbonate on *p*-nitraniline, 1885, A., 119.  
 — nitration of *p*-bromaniline, 1886, A., 52.  
 — derivatives of diphenylurethane, 1886, A., 59.
- Hager, Friedrich Wilhelm Hermann**. See also *Ludwig Gattermann*.
- Hager, Hermann**, detection of arsenic microscopically, 1883, A., 381.  
 — test for bismuth subnitrate, 1884, A., 116.  
 — examination of fatty almond-oil, 1884, A., 120.  
 — examination of copaiba balsam, 1884, A., 377.  
 — examination of potash, 1884, A., 928.  
 — nitric peroxide in bismuth subnitrate, 1885, A., 354.  
 — new reaction for sodium, ammonium, and lithium salts, 1885, A., 441.  
 — detection of arsenic in presence of antimony, 1885, A., 838.  
 — reactions for distinguishing chlorides, bromides, and iodides when mixed together, 1885, A., 1010.
- Hager, Hermann**, diphenylamine as a reagent for free chlorine, 1886, A., 96.  
 — naphthol as a reagent for free chlorine and bromine, 1886, A., 97.  
 — diphenylamine as a reagent for nitric acid, 1886, A., 99.  
 — naphthol and sulphuric acid as a test for nitric and nitrous acids and free chlorine, 1886, A., 99.  
 — adulteration of honey with sugars, 1886, A., 282.  
 — examination of mustard oil, 1886, A., 394.  
 — testing aluminium sulphate, 1887, A., 182.  
 — butter testing, 1887, A., 309.  
 — detection of arsenic, 1887, A., 397.  
 — use of copper containing arsenic for the dearsenification of hydrochloric acid: Reimsch's test for arsenic, 1887, A., 397.  
 — guaiacum resin, 1887, A., 752.  
 — crystalline silicic acid, 1888, A., 915.  
 — estimation of alcohol in essential oils, 1889, A., 445.  
 — detection of ceresin, ozokerite, and paraffin in beeswax, 1890, A., 421.  
 — detection of paraffin in beeswax, 1891, A., 122.
- Hague, Arnold**, deposition of scorodite from arsenical waters in the Yellowstone Park, 1888, A., 122.
- Hague, Arnold**, and *Joseph Parson Iddings*, volcanoes of Northern California, Oregon, and Washington, 1884, A., 28.
- Hahn, Martin**, influence of sulphonal on proteid metabolism, 1891, A., 1523.
- Haig, Alexander**, excretion of uric acid, 1888, A., 1322.  
 — influence of sodium phosphate on the excretion of uric acid, 1890, A., 397.  
 — estimation of uric acid, 1892, A., 1133.
- Haines, Neuben**, helvite from Virginia. 1883, A., 437.  
 — iodine number for lard oil by the Hübl method, 1892, A., 664.
- Hairs, Eugene**. See *Armand Jorissen*.
- Haitinger, Ludwig**, occurrence of organic bases in commercial amyl alcohol, 1883, A., 127.  
 — action of sulphur on sodium phenate, 1883, A., 988.  
 — dehydracetic acid, 1885, A., 761.  
 — remarks on Perkin's note on the action of aniline on methyl dehydracetate, 1885, A., 762.  
 — emission spectra of neodymium and pseudodymium oxides, and of luminous solids containing neodymium, 1892, A., 2.

- Haitinger, Ludwig**, and **Adolf Lieben**, chelidonic acid, 1885, A., 47, 965.  
 ——— nitrogenous derivatives of chelidonic acid, 1885, A., 811.
- Haitinger, Ludwig**. See also **Adolf Lieben**.
- Halagian, Gregorio**. See **Matten Spica**.
- Halberstadt, Eymont**. See **Ernst Täuber**.
- Halberstadt, W'ilh.**, separation of vanadic acid from metals, 1883, A., 513.  
 ——— atomic weight of platinum, 1885, A., 855.
- Haldane, John Scott**, aromatic substances in febrile urine, 1889, A., 65.  
 ——— respiration apparatus, 1892, A., 1257.
- Haldane, John Scott**, and **Mureus Seymour Pembrey**, estimation of moisture and carbonic anhydride in air, 1890, A., 1188.
- Haldane, John Scott**, and **James Lorraine Smith**, air vitiated by respiration, 1892, A., 1502.
- Haldane, John Scott**. See also **Thomas Carnelley**.
- Hall, Francis P.**, action of certain vegetable acids on lead and tin, 1883, A., 1038.
- Hall, John A.**, some analogous phosphates, arsenates, and vanadates, 1886, P., 259; 1887, T., 94.  
 ——— some ethereal salts of vanadium acids, 1887, T., 751.
- Hall, Wm. F.**, action of nascent hydrogen and nascent oxygen on nitric acid, 1892, A., 680.
- Hallberg, Carl Stoaute Nicenar**, ergot, 1883, A., 640.
- Haller, Albin**, isomeric campholurethanes, 1884, A., 755.  
 ——— ethyl benzoylcyanacetate, 1886, A., 240.  
 ——— cyanacetophenone, 1886, A., 240; 1887, A., 826.  
 ——— action of potash on ureas, 1886, A., 691.  
 ——— isomerism of camphols and camphors, 1886, A., 890; 1887, A., 375.  
 ——— cyanocamphor, 1886, A., 891.  
 ——— camphol from valerian, 1886, A., 1040.  
 ——— ethyl cyanacetate, 1887, A., 797.  
 ——— preparation of ethyl cyanomalonate and ethyl benzoylcyanacetate, 1887, A., 1030.  
 ——— racemic camphol and its derivatives, 1887, A., 1050.  
 ——— inactive borneols yielding active camphors, 1887, A., 1050.
- Haller, Albin**, homologues of ethyl acetocyanacetate, 1888, A., 818.  
 ——— cyanacetates of the benzene series, 1888, A., 823.  
 ——— influence of negative radicles on the functions of certain groups, 1888, A., 937.  
 ——— cyanacetates of the cinnamyl series, 1888, A., 1298.  
 ——— normal and acid ethereal salts of camphols, 1889, A., 620.  
 ——— phthalates of camphols, 1889, A., 621.  
 ——— ethereal salts of cyanomalononic acid, 1889, A., 858.  
 ——— cyanacetophenone and its derivatives; synthesis of aromatic  $\alpha$ -ketonic acids, 1889, A., 873.  
 ——— camphor and borneol of rosemary: separation of camphor and borneol, 1889, A., 1002.  
 ——— acetates and benzoates of active and racemic camphols; preparation of a dextro-borneol identical with Dryobalanops borneol, 1889, A., 1002.  
 ——— camphor derivatives, 1889, A., 1205.  
 ——— influence of solvents on the rotatory power of *isocamphols*, 1889, A., 1206.  
 ——— active and inactive bornylphenylurethanes and *isobornylphenylurethanes*, 1890, A., 518.  
 ——— camphorates of the  $\alpha$ -borneols, 1890, A., 790.  
 ——— alkyl dicyanacetates, 1890, A., 1395.  
 ——— influence of solvents on the rotatory powers of camphols and *isocamphols*, 1891, A., 575.  
 ——— compounds of camphors and aldehydes, 1891, A., 1498.  
 ——— derivatives of cyanocamphor, 1891, A., 1499.  
 ——— action of sodium alkyl oxides on camphor: preparation of alkylcamphors, 1892, A., 72.  
 ——— modes of formation of substituted imides, 1892, A., 1204.  
 ——— alkylcyanocamphors and alkyl benzeneazocamphocarboxylates, 1892, A., 1344.  
 ——— function of camphoric acid, 1892, A., 1346.  
 ——— constitution of camphoric acid, 1892, A., 1347.
- Haller, Albin**, and **Georges Arth**, ethyl succinimidoacetate and camphorimidoacetate, 1887, A., 1031.
- Haller, Albin**, and **Leonce Barthe**, ethyl cyanosuccinate and ethyl cyanotricarballylate, 1888, A., 937.

- Haller, Albin, and Antoine Guntz**, heat of neutralisation of ethyl cyanomalonate, acetoacetate, and benzoyl-cyanacetate, 1888, A., 894.
- Haller, Albin, and Alfred Held**, ethyl acetoacyanacetate, 1887, A., 799, 1029.
- methyl acetoacyanacetate, 1888, A., 579.
- ethyl chloracetoacetates, 1889, A., 588.
- $\gamma$ -cyanoacetoacetates, 1891, A., 171.
- synthesis of citric acid, 1891, A., 178.
- haloid derivatives of ethyl acetoacetate, 1892, A., 697.
- ethyl biomacetoacetate and cyanacetoacetate, 1892, A., 818.
- Haller, Albin, and Jules Minguin**, hydroxycamphocarboxylic acid from camphocarboxylic acid, 1890, A., 638.
- Haller, Steph.**, action of alcohol on diazo-compounds, 1884, A., 1322.
- $\psi$ -cumidine, 1885, A., 522.
- trimethylquinizine derivatives, 1885, A., 818.
- sylvic and pinaric acids, 1885, A., 1241.
- Hallgarten, Frits**, derivatives of anthianol, 1888, A., 1202.
- propyl derivatives of anthianol, 1886, A., 894.
- Halliburton, William Dobinson**, proteids of serum, 1885, A., 571.
- chitin, 1885, A., 991.
- composition of the cartilage of certain Invertebrata, 1885, A., 1251.
- hæmoglobin and metahæmoglobin crystals of rodents, 1886, A., 637.
- blood of decapod Crustacea, 1886, A., 639.
- cellulose in Protozoa, 1886, A., 640.
- blood proteids of lower Vertebrata, 1886, A., 1050.
- colouring matter of serum, 1886, A., 1050.
- proteids of cerebrospinal fluid, 1887, A., 614.
- muscle plasma, 1887, A., 984.
- coagulation of the blood, 1888, A., 974.
- the nature of fibrin ferment, 1889, A., 63.
- cerebrospinal fluid, 1889, A., 793.
- proteids of liver and kidney cells, 1890, A., 1014.
- pathological effusions, 1890, A., 1173.
- proteids of milk, 1891, A., 339.
- Halliburton, William Dobinson**, hæmatoporphyrinuria, 1891, A., 1279.
- mucin in myxœdema, 1892, A., 1117.
- Halliburton, William Dobinson, and Walter M. Friend**, stromata of red corpuscles, 1889, A., 1231.
- Hallock, Edward J.**, analysis of columbite, 1883, A., 434.
- Hallock, William**, new method of forming alloys, 1888, A., 1163; 1891, A., 805.
- chemical action between solids, 1889, A., 817.
- Hallepeau, L.** See *Emile Justin Armand Gautier*.
- Halphen, Georges**, absorption of bromine by fatty acids, 1890, A., 88.
- Hamberg, Axel**, chemistry of sea water, 1885, A., 322, 679.
- native lead from Pajsberg, Sweden, 1890, A., 337.
- flinkite and heliophyllite from Sweden, 1891, A., 20.
- minerals from the Harstigen mine, Sweden, 1892, A., 1411.
- Hamberg, Axel.** See also *Fust. Flink*.
- Hambly, Frederick John**, detection of nickel and cobalt, 1892, A., 1525.
- Hambly, Frederick John.** See also *Percy Faraday Frankland, Thomas Edward Thorpe*.
- Hamburger, Hartog Jakob**, estimation of urea by bromine, 1885, A., 450.
- permeability of the red corpuscles in relation to their isotonic coefficients, 1890, A., 809.
- Hamburger, Hartog Jakob.** See also *Eduard Mulder*.
- Hamilton, Robert**, purification of hydrofluoric acid, 1890, A., 687.
- precipitation of phosphorus from solutions of iron and steel, 1892, A., 911.
- Hamlet, William Mogford**, fusel oil in beer, 1888, A., 1263.
- Hammarsten, Olof**, metalbumin and paralbumin, 1883, A., 874.
- separation of serum-albumin and globulin by means of magnesium sulphate, 1885, A., 611.
- the mucin group, 1885, A., 677.
- the sulphur of casein, 1885, A., 914.
- estimation of sulphur in proteids, 1885, A., 931.
- mucin of the submaxillary gland, 1888, A., 167.
- mucoid substance in ascitic fluid, 1891, A., 1127.
- hæmatoporphyrin in urine, 1892, A., 649.

- Hammarsten, Olof**, detection of hæmatorporphyrin in urine, 1892, A., 1136.
- Hammerbacher, Friedrich**, influence of pilocarpine and atropine on lactation, 1884, A., 1396.
- Hammerich, Hugo**, action of sulphuric acid on iodo-*m*-xylene, 1890, A., 1106.
- derivatives of dibenzylcarbamie, *p*-ditolylcarbamie, and benzyl-*p*-tolylcarbamie acids, 1892, A., 1083.
- tetrabenzylloxamide and tetra-*p*-tolylloxamide, 1892, A., 1084.
- action of silver cyanide on dibenzylchlorocarbamide and *p*-ditolylchlorocarbamide, 1892, A., 1084.
- Hammerschlag, Albert**, chemical composition of *Bacillus tuberculosis*, 1889, A., 638.
- Hammerschlag, W.**, chloro- and bromo-derivatives of anthracene, 1886, A., 717.
- Hamonet, (L'Abbe) Jules**, preparation of ketones, 1889, A., 235.
- preparation of ethereal salts of  $\beta$ -ketonic acids, 1890, A., 235; 1891, A., 1185.
- Hampe, Willh.**, Keith's process for desilvering of lead, 1883, A., 184.
- separation of zinc from metals of the same group, 1885, A., 932.
- volumetric estimation of manganese, 1886, A., 101.
- electrolytic conductivity of halogen compounds, 1888, A., 211, 887.
- preparation of boron and silicon by electrolysis, 1889, A., 103.
- electrolysis of cryolite, 1889, A., 676.
- aluminium sub-fluoride, 1889, A., 676.
- estimation of bismuth in silver slags, 1892, A., 919.
- estimation of silicic acid in fluorides, 1892, A., 1127.
- estimation of manganese by the chlorate method, 1892, A., 1132.
- Hanamann, Joseph**, composition of horse-chestnuts, 1885, A., 928.
- keeping of topped and untopped beet, 1885, A., 1009.
- manuring of barley, 1889, A., 743.
- Hand, Adolf**, benzene derivatives, 1886, A., 1017.
- metamorphism in derivatives of benzene, 1890, A., 861.
- Handl, Alois, and Richard Präbram**, viscosity of liquids, 1892, A., 1143.
- Handler, Sophie**, reduction of oxyhæmoglobin in the heart, 1889, A., 1225.
- Handy, James O.** See *Alfred E. Hunt*.
- Hanekeop, G.** See *W. Haberland*.
- Hankel, Wilhelm Gottlieb**, actinoelectric and piezoelectric properties of quartz and their relation to the pyroelectric, 1883, A., 412.
- thermoelectric properties of minerals, 1883, A., 540.
- observations on thermo- and actinoelectricity of quartz, 1883, A., 950; 1885, A., 1187.
- electricity developed in the disengagement of gases, 1885, A., 2.
- Hankin, Ernest Hanbury**, albumose isolated from anthrax cultures, 1889, A., 1234.
- bacteria-killing globulin, 1891, A., 352.
- Hankó, W.**, sylvanite and nagyágite from Nagyág, 1890, A., 711.
- Hanks, Henry G.**, borax deposits, 1885, A., 957.
- occurrence of hanksite in California, 1889, A., 471.
- Hannay, James Ballantine**, limit of the liquid state, 1883, A., 145.
- Hannén, Ferdinand.** See *Arthur Rindell*.
- Hanriot, Maurice**, strychnine derivatives, 1883, A., 669.
- conversion of brucine into strychnine, 1884, A., 88.
- hydrogen peroxide, 1885, A., 341.
- pyrogenic decomposition of organic acids, 1886, A., 224.
- action of hydrogen peroxide on benzoic acid, 1886, A., 801.
- anemonin, 1887, A., 843.
- amidoisoxazole, 1891, A., 1108.
- action of hydroxylamine on ketonic nitriles, 1892, A., 79.
- assimilation of carbohydrates, 1892, A., 742.
- Hanriot, Maurice, and Charles Blarez**, solubility of strychnine in acids, 1883, A., 924.
- Hanriot, Maurice, and Louis Bouveault**, products of the polymerisation of ethyl cyanide, 1889, A., 841.
- Hanriot, Maurice, and Jules Guilbert**, action of bromethylene on benzene in presence of aluminium chloride, 1884, A., 733.
- Hanriot, Maurice, and Charles Richet**, estimation of the carbonic anhydride expired, and the oxygen absorbed in respiration, 1887, A., 507.
- relation between muscular activity and the chemical effect of respiration, 1887, A., 1058.
- absorption of carbonic anhydride, and graphic record of the carbonic anhydride expired, 1888, A., 512.

- Hanriot, Maurice, and Charles Richet**, influence of diet on the elimination and absorption of carbon, 1888, A., 615.  
 ——— influence of diet on respiratory changes, 1888, A., 615.  
 ——— physiological action of nickel-carbon oxide, 1892, A., 365.
- Hanriot, Maurice, and Octave Saint-Pierre**, action of potassium on triphenylmethane, 1889, A., 882.  
 ——— oxidation of triphenylmethane, 1890, A., 168.
- Hansemann, Gustav**, diffusion of gases through a porous septum, 1884, A., 1251.
- Hansen, Adolph**, ferments, 1886, A., 1059.  
 ——— quantitative estimation of chlorophyll, 1886, A., 1083.  
 ——— colouring matter of chlorophyll, 1888, A., 867; 1890, A., 171.
- Hansen, Arthur von**. See *Friedrich Kraft*.
- Hansen, C.** (and others), cheese from skim milk with foreign fats added, 1884, A., 942.
- Hansen, Emil Chr.**, organisms in the air around Carlsberg, 1884, A., 126.  
 ——— alcoholic ferments, 1885, A., 1168.
- Hansen, H.** See *Max Schrodt*.
- Hanssen, A.**, brucine, 1885, A., 63, 276, 565, 819; 1886, A., 564; 1887, A., 505.  
 ——— relation of brucine to strychnine, 1885, A., 1146.  
 ——— action of carbonyl chloride on ethylene and trimethylenediphenyldiamine, 1887, A., 577.
- Hanssen, Aug.**, methods of butter analysis, 1885, A., 197.
- Hantke, Ernst**, *o*-cresolsulphonic acids, 1888, A., 281.
- Hantzsch, Arthur Rudolf**, synthesis of pyridine derivatives from ethyl acetoacetate and aldehydeammonia, 1883, A., 82.  
 ——— action of aldehydeammonia on methyl acetoacetate, 1883, A., 1082.  
 ——— condensation products of ethyl acetoacetate, 1883, A., 1083.  
 ——— reaction of ethyl acetoacetate with *o*-amidophenol, 1883, A., 1111.  
 ——— decomposition products of the pyridine series, 1884, A., 1045; 1885, A., 397.  
 ——— constitution of pyridine, 1884, A., 1193.  
 ——— constitution of synthetical pyridine derivatives and of isocinchomeric acid, 1885, A., 1078.  
 ——— constitution of synthetical hydro-pyridine derivatives, 1886, A., 77.
- Hantzsch, Arthur Rudolf**, ammonium derivatives of ethereal salts of pyridine and quinoline-carboxylic acids, 1886, A., 369.  
 ——— isomeric pyridinedicarboxylic acids, 1886, A., 477.  
 ——— furfuran derivatives of the naphthalene series, 1886, A., 707.  
 ——— action of phosphorus sulphide on complex furfuran derivatives, 1886, A., 1014.  
 ——— constitution of nitranilic acid, 1886, A., 1021.  
 ——— furfuran derivatives from resorcinol, 1887, A., 262.  
 ——— constitution of quinone derivatives, 1887, A., 719.  
 ——— conversion of benzene derivatives into fatty compounds, 1888, A., 130.  
 ——— synthesis of thiazoles and oxazoles, 1888, A., 574.  
 ——— decomposition products of bromanilic acid, 1888, A., 1190.  
 ——— decomposition products of chloranilic acid, 1888, A., 1190; 1890, A., 130.  
 ——— action of sodium on ethyl isobutyrate, 1889, A., 372.  
 ——— azoles, 1889, A., 413.  
 ——— thiazoles from thiamides, 1889, A., 723.  
 ——— products of the action of chlorine on phenol in alkaline solution, 1889, A., 853.  
 ——— conversion of pentamethylene derivatives into benzene, pyridine, and thiophen derivatives, 1890, A., 129.  
 ——— breaking the pentamethylene ring, 1890, A., 1091.  
 ——— cyanacetone, 1890, A., 1094, 1095.  
 ——— formation of pyrroline derivatives, 1890, A., 1155.  
 ——— diazothiazoles and their decompositions, 1890, A., 1165.  
 ——— haloid derivatives of ethyl acetoacetate, 1890, A., 1238.  
 ——— stereochemical isomerism of asymmetrical monoximes, 1890, A., 1263.  
 ——— stereochemically isomeric oximes of *p*-tolyl phenyl ketone, 1890, A., 1273; 1891, A., 68.  
 ——— stereochemically isomeric oximes of phenyl thiényl ketone and phenylglyoxylic acid, 1890, A., 1274.  
 ——— attempts to prepare stereochemical isomerides of nitrogen compounds, 1891, A., 35.  
 ——— condensation products of aromatic aldehydes with aromatic amines, 1891, A., 50.

- Hantzsch, Arthur Rudolf**, determination of the special configuration of stereo-isomeric oximes, 1891, A., 439.
- configuration of asymmetrical oximes which do not form stereometric isomerides, 1891, A., 442.
- oximes of aldehydes and  $\alpha$ -ketonic acids, 1891, A., 443.
- stereo-isomeric ketoximes, 1891, A., 445.
- action of hydroxylamine on  $\beta$ -ketonic acids and  $\beta$ -diketones, 1891, A., 739.
- isomerism of oximes, 1891, A., 823.
- nomenclature of stereo-isomeric nitrogen compounds and of rings containing nitrogen, 1892, A., 312.
- configuration of fatty ketoximes, 1892, A., 426.
- aliphatic stereo-isomeric glyoximes, 1892, A., 693.
- action of hydroxylamine on chloral, 1892, A., 699.
- so-called ethyl carbacetoacetate, 1892, A., 819.
- decomposition products of anilic acid, 1892, A., 834.
- configuration of the aldoximeacetic acids or  $\beta$ -oximidopropionic acids, 1892, A., 1069.
- isomeric oximes and hydrazones, 1892, A., 1083.
- relations between constitution, configuration, and chemical behaviour of oximes, 1892, A., 1175.
- Hantzsch, Arthur Rudolf**, and **Leonidas Arapides**, methylthiazole, 1888, A., 573.
- Hantzsch, Arthur Rudolf**, and **Felix Hermann**, acetoacetic acid and ethyl succinosuccinate, 1888, A., 675.
- desmotropy, 1888, A., 954.
- Hantzsch, Arthur Rudolf**, and **Friedrich Kraft**, stereochemical isomerism of nitrogen compounds, 1892, A., 338.
- Hantzsch, Arthur Rudolf**, and **Eduard Lang**, coumarone- $\alpha$ -carboxylic acids, 1886, A., 706.
- Hantzsch, Arthur Rudolf**, and **Karl Loewy**, quinone derivatives from ethyl succinosuccinate, 1886, A., 354.
- Hantzsch, Arthur Rudolf**, and **Arturo Miolati**, dissociation constants of stereo-isomeric nitrogen compounds, 1892, A., 1263.
- Hantzsch, Arthur Rudolf**, and **George Pfeiffer**, furfuran derivatives of the phenanthrene series, 1886, A., 716.
- Hantzsch, Arthur Rudolf**, and **Georg Popp**, thiazole, 1888, A., 1269.
- Hantzsch, Arthur Rudolf**, and **Heinrich Schiffer**, constitution of ethyl chloracetoacetate, 1892, A., 697.
- Hantzsch, Arthur Rudolf**, and **Kar Schniter**, action of chlorine and bromine on pyrogallol, 1887, A., 925.
- constitution of chlor- and brom-anilic acid, 1887, A., 1036.
- Hantzsch, Arthur Rudolf**, and **Victor Traumann**, amidothiazoles from thio-carbamide, and halogenated ketones and aldehydes, 1888, A., 573.
- Hantzsch, Arthur Rudolf**, and **Julius Hugo Weber**, thiazole compounds, 1888, A., 256.
- Hantzsch, Arthur Rudolf**, and **Ludwig Weiss**, 3-pyridinetetracarboxylic acid and 3:5-pyridinedicarboxylic acid, 1886, A., 477.
- Hantzsch, Arthur Rudolf**, and **Alfred Werner**, arrangement in space of the atoms in the molecule of carbon compounds containing nitrogen, 1890, A., 348.
- stereochemically isomeric nitrogen compounds, 1890, A., 970; 1891, A., 34.
- Hantzsch, Arthur Rudolf**, and **(Fraulein) Olga Wohlbrück**, ethyl propiopropionate, 1887, A., 717.
- Hantzsch, Arthur Rudolf**, and **Aloys Zeckendorf**, derivatives of ethyl quinone- $p$ -dicarboxylate, 1887, A., 727; 1888, A., 278.
- Hantzsch, Arthur Rudolf**, and **Hans Zürcher**, polycoumarins, 1887, A., 830.
- Hantzsch, Arthur Rudolf**. See also **Rudolph Fittig**.
- Happ, Joseph**,  $p$ -quinolinesulphonic acids, 1884, A., 757.
- Harada, Toyokiti**, the Lugano district, 1883, A., 167.
- Harcourt, Augustus George Vernon**, an instrument for correcting gaseous volume, 1883, A., 378.
- Hardaway, H.**, analysis of shot, 1887, A., 446.
- Harden, Arthur**, on the action of silicon tetrachloride on the aromatic amido-compounds, 1886, P., 251; 1887, T., 40.
- $\beta$ -nitroso- $\alpha$ -naphthylamine, 1890, A., 630.
- Harding, Selwyn Lewis**, sodium dichromate cell, 1887, A., 412.
- Hardy, Ernest**, and **G. Calmels**, pilocarpine, 1886, A., 724.
- jaborine, 1886, A., 815.
- decompositions of pilocarpine, 1886, A., 900.
- reactions of pilocarpine, 1886, A., 1048.
- synthesis of pilocarpine, 1887, A., 1057.

- Hardy, Ernest**, and *François Narrixe Gallois*, anagyriue. 1888, A., 1317.
- Hardy, Henry J.** See *John Oliver Arnold*.
- Hare, Hobart Amory.** See *Oliver Wolcott Gibbs*.
- Harker, J. A.**, reaction of hydrogen with chlorine and oxygen, 1892, A., 1147.
- Harley, George**, and *Harald S. Harley*, composition of pearls, 1889, A., 178.
- Harley, Vaughan**, disappearance of sugar from the blood, 1892, A., 363.
- Harley, Vaughan**, and *Sophus Torup*, unusual pigment in urine, 1891, A., 601.
- Harmuth, Albert** (and others), lupine sickness in sheep, 1883, A., 228.
- Harnack, Erich**, Carlsbad salts, 1883, A., 396.
- estimation of iodine in human urine, 1884, A., 1423; 1885, A., 296.
- bases in jaborandi leaves, 1886, A., 85.
- preparation and properties of egg-albumin free from ash, 1890, A., 272; 1891, A., 476; 1892, A., 645.
- composition of albumin, 1890, A., 392.
- Harpe.** See *De la Harpe*.
- Harper, David Neil.** See *Samuel Lewis Penfield*.
- Harries, Carl D.**, reduction of salicylaldehyde, 1892, A., 168.
- methyl o-hydroxycinnamyl ketone and its derivatives, 1892, A., 169.
- Harrington, Bernard James**, diorites of Montreal, 1883, A., 561.
- Canadian minerals, 1888, A., 431.
- gùthite, serpentine, and garnet from Canada, 1891, A., 647.
- so-called amber of Cedar Lake, Canada, 1892, A., 573.
- Harris, Edward P.**, silicon, 1890, A., 108.
- action of chlorocarbonylamide on aromatic hydrocarbons in presence of aluminium chloride, 1890, A., 158.
- Harris, Vincent Dormer**, compounds of hæmatin, 1886, A., 1052.
- Harris, Vincent Dormer**, and *Howard Henry Tooth*, micro-organisms and proteolytic digestion, 1889, A., 64.
- Harrison, Gessner**, mirror amalgam, 1887, A., 447.
- Harrow, George II.**, rapid method of estimating nitrates in potable waters, 1891, T., 320; P., 67; discussion, P., 67.
- Harrow, George II.** See also *John Peter Griess*.
- Hart, Edward**, piscidin, the active principle of Jamaica dogwood, 1881, A., 332.
- detection of iodine, bromine, and chlorine, 1885, A., 295.
- new forms of laboratory apparatus, 1885, A., 481.
- Hart, Edward**, and *Stuart Croasdale*, standardising acidimetric and alkali-metric solutions, 1891, A., 959.
- Hart, Ferd.** See *Franz Josef König*.
- Hart, Horace S.** See *Russell H. Chittenden*.
- Hart, Peter**, estimation of the relative amounts of sodium hydroxide and carbonate in soda ash, 1888, A., 89.
- Hart, Theodora Stuart.** See *Frank Austin Gooch*.
- Hart, Thomas**, motions of camphor on the surface of water, 1885, A., 951.
- Hart, William Beaumont.** See *Watson Smith*.
- Hartig, Robert**, reserve materials in trees, 1889, A., 740.
- Hartig, Robert**, and *Rudolf Weber*, wood of the beech, 1889, A., 1084.
- Hartley, Arthur.** See *Edward Ralph Moritz*.
- Hartley, Walter Noel**, on the spectrum of beryllium, with observations relative to the position of that metal among the elements, 1883, T., 316.
- on homologous spectra, 1883, T., 390.
- reversal of metallic lines in over-exposed photographs of spectra, 1883, A., 263.
- researches on spectrum photography, 1883, A., 263.
- on scovellite, 1884, T., 167.
- photographic investigations of the ultra-violet spark spectra emitted by metallic elements and their combinations under varying conditions, 1884, A., 137.
- line spectra of boron and silicon, 1884, A., 242.
- self-purification of peaty waters, 1884, A., 781.
- relation between the molecular structure of carbon compounds and their spectra, 1885, T., 685; P., 59; 1887, T., 152.
- use of moist electrodes, 1885, A., 325.
- delicacy of spectrum photography, 1885, A., 466.
- atomic weight of beryllium, 1885, A., 484.
- absorption spectra of alkaloids, 1885, A., 1174.

- Hartley, Walter Noel**, relation between the molecular structure of carbon compounds and their absorption spectra. Part VIII. A study of coloured substances and dyes, 1886, P., 245; 1887, T., 152.
- spectroscopic notes on the carbohydrates and albuminoids from grain, 1886, P., 247; discussion, P., 247; 1887, T., 58.
- chlorophyll from the deep sea, 1886, A., 367.
- constitution of the double chromic oxalates, 1887, P., 4.
- absorption spectra of isomeric cresols, dihydroxybenzenes, and hydroxybenzoic acids, 1888, T., 641.
- identity of natural and artificial salicylic acid, 1888, T., 664; P., 65.
- definition of the term atomic weight and its reference to the periodic law, 1888, P., 66.
- black marble of Kilkenny, 1888, A., 119.
- lakmoid and litmin, 1888, A., 295.
- spectra of blue and yellow chlorophyll, with some observations on leaf-green, 1890, P., 161; 1891, T., 106.
- films of vaporised metal, 1890, A., 692.
- relations between the lines of various spectra, 1891, A., 773.
- the acid action of drawing paper of different makes, 1892, P., 19; discussion, P., 21.
- origin of colour and fluorescence, 1892, P., 188.
- methods of observing the spectra of easily volatile metals and their salts, and of separating their spectra from those of the alkaline earths, 1892, P., 200.
- action of heat on solutions of chromium salts, 1892, A., 571.
- Hartley, Walter Noel**, and **Hugh Ramage**, manganese borate, its constitution and properties, 1892, P., 201.
- Hartmann, Albert**, action of carbonyl chloride on *o*-diamines, 1890, A., 975.
- Hartmann, Albert**. See also **Carl Theodor Liebermann**.
- Hartmann, E.**, complete chlorination of fatty compounds of high molecular weight, 1891, A., 811.
- Hartmann, Fritz**. See **Otto Wallach**.
- Hartmann, Willy**, specific rotation of *d*-camphoric acid and its salts, 1888, A., 378.
- Hartog, P. J.**, sulphites, 1887, A., 886; 1889, A., 1106.
- Harton**. See **Darton**.
- Hartshorn, George Trumbull**, and **Charles Loring Jackson**, anilinetrisulphonic acid, 1888, A., 1093.
- Hartshorn, George Trumbull**. See also **Henry Barker Hill**, **Charles Loring Jackson**.
- Hartung, Ludwig**, hexamethylenamine, 1891, A., 1179; 1892, A., 1173.
- Hartwell, John A.** See **Russell II. Chittenden**.
- Hartwich, C.**, detection of foreign starches in chocolate, 1889, A., 192.
- Hartwig, Karl**, electrical conductivity of solutions, 1888, A., 399.
- molecular conductivity of acids in various solvents, 1891, A., 1308.
- Hartz, J. D. Aug.**, preparation of daturine from Stramonium seeds, 1885, A., 820.
- Harvey, J. W. Chalmers**, modified process for the estimation of chlorine in bleaching powder, 1883, A., 507.
- volumetric estimation of manganese dioxide, 1883, A., 513.
- volumetric estimation of chromic acid in chromates and dichromates, 1883, A., 686.
- Harvey, Sydney**, conversion of starch into glucose by means of hydrochloric acid, 1887, A., 125.
- estimation of nitrates in water, 1887, A., 184.
- Harz, Karl Otto**, champion spice, 1884, A., 865.
- effect of nitrogenous manures on tobacco, 1888, A., 990.
- Harz, Karl Otto** (and others), American red clover, 1884, A., 920.
- Harz, Kurt**, quinoline derivatives from propaldehyde, 1886, A., 261.
- Haschek, A.**, refractive indices of turbid media, 1889, A., 197.
- Hasebroek, Karl**, coagulation of the blood, 1883, A., 608.
- action of hydrogen peroxide on bismuth salts, 1887, A., 340.
- a first product of gastric digestion, 1887, A., 609.
- fate of lecithin in the body, 1888, A., 173.
- chylous pericardial fluid, 1888, A., 736.
- Haselhoff, Emil**. See **Wilhelm Roser**.
- Hasenclever, Robert Wilhelm**, manufacture of phosphate from basic slags, 1885, A., 615.
- Haslam, Arthur R.**, detection of albumin in urine, 1883, A., 885.
- volatilisation of zinc from German silver alloys, 1885, A., 707.

- Haslam, Arthur R.**, action of lime on quinine, 1885, A., 1267.  
 — solubility of barium sulphate in hydrobromic and hydriodic acids, 1886, A., 422.
- Haslam, Arthur R.** See also *Richard Anschütz*.
- Hassack, Carl**, behaviour of basic copper carbonate with nascent hydrogen, 1885, A., 1270.
- Hassack, Carl.** See also *Alto Arche*.
- Hasse, H.**, amidotoluenedisulphonic acid, 1886, A., 150.
- Hasselbach, Eduard**, hydrodiphthal-lactonic acid and hydrodiphthalyl, 1888, A., 485.
- Hasselberg, Clas Bernhard**, second spectrum of hydrogen, 1885, A., 317.
- Hassenkamp, Ernst.** See *Carl Engler*.
- Hasterlik, Gustav.** See *Rudolf Nietzsche*.
- Hatch, Frederick H.**, hypersthene and-site from Peru, 1885, A., 1189.
- Hatle, Eduard, and H. Tauss**, mineral-ogical observations in Styria, 1888, A., 429; 1891, A., 21.  
 — baryto-celestine from Werfen in Salzburg, 1889, A., 22.
- Hatschek, Alexander, and Alexander Zega**, action of *p*-toluidine on resor-cinol and quinol, 1886, A., 455.
- Hattensaur, Georg**, composition of *Molinia caerulea*, 1890, A., 658.
- Hattensaur, Georg.** See also *Eduard Donath*.
- Hatton, Frank**, obituary notice of, 1883, T., 257.
- Haubensak, IV.**, estimation of the total alkaloïds in quinine bark, 1891, A., 1402.
- Haubner, Gustav**, action of sulphurous anhydride on crotonaldehyde, 1892, A., 424.
- Hauer, Franz von**, barytes in the Carpa-thians, 1888, A., 33.
- Hauer, Franz von (and others)**, the Klausenburg meteorite, 1883, A., 1070.
- Hauff, Friedrich**,  $\beta$ -naphthylhydrazine, 1890, A., 61.
- Haug, J. J., and C. Hoffmann**, sub-stitute for caoutchouc, 1885, A., 712.
- Hausdörfer, Arthur**, diphenyl- $\alpha$ - and  $\alpha$ -diketopiperazines, 1889, A., 1013.  
 — constitution of diphenylamine- and phenylnaphthylamine-blue, 1890, A., 1808.
- Hausdörfer, Arthur.** See also *Carl Adam Bischoff*.
- Haushofer, Karl von**, microscopic ana-lysis, 1885, A. 689; 1887, A., 300, 301.
- Haushofer, Karl von**, crystallographical investigations, 1886, A., 341.  
 — detection of small quantities of germanium, 1889, A., 78.  
 — behaviour of silicates when fused with phosphates, 1890, A., 84.  
 — microscopical test for tantalum and niobium, 1890, A., 86.
- Hausmann, Julius**, action of *o*-cyano-benzyl chloride on ethyl sodomalonate:  $\alpha$ -hydrindone, 1889, A., 1172.  
 — nitrobenzil and its isomeric di-oximes, 1890, A., 624.
- Hausmann, Julius.** See also *Siegmund Gabriel*.
- Hausser, Jean Louis**, *p*-nitro-*o*-toluene-sulphonic acid, 1891, A., 73.  
 — nitrosulphobenzoic acid, 1892, A., 479.
- Hausser, Jean Louis.** See also *Paul Thiebaut Müller*.
- Haussknecht, Georg**, derivatives of phenylacetic acid and phenylglyoxylic acid, 1889, A., 506.  
 — electrical phenomena developed in the formation of solid carbonic anhy-dride, 1891, A., 777.
- Haussknecht, Wilhelm.** See *Ludwig Gattermann*.
- Haussmann.** See *Eduard Lauber*.
- Haussner, Georg**, minjak-lagam balsam, 1884, A., 354.
- Hautefeuille, Paul, and James Chappuis**, action of the silent discharge on oxygen and nitrogen in presence of chlorine, 1884, A., 710.
- Hautefeuille, Paul, and J. Margottet**, silica and lithium silicates, 1883, A., 559.  
 — crystalline phosphates, 1883, A., 711.  
 — combination of phosphoric acid with silica, 1883, A., 782.  
 — phosphates, 1883, A., 782.  
 — polymorphism of silicon phos-phate, 1885, A., 120.  
 — combinations of phosphoric acid with titanio, zirconio, and stannio acids, 1886, A., 670.  
 — hydrated silicon phosphate, 1887, A., 329.  
 — ferric and aluminium phos-phates, 1888, A., 420.  
 — simultaneous synthesis of water and hydrogen chloride, 1890, A., 8.
- Hautefeuille, Paul, and A. Perrey**, phosphoric anhydride, 1884, A., 1258.  
 — apparent volatilisation of silicon at 440°, 1885, A., 872.  
 — aluminium oxychloride, 1885, A., 874.

- Hautefeuille, Paul**, and **A. Perrey**, mineralising action of alkaline sulphides: formation of cynophane, 1888, A., 562.
- production of phenacite and emerald, 1888, A., 1044.
- beryllium silicates, 1889, A., 104.
- artificial production of zircon, 1889, A., 355.
- ferric orthoclase, 1889, A., 357.
- sodium beryllium silicates, 1890, A., 582.
- crystallisation of alumina and other oxides, 1890, A., 1071.
- Hautefeuille, Paul**, and **L. Péan de Saint-Gilles**, artificial production of micas, 1887, A., 560.
- Hawkins, Ernest Mostyn**. See **Raphael Meldola**.
- Hawkins, J. Dawson**, minium from Leadville, 1890, A., 570.
- silver silicate, 1890, A., 849.
- Hawkins, J. Dawson**, and **Edwin N. Hawkins**, platnerite from Ilaho, 1890, A., 339.
- Hawkrige, Percy**, lecture experiment; volumetric composition of certain gaseous compounds, 1889, A., 336.
- Hay, Matthew**, new alkaloid in *Cannabis indica*, or Indian hemp, 1888, A., 1155.
- physiological action of nitroglycerol, 1885, A., 681.
- chemistry of nitroglycerol, 1885, A., 742.
- Hay, Matthew**, and **David Orme Masson**, composition of nitroglycerol, 1885, A., 742.
- Haycraft, John Berry**, action of a secretion obtained from the medicinal leech, 1885, A., 571.
- new method for the estimation of uric acid, 1886, A., 748.
- method for estimating the specific gravity of the blood, 1891, A., 1123.
- estimation of uric acid in urine, 1891, A., 1297.
- Haycraft, John Berry**, and **Edmond William Ivace Carlier**, coagulation of the blood, 1888, A., 1121.
- Haycraft, John Berry**, and **Charles William Duggan**, heat-coagulation of certain proteids, 1890, A., 272.
- Haycraft, John Berry**, and **Harold Scofield**, bile pigments, 1890, A., 181.
- Haycraft, John Berry**, and **R. T. Williamson**, estimation of the alkalinity of blood, 1889, A., 449.
- Hayduck, Michael Maximilian**, influence of alcohol on the development of yeast, 1888, A., 104.
- Hayduck, Michael Maximilian**, utilisation of malt combings in the manufacture of pressed yeast, 1884, A., 790.
- hop and its constituents, 1888, A., 187.
- Hayem, Georges**, poisons and drugs which act on hæmoglobin, 1884, A., 764.
- conversion of hæmoglobin into metahæmoglobin, 1886, A., 637.
- Hayes, Charles Willard**. See **Richard N. Brackett**, **Ira Remsen**.
- Hayes, Edward Harold**, reduction of the results of experiments on the hydrate theory of solution, 1891, A., 973.
- Hayes, Hammond Vinton**, and **John Trowbridge**, cause of irregularities in the action of galvanic batteries, 1886, A., 293.
- Haymann, Felix Hugo**, action of sulphurous anhydride on tiglic aldehyde, 1889, A., 487.
- Haynes, I. S.**, absorption of ammonia by acid solutions in nitrogen determinations, 1888, A., 752.
- Hazard, J.**, estimation of quartz in siliceous rocks and soils, 1884, A., 872.
- Hazen, Allen**, estimation of chlorine in water, 1890, A., 86.
- estimation of ammonia in sand and sewage, 1890, A., 1024.
- estimation of the dissolved matter in water, 1892, A., 920.
- colour standard for natural waters, 1892, A., 1527.
- Hazen, Allen**, and **Harry W. Clark**, effect of temperature on the Nessler test, 1890, A., 1024.
- estimation of nitrates in water, 1892, A., 243.
- Hazura, Karl**, nitroresorcinolsulphonic acid, 1883, A., 1114.
- acids from drying oils, 1887, A., 359, 913; 1888, A., 816.
- acid from hemp-seed oil, 1887, A., 799.
- oxidation of unsaturated fatty acids with permanganate, 1888, A., 1270.
- drying oils, 1889, A., 956.
- examination of commercial olein for linoleic acid, 1890, A., 306.
- Hazura, Karl**, and **Rudolf Benedikt**, chloro- and bromo-derivatives of phloroglucinol, 1886, A., 52.
- Hazura, Karl**, and **A. Friedreich**, acids from drying oils, 1887, A., 798.

- Hazura, Karl**, and **Anton Grüssner**, acids from drying oils, 1888, A., 817, 1270.
- olive oil, 1889, A., 374.
- oxidation of unsaturated fatty acids by permanganate, 1889, A., 375.
- non-drying oils, 1889, A., 1058.
- Hazura, Karl**, and **Paul Julius**, resorcinol oxide, 1884, A., 1139.
- Hazura, Karl**. See also **Alexander Bauer**, **Rudolf Benedikt**, **Anton Grüssner**, **Hugo Weidel**.
- Headen, W. P.**, columbite from Colorado, 1887, A., 347.
- columbite and tantalite from the Black Hills of South Dakota, 1891, A., 886.
- graphite; a new phosphate from Dakota, 1891, A., 1328.
- Headen, W. P.**, and **Benj. Sadler**, Marsh-Beizelius method for the detection of arsenic, 1886, A., 489.
- Heaton, Charles W.**, zinc in drinking-water, 1884, A., 697.
- Heaton, Charles W.**, and **S. Archibald Vasey**, simple method of estimating urea, 1891, A., 133.
- analysis of peptones, 1892, A., 1535.
- Hebebrand, August**, compounds of quinol and toluquinol with amines, and of quinone with nitranilines, 1883, A., 60.
- Hebebrand, August**. See also **Theodor Zincke**.
- Hebebrand, H.**, action of chlorine on hydroxyquinoline, 1889, A., 60.
- Hebenstreit, Paul**, sulphonycyanamides, 1890, A., 501.
- Hébert, Alexandre**, formation of ammonia in arable soil, 1889, A., 1240.
- analysis and composition of straw, 1890, A., 1459.
- development of wheat and formation of starch in the grain, 1891, A., 1285.
- development of cereals, 1892, A., 1119.
- occurrence in plants of a gum giving rise to xylose by saccharification, 1892, A., 1371.
- Hecht, Hermann**, action of monamines on citric acid, 1887, A., 154.
- Hecht, Joseph L.**, dichlorosalicylic acid, 1890, A., 1418.
- Hecht, Otto**, propylthiocarbimide and some new thiocarbamides, 1890, A., 476.
- dialkyl cyanothiocarbamides, 1890, A., 1108.
- thiocarbamides, cyanocarbamides, and cyanothiocarbamides, 1892, A., 702.
- Hecht, Otto**, thiobimides, 1892, A., 703.
- Hecht, Otto**. See also **Fr. Iwig**.
- Hecht, Wilhelm**, and **Max Conrad**, determination of affinity constants, 1889, A., 931.
- Hecht, Wilhelm**, **Max Conrad**, and **Carl Brückner**, determination of affinity coefficients, 1890, A., 4, 1046.
- Heckel, Edouard**, ice-plant (*Mesembryanthemum crystallinum*), 1883, A., 680.
- sodium benzenesulphinate as an antiseptic for wounds, 1888, A., 182.
- utilisation and transformations of alkaloids during the germination of seeds, 1890, A., 543.
- Heckel, Edouard**, and **Charles Frédéric Schlagdenhauffen**, chemistry of Globularia, 1883, A., 1025.
- bark of "Bois piquant," 1884, A., 848.
- kola-nut, 1884, A., 863.
- chemical composition of *Artemisia gallica*, 1885, A., 684.
- Chaulmoogra seeds, 1885, A., 927.
- root of *Danais fragrans*, 1886, A., 173.
- gutta percha from *Bassia Parkii*, 1886, A., 249.
- "Doudaké," or African quinine, 1886, A., 267.
- cholesterol in vegetable fats, 1886, A., 829.
- lecithin in plants, 1886, A., 1064.
- vernonin, 1888, A., 964.
- juice of *Bassia latifolia*, 1889, A., 434.
- oleo-gum-resin secreted by araucarias, 1889, A., 1236.
- Heckmann, Jacob**, ethylic dinitrophenyl-acetoacetate, 1884, A., 178.
- Hequet d'Orval, E.**, salt and herring offal as manure, 1884, A., 866.
- Hector, D. S.**, action of hydrogen peroxide on phenylthiocarbamide, 1889, A., 872.
- derivatives of aromatic thiocarbamides, 1890, A., 526.
- action of oxidising agents on aliphatic thiocarbamides, 1892, A., 292.
- Hector de Rochefontaine, Olivier d'**. See **J. Peter**.
- Heddlé, Matthew Forster**, stilbite, 1888, A., 441.
- ill-determined minerals, 1886, A., 130.
- minerals new to Britain, 1886, A., 432.

- Hedde, Matthew Forster**, identity of bruiachite and fluorspar, 1891, A., 273.
- dudgeonite, hydroplumbite, and plumbonacrite, 1891, A., 275.
- Hedin, Sven Gustav**, condensation products of amido-acids with benzenesulphonic chloride, 1891, A., 202.
- Hedrick, W. A.**, *p*-amido-*o*-sulphobenzoic acid, 1888, A., 280.
- Heen, Paul de**, note on the general law which governs the expansibility of liquids, 1884, T., 408.
- Heermann, Paul**, nitro-derivatives of  $\alpha$ -ethoxynaphthalene, 1891, A., 1379.
- organic phosphorus compounds, 1892, A., 875.
- 1:4-amidonaphthol ethyl ether and its derivatives, 1892, A., 1097.
- Heermann, Paul**. See also *Adolph Claus*.
- Hefelmann, Rudolf**, desulphurisation of thiocarbamides by mercuric cyanide, 1886, A., 349.
- Heffter, Arthur**, *p*-amidotoluene-*o*-sulphamide, 1884, A., 73.
- *p*-amidotoluene-*o*-thiosulphonic acid, 1884, A., 454.
- action of chloral on glucose, 1889, A., 845.
- preparation of gluconic acid, 1889, A., 857.
- lecithin in the liver, 1891, A., 1275.
- Hegel, Stigm.**, indole derivatives, 1886, A., 551.
- Hehner, Otto**, analysis of beeswax, 1884, A., 779.
- analysis of honey, 1885, A., 444.
- estimation of methyl alcohol in presence of ethyl alcohol, 1887, A., 1142.
- estimation of glycerol and its non-volatility with aqueous vapour, 1887, A., 1143.
- mixed lard and the detection of cotton-seed oil, 1889, A., 319.
- estimation of glycerol in soap lyes and crude glycerol, 1890, A., 425.
- estimation of boric acid, 1892, A., 384.
- Heiber, Fritz**, action of methylchloroform and ethylchloroform on alkaline solutions of phenols, 1892, A., 308.
- diethyl hydrofurfurylutidine-dicarboxylate and its derivatives, 1892, A., 1362.
- Heiden, Joachim Christian Eduard**, superphosphatic gypsum as an absorber of ammonia, 1885, A., 83.
- preservation of farmyard manure, 1886, A., 277.
- Heiden, Joachim Christian Eduard**, experiments with farmyard manure, 1888, A., 872; 1890, A., 411.
- growth of maize and peas in nutritive solutions, 1888, A., 1328.
- value of basic slag as a manure compared with soluble phosphate and bone meal, 1889, A., 299.
- manuring experiments in heavy soil, 1889, A., 300.
- Heiden, Joachim Christian Eduard** (and others), ratio of nitrogen to phosphoric acid in seeds, 1884, A., 1404.
- how to bring heavy, raw soils into cultivation, 1884, A., 1412.
- potatoes with lime as a manure, 1884, A., 1419.
- Heidenhain, Heinrich**, Goldenberg's method for estimating tartaric acid, 1889, A., 657.
- Heidenreich, Arthur**, and **Victor Meyer**, formation of diphenylamine from *o*-bromobenzoic acid, 1892, A., 1188.
- Heidensleben, E.**, toluidonitrobenzoic acid and naphthylamidonitrobenzoic acid, 1891, A., 306.
- Heidberg, Theodor**, *o*- and *p*-chlorodimethylaniline, 1887, A., 471.
- Heidberg, Theodor**. See also *Karl Heumann*.
- Heilborn, Ernst**, connection between the critical data of liquids and their chemical constitution, 1891, A., 380.
- specific heat of mercury, 1891, A., 632.
- critical state of liquids, 1891, A., 969.
- Heilmann, Ernst**, xylalphthalide and its derivatives, 1890, A., 625.
- *m*-xylalphthalide, 1891, A., 200.
- Heim, Carl**, electrical conductivity of supersaturated salt solutions, 1886, A., 654.
- use of magnesium in primary batteries, 1888, A., 1002.
- Heim, Ernst**, nitro-derivatives of phenyl- $\beta$ -naphthylamine, 1888, A., 488.
- action of ammonium sulphide on some dinitro-compounds, 1888, A., 1096.
- Heim, F.**, blue colouring matter in the blood of Crustacea, 1892, A., 898.
- Heim, F.** See also *J. E. Abelous*.
- Heim, Max**, hydrastine; a correction, 1890, A., 1333.
- Heim, Max**. See also *Martin Freund*.
- Heim, Rudolf**, phenolic phosphates, 1883, A., 1108.
- conversion of phenols into nitriles and acids, 1883, A., 1111.

- Heine, H.** See **L. Just.**
- Heiner, G.**, estimation of resin in soap, 1885, A., 933.
- Heinichen, Otto**, dibromosulphanilic acid and its derivatives, 1890, A., 165.
- Heinrich, Reinhold**, influence of the percentage of moisture in peaty soils on vegetation, 1883, A., 681.  
— dependence of cultivation on the depth of the soil, 1885, A., 80.
- Heintze, Julius**, ultramarine, 1891, A., 400.
- Heintze, O.**, crystallography of some organic compounds, 1886, A., 235.
- Heinz, R.**, physiological action of saline solutions and various drugs, 1891, A., 601.
- Heinzelmann, G.**, influence of salicylic acid on fermentation, 1884, A., 764.  
— fermentation experiments with gluten instead of diastase in the mash, 1884, A., 789.  
— strong yeast, 1884, A., 789.
- Heinzerling, Chr.** See **Carl Moldenhauer.**
- Heisch, Charles**, analysis of pepper, 1887, A., 312.  
— obituary notice of, 1892, T., 489.
- Heise, Robert**, synthesis of hydrocarbons, 1891, A., 685.
- Heise, Robert**, and **Albert Töhl**, action of aluminium chloride on aromatic hydrocarbons, 1892, A., 1309.
- Helbing, H.**, reaction of strophanthin, 1887, A., 1001.
- Held, Alfred**, ethylic ethylacetocyanacetate and methylacetocyanacetate, 1884, A., 727.  
— derivatives of ethyl acetocyanacetate, 1889, A., 1141.
- Held, Alfred.** See also **Albin Haller.**
- Hell, Carl**, determination of the molecular weight and atomicity of the higher fatty alcohols, 1884, A., 1433.  
— brominating organic acids, 1888, A., 814.  
— *s*-diethylsuccinic acids, 1889, A., 377.  
— fichtelite, 1889, A., 614.  
— isomeric pimelic acid from amylene bromide, 1891, A., 1017.
- Hell, Carl**, and **Carl Hägele**, the hydrocarbon  $C_{80}H_{122}$ , 1889, A., 575.
- Hell, Carl**, and **Christo Iordanoff**, derivatives of palmitic acid, 1891, A., 820.  
— cyanopalmitic acid, tetradecylmalonamic acid, and tetradecylmalonic acid, 1891, A., 821.
- Hell, Carl**, and **Eduard Alexander Kehrer**, action of bromine on levulinic acid, 1884, A., 1297.
- Hell, Carl**, and **Chuna Kitrosky**, formation of nitriles on oxidation with nitric acid, 1891, A., 812.
- Hell, Carl**, and **Georg Lupp**, *n*-butylmalonic acid—an isomeric pimelic acid, 1885, A., 44.
- Hell, Carl**, and **Wilhelm Mayer**, action of silver on ethyl bromisovalerate, 1889, A., 372.
- Hell, Carl**, and **Robert Poliakoff**, amido- and anilido-derivatives of succinic acid, 1892, A., 819.  
— action of  $\alpha$ - and  $\beta$ -naphthylamines on ethyl bromosuccinate, 1892, A., 860.
- Hell, Carl**, and **Rudolf Rempel**, derivatives of *n*-suberic acid, 1885, A., 755.
- Hell, Carl**, and **Adolf Ritter**, action of the haloid acids on wormseed oil, 1884, A., 1363; 1885, A., 172.
- Hell, Carl**, and **Theodor Roekenbach**, last runnings obtained in the purification of aniline and toluidine, 1889, A., 600.
- Hell, Carl**, and **Mathäus Bothberg**, action of finely divided silver on ethyl bromopropionate, 1889, A., 371.  
— formation of dimethylsuccinic acid, 1889, A., 959.
- Hell, Carl**, and **Joseph Sadomsky**, new derivatives of stearic acid, 1891, A., 1335.  
— cyanostearic acid, hexadecylmalonamic acid, and hexadecylmalonic acid, 1891, A., 1451.
- Hell, Carl**, and **Gotthilf Schüle**, *n*-pentylmalonic acid, 1885, A., 757.
- Hell, Carl**, and **Hermann Stürcke**, wormseed oil, 1884, A., 1363.
- Hell, Carl**, and **Sergius Twerdomedoff**, derivatives of myristic acid, 1889, A., 956.  
— fatty oil of *Cyperus esculentus*, 1889, A., 1029.
- Hell, Carl**, and **Friedrich Urech**, carbon thiobromides, 1883, A., 907.  
— formation of a new colouring matter by the action of heat on carbotrithiohexabromide, 1883, A., 907.
- Hell, Carl**, and **Mejer Wildermann**, action of alcoholic potassium cyanide on halogen derivatives of amylene, 1891, A., 161.  
— halogen derivatives of amylene (trimethylethylene), 1891, A., 533.
- Hell, Carl.** See also **Alfons Bujard**, **Lazarus Chasonowitz**, **Wilhelm Dietler**, **Friedrich Gantter**, **Isak Gorodetzky**.

- Helle, Johannes**, *o*-tolidinedisulphonic acid, 1892, A., 1466.
- Heller, Gustav**, action of carbonyl chloride, carbonyl sulphide, and alkyl chlorocarbonates on phenylhydrazine, 1891, A., 1212.
- Heller, William Mayhew**, formation of sulphones on sulphonating naphthalene derivatives by means of chlorosulphonic acid, 1889, P., 121.
- Hellmann, Heinrich**, difference of positive and negative discharge, 1883, A., 949.
- Hellon, Robert**. See *Joseph Tcherniac*.
- Hellriegel, Hermann**, plants from seed of various sizes, 1884, A., 352.
- influence of the amount of soil on the development of roots of various plants, 1884, A., 626.
- influence of light and heat on plants, 1884, A., 855, 1206.
- influence of constant temperature in the soil on plants, 1884, A., 916.
- influence of water on the growth of plants, 1884, A., 1401.
- evaporative surfaces of plants, and influence of moisture in soils on plant growth, 1885, A., 421.
- preservation of dried, washed sugar-beet mark sections, 1885, A., 685.
- Hellriegel, Hermann**, and *H. Wilfarth*, absorption of nitrogen by plants, 1888, A., 742.
- sources of the nitrogen of the Gramineæ and Leguminosæ, 1889, A., 640.
- Hellriegel, Hermann** (and others), researches on sugar-beet, 1884, A., 485.
- Hellström, Paul**, derivatives of  $\alpha$ -dichloronaphthalene, 1889, A., 149.
- Helmers, Otto**, additive products of aromatic thiocarbimides, 1887, A., 581.
- Helmholtz, Hermann Ludwig Ferdinand von**, electrolysis of water, 1888, A., 100.
- Helms, A.**, cinchocerotin, 1884, A., 331.
- Helwes, F.**, rennet in human urine, 1889, A., 536.
- Helwig, Hermann**. See *Eugen Bamberger*.
- Hembert, Felix**, and **Henry**, preparation of hydrogen, 1886, A., 184.
- Hemilian, Valerius von**, diphenyl-*p*-xylylmethane and its products of oxidation, 1884, A., 321.
- diphenyl-*m*-xylylmethane and diphenyl-*o*-xylylmethane, 1887, A., 266.
- Hemilian, Valerius von**, and **Heinrich Silberstein**, triphenylamidomethane, 1884, A., 1032.
- Hemmann, Guntal**. See *Adolph Claus*.
- Hemmelmayer, Franz von**, oxidation of sodium alkyl oxides by atmospheric oxygen, 1891, A., 1332.
- methylene derivatives of carbamide and of thiocarbamide, 1891, A., 1339.
- base obtained from pyridine, 1892, A., 504.
- Hempel, Albert**, *o*-nitroethylaniline and its derivatives, 1889, A., 600.
- alkyl-*o*-phenylenediamines and their derivatives, 1890, A., 611.
- Hempel, Rudolf**, derivatives of suberic acid, 1885, A., 756.
- Hempel, Walther**, influence of the chemical nature and pressure of gases on the generation of electricity by an induction machine, 1884, A., 701; 1885, A., 1098.
- estimation of oxygen in air, 1885, A., 592.
- behaviour of the different modifications of carbon towards iron, 1885, A., 725.
- titration of iron ores, 1885, A., 932.
- apparatus and arrangements of the laboratory at Dresden, 1885, A., 951.
- percentage of oxygen in the air, 1885, A., 1091; 1887, A., 885.
- source of error in gas analysis, 1887, A., 1062.
- gas burette which is independent of atmospheric pressure and temperature, 1887, A., 1062.
- evaporation of liquids, 1888, A., 546.
- preparation of cakes of ammonium chloride and ammonium carbonate, 1888, A., 553.
- anhydrous magnesium chloride, 1888, A., 554.
- absorption of carbonic oxide by cuprous chloride, 1888, A., 556.
- combination of carbon with iron under pressure, 1888, A., 557.
- apparatus for evaporating by the aid of heat applied from above, 1890, A., 5.
- direct production of crystalline sodium carbonate and chlorine from sodium chloride, 1890, A., 10.
- estimation of phosphorus in phosphor-tin, 1890, A., 83.
- combustions under a high pressure, 1890, A., 1050.
- reactions at high temperatures and pressures, 1891, A., 258.
- error in the principle of the ordinary exsiccator, 1891, A., 259.
- new desiccator, 1892, A., 521.

- Hempel, *Wulbler*, and *L. M. Dennis*, volumetric estimation of volatile hydrocarbons, 1891, A., 1141.
- Hencke, *Carl*, *p*-amidodiphenylamine, 1890, A., 609.
- Henderson, *George Gerald*, action of triphenylmethyl bromide on ethylic sodiomalonate, 1886, P., 251; 1887, T., 224.
- ethyl triphenylcarbinylnalonate:  $\beta$ -triphenylpropionic acid, 1887, A., 671.
- on diphenylisuccinic acid and  $\beta$ -diphenylpropionic acid, 1891, T., 731; P., 123.
- Henderson, *George Gerald*, and *John Morrow Campbell*, action of chromiun oxychloride on nitrobenzene, 1890, T., 253; P., 10.
- Henderson, *George Gerald*, and *Robert Watson Smith*, action of chromiun oxychloride on pinene, 1888, P., 116; 1889, T., 45.
- Henderson, *George Gerald*. See also *James Johnstone Dobbie*.
- Hendess, *Hugo*. See *Siegmund Gabriel*.
- Hendrixson, *Walter Scott*, so-called dihydroxymaleic acid, 1890, A., 958.
- Hendrixson, *Walter Scott*. See also *Henry Barker Hill*.
- Henecke, *Alb.*, extractive matter in Tyrolese wine, 1882 vintage, 1884, A., 130.
- Henius, *M.*, benzil derivatives, 1885, A., 1067.
- Henke, *Gustav*, colocynthin, 1881, A., 181.
- milky juice of certain Euphorbiaceæ, 1887, A., 72.
- Henkel, *Friedrich*. See *Theodor Curtius*.
- Henkel, *Theodor*, citric acid a normal constituent of milk, 1891, A., 1276.
- Henneberg, *Hugo*, heat conductivity of mixtures of ethyl alcohol and water, 1889, A., 459.
- Henneberg, *Johann Wilhelm Julius*, feeding sheep with sugar, 1885, A., 1252.
- influence of the consumption of water on the alimentation of animals, 1889, A., 287.
- Henneberg, *Johann Wilhelm Julius*, and *Friedrich Carl Adolf Stohmann*, digestion of cellulose, 1886, A., 86.
- Henneguy, *L. Felix* (and others), phylloxera, 1881, A., 99.
- Henninger, *Arthur*, on alcohol in wine, 1883, A., 631.
- reduction of erythritol by formic acid, 1884, A., 897.
- Henninger, *Arthur*, and *J. Sanson*, formation of a glycol in the alcoholic fermentation of sugar, 1888, A., 571.
- Henninger, *Arthur*. See also *Charles Adolphe Wurtz*.
- Henningsen, *H. H.*, rearing calves on skim milk, 1884, A., 852.
- Hénocque, *Albert William Léon*, action of potassium nitrite on blood, 1885, A., 682.
- hæmatoscopy; a new method of blood analysis, 1887, A., 312; 1888, A., 204.
- activity of reduction of oxyhæmoglobin, 1888, A., 512.
- Hénocque, *Albert William Léon*, and *Georges Baudoin*, reduction of oxyhæmoglobin in typhoid fever, 1888, A., 865.
- Henrich, *Ferdinand*, absorption coefficients of gases, 1892, A., 1043.
- Henrichsen, *S.*, magnetism of organic compounds, 1888, A., 769; 1892, A., 672.
- Henrichsen, *S.* See also *Severin Wleügel*.
- Henrichsen, *Wilhelm*. See *Eugen R. Ostermayer*.
- Henriques, *Robert*, new nitro-derivatives of phenol, 1883, A., 327.
- a new method of preparing secondary amidoazo-derivatives, 1885, A., 168.
- splitting of the naphthalene and benzene rings by oxidation, 1888, A., 842.
- Henriques, *Robert*, and *Michael von Ilinski*, preparation of the nitroso-naphthols, 1885, A., 801.
- Henriques, *Robert*. See also *Paul Friedländer*.
- Henrivaux. See *Coquillon*.
- Henry. See *Felix Humbert*.
- Henry, *Louis*,  $\alpha$ -monochlorallylic alcohol and its derivatives, 1883, A., 173.
- "reaction aptitudes" of the halogens in mixed haloid ethers, 1883, A., 787.
- phenol derivatives, 1883, A., 802.
- derivatives of mannitol hexylene, 1884, A., 33.
- monochlorethyl chloracetate, 1884, A., 421.
- haloid derivatives of ethane, 1884, A., 571.
- methylene bromide, 1884, A., 718.
- action of iodine chloride on chloroethylene, 1884, A., 719.
- distinct types of glycollic acids, 1884, A., 730.
- action of iodine chloride on bromoethylene, 1884, A., 830.

- Henry, Louis**, *as*-chloriodethylene and bromiodethylene, 1884, A., 831.  
 — monobromomethylchloroform (bromotrichlorethane), 1884, A., 978.  
 — propargyl iodide, 1884, A., 979.  
 — solubility and fusibility in the oxalic acid series, 1885, A., 335.  
 — haloid substitution derivatives of propionic acid, 1885, A., 372.  
 — pyrotartaronitrile and succinonitrile, 1885, A., 646.  
 — trimethylene iodide, 1885, A., 736.  
 — volatility of cyano-derivatives containing oxygen, 1885, A., 880.  
 — primary haloid derivatives of ethyl ether, 1885, A., 882.  
 — amides of the oxalic series, 1885, A., 886.  
 — volatility of chloronitriles, 1885, A., 1044.  
 — physical properties of chloracetates, 1885, A., 1121.  
 — methylene derivatives, 1886, A., 43.  
 — volatility of mixed derivatives, 1886, A., 135.  
 — normal and primary chlorobutyl derivatives, 1886, A., 215.  
 — polymerisation of the metallic oxides, 1886, A., 303.  
 —  $\gamma$ -bromo- and  $\gamma$ -iodo-butyric acids, 1886, A., 440.  
 — volatility of oxynitriles, 1886, A., 605.  
 — malonodinitrile, 1886, A., 786.  
 — normal dinitriles, 1886, A., 860.  
 — haloid derivatives of acetonitrile, 1886, A., 1001.  
 — volatility of methane derivatives, 1887, A., 24.  
 — determination of the relative value of the four units of activity in the carbon atom, 1887, A., 711.  
 — synthetical acetonitrile, 1887, A., 712.  
 — synthetical acetic acid and its derivatives, 1887, A., 796.  
 — cyanacetic acid, 1887, A., 796.  
 — volatility of poly-oxygen carbon compounds, 1888, A., 796, 797.  
 — glycollic nitrile: direct synthesis of glycollic acid, 1890, A., 739.  
**Henry, Paul**, direct synthesis of primary alcohols, 1892, A., 27.  
 — reciprocal transformation of lactones and hydroxy-acids, 1892, A., 1303.  
**Henry, William Arnon**, influence of fodder on the production of lean and fat in pigs, 1888, A., 1319.  
**Hensch, Arpad**, influence of cultivation on the moisture of the soil, 1885, A., 588.  
**Henschel, Eduard**. See *Carl Bernhard Kuhn*.  
**Henschke, Alfred**, chelidonine, sanguinarine, and chelerythrine, 1887, A., 854.  
 — chelidonine, 1887, A., 854; 1889, A., 62.  
**Henschke, Hermann**, constituents of *Scopolia* root, 1888, A., 82.  
**Henschke, Hermann**. See also *Ernst Albert Schmidt*.  
**Hensel, Ferdinand**. See *Richard Anschütz*.  
**Hensen, Victor von**, fertility of a soil as dependent on the action of worms, 1883, A., 237.  
**Hensgen, C.**, potassium and ammonium manganese chromates, 1886, A., 426.  
 — antimony and bismuth sulphates, 1886, A., 513.  
 — ammonio-mercuric chromates, 1887, A., 218.  
 — sublimation of antimony trichloride, 1891, A., 1160.  
**Hentschel, W.**, conversion of phenyl ethers of carbonic acid into salicylic acid, 1883, A., 588.  
 — diphenylcarbamide and triphenylguanidine, 1883, A., 1107.  
 — preparation of chloracetic acid, 1884, A., 990.  
 — preparation of acid anhydrides, 1884, A., 991.  
 — preparation of carbamide, 1884, A., 995.  
 — preparation of phenyl cyanate, 1884, A., 1002.  
 — action of sulphuric acid on carbamides, 1884, A., 1016.  
 — conversion of ethyl carbanilate into amidobenzoic acid, 1885, A., 792.  
 — preparation of methyl chloroformate, 1885, A., 883.  
 — phenyl cyanate, 1885, A., 888.  
 — derivatives of methyl carbanilate, 1887, A., 143.  
 — aconitic acid, 1897, A., 467.  
 — derivatives of chlorinated methyl formate, 1887, A., 1027.  
 — chlorinated methyl formates, 1887, A., 1099; 1888, A., 248, 249.  
 — Raoult's law of freezing points, 1888, A., 1143.  
 — diacetamide, 1890, A., 1289.  
 — apparatus for the estimation of nitrogen in ammonium salts, 1890, A., 1341.  
**Henzold, Otto**, new method of forming anthracene, 1883, A., 1137.  
 — frozen milk, 1887, A., 745.  
 — estimation of water in butter, 1891, A., 1300.

- Henzold, Otto.** See also *Gottfried Adolf Ernst Wilhelm Ulrich Kreisler, Max Schrodtt.*
- Hepburn, G. Grant,** griqualandite, 1887, A., 709.
- Hepp, Edward.** See *Otto Fischer.*
- Hepp, Paul,** trinitro-derivatives of benzene and toluene, 1883, A., 315.
- addition products of nitro-derivatives with hydrocarbons, 1883, A., 317.
- Heppe, G.,** adulteration of petroleum with solar oil, 1885, A., 599.
- testing oil of cassia, 1885, A., 697.
- adulteration of lemon oil with oil of turpentine, 1885, A., 1163.
- estimation of small quantities of silver in lead flux, 1891, A., 1292.
- Heraeus, Wilhelm,** reducing and oxidising properties of bacteria, 1888, A., 313.
- Hérard, Ferdinand,** amorphous antimony, 1888, A., 1256.
- amorphous bismuth, 1889, A., 572.
- Herb, Josef,** reduction products of terephthalic acid, 1890, A., 1130.
- Herbáby, Julius.** See *Adolph Claus.*
- Herberts, H.,** liquid carbonic anhydride, 1886, A., 107.
- Hereth, Fr. S.,** volumetric estimation of alkaloids by Mayer's reagent, 1888, A., 203.
- Hertfeldt, Eberhard.** See *Adolph Claus.*
- Herff, B. van.** See *Charles W. Dabney.*
- Hergenhahn, E.,** glycogen in the liver and muscle, 1890, A., 1334.
- Héricourt, Jules, and Charles Richet,** toxic action of blood and of various tissues, 1892, A., 228.
- Heritsch, A.,** general law of the diminution of volume of salts by solution in water, 1889, A., 461.
- Herles, F.,** estimation of sugar in molasses, 1889, A., 191.
- formation of raffinose, 1890, A., 226.
- Hermann, Adolf.** See *Rudolf Leuckart.*
- Hermann, Bernhard.** See *Conrad Willgerodt.*
- Hermann, Carl.** See *Carl Paal.*
- Hermann, Ludimar,** action of trichloroacetic acid, 1885, A., 575.
- reduced hæmoglobin, 1889, A., 530.
- Hermann, Ludimar.** See also *S. Groll.*
- Hermans, J. Th. H.,** contamination of the atmosphere by products of respiration, 1884, A., 510.
- Hermens, Richard.** See *Carl Arnold August Michaelis.*
- Herre, W.,** preparation of waterproof and incombustible paper, 1885, A., 315.
- Herringham, Wilmot Parker, and Howard Owen Davies,** excretion of uric acid, 1892, A., 365.
- Herringham, Wilmot Parker, and E. W. Groves,** excretion of uric acid, urea, and ammonia, 1892, A., 365.
- Herrmann, August,** digestion of fibrin by trypsin, 1887, A., 1130.
- Hayercraft's method of estimating uric acid in urine, 1888, A., 1225.
- Herrmann, Felix,** constitution of ethyl succinosuccinate, 1883, A., 1084.
- formation of ethyl succinosuccinate from ethyl dihydroxyterephthalate, 1886, A., 550, 706.
- crystals containing mixtures, 1886, A., 972.
- ethyl quinonedihydro-*p*-dicarboxylate, 1886, A., 1027.
- configuration of the molecule of benzene, 1888, A., 1026; 1890, A., 1105.
- configuration of the hexamethylene molecule, 1890, A., 1105.
- Herrmann, Felix.** See also *Arthur Rudolf Hantzsch.*
- Herrmann, Paul, and Bernhard Tollens,** reactions of saccharin, 1885, A., 962.
- sugar of *Symphoricarpos racemosus*, 1886, A., 92.
- Herrmann, Paul.** See *Martin Freund.*
- Herroun, Edward Felix,** electromotive force of certain tin cells, 1886, A., 752.
- abnormal electromotive forces, 1889, A., 457.
- Herroun, Edward Felix.** See also *William Popplewell Bloxam, Edgar March Crookshank.*
- Hersch, Carl,** analyses of zeolites, 1888, A., 924.
- Herstein, B.,** truxillopiperidides and truxillopiperidic acids, 1889, A., 1213.
- Hertes, M.** See *Friedrich Holdelheiss.*
- Herth, Robert,** hæmalbumose or propeptone, 1884, A., 1388; 1886, A., 567.
- Hertkorn, J.,** silicates of the phenols, 1885, A., 1056.
- Herty, Charles H.,** double halogen salts of lead, 1892, A., 779.
- Hertz, Heinrich R.,** electric discharges, 1883, A., 700.
- researches on the glow discharge, 1883, A., 949.
- benzene as an insulator, 1884, A., 244.
- influence of ultra-violet light on the electric discharge, 1888, A., 13.

- Hertz, Johann Nicolaus**, molecular weights of sulphur, phosphorus, and iodine in solution, 1891, A., 260.
- Hertz, Johann Nicolaus**. See also *Emil Fischer*.
- Hertzog, Alfred C.**, removal of exhausted solutions from gas apparatus, 1890, A., 557.
- Herz, Josef**, estimation of sulphurous acid in beer, 1886, A., 102.
- detection of artificially coloured red wine, 1887, A., 91.
- detection of alum in flour, 1887, A., 530.
- detection of alkanna-red in wine, 1890, A., 311.
- Herz, Richard**, triphenylamine derivatives, 1890, A., 1409.
- Herz, Richard**. See also *Carl Arnold August Michaelis*.
- Herzberg, Martin**, cinnamic and hydrocinnamic acids. *p*-nitrobenzaldehyde, 1885, A., 661.
- Herzberg, Martin**. See also *Siegfried Gabriel*.
- Herzberg, Wilhelm**, and *Mar Polonowsky*, action of nitrous acid on tetramethylamidobenzophenone, 1892, A., 185.
- Herzberg, Wilhelm**. See also *Friedrich Carl Adolf Stohmann*.
- Herzfeld, Alexander**, maltose and isomeric gluconic acids, 1883, A., 652.
- maltose, 1884, A., 171.
- gluconic acids from different sources, 1884, A., 423.
- maltodextrin, 1886, A., 221.
- a new compound of saccharose, 1886, A., 863.
- estimation of carbon in the organic constituents of water, 1887, A., 184.
- estimation of invert sugar, 1887, A., 185.
- levulose, 1888, A., 667.
- products of the action of red mercuric oxide and baryta water on glucoses, 1888, A., 807.
- pectin substances, 1892, A., 291.
- Herzfeld, Alexander**, and *Ernst Bornstein*, oxidation of levulose, 1886, A., 862.
- Herzfeld, Alexander**, and *Heinrich Winter*, levulose, 1886, A., 438, 862.
- Herzfeld, Alexander**. See also *Ernst Bornstein*.
- Herzfeld, J.**, derivatives of toluquinoline, 1884, A., 1198, 1199.
- Herzig, Josef**, action of nitrous acid on guaiacol, 1883, A., 464.
- guaiaconic and guaiaretic acids, 1883, A., 470.
- Herzig, Josef**, quercetin and its derivatives, 1884, A., 846; 1886, A., 251; 1888, A., 1309; 1890, A., 64; 1891, A., 1886.
- derivatives of phloroglucinol, 1886, A., 232.
- rhamnetin, 1886, A., 252.
- isodulcitol, 1887, A., 906.
- action of sulphuric acid on bromo-derivatives of benzene, 1888, A., 1275.
- euxanthone, 1891, A., 1349; 1892, A., 1354.
- fluorescein, gallein, and aurin, 1892, A., 1319.
- euxanthic acid and euxanthone, 1892, A., 1354.
- Herzig, Josef**, and *Simon Zeisel*, bi-secondary pentethylphloroglucinol, 1888, A., 822.
- desmotropy in phenols, 1888, A., 822; 1889, A., 247, 966; 1890, A., 243, 1404; 1891, A., 75.
- passivity of certain polyketones towards hydroxylamine and phenylhydrazine, 1889, A., 254.
- detection of diresorcinol in synthetical phloroglucinol, 1891, A., 125.
- Herzig, Josef**. See also *Ludwig (Ritter) Barth (von Barthenau)*, *Hugo Weidel*.
- Herzog, Max**, silvering of glass and mirrors, 1885, A., 1020.
- preparation of aluminium, 1886, A., 401.
- Hesekiel, Ad.**, methylhyperidinc:  $\beta$ -picoline hexahydride, 1885, A., 812.
- $\beta$ -picoline: synthesis of homologues of pyridine, 1886, A., 256.
- Hesemann, F.**, and *L. Köhler*, *m*-bromo-*m*-nitrobenzoic acid and its derivatives, 1884, A., 590.
- Hess, E.**, and *Balthasar Luchsinger*, toxicological contributions, 1885, A., 578.
- Hess, H.**, specific heat of some solid organic compounds, 1889, A., 92.
- Hess, Otto**, benzoyl derivatives of aromatic amines, 1885, A., 783.
- action of bromacetophenone on phenylhydrazine, 1886, A., 547.
- Hess, Otto**. See also *Emil Fischer*.
- Hess, Wilhelm**, and *August Bernthsen*, amido- and hydroxy-derivatives of phenylacridine, 1885, A., 800.
- Hess, Wilhelm**. See also *August Bernthsen*, *Alfred Einhorn*.
- Hesse, Albert**. See *Otto Wallach*.
- Hesse, Oswald**, hydrocinchonidine, 1883, A., 97.
- anhydrous grape-sugar from aqueous solution, 1883, A., 175.

- Hesse, Oswald**, cuprea bark, 1883, A., 601.  
 — hydroconquinine and conquinine, 1883, A., 602.  
 — quinone, 1884, A., 430.  
 — trimethylamine aurochloride, 1884, A., 577.  
 — morphine, 1884, A., 613; 1888, A., 1115.  
 —  $\psi$ -morphine, 1884, A., 616; 1886, A., 1047; 1887, A., 163.  
 — quinine and homoquinine, 1884, A., 1884.  
 — alkaloids from the bark of *Remijia Purdieana*, 1885, A., 64.  
 — synthesis of homoquinine, 1885, A., 276.  
 — dicinchonine, 1885, A., 675.  
 — opionin, 1885, A., 1074.  
 — fat or wax from cinchona bark, 1885, A., 1075.  
 — cupreine and homoquinine, 1886, A., 83.  
 — quinine hydrate, 1886, A., 813.  
 — cinchonidine in quinine sulphate, 1886, A., 813.  
 — lactucerin, 1886, A., 1020; 1888, A., 722.  
 — cinchol, 1887, A., 58.  
 — *China bicolor*, 1887, A., 76.  
 — alkaloids of the Berberidaceae, 1887, A., 283.  
 — *n*-quinine chromate, 1887, A., 404.  
 — alkaloids of coca leaves, 1887, A., 1125; 1889, A., 731.  
 — estimation of quinine sulphate, 1887, A., 1145.  
 — hydroquinine, 1888, A., 69.  
 — cinchona alkaloids, 1888, A., 379.  
 — water of crystallisation of morphine, 1889, A., 417.  
 — coca bases, 1889, A., 731.  
 — new compounds of the cinchona alkaloids, 1889, A., 908.  
 — morphine from *Papaver Rhoeas*, 1890, A., 646.  
 — quinine, cinchonine, and their isomerides, 1890, A., 1166.  
 — atropamine, 1891, A., 228.  
 — isocinchonine, 1891, A., 583; 1892, A., 222.  
 — alkaloids of Belladonna, 1891, A., 748; 1892, A., 1498.  
 — saponin, 1891, A., 938.  
 — behaviour of cupreine and quinine with methyl iodide, 1892, A., 221.  
 — quinine hydrochlorides, 1892, A., 514.  
 — sulphonic acids of cinchona alkaloids, 1892, A., 514.
- Hesse, Oswald**, *Aristolochia argentinum*, 1892, A., 894.  
 — conversion of cupreine into quinine, 1892, A., 1010.  
 — cincholine and fluoroline, 1892, A., 1492.  
**Hesse, W.**, estimation of micro-organisms in the air, 1885, A., 611.  
**Heumann, Karl**, synthesis of indigo and allied dyes, 1891, A., 75, 311.  
 — synthesis of indigo with phenylglycocine, 1891, A., 206, 456.  
 — diethylindigo and *o*-tolylindigo, 1891, A., 837.  
 — non-formation of an indigo derivative by fusing *p*-tolylglycocine with alkalis, 1891, A., 928.  
**Heumann, Karl**, and **Theodor Heidlberg**, influence of substituted elements and radicles on the shade of some dyes, 1886, A., 942.  
**Heumann, Karl**, and **P. Köchlin**, pyrosulphuric chloride, 1883, A., 710.  
 — action of heat on sulphuric monochloride and dichloride, 1883, A., 781.  
 — thionyl chloride and pyrosulphuric chloride, 1883, A., 1051.  
**Heumann, Karl**, and **Eugen Mentha**, chlorazobenzene and hydrazobenzene, 1886, A., 874.  
**Heumann, Karl**, and **L. Oeconomides**, action of phenol on diazoamidobenzene, 1887, A., 480.  
 — reaction of diazoamido-compounds with phenols, 1887, A., 664.  
**Heumann, Karl**, and **Robert Paganini**, action of phosphorus pentachloride on hydroxyazobenzene, 1891, A., 301.  
**Heumann, Karl**, and **Hermann Rey**, dyes of the benzein-group, 1890, A., 157.  
**Heumann, Karl**, and **Joachim Wiernik**, diphenylethane derivatives, 1887, A., 678.  
 — phenyl derivatives of ethane, 1887, A., 1039.  
**Heumann, Karl**. See also **Géza Billitz**, **René Bohn**, **Eugen Mentha**, **A. Pierson**.  
**Heupel, Albert**. See **Carl Paal**.  
**Heuser, A.**, and **Carl Stoeck**, methyl-dipyridyls, 1891, A., 80; 1892, A., 75.  
**Heuser, C.**, nickel ore from Gosenbach, 1890, A., 711.  
**Heuser, Friedr.**, dry decomposition of diazoamido-compounds, 1891, A., 555.  
 — behaviour of cinnamaldehyde towards alkali hydrogen sulphites, 1891, A., 1052.

- Heusler, Friedr.**, action of acetic anhydride on diazoamido-compounds, 1892, A., 458.  
 — lignite tar, 1892, A., 1075.  
**Heusler, Friedr.**, and **Heinrich Conr. Klinger**, selenides from the Andes, 1886, A., 22.  
**Heusler, Friedr.** See also **Richard Anschütz, Otto Wallach**.  
**Heusser, Emil**, method for preparing hydrocarbons, 1884, A., 788.  
**Hewelke, O.**, antiseptic properties of sodium fluoride, 1891, A., 237.  
**Hewitt, John Theodore**, chlorinated phenylhydrazines, 1891, T., 209; P., 3.  
 — citraconfluorescein, 1891, T., 301; P., 59.  
**Heycock, Charles Thomas**, and **Francis Henry Neville**, lowering of the freezing point of sodium by the addition of other metals, 1889, T., 666; P., 127.  
 — application of Raoult's depression of melting-point method to alloys, 1889, P., 41; discussion, P., 42.  
 — molecular weights of metals when in solution, 1890, T., 376, 656; P., 38, 158.  
 — on the freezing-points of triple alloys of gold, cadmium, and tin, 1891, T., 936; P., 124.  
 — on the lowering of the freezing-points of cadmium, bismuth, and lead when alloyed with other metals, 1892, T., 888; P., 145.  
 — isolation of a compound of gold and cadmium, 1892, T., 914; P., 146.  
**Heydecke, Ernst**. See **Robert Otto**.  
**Heyden, Friedrich Wilhelm von**, preparation of substituted salicylic acids, 1886, A., 468.  
**Heydenreich, L.**, sterilization of liquids by means of Papin's digester, 1884, A., 864.  
**Heydrich, C.**, triphenylamine and its derivatives, 1885, A., 1213; 1886, A., 553.  
**Heyer, C.**, obtaining sugar from molasses, 1886, A., 403.  
**Heyer, Carl**, strontia dihydrate, 1887, A., 108.  
 — estimation of water in strontia dihydrate, 1887, A., 217.  
**Hayes, John Frederick**, tetravalency of oxygen, 1888, A., 551.  
**Heymann, Bernhard**, synthesis of indigotindisulphonic acid (indigocarmine), 1891, A., 1069; 1892, A., 69.  
**Heymann, Bernhard**, and **Wilhelm Koenigs**, oxidation of homologues of phenol, 1886, A., 512; 1887, A., 241, 1035.  
 — lepidine compounds, 1888, A., 852, 1113.  
**Heymann, Philibert**. See **Siegismund Gabriel**.  
**Heymans, Jean François**. See **Johannes Gad**.  
**Hibbert, Walter**. See **John Hall Gladstone**.  
**Hickethier, and Friedrich Holdeffleiss**, preservation of stable manure, 1886, A., 390.  
**Hidden, William Earl**, notes on some N. Carolina minerals, 1883, A., 163, 1063.  
 — anatase and xenotime from Burke Co., N. Carolina, 1883, A., 435.  
 — mineralogical notes, 1885, A., 878.  
 — hanksite, 1886, A., 315.  
 — two masses of meteoric iron of unusual interest, 1886, A., 995.  
 — twin-crystals of molybdenite, 1887, A., 116.  
 — remarkable crystal of herderite, 1887, A., 117.  
 — phenacite from Colorado, 1887, A., 118.  
 — new meteoric iron from Texas, 1887, A., 119.  
 — Mazapil meteoric iron, 1887, A., 564.  
 — edisonite, a fourth form of titanite anhydride, 1889, A., 354.  
 — xenotime, 1889, A., 355.  
**Hidden, William Earl**, and **Alfred Louis Olivier Legrand Des Cloizeaux**, N. Carolina mineral localities, 1887, A., 118.  
**Hidden, William Earl**, and **James R. Mackintosh**, herderite from Oxford Co., Maine, 1885, A., 359.  
 — sulphohalite, 1889, A., 217.  
 — auelite, a new thorium mineral, 1889, A., 221.  
 — yttria and thoria minerals from Llano Co., Texas, 1890, A., 457.  
 — polycrase of N. and S. Carolina, 1890, A., 854; 1891, A., 1329.  
**Hidden, William Earl**, and **Samuel Lewis Penfield**, hamlinite, 1891, A., 20.  
**Hiepe, Carl**, application of hydrogen peroxide in analysis, 1890, A., 419.  
**Hiepe, Carl**. See also **Conrad Schmitt**.  
**Higgin, A. F.** See **Charles Frederick Cross**.  
**Higgs, George**, sensitizers for rays of low refrangibility, 1891, A., 1145.

- Higley, George O.** See *Paul C. Freer*.
- Hilbert, Paul.** See *Max Jaffé*.
- Hildebrand, Friedrich,** influence of weather on vegetation, 1884, A., 856.
- Hilditch, Thomas,** atomic weight of oxygen, 1884, A., 659.
- Hilgard, Eugene Woldemar,** effect of lime as a soil constituent on the development of plants, 1888, A., 318.
- Hilgenstock, G.,** dephosphorisation of iron, 1884, A., 520.
- phosphorus in the blast furnace, 1885, A., 616.
- tetrabasic calcium phosphate and the basicity of the silicate in basic slag, 1888, A., 223.
- Hilger, Albert, and Fritz van der Becke,** change in the nitrogenous substances of barley during germination, 1891, A., 489.
- Hilger, Albert, and Fr. Brande,** taxine, the alkaloid of the yew tree, 1890, A., 650.
- Hilger, Albert, and O. Buchner,** constituents of Iceland moss, 1890, A., 600.
- Hilger, Albert, and L. Gross,** composition of vines, 1886, A., 1062.
- Hilger, Albert, and Heinrich Haas,** separation and estimation of tin and titanium, 1890, A., 666.
- Hilger, Albert, and K. Lampert,** weathering of granite, 1886, A., 995.
- Hilger, Albert, and L. Mutschler,** cyclamin and saponin, 1886, A., 366.
- Hilger, Albert, and Keizo Tamba,** detection of cyanogen compounds, 1891, A., 1555.
- Hilger, Albert.** See also *Victor Thylmann*.
- Hill, Henry Barker,** constitution of the substituted acrylic and propionic acids, 1883, A., 310.
- substituted pyromucic acids, 1883, A., 912.
- action of alkalis on mucobromic acid, 1884, A., 731.
- monobromo- and dibromo-pyromucic acids, 1885, A., 1125.
- dibromacrylic acid, 1886, A., 687.
- furfuraacrylic acid, 1888, A., 256.
- methylfurfuraldehyde and the corresponding methylpyromucic acid, 1889, A., 695.
- Hill, Henry Barker, and George Trumbull Hartshorn,** furfuran derivatives, 1885, A., 762.
- Hill, Henry Barker, and Walter Scott Hendrixson,** constitution of methylpyromucic acid, 1890, A., 601.
- Hill, Henry Barker, and Louis L. Jackson,** chloropyromucic acids, 1887, A., 469; 1890, A., 482, 600.
- Hill, Henry Barker, and Charles Frederic Mabery,** tetrasubstituted propionic acids, 1883, A., 309.
- Hill, Henry Barker, and Arthur William Palmer,** sulphopyromucic acid, 1885, A., 1204.
- mucohydroxybromic and mucohydroxychloric acids, 1888, A., 451.
- substituted pyromucic acids, 1889, A., 37, 386.
- Hill, Henry Barker, and Charles Robert Sanger,** action of potassium nitrite on mucobromic acid, 1883, A., 47.
- substitution derivatives of pyromucic acid, 1884, A., 1305.
- bromopyromucic acid, 1886, A., 446.
- Hill, Henry Barker, and Edward Knights Stevens,** phenoxymucobromic acid, 1885, A., 531.
- Hill, J. Rutherford,** solubility of strontium nitrate in alcohol, 1889, A., 345.
- igniting point of sulphur, 1890, A., 349.
- Hill, Samuel Alexander,** the constituent of the atmosphere which absorbs radiant heat, 1883, A., 7.
- Hill, T. Eustace,** Werner-Schmid method of milk analysis, 1892, A., 390.
- Hillebrand, William Francis,** lollingite and other minerals from Colorado, 1884, A., 826.
- new minerals—zunnyite and guitermanite—from Colorado, 1885, A., 878.
- rare minerals from Utah, 1886, A., 516.
- emmonsite, an iron telluride, 1887, A., 344.
- descloizite from new localities, 1890, A., 341.
- uraninite, 1890, A., 456; 1891, A., 527; 1892, A., 283.
- occurrence of nitrogen in uraninite, 1891, A., 527.
- mineralogical notes; antlerite, 1891, A., 1435.
- new analyses of uraninite, 1892, A., 283.
- samarskite from Colorado, 1892, A., 416.
- Hillebrand, William Francis, and Edward Salisbury Dana,** tyrolite from Utah, 1890, A., 853.
- Hillebrand, William Francis, and William Harlow Melville,** isomorphous thorium and uranous sulphates, 1892, A., 571.

- Hillebrand, William Francis**, and **H. S. Washington**, rare copper minerals from Utah, 1888, A., 1013.
- Hillebrand, William Francis**. See also *Wittman Cross*.
- Hiller, E.**, percentage of alkaloids in lupines, 1885, A., 832.
- Hillert, Joseph**. See *Rudolph Fittig*.
- Hillringhaus, Albert**, derivatives of  $\beta$ -naphthylhydrazine, 1890, A., 61.
- Hills, Thomas Hyde**, obituary notice of, 1892, T., 489.
- Hillyer, Homer Winthrop**, self-regulating gas-generator, 1890, A., 847.
- Hillyer, Homer Winthrop**. See also *Ira Remsen*.
- Hilsebein, Emil**, action of phosphoric chloride on meconic acid, 1885, A., 1202.
- Hilt, Jean**. See *Philippe Barbier*.
- Hiltner, Lorenz**, approximate estimation of adulteration of earth-nut cake and meal, 1892, A., 1535.
- Hiltner, Lorenz**. See also *Friedrich Nobbe*.
- Hindorf, E.**, influence of magnesium and calcium chlorides on germination, 1888, A., 1126.
- Hinrichs, Gustavus Detlef**, calculation of the melting- and boiling-points of normal paraffins, 1891, A., 1330.
- calculation of the boiling-point of a liquid under any pressure, 1891, A., 1406.
- molecular volumes, 1891, A., 1408.
- mechanical determination of the arrangement of the carbon atoms in organic compounds, 1891, A., 1411.
- calculation of the specific heat of liquids, 1892, A., 2.
- calculation of boiling-points of normal isomeric ethereal salts of the fatty series, 1892, A., 260.
- pressure of saturated water vapour, 1892, A., 396.
- boiling-points of paraffin derivatives, 1892, A., 797.
- boiling-point curves of the normal paraffins, 1892, A., 947.
- establishment of fundamental formulæ for the calculation of moment of inertia, 1892, A., 948.
- mechanical determination of the boiling-points of compounds with simple terminal substitution, 1892, A., 948, 1039.
- mechanical determination of the boiling-points of alcohols and acids, 1892, A., 1039.
- Hinrichsen, W.**, *m*-xylylamidomethane, 1889, A., 131, 391.
- Hinsberg, Oscar**, oxalic acid derivatives of *m*-nitro-*p*-toluidine and 3:4-dianido-toluene, 1883, A., 323.
- derivatives of anhydroamidotolyl-oxamic acid, 1883, A., 1129.
- quinoxalines, 1884, A., 1052; 1885, A., 909; 1886, A., 82, 561, 722; 1887, A., 382.
- reagent for aromatic diamines, 1885, A., 934.
- constitution of the aldehydines, 1886, A., 943.
- nomenclature of the quinoxaline series, 1887, A., 382.
- action of *o*-tolylenediamine on dextrose, 1887, A., 476.
- action of monatomic aldehydes of the fatty series on *m-p*-tolylenediamine, 1887, A., 816.
- zirconium, 1887, A., 896.
- action of glyoxal on aromatic amines, 1888, A., 372.
- hydroxyquinoxalines, 1889, A., 280.
- 1:1'-naphthylenediamine, 1889, A., 717.
- piaseleones, 1889, A., 785.
- piatothioles and piaseleones, 1890, A., 160, 972.
- formation of ethereal salts and amides in presence of water and alkali, 1891, A., 49.
- selenium, 1891, A., 393.
- benzenesulphonamides and mixed secondary amines, 1892, A., 64.
- behaviour of certain ketonic acids towards hydrogen sodium sulphite, 1892, A., 148.
- benzenesulphonitramide, 1892, A., 850.
- methylhydroxytoluquinoxaline and the constitution of the compounds obtained from  $\alpha$ -hydroxy-acids and  $\alpha$ -diamines, 1892, A., 1359.
- action of amido-bases on sodium glyoxalsulphonate, 1892, A., 1458.
- Hinsberg, Oscar**, and **László von Udránszky**, benzoyl derivatives, 1890, A., 370.
- Hinsberg, Oscar**. See also *Wilhelm Autenrieth*.
- Hinsdale, Samuel J.**, colorimetric method for estimating tannin in barks, 1890, A., 1348.
- colorimetric method for estimating morphine in opium preparations, 1890, A., 1349.
- estimation of gallotannic acid, gallic acid, and tannin, 1892, A., 390.
- Hintz, E.**, determination of acetone in wood spirit, etc., 1888, A., 759.

- Hintz, E.**, and **H. Weber**, analysis of commercial sodium fluoride, 1891, A., 498.  
 — analysis of commercial barium hydroxide, 1891, A., 499.
- Hintz, E.** See also *Carl Remigius Fresenius*.
- Hintze, Carl**, pseudomorphic senarmonite crystals, 1883, A., 430.  
 — microlite, 1885, A., 732.  
 — arsenolamprite, 1886, A., 773.
- Hintze, Carl.** See also *Richard Anschütz*.
- Hinz, Edwin**, *p*-benzoylquinaldine and *p*-diquinaldine, 1888, A., 300.
- Hiortdahl, Thorstein Hallugen**, colemanite, 1885, A., 730.  
 — crystallography of ferrocyanides, 1886, A., 522.
- Hirn, Gustave Adolphe**, property of carbon similar to that of spongy platinum, 1888, A., 1028.
- Hirsch, Abraham**, copper arsenates, 1891, A., 644.
- Hirsch, Jakob.** See *Adolph Claus*.
- Hirsch, Leopold**, guanidines and guanidine cyanides, 1888, A., 947.
- Hirsch, Philipp**, derivatives of  $\beta$ -bromopropylamine, 1890, A., 859.
- Hirsch, Robert**, *p*-nitro-*o*-cresol and toluquinonechlorimide, 1885, A., 892.  
 — chloronitro-derivatives of the aromatic series, 1887, A., 834.  
 —  $\alpha$ -naphthylamine-5-monosulphonic acid, 1888, A., 1200.  
 — theory of the formation of aniline-blue, 1889, A., 503.  
 — diphenyl ether and dinitrodiphenyl ether, 1889, A., 510.  
 — *o*-methylbenzidine, 1891, A., 210.  
 — new synthesis by means of diazo-compounds, 1891, A., 437; 1892, A., 1198.  
 — stability of diazo-compounds in aqueous solution, 1891, A., 554.
- Hirsch, Robert**, and **Franc A. Kalkhoff**, action of aromatic bases on naphthol-violet, 1891, A., 77.
- Hirschberger, Josef.** See *Emil Fischer*.
- Hirschfeld, Eugen**, black pigment of the choroid, 1889, A., 788.  
 — influence of artificial gastric juice on the acetic and lactic fermentations, 1891, A., 488.
- Hirschfeld, Felix**, proteid metabolism in man, 1889, A., 174.  
 — influence of increased muscle activity on the decomposition of albumin, 1891, A., 1524.
- Hirschhausen, L. von**, detection of berbeine, hydiastine, and oxyacanthine, 1885, A., 606.
- Hirschl, Josef Adolf**, value of the phenylhydrazine test for sugar, 1890, A., 835.
- Hirschler, August**, influence of carbohydrates, etc., on the putrefaction of proteids, 1886, A., 729.  
 — pancreatic digestion, 1886, A., 729.  
 — lactic acid in animals, 1887, A., 167.  
 — separation of nitrogenous substances by means of phosphomolybdic acid, 1887, A., 310.
- Hirschsohn, Eduard**, Siam benzoin, 1885, A., 620.  
 — detection of cotton-seed oil in olive oil, 1889, A., 658.  
 — detection of ordinary turpentine in Venice turpentine, 1890, A., 307.  
 — testing oil of cassia, 1891, A., 504.  
 — formation of an asphalt-like substance from oil of cassia, 1891, A., 732.
- Hirschwald, Julius**, behaviour of silica and its compounds in fused microcosmic salt, 1890, A., 825.
- Hirzel, Hermann.** See *Adolph Claus*.
- Hise, Charles Richard van**, enlargement of hornblende fragments, 1886, A., 318.  
 — iron ores of the Penokee-Gogebie series of Michigan and Wisconsin, 1889, A., 473.  
 — iron ores of the Marquette district, Michigan, 1892, A., 794.
- Hitchcock, Roslyn**, examination of water and air for sanitary purposes, 1883, A., 514.  
 — action of light on silver chloride, 1890, A., 213; 1891, A., 1155.
- Hittorf, Johann Wilhelm**, luminosity of flame, 1883, A., 697.
- Hitzemann, C.**, and **Bernhard Tollens**, hexyl iodide from sorbite, 1889, A., 841.
- Hjelt, Edward Immanuel**, lactones from allylmalonic, diallylmalonic, and diallylacetic acids, 1883, A., 456.  
 — allylsuccinic and carbocaprolactonic acids, 1883, A., 656.  
 — dicarbocaprolactonic acid, 1883, A., 970.  
 — identity of isopropylsuccinic acid with pimelic acid, 1884, A., 296.  
 — reduction of pyrotartaric chloride, 1884, A., 297.  
 — pyrotartarylfluorescein, 1884, A., 1019.  
 — ethylenethenyltricarboxylic acid, 1885, A., 243.  
 — *o*-xylene chloride, 1886, A., 143.

- Hjelt, Edward Immanuel**, oxidation of phthalic alcohol, 1886, A., 455.  
 — phthalide from *o*-toluic acid, 1886, A., 469.  
 — action of sulphuric acid on phthalic alcohol, 1886, A., 791.  
 — *s*-diethylsuccinic acids, 1888, A., 254.  
 — allylethylsuccinic acids, 1890, A., 133; 1892, A., 697.  
 — xylene sulphides, 1890, A., 134.  
 — velocity of lactone-formation in the case of various hydroxy-acids, 1891, A., 822.  
 — allylmethylsuccinic acid, 1892, A., 697.  
 — *o*-hydroxymethylbenzoic acid, 1892, A., 715.  
**Hjelt, Edward Immanuel**, and *Uno Collan*, ledum camphor, 1883, A., 346.  
**Hjelt, Edward Immanuel**, and *Magnus Gadd*,  $\psi$ -cumenyl alcohol, 1886, A., 615.  
**Hjelt, Edward Immanuel**, and *Walter Oswald Siven*, *s*-dibromacetone, 1889, A., 234.  
**Hjelt, Edward Immanuel**. See also *Carl Adam Bischoff*.  
**Hlava, Jaroslav**, formation of fibrin, 1884, A., 912.  
**Hoadley, J. C.**, platinum water pyrometer, 1883, A., 769.  
**Hobbs, Perry L.**, derivatives of *o*-tolidine, 1888, A., 708.  
**Hobbs, William H.**, allanite and epidote as rock-forming minerals, 1890, A., 460.  
**Hoch, Rudolf**. See *Adolph Claus*.  
**Hochheim, Paul**, amidoximes, 1890, A., 1265.  
**Hochstetter, Heinrich**, melilotic acid and anhydride, 1885, A., 390.  
**Hock, Karl**, coloured essential oils, 1884, A., 82.  
**Hock, Karl**. See also *Mar Carl Traub*.  
**Hockauf, J.**, botryogen, 1887, A., 21.  
 — halotrichite from the Tyrol, 1888, A., 923.  
**Hodges, E. Battenburg**, barium sulphate, 1889, A., 16.  
**Hodgkin, John**, natural and renewed succirubra bark, 1884, A., 919.  
**Hodgkinson, William Richard Eaton**, fluorene, 1885, P., 36.  
 — action of sodium on ethereal salts of phenylacetic acid, 1886, P., 188.  
 — action of sodium on ethereal salts; benzyl *o*-toluate, 1891, P., 167.  
**Hodgkinson, William Richard Eaton**, and *Arthur Herbert Coote*, action of phenylhydrazine on mono- and dicarboxylic acids at elevated temperatures, 1892, P., 219.  
**Hodgkinson, William Richard Eaton**, and *Leonhard Limpach*, a new method of preparing dinaphthalene oxide,  $C_{20}H_{12}O$ ; constitution of its tetrasulphonic acid, 1891, T., 1096; P., 135.  
 — some new bases; 6:1:4:3-ethyl-dimethylamidobenzene, 1892, T., 420; P., 56.  
 — methoxyamido-1:3-dimethylbenzene and some of its derivatives, 1892, P., 166.  
**Hodgkinson, William Richard Eaton**, and *Frederick K. S. Lowndes*, lecture apparatus for making sulphuric anhydride, 1888, A., 647.  
 — combustion of oxygen in ammonia, and of hydrogen in nitric acid, 1888, A., 1244.  
 — action of incandescent platinum on gases and vapours, 1889, A., 20, 208.  
 — decomposition of potassium chlorate in contact with metallic oxides, 1889, A., 343.  
**Hodgkinson, William Richard Eaton**, and *Francis Edward Matthews*, note on derivatives of fluorene,  $C_{13}H_{20}$ , 1883, T., 163.  
**Hodgkinson, William Richard Eaton**. See also *Francis Edward Matthews*.  
**Hoeffken, William D.** See *Rudolph Fittig*.  
**Högbom, Arvid Justaf**, double tungstates of rare metals, 1885, A., 25.  
 — pyrrhoarsenite and berzelite, 1889, A., 217.  
**Höglund, A.** See *Otto Pettersson*.  
**Höhnell, Franz Xavier R. (Freiherr) von**, and *Johann F. Wolfbauer*, "butter-beans," 1884, A., 1209.  
 — fat of the fruit of *Vateria indica*, 1886, A., 223.  
**Höland, R.**, substitution-derivatives from methylene chloride, 1887, A., 905.  
**Hölbling, Victor**, volumetric apparatus, 1889, A., 1086.  
**Hölbling, Victor**. See also *J. Sobieczky*.  
**Hölz, Otto**, bromamidophenols, 1885, A., 1211.  
 — brominated derivatives of  $\psi$ -butylene, 1889, A., 575.  
**Hölz, Otto**. See also *Georg Boll*, *Wilhelm Stadel*.  
**Hölzer, A.**, sources of error in polarising, 1883, A., 3.

- Hölzer, A.**, compound of phenol with sulphurous anhydride, 1883, A., 585.  
 — preparation of glycollic acid, 1881, A., 583.
- Hölzle, Richardt.** See *Ludwig Gattermann*.
- Hönig, Max** (Brünn), action of potassium permanganate on sodium thiosulphate, 1885, A., 1111.  
 — action of bromine and water on levulose, 1886, A., 328.  
 — valuation of indigo, 1890, A., 311.  
 — estimation of crude fibre and starch, 1891, A., 865.
- Hönig, Max** (Brünn), and *Franz Berger*, action of chloroform on naphthalene in presence of aluminium chloride, 1883, A., 68.
- Hönig, Max** (Brünn), and *L. Jesser*, carbohydrates, 1888, A., 126.
- Hönig, Max** (Brünn), and *Stanislaus Schubert*, sulphates of some carbohydrates, 1886, A., 44.  
 — — carbohydrates, 1887, A., 125.  
 — — lichenin, 1888, A., 127.  
 — — inulin, 1888, A., 246.
- Hönig, Max** (Brünn), and *E. Zatzek*, action of potassium permanganate on certain sulphur compounds, 1884, A., 151.  
 — — direct estimation of carbonic anhydride in presence of sulphides, sulphites, and thiosulphates, 1884, A., 216.  
 — — action of potassium permanganate on thiosulphuric acid, 1886, A., 504.
- Hönig, Max** (Brünn). See also *Josef Habermann*.
- Hönig, Max** (Geneva), derivatives of phthalide, 1886, A., 242.  
 — preparation of terephthalaldehyde, 1889, A., 505.
- Hönig, Moritz**, nitrochlorotoluenes and chlorotoluidines, 1887, A., 1034.
- Hönig, Moritz.** See also *Heinrich Goldschmidt*.
- Hönigsberg, P.**, digestibility of flesh, 1883, A., 815.
- Hoermann, August.** See *Carl Paal*.
- Hoermann, Otto.** See *Karl Elbs*.
- Hötte, B.**, phenyl-*p*-amide, 1885, A., 1220.  
 — action of phenylhydrazine on anhydrides of dibasic acids, 1886, A., 353; 1887, A., 669.
- Hoff, Jacobus Henricus van't**, transformations of sulphur, 1885, A., 1037.  
 — the "critical point" in chemical decompositions, 1885, A., 1181.
- Hoff, Jacobus Henricus van't**, dissociation of the hydrate  $\text{HBr} \cdot 2\text{H}_2\text{O}$ , 1886, A., 501.  
 — point of transition and point of fusion, 1888, A., 404.  
 — osmotic pressure in the analogy between solutions and gases, 1888, A., 778.  
 — relation between the affinity in absolute measure and Ostwald's constants of affinity, 1889, A., 932.  
 — nature of osmotic pressure, 1890, A., 555.  
 — solid solutions and molecular weight determination of solid substances, 1890, A., 1044.  
 — theory of solutions, 1891, A., 790; 1892, A., 1045.
- Hoff, Jacobus Henricus van't**, and *Charles Marius van Deventer*, transition temperature in chemical decomposition, 1886, A., 968.
- Hoff, Jacobus Henricus van't**, and *Lodewijk Theodorus Reicher*, theory of the dissociation of electrolytes, 1889, A., 202.  
 — relation between osmotic pressure, reduction of the freezing-point, and electrical conductivity, 1889, A., 668.  
 — temperature of transformation in double decomposition, 1889, A., 930.
- Hoff, Jacobus Henricus van't.** See also *Walther Spring*, *Charles Marius van Deventer*.
- Hoff, H. J. van't, junior**, malic acids, 1885, A., 1201; 1886, A., 48.
- Hoffmann, August**, compound of pyrotartaric acid with hippuric acid, 1887, A., 44.
- Hoffmann, C.** See *J. J. Haug*.
- Hoffmann, Carl**, bismuthic acid, 1884, A., 824.  
 — action of hydroxylamine on acetamide, 1887, A., 911.  
 — trichlorodihydroxypentenecarboxylic acid, 1889, A., 856.  
 — hydroxamic acids of the fatty series, 1890, A., 127.
- Hoffmann, Carl.** See also *Richard Möhlan*.
- Hoffmann, Eduard**, isomeric cumindioximes, 1890, A., 1148.  
 — oximes of halogenated benzophenones, 1891, A., 1286.
- Hoffmann, Eduard**, and *Victor Meyer*, first product of the reduction of nitrocompounds with tin and hydrochloric acid or stannous chloride, 1892, A., 291.

- Hoffmann, Eduard**, and **Victor Meyer**, benzoyl compounds, 1892, A., 604.
- Hoffmann, G. Christian**, native platinum from Canada, 1889, A., 109.
- Hoffmann, Heinrich O.**, dry assay of tin ores, 1891, A., 246, 502.
- Hoffmann, Hermann**, fate of certain ferments in the organism, 1889, A., 178.
- Hoffmann, Julius**, alkyl derivatives of methyluracil, 1890, A., 31.
- Hoffmann, Leo**, and **Wilhelm Koenigs**, tetrahydroquinoline, 1883, A., 1143.
- Hoffmann, Ludwig**, and **Gerhard Krüss**, gold sulphides, 1887, A., 1019; 1888, A., 28.
- Hoffmann, M.**, digestibility of casein from heated milk, 1883, A., 487, 815.
- Hoffmann, Otto**, nitrosanaphthol and its derivatives, 1885, A., 545.  
— nitrosanaphtholsulphonic acids, 1892, A., 346.
- Hoffmann, Richard**. See **Leopold Rüchheimer**.
- Hoffmann, Theodor**. See **Carl Paal**.
- Hoffmeister, Wilhelm**, estimation of cellulose and wood gum, 1886, A., 954.  
— cellulose and its forms, 1890, A., 581.  
— cellulose-gum, 1892, A., 129.
- Hoffmeyer, Hermann**. See **Richard E. Meyer**.
- Hofmann, August Wilhelm von**, conhydrine and its derivatives, 1883, A., 220; 1885, A., 401.  
— lecture experiments, 1883, A., 279.  
— crystalline cumidine, 1883, A., 324.  
— action of bromine on amines in alkaline solution, 1883, A., 789; 1884, A., 1114.  
— piperidine and pyridine, 1883, A., 813.  
— conine, 1884, A., 1200.  
— behaviour of ethyldiene chloride, with ethylamine and amylamine, 1884, A., 1275.  
— action of ammonium chloride on glycol at high temperatures, 1884, A., 1234.  
— conversion of primary amines into nitriles, 1884, A., 1288.  
— acediamine, 1884, A., 1289.  
— conversion of aromatic amines into the ethers of the corresponding phenols, 1884, A., 1314.  
— tetramethylated amidobenzene, 1884, A., 1320.  
— caffeic acid in hemlock, 1884, A., 1353.
- Hofmann, August Wilhelm von**, dinaphthylsulphone, 1884, A., 1362.  
— reaction for pyridine bases, 1884, A., 1438.  
— phosphorus chloronitride, 1885, A., 15.  
— the conine group, 1885, A., 562.  
— conversion of phenyl cyanate into phenyl cyanurate, 1885, A., 774.  
— crystallised methyl-violet, 1885, A., 791.  
— pentamethylaniline, 1885, A., 1128.  
— thiocyanuric acid, 1885, A., 1193.  
— replaced melamines, 1886, A., 34.  
— isomelamines; constitution of melamine and of cyanuric acid, 1886, A., 41.  
— action of bromine on amides, 1886, A., 45.  
— phenylmelamines, 1886, A., 233.  
— cyanuric ethers, 1886, A., 929.  
— chlorinated methyl isocyanurate and the constitution of cyanuric acid, 1886, A., 931.  
— quinoline-red, 1887, A., 380.  
— o-amidophenyl mercaptan, 1887, A., 823, 1039.  
— amidonaphthyl mercaptans, 1887, A., 839.  
— anhydro-bases of fatty diamine, 1888, A., 1050.  
— amines of the methyl and ethyl series, 1889, A., 688.  
— dissociation phenomena, 1891, A., 143.  
— diethylenediamine, 1891, A., 169.  
— ethylene bases, 1891, A., 414.  
— the action of heat on the hydrochlorides of ethylene bases, 1891, A., 415.  
— polymeric methylthiocarbimide, 1892, A., 798.
- Hofmann, August Wilhelm von**, communication of condolence on death of, 1892, P., 99.
- Hofmann, August Wilhelm von**, and **Siegmund Gabriel**, action of iodine on thiobenzamide, 1892, A., 1109.
- Hofmann, August Wilhelm von**, and **Frederick Mahla**, diethyldithiophosphinic acid, 1892, A., 1422.
- Hofmann, August Wilhelm von**. See also **Hugo Amsel**, **Alfred Behrmann**.
- Hofmann, G.**, selenazole compounds: selenocyanogen, 1889, A., 726.
- Hofmann, Karl Berthold**, estimation of lithium by spectrum analysis, 1886, A., 178.
- Hofmeister, Franz**, distribution of peptone in the animal body, 1883, A., 675.

- Hofmeister, Franz**, proportion of peptone in the gastric mucous membrane, 1883, A., 677.  
 — assimilation of food, 1886, A., 728.  
 — action of salts on proteids, 1889, A., 425.  
 — preparation of crystalline egg-albumin, 1890, A., 182.  
 — crystalline egg-albumin, 1892, A., 515.
- Hofmeister, Victor**, digestion of cellulose by the horse, 1885, A., 916.  
 — nitrogenous constituents of the contents of the intestine which arise from the body, 1888, A., 861.
- Hofmeister, Victor**. See also *Wilhelm Ellenberger*.
- Hogarth, James**, obituary notice of, 1884, T., 615.
- Hogg, Thomas W.**, influence of sulphur on Eggertz's carbon colour test, 1889, A., 76.  
 — estimation of carbon in iron, steel, etc., 1889, A., 308.  
 — influence of copper on the determination of iron in ferro-alloys, 1889, A., 798.  
 — estimation of chromium in steel, 1892, A., 538.
- Holde, qualitative test for resin oil in vegetable and mineral oils**, 1889, A., 86.  
 — estimation of acidity in lubricating oils, 1891, A., 505.
- Holdeweiss, Friedrich**, manuring beet, 1884, A., 103.  
 — earth-nut cake, 1884, A., 256.  
 — palm-cake and palm-meal, 1884, A., 631.  
 — electrical researches, 1885, A., 1152.  
 — sugar as an addition to cattle-food, 1886, A., 727.
- Holdeweiss, Friedrich, and M. Herter**, production and cost of farmyard manure, 1884, A., 867.
- Holdeweiss, Friedrich, and Friedrich Strohmer**, lime waste from sugar factories, 1886, A., 647.
- Holdeweiss, Friedrich**. See also *Hickethier*.
- Holden, E. L.** See *C. C. Hutchins*.
- Holden, H.** See *William Winson Haldane Gee*.
- Holder, James Gordon**. See *Lewis Mills Norton*.
- Holdermann, E.**, estimation of sodium and lithium, 1887, A., 864.
- Holland, Philip**, estimation of alkalis in silicates, 1887, A., 181.  
 — quartzite, 1887, A., 451.
- Holland, Philip**, gold quartz from the Transvaal, 1888, A., 428.  
 — quartz conglomerate from Witwatersrand, Transvaal, 1888, A., 568.  
 — estimation of titanium in natural silicates 1889, A., 443.
- Holland, Rich. J.**, alteration of the conductivity of a solution by the addition of a small quantity of a non-electrolyte, 1892, A., 1382.
- Holland, Thomas H.**, large porphyritic crystals of felspar, 1891, A., 276.
- Holle, O.**, tertiary phosphines and arsines, 1892, A., 984.
- Holleman, Arnold Frederik**, nitration of cymene, 1886, A., 1017.  
 — phenylacetylene and diphenyldiacetylene, 1888, A., 261.  
 — products of the action of nitric acid on acetophenone, 1888, A., 275.  
 —  $\beta$ -nitrocymene, 1888, A., 454.  
 — simple procedure for the determination of molecular weights by Raoult's method, 1888, A., 552.  
 — product of the action of nitric acid on acetophenone, 1889, A., 49.  
 — compounds containing the group  $C_2N_2O_2$ , 1891, A., 64.  
 — constitution of fulminic acid; dibenzoylcarbamide, 1891, A., 446.  
 — constitution of mercuric fulminate, 1892, A., 25.  
 — dinitrosaclys, 1892, A., 971.  
 — isonitrosoanilacetone, 1892, A., 985.  
 — testing the purity of platinum chloride, 1892, A., 1526.
- Holleman, Arnold Frederik**. See also *Louis Aronstein, Henry J. F. de Vries*.
- Hollrung, M.** See *F. Kudelka*.
- Hollrung, M. U.**, rubellan, 1884, A., 1105; 1886, A., 213.
- Holm, Emil**, addition of phenolphthalein to margarine, 1891, A., 872.
- Holm, J.**, fluorene derivatives, 1883, A., 921.
- Holm, Julien**. See *Heinrich Goldschmidt*.
- Holmes, Edward Morrell**, Japanese oils, 1885, A., 1023.
- Holmes, Jesse H.**, *p*-xylenedisulphonic acid, 1891, A., 1874.
- Holovokshiner, E.**, diastatic and other ferments in urine, 1886, A., 902.
- Holst, Albert, and Robert Otto**, formation of dithionic acid from sodium sulphite, 1891, A., 978.
- Holst, Albert**. See also *Robert Otto*.
- Holst, Georg, and Heinrich Beckurts**, strychnine and brucine ferro- and ferri-cyanides, 1887, A., 852.

- Holst, Georg.** See also *Robert Otto*.  
**Holst, Nils Olof**, rhyolites from Sweden, 1891, A., 1437.
- Holt, A.**, stereometric relations of erucic and brassidic acids, 1892, A., 429, 812, 1427.
- Holterman do Rego, J.** detection of acid coal-tar colours in wine, 1887, A., 405.
- Holthof, Carl**, estimation of arsenic, 1884, A., 1428.  
 — simple fusion salt, 1885, A., 687.  
 — precipitation of manganese with bromine, 1885, A., 690.  
 — estimation of copper by converting the sulphide into oxide, 1890, A., 665.
- Holton, Fred. A.**, new qualitative methods, 1886, A., 279.
- Holtzapfel, Wilhelm.** See *Rudolf Leuckart*.
- Holtzwardt, Rudolf**, dimolecular methyl cyanide, 1889, A., 113, 683.
- Holverschreit, Robert**, quantitative estimation of vanadium, and the separation of vanadic acid from phosphoric acid, 1890, A., 1343.
- Holsapfel, J.**, dari as a source of alcohol, 1885, A., 102.
- Holzmann, Ernst**, thio-derivatives of diethylaniline and dimethylaniline, 1887, A., 723.  
 — thio-derivatives of some secondary and tertiary amines, 1888, A., 1080.
- Holzmann, Ernst.** See also *Victor Merz*.
- Homans, J., R. Steltzner, and A. Sukow**, truxillic acids, 1891, A., 1495.
- Homén, Viktor Theodor**, electrical conductivity of air under reduced pressure, 1886, A., 3.
- Homolka, Benno**, action of potassium cyanide on nitrated benzaldehyde, 1884, A., 1342.  
 — condensation products of  $\alpha$ -ketonic acids, 1885, A., 758.  
 — cantharidin, 1886, A., 723.
- Homolka, Benno, and Wilhelm Löw**, action of potassium cyanide on nitroterephthaldehyde, 1886, A., 701.
- Homolka, Benno, and Friedrich Stolz**, iodopropargylic acid, 1885, A., 1198.
- Homolka, Benno.** See also *Adolf von Baeyer, Hans Cornelius*.
- Honigsmann, Moritz**, producing a coating of ferrosferic oxide on iron, 1885, A., 1271.
- Hood, John J.**, estimation of iron by potassium permanganate, 1885, A., 297.  
 — rate of the chemical absorption of gases, 1885, A., 341.  
 — rate of chemical change as a function of temperature, 1886, A., 301.
- Hood, John J.**, retardation of chemical change. 1886, A., 502.  
 — theory of fractional precipitation, 1887, A., 325.  
 — preparation of ammonium dichromate, 1887, A., 449.
- Hood, J. W.**, nickel ore from Piney Mountain, Oregon, 1885, A., 1190.
- Hoogewerff, Sebastiaan, and Willem Arne van Dorp**, the quinoline of coal-tar and of the cinchona alkaloids, and its oxidation by potassium permanganate, 1883, A., 89.  
 — colouring matters from lepidine. 1885, A., 673.  
 — isoquinoline and its derivatives, 1886, A., 78; 1887, A., 505.  
 — oxidation of isoquinoline, 1886, A., 478.  
 — benzylamine and phenylethylamine, 1887, A., 245.  
 — action of potassium hypobromite on amides, 1888, A., 1194; 1889, A., 981.  
 — constitution of berberine, 1889, A., 168.  
 — action of potassium hypobromite on phenylsuccinimide, 1891, A., 196.  
 — transformation of  $\alpha$ -diketones in alkaline solution. 1891, A., 835.  
 — action of alkali hypochlorites and hypobromites on some imides and on phthalodiamide, 1891, A., 1216.  
 —  $\gamma$ -amidoquinoline, 1892, A., 725.
- Hooker, Samuel C.**, purpurogallin, 1888, A., 292.  
 — similar reactions of carbazole and pyrroline, 1889, A., 260.  
 — estimation of nitrates in natural waters, 1889, A., 312.  
 — detection of "saccharin," 1889, A., 448.  
 — derivatives of lapachic acid, 1891, A., 1239.  
 — constitution of "lapachic acid" (lapachol) and its derivatives, 1892, T., 611; P., 125.
- Hooker, Samuel C., and William H. Greene**, constitution of lapachic acid and its derivatives, 1889, A., 999.
- Hooker, Samuel C.** See also *Eugen Bamberger, William H. Greene, Francis Robert Japp*.
- Hooper, David**, optical method of analysis of quinine sulphate, 1886, A., 1086.  
 — ash of cinchona barks, 1887, A., 394.  
 — laurel-nut oil, 1889, A., 541.

- Hooper, David**, gymnemic acid, 1889, A., 723.  
 — tannin in Indian and Ceylon teas, 1890, A., 820.  
 — new alkaloid in *Tylophora asthmatica*, 1891, A., 1266.  
 — mineral substance in teak, 1892, A., 230.
- Hoorn, G. H.**, detection of salicylic acid in beer, 1889, A., 446.
- Hope, James**, estimation of cobalt and nickel, 1890, A., 1470.
- Hopkins, F. Gowland**, note on the yellow pigment in butterflies, 1889, P., 117.
- Hopkins, F. Gowland**. See also *Ernest Henry Starling*.
- Hopkins, William Beechey**. See *George Herbert Bailey*.
- Hoppe, Eduard**, action of ammonia on methylethylacetaldehyde, 1889, A., 120.
- Hoppe-Seyler, Ernst Immanuel Felix**, action of oxygen on fermentation, 1883, A., 489.  
 — metahæmoglobin, 1883, A., 814.  
 — fermentation of cellulose, 1883, A., 821.  
 — activity of oxygen in presence of nascent hydrogen, 1883, A., 848.  
 — activity of oxygen, 1883, A., 1048.  
 — chemical changes in soil and in drainage-water, 1884, A., 633.  
 — action of oxygen on the activity of the lower organisms, 1884, A., 1399.  
 — soaps as constituents of blood plasma and of chyle, 1885, A., 573.  
 — decomposition products of the colouring matter of the blood, 1885, A., 826.  
 — separation of casein from albumin, 1885, A., 845, 1015.  
 — action of nascent hydrogen in increasing the activity of oxygen, 1886, A., 120.  
 — formation of methane and carbonic anhydride from cellulose, 1886, A., 577, 932.  
 — decomposition products of hæmoglobin, 1886, A., 726.  
 — estimating hydrogen in the presence of methane, 1887, A., 618.  
 — methane fermentation of acetic acid, 1887, A., 1135.  
 — humous substances, 1889, A., 285.  
 — blood pigments, 1889, A., 787.  
 — autoxidation, 1889, A., 1106.  
 — muscle pigments, 1889, A., 1231.  
 — oxidation in the blood, 1890, A., 651.  
 — urine and blood in cases of melanotic sarcoma, 1891, A., 484.
- Hoppe-Seyler, Ernst Immanuel Felix**, colorimetric estimation of hæmoglobin, 1892, A., 1264.  
 — extraction of the dissolved gases in water, 1892, A., 1526.
- Hoppe-Seyler, Georg**, knowledge of indigo-forming substances in the urine, 1884, A., 1058.  
 — effects of phenylhydrazine on the organism, 1885, A., 574.  
 — discriminating between chrysophanic acid and santonin-colouring matters in urine, 1887, A., 406.  
 — ethereal hydrogen sulphates in morbid urines, 1888, A., 179.  
 — calcium salts in urine, 1891, A., 484.  
 — urobilin in various diseases, 1891, A., 1278.  
 — test for sugar in urine, 1892, A., 1529.
- Horbaczewski, Ian**, synthesis of uric acid, 1883, A., 179; 1885, A., 1050; 1887, A., 918; 1888, A., 256.  
 — behaviour of elastin in peptic digestion, 1883, A., 927.  
 — artificial uric and methyluric acids, 1885, A., 1050.  
 — products of the action of hydrochloric acid on proteids, 1886, A., 85.  
 — digestion of elastin with pepsin, 1886, A., 270.  
 — constitution of uric acid, 1887, A., 918; 1888, A., 256.  
 — origin of uric acid in mammals, 1890, A., 184.  
 — formation of uric acid and of xanthine bases, and the production of leucocytoses in mammals, 1891, A., 1340.  
 — formation of uric acid from nucleïn, 1892, A., 646.
- Horbaczewski, Ian**, and *Franz Kanëra*, influence of glycerol, sugar, and fat on the secretion of uric acid in man, 1886, A., 822.
- Hori, Etanoyu**, and *Henry Forster Morley*, *n*- and isopropyl-*p*-toluidine, 1890, P., 145; 1891, T., 33.
- Hori, Etanoyu**. See also *Ludwig Claisen*.
- Horn, Franz Maximilian**, oil from the seeds of *Curcas purgans*, 1888, A., 674.  
 — analysis of boot-blackening, 1890, A., 1478.
- Hornberger, Richard**, mineral constituents of the seeds of forest trees, 1884, A., 353; 1885, A., 1255.  
 — composition of *Sinapis alba* during various stages of growth, 1885, A., 1087.

- Hornberger, Richard**, manurial value of bracken, 1886, A., 485.  
 — spring sap of the birch and hornbeam, 1888, A., 313.  
 — amount of mineral matter and manurial value of the cupules of the beech from different soils, 1890, A., 287.
- Hornberger, Richard**, and **Ernst von Raumer**, researches on the growth of the maize plant, 1888, A., 491.
- Hornberger, Richard**. See also **Bernard Borggreve**.
- Hornstein, Ferdinand Friedrich**, magnetism of magnetite, 1886, A., 654.
- Horowitz, M.** See **Hans Frey**.
- Horsley, John**, tests for butter and butterine, 1885, A., 696.
- Horstmann, August Friedrich**, specific volumes at the boiling-points and other temperatures, 1886, A., 759.  
 — molecular volumes, 1887, A., 545.  
 — physical constants of benzene, 1888, A., 1069.  
 — rôle of solid substances in chemical equilibrium, 1890, A., 1365.
- Horton, H. E. L.**, hexamethyleneamine derivatives, 1888, A., 1051.
- Horton-Smith, Percival**, peptonised foods, 1891, A., 953.
- Horvat, V.**, dry distillation of starch with lime, 1887, A., 460.
- Horwitz, A.**, analysis of wool oils, 1890, A., 305.
- Hoskinson, Winfield Scott**. See **Edgar Francis Smith**.
- Hossfeld, Wilh.**, soil-temperature in relation to the air-temperature, 1884, A., 357.
- Hôte**. See **L'Hôte**.
- Hotter, Eduard**, synthesis of phenyl-aceturic acid, 1887, A., 368.  
 — phenaceturic acid and its derivatives, 1888, A., 1298.  
 — éconitic triamide, 1889, A., 861.  
 — occurrence of boron in the vegetable kingdom and its physiological meaning, 1890, A., 1338.
- Hotter, Eduard**. See also **Friedrich Nobbe**.
- Houdart, E.**, preservation of wines, 1884, A., 130.
- Houdas, J.**, digitaleine, 1892, A., 222.
- Houdé, A.**, sparteine and its salts, 1886, A., 370.
- Houdé, A.**, crystallized colchicine, 1884, A., 1055.
- Hough, Oliver**, iodation of *p*-bromobenzoic acid: salts of *p*-bromo-*m*-nitrobenzoic acid, 1892, A., 714.
- Houlding, William**, acids formed by displacing  $\text{NH}_3$  in Bronner's  $\beta$ -naphthylaminesulphonic acid by halogens, 1889, P., 74.
- Houllevigne, L.**, electrolysis of a mixture of two salts in aqueous solution, 1890, A., 678.
- Houzeau, Auguste**, variation of the amount of ammonia in rain-water, 1883, A., 753.  
 — estimation of total nitrogen, 1885, A., 1011; 1888, A., 752.
- Hovey, Edmund Otis**, cordierite-gneiss, 1889, A., 25.
- Howard, Alfred**. See **Benjamin Illingworth**.
- Howard, John Eliot**, effect of altitude on the alkaloids of the bark of *Cinchona succirubra*, 1883, A., 1165.
- Howard, Wm. C.**, thebaine, 1884, A., 1201.  
 — separation of hygrine from cocaine, 1887, A., 1126.
- Howard, Wm. C.**, and **Wilhelm Roser**, thebaine, 1886, A., 813.
- Howe, Jas. Lewis**, ethyl derivatives of anhydrobenzodiamidobenzene, 1884, A., 741.  
 — a nitrile of anhydrobenzodiamidobenzene, 1884, A., 741.  
 — action of nitric acid on mercuric sulphide, 1886, A., 595.
- Howell, Edwin E.**, two new iron meteorites, 1891, A., 277.  
 — new meteorites, 1892, A., 1413.
- Howitt, Alfred William**, the rocks of Noyang, 1884, A., 972.  
 — metamorphic and plutonic rocks at Omeo, 1889, A., 222.
- Howitz, Hans**. See **Adolph Claus**.
- Hubacher, Karl**, thiazoles, 1891, A., 220.
- Hubbard, Lucius Lee**, nosean-bearing ejections from the Laacher Sea, 1890, A., 220.
- Huber, Armin**, physiological action of dinitrobenzene, 1892, A., 366.
- Hübl, (Baron) A. von**, examination of beeswax, 1884, A., 506.  
 — general method of examining fat-, 1884, A., 1435.
- Hübner, Hans Julius Anton Edward**, substituted benzoic acids, 1884, A., 314, 599.
- Hübner, Hans Julius Anton Edward**, and **Rob. Schüpphaus**, formanhydroisodiamidotoluene, 1884, A., 1143.
- Hübner, Hans Julius Anton Edward**, **Alfred Tölle**, and **Wilh. Athenstädt**, action of dimethyl-*p*-toluidine and dimethylaniline on ethylene bromide, 1884, A., 1317.

- Hübner, Richard**, derivatives of isethionic acid, 1884, A., 1126.  
 — derivatives of benzenesulphonic acid, 1884, A., 1180.
- Hüfner, Carl Gustav**, on the oxygen pressure under which, at a temperature of 35°, the oxyhæmoglobin of the dog begins to give up its oxygen, 1883, A., 678.  
 — crystalline metahæmoglobin from the dog, 1885, A., 276.  
 — action of water free from oxygen on oxyhæmoglobin, 1886, A., 567.  
 — absorption of gases by grey vulcanised caoutchouc, 1888, A., 783.  
 — tension of oxygen in the blood, and in solutions of oxyhæmoglobin, 1888, A., 1214; 1889, A., 426.
- Hüfner, Carl Gustav**, and **Max Bücheler**, oxyhæmoglobin of the horse, 1885, A., 277.
- Hueppe, Ferdinand**, behaviour of unorganised ferments at high temperatures, 1883, A., 101.  
 — changes which milk undergoes through the agency of micro-organisms, 1885, A., 416.  
 — plants free from chlorophyll acting like chlorophyll-containing plants, 1888, A., 623.  
 — decomposition of carbonic anhydride by plants deprived of chlorophyll, 1888, A., 1125.
- Hueppe, Ferdinand**, and **Wilh. Engling**, preservation of milk, 1885, A., 1170.  
 — blue milk, 1885, A., 1171.
- Hueppe, Ferdinand** (and others), lactic ferment in milk, 1885, A., 1170.
- Huetlin, Ernst**. See **Adolph Claus**, **Conrad Willgerodt**.
- Hufschmidt, Fritz**, separation of arsenic from antimony and tin, 1885, A., 86.  
 — volumetric estimation of nitrogen, 1885, A., 1011.
- Hughes, Frank**. See **Raphael Meldola**.
- Hughes, John**, analysis of hoofs and horns, 1887, A., 408.  
 — analysis of concentrated superphosphate, 1889, A., 1245.
- Hughes, Robert Edward**, action of aluminium chloride on benzenoid acid chlorides, 1891, P., 70.
- Hugounenq, Louis**, estimation of urea, 1884, A., 122.  
 — amyl monochloracetate, 1886, A., 784.  
 — chlorine derivatives of anisole, 1887, A., 923.  
 — *l*- $\beta$ -hydroxybutyric acid in the blood of a diabetic patient, 1887, A., 986.
- Hugounenq, Louis**, perchlorination of phenol, 1889, A., 1149.  
 — chloroanisols, 1890, A., 240.  
 — chlorobenzenes obtained from anisole, 1890, A., 365.  
 — tetrachlorophenol, 1891, A., 297.  
 — extraction of the colouring matter of wines, 1891, A., 1563.  
 — influence of wine on peptic digestion, 1892, A., 87.
- Hugounenq, Louis**, and **Jules Braud**, toxalbumin secreted by the microbe of blennorrhagic pus, 1891, A., 1521.
- Hugounenq, Louis**, and **Jules Morel**, sodium potassium carbonate, 1888, A., 786.
- Hugounenq, Louis**. See also **Paul Caze-neuve**.
- Huhn, Adolf**, aromatic carbodiimides, 1886, A., 1035.
- Hullemann, T.**, ethyl *o*-formate, 1890, A., 582.
- Hulwa, Franz**, self-purification of sewage-contaminated rivers, 1884, A., 932.
- Humpidge, Thomas Samuel**, atomic weight of beryllium, 1884, A., 261; 1885, A., 1184; 1886, A., 506.  
 — displacement of chlorine by bromine in silver chloride, 1884, A., 1245.
- Hundeshagen, Franz**, synthesis of lecitin, 1884, A., 280.  
 — phosphododecamolybdic acid, 1889, A., 760.  
 — estimation of phosphoric acid by ammonium molybdate, 1889, A., 797.
- Hundt, Christian**. See **Albert Ladenburg**.
- Hungerbühler, J.**, composition of ripe potatoes, 1886, A., 485.
- Hunt, Alfred E.**, **Geo. H. Clapp**, and **James O. Handy**, analysis of aluminium, 1892, A., 1130.
- Hunt, Bertrann**, synthesis of tannin, 1885, A., 1228.  
 — estimation of tannin, 1886, A., 285.
- Hunt, Edward**, obituary notice of, 1884, T., 616.
- Hunt, Lewis Govartz**. See **Charles Stuart Stanford Webster**.
- Hunt, Thomas Sterry**, decay of rocks geologically considered, 1884, A., 567.  
 — law of volumes in chemistry, 1887, A., 99.  
 — integral weights in chemistry, 1887, A., 1077.  
 — dissociation of fused metallic sulphides, 1888, A., 1254.  
 — the foundations of chemistry, 1889, A., 10.  
 — coefficient of mineral condensation in chemistry, 1891, A., 258.

- Hunt, Thomas Sterry**, natural classification of minerals, 1892, A., 415.
- Hunter, M.**, and **Karl Harry Ferdinand Rosenbusch**, monchiquite, a rock of the elæotite-syenite class, 1892, A., 1058.
- Hunter, William**, pernicious anæmia, 1888, A., 1324; 1890, A., 1017.
- method of raising the specific gravity of the blood, 1890, A., 393.
- influence of oxygen on the formation of ptomaines, 1891, A., 1267.
- tuberculin, 1891, A., 1283.
- Huntington, Alfred Kirby**, reactions of the Mexican amalgamation process, 1883, A., 134.
- preparation of tungstic acid, 1885, A., 1272.
- Huntington, Oliver Whipple**, crystalline structure of iron meteorites, 1887, A., 119.
- Coahuila meteorites, 1887, A., 455.
- new meteoric iron from North Dakota, 1891, A., 531.
- the prehistoric and Kiowa Co. palasites, 1892, A., 1059.
- Huntly, George Nevill**, action of phosphoryl trichloride on phosphorus pentoxide, 1890, P., 178; 1891, T., 202.
- Huntly, George Nevill**. See also **Francis Robert Japp**.
- Huppert, Karl Hugo**, estimation of acetone in urine, 1891, A., 370.
- Hamburger's method of estimating small quantities of iron, 1892, A., 1525.
- Huppert, Karl Hugo**, and **Heinrich Záhof**, densimetric estimation of proteids, 1888, A., 1226.
- Hurff, George B.** See **Peter Townsend Austen**.
- Hurion**, variation in the electric resistance of bismuth when placed in a magnetic field, 1885, A., 469.
- Hurst, George H.**, algaonilla, 1887, A., 498.
- ochres, siennas, and umbers, 1889, A., 678.
- Hurter, Ferdinand**, future of the chlorine industry, 1884, A., 225.
- Hurter, Ferdinand**. See also **Eustace Carey Holbrook Gaskell**.
- Husemann, Theodor Gottfried**, ptomaines and their significance in toxicology, 1884, A., 469.
- Huskisson, P. L.**, crystallisation of phosphoric acid, 1885, A., 347.
- Huss, N.**, estimation of phosphorus in iron and steel, 1886, A., 1073.
- Hussak, Eugen**, serpentine from the Alps, 1883, A., 562.
- Hussak, Eugen**, dichroite from Asama-Yama, 1884, A., 407.
- distribution of cordierite in rocks, 1885, A., 1190.
- granular limestone of Stainz in Styria, 1887, A., 780.
- artificial preparation of wollastonite, 1890, A., 220.
- Hussak, Eugen**. See also **Cornelius Doelter, Anton Pelz**.
- Husson, C.**, detection of blood-stains on washed clothes, 1884, A., 376.
- Huston, Henry Augustus**, action of ammonium citrate on high grade aluminium phosphate, 1892, A., 1127.
- Hutcheson, John B.** See **James Johnstone Dobbie**.
- Hutchings, W. M.**, analysis of silicates, 1887, A., 181.
- Hutchins, U. C.**, and **E. L. Holden**, existence of certain elements and discovery of platinum in the sun, 1887, A., 1065.
- Hutchins, C. U.** See also **John Trowbridge**.
- Hutchinson, Arthur**, note on the reduction of aromatic amides, 1890, T., 957; P., 139; 1891, A., 561.
- Hutchinson, Arthur**. See also **M. M. Pattison Muir**.
- Hutchinson, Morrison T.** See **Russell H. Chittenden**.
- Hybbeneth, F.**, amidobenzene-*m*-sulphamide, 1884, A., 72.
- Hyland, J. Shearson**, mesolite from Co. Antrim, 1891, A., 1169.
- spherulitic rocks from Co. Down, 1891, A., 1169.

## I.

- Iddings, Joseph Paxson**, occurrence of fayalite, 1886, A., 319.
- origin of primary quartz in basalt, 1889, A., 26.
- obsidian cliff, Yellowstone Park, 1891, A., 26.
- Iddings, Joseph Paxson**, and **Whitman Cross**, allanite as an accessory constituent of rocks, 1886, A., 317.
- Iddings, Joseph Paxson**, and **Samuel Lewis Penfield**, fayalite in the obsidian of Lipari, 1891, A., 158.
- minerals in hollow spherulites of rhyolite, 1892, A., 23.
- Iddings, Joseph Paxson**. See also **Arnold Hague**.
- Igelström, Lars Johan**, apatite from Horrsjöberg, Sweden, 1884, A., 269.
- empholite, 1885, A., 31; 1886, A., 31.

- Igelström, Lars Johan**, hyalophane from Jakobsberg in Wernland, Sweden, 1885, A., 227; 1886, A., 212.
- berzeliite, 1886, A., 25.
- xanthoarsenite, 1886, A., 25.
- manganostilbite, 1886, A., 25.
- apophyllite from Wernland, 1886, A., 28.
- persbergite, 1886, A., 31.
- manganese minerals from Wernland, 1886, A., 34.
- native bismuth from Sweden, 1886, A., 674.
- polyarsenite, 1887, A., 346.
- braunite from Jakobsberg, Wernland, 1887, A., 643.
- hæmatostilbite from Örebro, 1887, A., 645.
- minerals from the Sjö mine, Sweden, 1887, A., 902.
- manganese-bearing idocrase from Sweden, 1888, A., 235.
- jacobite from the Sjö mine, 1888, A., 562.
- jacobite from Nordmarken, 1888, A., 563.
- pyrrhoarsenite, a new mineral from the Sjö mine, 1888, A., 565.
- arseniopleiite, a new Swedish mineral, 1889, A., 22.
- pyrrhoarsenite and other Swedish antimonates, 1889, A., 218.
- native lead in Sweden, 1890, A., 111.
- pleonectite, a new mineral from Sweden, 1890, A., 112.
- anthochroite, a new mineral from Sweden, 1890, A., 114.
- barytic feldspar from Sweden, 1890, A., 343.
- new Swedish minerals, 1890, A., 1075.
- identity of violan and anthochroite, 1891, A., 407.
- plumbiferite, a new Swedish mineral, 1891, A., 1435.
- jacobite and braunite from Sweden, 1892, A., 1404.
- Thl, Anton**, phenols as reagents for carbohydrates, 1885, A., 694.
- colour reactions of beet-sugar, 1887, A., 534.
- colour reactions of starch and gum, 1887, A., 534.
- testing beet-sugar for purity, 1888, A., 876.
- colour-reactions of some ethereal oils, 1889, A., 802.
- Thmori, I.**, absorption of mercury vapour by platinum black, 1886, A., 766.
- Thmori, I.**, condensation of water vapour by solid substances, 1888, A., 24.
- Thne, Egon**, influence of solar rays on the temperature of trees, 1884, A., 917.
- Tkuta, Massuo**, *p*-nitrosodiphenylamine, 1888, A., 467.
- action of ethyl acetoacetate on quinone: synthesis of benzofurfuran derivatives, 1892, A., 608.
- Tles, Malvern Wells**, occurrence of smaltite in Colorado, 1883, A., 559.
- vanadium in the Leadville ores, 1883, A., 562.
- decomposition and analyses of slags, 1885, A., 192.
- lead slags, 1888, A., 416.
- Ilinski, Michael von**, action of ammonia on nitroso- $\beta$ -naphthol, 1884, A., 1035.
- Dumas' nitrogen apparatus, 1884, A., 1072.
- nitrosanaphthols and their derivatives, 1885, A., 169; 1886, A., 474.
- dinitrosanaphthalene, 1886, A., 472.
- Ilinski, Michael von**, and **Georg von Knorre**, separation of nickel and cobalt, 1885, A., 840.
- separation of iron and aluminium, 1886, A., 100.
- Ilinski, Michael von**. See also **Robert Henriques, Carl Theodor Liebermann**.
- Illingworth, Benjamin**, and **Alfred Howard**, thermal relationship between water and certain salts, 1885, A., 339.
- Ilosvay de Nagy Ilosva, Ludwig**, physical properties of carbon oxysulphide, 1883, A., 43.
- conditions for the formation of native sulphur, 1885, A., 729.
- detection of nitrous acid in saliva, 1890, A., 278.
- nitrous acid in the atmosphere, 1890, A., 406.
- formation of ozone and nitrogen oxides during combustion, 1890, A., 447.
- is it possible to form ozone by lowering the temperature of a flame? Is there ozone near a flame? 1891, A., 798.
- detection of sulphur not combined with hydrogen in illuminating gas, 1891, A., 862.
- Ilosvay de Nagy Ilosva, Ludwig**. See also **Marcellin Berthelot**.
- Imai, H.** See **Max Fesca, Oscar Kellner**.
- Imhäuser, August**. See **Karl Auwers**.
- Immel, Friedrich**. See **Adolph Claus**.

- Immendorff, Heinrich**, carrotene and the green colouring matter of chlorophyll grains, 1890, A., 641.  
 — the nitrogen question, 1892, A., 374.
- Immendorff, Heinrich**. See also *Richard Anschütz*.
- Immerheiser, Carl**, constitution of  $\beta$ -naphthylamine- $\alpha$ -sulphonic acid, 1889, A., 514.  
 — oxidation of  $\beta$ -naphthaquinoline-sulphonic acid, 1889, A., 527.
- Immerheiser, Carl**. See also *Ludwig Medicus*.
- Immerwahr, Paul**. See *Martin Freund*.
- Ince, Walter H.**, "phenyltribromomethane  $C_6H_5.CBr_3$ ," 1885, P., 131.  
 — ferric chloride as a test for organic substances. 1887, A., 400.  
 — formation of phenylindoles by isomeric change, 1889, P., 90.  
 — phenylated indoles, 1890, A., 57.  
 — action of amines on diketopentamethylene, 1890, A., 1090.
- Ince, Walter H.** See also *Wyndham Rowland Dunstan, Ernest J. Eastes*.
- Ingé, L.** See *W. Bishop*.
- Ingle, Harry**. See *Arthur Smithells*.
- Inoko, Yoshito**, toxic principle of *Amanita pantherina*, 1892, A., 232.
- Iordanoff, Christo**. See *Carl Hell*.
- Iowanowitsch, Kosta**, decomposition of tartaric acid in the presence of glycerol, 1885, A., 1125.
- Irish, P. H.** See *Karl von Buchka*.
- Irvine, Robert**, action of bleaching agents on writing ink, 1888, A., 764.
- Irvine, Robert**, and *William Smellie Anderson*, action of metallic and other salts on calcium carbonate, 1891, A., 995.
- Irvine, Robert**, and *John Gilson*, manganese deposits in marine muds, 1891, A., 995.
- Irvine, Robert**, and *J. Sims Woodhead*, secretion of calcium carbonate by animals, 1889, A., 429; 1890, A., 653.
- Irvine, Robert**, and *George Young*, solubility of various forms of calcium carbonate in sea water, 1889, A., 344.
- Irvine, Robert**. See also *John Murray*.
- Irving, Alexander**, action of sunlight on phosphorous anhydride, 1884, A., 156.  
 — decomposition of ammonia by electrolysis, 1886, A., 848.
- Isaac, John F. V.**, acetic acid from cellulose and other carbohydrates: lignocellulose and ferric ferricyanide, 1892, A., 1421.
- Isaachsen, D.**, change of colour of salt solutions, 1891, A., 1319.
- Isambert, Nicolas Ferdinand Irénée**, ammonium hydrogen sulphide, 1883, A., 548.  
 — vapour of carbamide, 1883, A., 645.  
 — dissociation of phosphine hydrobromide, 1883, A., 646.  
 — vapour tensions of ethylamine and diethylamine hydrosulphides, 1883, A., 727.  
 — ammonium hydrosulphide and cyanide, 1883, A., 776.  
 — phosphorus sulphides, 1883, A., 901, 1049; 1886, A., 767.  
 — dissociation of ammonium carbonate in presence of an excess of one of its elements, 1884, A., 388.  
 — dissociation, 1884, A., 549.  
 — action of sulphur on amorphous phosphorus, 1885, A., 483.  
 — preparation of ammonia, 1885, A., 722.  
 — action of hydrogen chloride on iron, 1886, A., 425.  
 — phosphorus pentasulphide, 1886, A., 767.  
 — action of lead oxide on ammonium chloride, 1886, A., 770.  
 — compressibility of solutions of gases, 1888, A., 20.  
 — compressibility of an aqueous solution of ethylamine, 1888, A., 216.
- Isbert, Adolf**, ethylacetoacetic acid and its derivatives, 1886, A., 1009.  
 — estimation of phosphonic acid, 1887, A., 526.
- Isbert, Adolf**, and *Albert Stutzer*, estimation of phosphoric acid, 1888, A., 194.
- Isbert, Adolf**, and *Venator*, estimation of alkaline hydroxides in presence of carbonates, 1888, A., 1130.  
 — analysis of sodium sulphate, 1890, A., 194.
- Isbert, Adolf**. See also *Albert Stutzer*.
- Isler, Max**. See *Georg Lunge*.
- Israel, Adolf**, ethyl propiopropionate, 1886, A., 334.
- Istel, Ernst**, indulines, 1892, A., 492.
- Istrati, Constantin I.**, monochlorethylbenzene, 1885, A., 251.  
 — chlorobenzenes, 1886, A., 229.  
 — chlorinated ethylbenzenes, 1886, A., 230, 343.  
 — action of sulphuric acid on chlorobenzenes, 1888, A., 259.  
 — nitrochlorethylbenzenes, 1888, A., 260.  
 — francium, 1888, A., 591; 1890, A., 51.

- Istrati, Constantin I.**, action of sulphuric acid and selenic acid on aromatic compounds, 1890, A., 50.  
 ———— francin from 1·2·4-trichlorobenzene, 1890, A., 51.  
 ———— action of heat on a mixture of sulphuric acid and sulphonic derivatives, 1890, A., 51.  
 ———— composition of Roumanian rock-salt, 1890, A., 217.  
 ———— conversion of *p*-dichlorobenzene into *m*-dichlorobenzene, 1890, A., 882.  
 ———— action of fuming nitric acid on hexachlorobenzene, 1890, A., 882.  
 ———— new method of iodation in the aromatic series, 1891, A., 1197.  
 ———— iodopentachlorobenzene, 1891, A., 1197.
- Istrati, Constantin I.**, and **Lazar Edelleanu**, action of acetic anhydride on glucose, 1892, A., 1293.
- Istrati, Constantin I.**, and **M. Georgescu**, action of iodine in presence of sulphuric acid on calcium benzenesulphonate, 1891, A., 1226.  
 ———— iodobenzene, 1892, A., 1310.
- Istrati, Constantin I.**, and **Ion Petricu**, action of chlorine on benzene in presence of sulphuric acid, 1891, A., 1196.
- Itallie, Leopold van**, new test for thymol, 1889, A., 657.  
 ———— iodine in *Fucus vesiculosus* and *Chondrus crispus*, 1890, A., 402.
- Iwabuchi, R.**, Japanese materials for the manufacture of ultramarine, 1885, A., 460.
- Iwan, Alexander**, bauxite, 1883, A., 397.
- Iwig, Fr.**, and **Otto Hecht**, dry distillation of some silver salts of the acetic series, 1886, A., 439.  
 ———— products of the oxidation of mannitol, 1886, A., 525, 782.  
 ———— calcium malates, 1886, A., 870.
- Izarn**. See **Chibret**.
- J.**
- Jablin-Gonnet, Charles Jules Auguste**, action of benzyl chloride on *as-m*-xylidine, 1892, A., 314, 1320.
- Jablochhoff, Paul**, new form of voltaic battery, 1885, A., 468.  
 ———— new pile or auto-accumulator, 1885, A., 854.
- Jack, Robert L.**, gold beds of Mount Morgan, Queensland, 1886, A., 21.
- Jackson, A. Wendell**, colemanite, 1885, A., 358, 876.
- Jackson, Charles Loring**, reduction of camphor to borneol, 1885, A., 991.  
 ———— constitution of ethyl bromodinitrophenylmalonate, 1889, A., 880.  
 ———— compounds from bromonitrobenzenes, 1890, A., 983.
- Jackson, Charles Loring**, and **Wilder Dwight Bancroft**, tetrabromodinitrobenzene, 1889, A., 696; 1890, A., 982.
- Jackson, Charles Loring**, and **William Burdelle Bentley**, tribromonitrobenzene, 1892, A., 1182.  
 ———— products of the action of nitric acid on ethyl bromotritrophenylmalonate, 1892, A., 1217.
- Jackson, Charles Loring**, and **Arthur Messinger Comey**, action of silicon fluoride on organic bases, 1887, A., 243.
- Jackson, Charles Loring**, and **George Trumbull Hartshorn**, *p*-bromobenzyl compounds, 1884, A., 665.  
 ———— action of chromium hexafluoride on benzoic acid, 1883, A., 1224.  
 ———— so-called anilinetrisulphonic acid, 1890, A., 1287.
- Jackson, Charles Loring**, and **Albert Edward Menke**, certain substances obtained from turmeric, 1883, A., 480; 1885, A., 271.  
 ———— turmeric oil: turmerol, 1883, A., 482.  
 ———— method of preparing borneol from camphor, 1884, A., 666.  
 ———— action of phosphorus trichloride on aniline, 1885, A., 254.
- Jackson, Charles Loring**, and **George Dunning Moore**, additive product of tribromodinitrobenzene and tetrabromodinitrobenzene, 1888, A., 821.  
 ———— ethyl bromodinitrophenylacetate, 1889, A., 781.  
 ———— action of ethyl sodiomalonate on tribromotritrobenzene, 1890, A., 497.  
 ———— action of ethyl sodiacetate on tribromodinitrobenzene, 1890, A., 772.
- Jackson, Charles Loring**, and **William Sanford Robinson**, action of ethyl sodiomalonate on tribromodinitrobenzene, 1888, A., 1091; 1890, A., 377.
- Jackson, Charles Loring**, and **George William Rolfe**, quantitative estimation of hydroxyl, 1887, A., 749.
- Jackson, Charles Loring**, and **William Homer Warren**, reactions of sodium alkyl oxides and phenoxides with tribromodinitrobenzene and tribromotritrobenzene, 1891, A., 1024.

- Jackson, Charles Loring**, and **John F. Wing**, action of sodium on tribenzylamine, 1886, A., 616.
- direct conversion of aromatic sulphonic acids into the corresponding amido-compounds, 1886, A., 623.
- benzenetrisulphonic acid, 1886, A., 623; 1888, A., 152.
- dimethylbenzylamine, 1887, A., 721.
- conversion of aromatic sulphonates into amido-compounds, 1887, A., 727.
- action of nitric acid on *s*-trichlorobenzene, 1888, A., 136.
- tribromotritrobenzene, 1888, A., 1276.
- Jackson, Charles Loring**. See also **Arthur Messinger Comey**, **Arthur William Palmer**, **George Trumbull Hartshorn**.
- Jackson, Edward**, test for titanium and the formation of an oxide of the metal, 1883, A., 828.
- Jackson, Herbert**, note on the action of sulphuric acid (sp. gr. 1.84) upon potassium iodide, 1883, T., 339.
- bromine as a test for strychnine, 1883, A., 1175.
- action of arsenious anhydride on glycerol, 1884, A., 896.
- Jackson, Louis L.** See **Karl Auwers**, **Henry Barker Hill**.
- Jackson, O. R.** See **Adolf von Baeyer**.
- Jackson, Urban Arthur**. See **Adolph Claus**.
- Jacobi, Hermann**, oximes of sugars, 1891, A., 664.
- Jacobj, Carl**, Knop-Hufner method of estimating urea, 1886, A., 104.
- Jacobsen, Emil**, dye-stuffs from pyridine and quinoline bases, 1884, A., 799.
- Jacobsen, Emil**, and **Paul Julius**, condensation of cinnamic acid with gallic acid, 1888, A., 56.
- Jacobsen, Emil**, and **Carl Ludwig Reimer**, action of phthalic anhydride on quinoline, 1883, A., 812.
- coal-tar quinoline, 1883, A., 922.
- condensation products of methylated quinolines and pyridines, 1884, A., 335.
- Jacobsen, Oscar Georg**, isodurene, isodurylic acids, and the third trimethylbenzene, 1883, A., 52.
- phosphorescence of sulphur, 1883, A., 710.
- hydroxytoluic and hydroxyphthalic acids, 1883, A., 1124.
- Jacobsen, Oscar Georg**, *o*-xylidines, 1881, A., 737; 1886, A., 235.
- nitro-*o*-toluic acids, 1884, A., 745.
- substances accompanying benzoic acid prepared from gum benzoin, 1884, A., 1168.
- bromo-substitution derivatives of *o*-xylene, 1885, A., 142.
- constitution of the benzenetetracarboxylic acids, 1885, A., 166.
- formation of hydrocarbons by the reversal of Friedel and Craft's reaction, 1885, A., 516.
- bromo-substitution derivatives of *p*-xylene, 1885, A., 518.
- monochloro-*m*-xylene, 1885, A., 1052.
- 1:3:4-*m*-xynol, 1886, A., 345.
- action of sulphuric acid on durenene, 1886, A., 694.
- $\psi$ -cumenesulphonic acids, 1886, A., 709.
- hydrocarbons from tar oils boiling between 170° and 200°, 1887, A., 35.
- hemellithene, 1887, A., 36.
- ethylxylenes, 1887, A., 37.
- action of sulphuric acid on pentamethylbenzene, 1887, A., 660.
- purification of hydrogen sulphide from hydrogen arsenide, 1887, A., 885.
- action of sulphuric acid on bromodurene, 1888, A., 137.
- synthesis of *c*-tetramethylbenzene, 1889, A., 39.
- tetrethylbenzene, 1889, A., 40.
- pentethylbenzene and its decomposition by sulphuric acid, 1889, A., 40.
- *c-m*-xynol, 1889, A., 41.
- pentamethylbenzoic acid and durenecarboxylic acid, 1889, A., 871.
- action of sulphuric acid on *s*-bromo- $\psi$ -cumene, 1889, A., 994.
- Jacobsen, Oscar Georg**, and **Wilhelm Deike**, synthesis of hemellithene, 1887, A., 659.
- Jacobsen, Oscar Georg**, and **Hermann Ledderboge**, amido-*m*-xylenesulphonic acid, 1883, A., 593.
- Jacobsen, Oscar Georg**, and **Heinrich Meyer**, sulphamic and hydroxy-acids from  $\psi$ -cumene, 1883, A., 589.
- Jacobsen, Oscar Georg**, and **E. Schnapauß**, durenene derivatives, 1886, A., 67.
- Jacobsen, Oscar Georg**, and **F. Wierss**, derivatives of *o*-toluic acid, 1883, A., 1121.
- Jacobson, H.**, vegetable fats, 1889, A., 295.
- Jacobson, John**, unorganised ferments, 1892, A., 899.

- Jacobson, J. C.**, degeneration of yeast, 1885, A., 102.
- Jacobson, Paul**, anhydro-compounds of *o*-amidophenyl mercaptan, 1886, A., 700.
- oxidation products of phenylthiourethane, 1886, A., 876.
- *o*-amidated aromatic ketones, 1887, A., 961.
- action of carbon bisulphide on benzenazo- $\beta$ -naphthol, 1888, A., 487.
- *o*-amidated aromatic mercaptans, 1888, A., 1306.
- phenylene diazosulphide, 1889, A., 185.
- dehydrothiitoluidine, 1889, A., 498.
- Jacobson, Paul**, and **Walter Fischer**, reduction products of azo-compounds, 1892, A., 839.
- Jacobson, Paul**, and **Alexander Frank-enbacher**, formation of thioanhydro-compounds, 1891, A., 1048.
- Jacobson, Paul**, and **Emanuel Ney**, aromatic *o*-amidomercaptans, 1889, A., 771.
- Jacobson, Paul**, and **Vincent Schencke**, action of carbon bisulphide on azo-compounds and hydrazones, 1890, A., 248.
- Jacobson, Paul**. See also **Alfred Biedermann**, **Ludwig Gattermann**.
- Jacobson, Woldemar**. See **Georg Dragendorff**.
- Jacoby, Otto**, action of hydroxylamine on capronitrile, 1886, A., 785.
- derivatives of acetophenone, benzylidenacetone and benzil, 1886, A., 800.
- Jacoby, Richard**, action of chlorine on carbonyl-*o*-amidophenol, 1888, A., 682.
- Jacquelin, Victor Auguste**, preparation and purification of carbon for electric lighting, 1883, A., 752.
- Jacquemin, Eugène Théodore**, silicate containing copper and silver, 1891, A., 275.
- Jacquemin, Georges**, preparation of cyanogen, 1885, A., 880.
- estimation of cyanogen in gaseous mixtures, 1885, A., 933.
- separation of urethane, 1886, A., 1085.
- *Saccharomyces ellipsoideus* and its use in the preparation of wine from barley, 1888, A., 738.
- estimation of urethane in urine, 1888, A., 878.
- the "bouquet" of fermented liquids, 1890, A., 1180.
- Jacquemin, Georges**, production of ethereal salts by fermentation, 1890, A., 1454.
- preparation of lactic acid, 1891, A., 1454.
- Jacquet, Eugène**, use of antimony oxalate in printing, 1885, A., 1276.
- Jaekle, Alphons**, higher homologues of the synthetical pyridines and piperidines, 1888, A., 1108.
- Jäderholm, Axel**, study of metahæmoglobin, 1885, A., 407.
- Jäger, Erich**, and **Gerhard Krüss**, volumetric estimation of carbonic acid, 1889, A., 651.
- chromium, 1889, A., 1117.
- Jäger, Gustav**, relative size of molecules calculated from the electric conductivity of salt solutions, 1888, A., 217.
- electrical conductivity of solutions of neutral salts, 1888, A., 397.
- comparative properties of the electrical conductivities of salt solutions, 1888, A., 398.
- stoichiometry of solutions, 1892, A., 1382.
- Jaeger, Julius**, condensation of guanidine with ethereal salts of  $\beta$ -ketonic acids, 1891, A., 1007.
- Jaeger, Wilhelm**, velocity of sound in vapours, and the determination of the vapour density, 1889, A., 460.
- Jaehne, O.**, ethereal salts of phosphorous acid, 1890, A., 858.
- Jaekel, Hugo**, thiophendisulphonic acid, 1886, A., 339, 613.
- Jaenke, Heinrich**. See **Theodor Zincke**.
- Jaffa, Mejer Edvard**, composition of the ramie plant (*Boehmeria*), 1892, A., 1511.
- Jaffé, Max**, precipitate produced by picric acid in normal urine, 1886, A., 1056.
- Jaffé, Max**, and **Rudolf Cohn**, behaviour of furfuraldehyde in the animal organism, 1887, A., 1032.
- metabolism of furfuraldehyde in fowls, 1889, A., 239.
- ethyl carbamate in the alcoholic extract of normal urine, 1890, A., 654.
- Jaffé, Max**, and **Paul Hilbert**, acetanilide and acetotoluidine in relation to animal metabolism, 1888, A., 735.
- Jaffé, Max**, and **H. Levy**, glycosine derivatives of  $\alpha$ -thiophenic acid, 1889, A., 239.
- Jagnaux, R.**, analyses of emery, 1886, A., 675.
- Jahn, Carl**, synthetical formation of formaldehyde, 1889, A., 766.

- Jahn, Hans**, method for preparing carbonic oxide, 1883, A., 655.  
 — electrolytic researches, 1883, A., 1042.  
 — validity of Joule's law for electrolytes, 1885, A., 1029; 1888, A., 10.  
 — work done in the decomposition of electrolytes, 1885, A., 1100.  
 — galvanic polarisation, 1886, A., 839.  
 — equivalence of chemical change and current energy, 1886, A., 840.  
 — electrochemistry and thermochemistry of some organic acids, 1890, A., 99.  
 — thermochemistry of *d*-tartaric and *l*-tartaric acids, 1891, A., 969.  
**Jahn, Hans**. See also *Leopold von Pebal*.  
**Jahns, E.**, constituents of larch fungus, 1884, A., 353.  
 — eucalyptol, 1885, A., 394.  
 — alkaloids of fenugreek seeds, 1886, A., 85.  
 — trigonelline, 1888, A., 166.  
 — alkaloids of the areca nut, 1889, A., 420; 1891, A., 94, 1520; 1892, A., 737.  
 — oil of myrtle, 1889, A., 616.  
**Jahoda, Rudolf**, papaverine salts, 1887, A., 164.  
 — diamidopyrene, 1888, A., 161.  
 — pyrenoline, 1888, A., 164.  
 — standardisation of permanganate, 1890, A., 196.  
 — *o*-nitrobenzyl sulphide, 1890, A., 487.  
**Jahoda, Rudolf**. See also *Guido Goldschmidt*.  
**Jaksch, Rudolf von**, acetonuria, 1883, A., 1161; 1885, A., 680.  
 — occurrence of volatile fatty acids in urine, 1886, A., 384.  
 — ethyl carbamate, a hypnotic, 1886, A., 572.  
 — phenylhydrazine as a test for sugar in urine, 1886, A., 744.  
 — lipaciduria, 1886, A., 1056.  
 — ferments in human faeces and in the contents of cysts, 1888, A., 180.  
 — the urine in melanuria, 1889, A., 687.  
 — estimation of free hydrochloric acid in gastric juice, 1889, A., 1242.  
 — peptone in the blood and organs of leucæmic patients, 1892, A., 519.  
**James, Frank L.**, deposition of silver on glass, 1885, A., 616.  
**James, J. William**, on ethylene chlorobromide and some compounds obtained from it, 1883, T., 37.  
**James, J. William**, ethyl acetoacetate, 1885, T., 1.  
 — preparation of ethylene chlorothiocyanate and  $\beta$ -chlorethylsulphonic acid, 1885, T., 365; P., 47.  
 — taurine derivatives, 1885, T., 367; P., 46; discussion, P., 47; 1886, T., 486; P., 212; discussion, P., 213.  
 — action of chlorine on ethyl thiocyanate, 1885, A., 365.  
 — action of phosphorus pentachloride on ethyl diethylacetoacetate, 1886, T., 50; P., 114.  
 — synthesis of ethyl acetoacetate from cyanacetone, 1886, A., 333.  
 — action of chlorine on methyl thiocyanate, 1887, T., 268; P., 15.  
 — formation of ethylic cyanacetoacetate, 1887, T., 287; P., 25.  
**Jameson, John**, Jameson coking process, 1886, A., 288.  
**Jamieson, James**, influence of light on the development of bacteria, 1884, A., 475.  
**Jamin, Jules Célestin**, critical point of gases, 1883, A., 898.  
 — compressibility and liquefaction of gases, 1884, A., 5.  
**Jamin, Jules Célestin**, and *Georges Maneuvrier*, reaction current of the electric arc, 1883, A., 4.  
**Jandons, Al.**, composition of ivy berries, 1883, A., 499.  
 — oil of peppermint, 1888, A., 962.  
**Jandrier, Edmond**, nitroacenaphthene, 1887, A., 964.  
 — nitro-derivative of antipyrin, 1892, A., 780.  
**Janeček, Gustav**, determination of atomic weight from specific heat, 1887, A., 419.  
 — electrolysis of the acids of phosphorus, 1888, A., 914.  
 — sensitiveness of the hæmatin spectrum and the formation of hæmin crystals as proof of the presence of blood, 1892, A., 1369.  
**Jannasch, Paul Ehrhardt**, epistilbite and heulandite, 1883, A., 442.  
 — discovery of fluorine in the idocrase from Vesuvius, 1883, A., 1067.  
 — composition of idocrase, 1884, A., 828.  
 — analysis of the foyaité from the Serra de Monchique, Portugal, 1884, A., 970.  
 — solubility of the labradorite from St. Paul Island, 1884, A., 971.  
 — monobromo-*p*-xylene, 1885, A., 251.  
 — percentage of water in clinoclase, 1885, A., 642.

- Jannasch, Paul Ehrhardt**, strontia in heulandite, 1887, A., 453.  
 — analyses of Norwegian rocks, 1887, A., 562.  
 — heulandite, 1887, A., 903.  
 — spodumene from Brazil, 1888, A., 795.  
 — biotite from Christiania, 1888, A., 1260.  
 — estimation of water in silicates, 1889, A., 546.  
 — decomposition of natural sulphides by air containing bromine, 1889, A., 1243.  
 — new method of analysing pyrites, 1889, A., 1243.  
 — decomposition of pyrites in a stream of oxygen, 1889, A., 1244.  
 — estimation of sulphuric acid in presence of iron, 1889, A., 1244.  
 — estimation of sulphur in inorganic sulphides, 1890, A., 1187.  
 — new method for decomposing silicates, 1891, A., 619.  
**Jannasch, Paul Ehrhardt**, and **K. Aschoff**, estimation of sulphur in galena and minerals containing lead, 1892, A., 658.  
 — analysis of galena, 1892, A., 662.  
**Jannasch, Paul Ehrhardt**, and **Th. Bickes**, analysis of galena, 1892, A., 663.  
**Jannasch, Paul Ehrhardt**, and **Peter Etz**, separation of the metals of the hydrogen sulphide group by means of bromine vapour, 1892, A., 385, 540, 754.  
**Jannasch, Paul Ehrhardt**, and **Carl J. Franzek**, separation of manganese, nickel, and cobalt, 1892, A., 240.  
**Jannasch, Paul Ehrhardt**, and **Georg Wilhelm Kalb**, composition of tourmaline, 1889, A., 472.  
**Jannasch, Paul Ehrhardt**, and **Joseph Frank MacGregory**, separation of manganese and zinc, 1891, A., 963.  
**Jannasch, Paul Ehrhardt**, and **Victor Meyer**, organic elementary analysis, 1886, A., 649.  
**Jannasch, Paul Ehrhardt**, and **Robert Niederhofheim**, separation of metals in alkaline solution by hydrogen peroxide, 1892, A., 537.  
**Jannasch, Paul Ehrhardt**, and **Theodore William Richards**, estimation of sulphuric acid in presence of iron, 1889, A., 926.  
**Jannasch, Paul Ehrhardt**, and **Hans Vogtherr**, decomposition of chrome iron ore by hydrochloric acid under pressure, 1892, A., 240.  
**Jannasch, Paul Ehrhardt**, and **Vincent Wasowicz**, estimation of sulphur in inorganic sulphides; analysis of molybdenite, realgar, and orpiment, 1892, A., 657.  
**Jannasch, Paul Ehrhardt**. See also **Johann Friedrich Carl Klein**.  
**Jannettaz, Edouard**, study of "congrain," and measure of the foliation in schistose rocks by means of their thermic properties, 1883, A., 300.  
 — a phosphide of nickel, 1883, A., 651.  
 — analysis of a green pyroxene from the diamond mines of the Cape, 1883, A., 1067.  
 — buratite from Laurium, 1887, A., 644.  
 — chrysocolla from California, 1888, A., 565.  
 — uranite from Madagascar, 1889, A., 22.  
 — pharmacolite from the Vosges, 1890, A., 342.  
 — native silver and diopside from the French Congo, 1891, A., 647.  
 — wernerite from Chili, 1891, A., 1438.  
**Jannettaz, Edouard**, and **Léopold Michel**, relation between the chemical composition and optical characters in the group of pyromorphites and mimetites, 1883, A., 433.  
 — nephrite or jade of Siberia, 1883, A., 436.  
**Jannettaz, Edouard**, **Neel**, and **Clermont**, crystallisation under great pressure, 1884, A., 548.  
**Jannettaz, Edouard**. See also **Alfred Louis Olivier Legrand Des Cloiseaux**.  
**Janny, Alois**, acetoximes, 1883, A., 580, 581.  
**Janovsky, J. V.**, substitution products of azobenzene, 1883, A., 324; 1884, A., 1145.  
 — nitro- and amido-derivatives of azobenzene, 1883, A., 867.  
 — substitution products of azobenzene-*p*-sulphonic acid, 1883, A., 1101.  
 — amidoazobenzene-*p*-sulphonic acid, 1883, A., 1101.  
 — substitution products of azobenzene and *as*-triamidobenzene, 1884, A., 1145.  
 — reduction of nitroazo-compounds and azonitrolic acids, 1885, A., 789.  
 — products of the reduction of nitroazo-compounds: nitrolic acids, 1885, A., 1131.  
 — nitro- and bromo-derivatives of azobenzene, 1886, A., 794.  
 — azo-compounds, 1887, A., 663.  
 — azotoluenesulphonic acid, 1888, A., 370.

- Janovsky, J. V.**, toluidinesulphonic acids, 1888, A., 956.  
 — azotoluene, 1889, A., 250.  
 — azoxytoluene, 1889, A., 865.  
 — azotoluenes and azoxytoluenes, 1890, A., 140.  
 — new reaction for dinitio-compounds, 1891, A., 685.
- Janovsky, J. V.**, and **L. Erb**, intermediate reduction products of nitro-azo-compounds, 1885, A., 894.  
 — derivatives of azo-compounds, 1886, A., 1024.  
 — halogen derivatives of azo-benzene and hydrazobenzene, 1887, A., 478.  
 — direct substitution products of *p*-azotoluene: hydrazobiomobenzenes: hydrazobromotoluenes, 1887, A., 479.
- Janovsky, J. V.**, and **K. Reimann**, substitution products of *p*-azotoluene, 1888, A., 686.  
 — two isomeric azoxytoluenes from *p*-nitrotoluene, 1889, A., 392.
- Janowsky, Ferd.**, cultivation of potatoes, 1886, A., 390, 577.
- Jansen, Robert**. See **Siegmund Gabriel**.
- Janssen, Hermann**, replacement of the methylene hydrogen atoms in benzyl cyanide, 1889, A., 596.
- Janssen, Hermann**. See also **Rudolf Leuckart**.
- Janssen, Pierre Jules César**, telluric rays and the spectrum of water vapour, 1883, A., 261.  
 — spectroscopic examination of the constituents of the atmosphere, 1886, A., 1.  
 — absorption spectra of oxygen, 1886, A., 749; 1888, A., 765.
- Japp, Francis Robert**, on the constitution of lophine, 1883, T., 9.  
 — on the condensations of compounds which contain the dicarbonyl group with aldehydes and ammonia, 1883, T., 197.  
 — addition of acetone under the influence of caustic alkalis, 1883, A., 596.  
 — ammonia derivatives of benzil, 1884, A., 813.  
 — diphenylglyoxaline and methyl-diphenylglyoxaline, 1887, T., 557; P., 34.  
 — the gravivolumeter, an instrument by means of which the observed volume of any single gas gives directly the weight of the gas, 1891, T., 894, P., 68.
- Japp, Francis Robert**, and **Cosmo Innes Burton**, conversion of ditolaneazotide into diphenanthryleneazotide, 1886, T., 843; P., 236.  
 — azines, 1887, T., 98; P., 268.  
 — anhydriacetonebenzil, 1887, T., 420; P., 30.  
 — condensation compounds of benzil with ketones, 1887, T., 431; P., 32.
- Japp, Francis Robert**, and **Edward Cleminshaw**, constitution of glyco-cine, 1887, T., 552; P., 33.
- Japp, Francis Robert**, and **Samuel C. Hooker**, on the action of aldehydes and ammonia on benzil, 1884, T., 672.
- Japp, Francis Robert**, and **George Nevill Huntly**, action of phenylhydrazine on an unsaturated  $\gamma$ -diketone, 1888, T., 184; P., 11.
- Japp, Francis Robert**, and **Felix Klingemann**, constitution of certain so-called mixed azo-compounds, 1887, P., 140; 1888, T., 519.  
 — formation of dihydrazides of  $\alpha$ -diketones, 1888, P., 11.  
 — new method of obtaining monohydrazides of  $\alpha$ -diketones, 1888, P., 11.  
 — condensation of  $\alpha$ -diketones with ethyl acetoacetate, 1888, P., 114.  
 —  $\alpha\beta$ -dibenzoylcinnamene and the constitution of Zinin's lepidene and its derivatives, 1889, P., 136; 1890, T., 662.  
 — formation of benzamaione, 1889, A., 265.  
 — reduction of  $\alpha$ -diketones, 1890, P., 81.  
 — ethyl phenanthroxylyleneacetoacetate, 1891, T., 1.
- Japp, Francis Robert**, and **Norman Harry John Miller**, hydrocyanides of the diketones and their saponification, 1884, A., 329.  
 — additive and condensation compounds of diketones with ketones, 1885, T., 11.  
 — preparation and hydrolysis of hydrocyanides of the diketones, 1886, P., 249; 1887, T., 29.
- Japp, Francis Robert**, and (**Miss**) **Mary Elizabeth Owens (Mrs. Hooker)**, condensation compounds of benzil with ethyl alcohol, 1885, T., 90.
- Japp, Francis Robert**, and **Julius Raschen**, action of phosphoric sulphide on benzophenone, 1886, T., 478; P., 204.  
 — compound from benzil and isopropyl alcohol, 1886, T., 832; P., 203.

- Japp, Francis Robert**, and **Julius Raschen**, compound from benzoïn and acetone, 1890, T., 783; P., 139.
- Japp, Francis Robert**, and **Frederick William Streatfeild**, on the condensation-product of phenanthraquinone with ethylic acetoacetate, 1883, T., 27.
- Japp, Francis Robert**, and **Richard C. Tresidder**, action of nitriles on benzil, 1884, A., 313.
- Japp, Francis Robert**, and **Alfred E. Turner**, compounds of phenanthraquinone with metallic salts, 1889, P., 160; discussion, P., 160; 1890, T., 4.
- Japp, Francis Robert**, and **George Henry Wadsworth**, *p*-desylphenol, 1890, T., 965; P., 71.
- Japp, Francis Robert**, and **W. H. Wilson**, ammonia derivatives of benzoïn, 1886, T., 825; P., 203.
- Japp, Francis Robert**, and **William Palmer Wynne**, action of aldehydes and ammonia on benzil, 1886, T., 462; P., 201.
- **imabenzil**, 1886, T., 473; P., 202.
- Jaquet, Alfred**, hæmoglobin of dogs' blood, 1888, A., 731.
- **hæmoglobin**, 1890, A., 273.
- Jarius, M.**, action of saline solutions on germination, 1886, A., 90.
- Jarman, Joseph L.**, pyrolusite from Augusta Co., Virginia, 1889, A., 470.
- Jarman, Joseph L.**, and **James F. McCaleb**, red copper slag containing artificial cuprite, 1889, A., 467.
- Jarolimek, Anton**, relation between pressure and temperature in the saturated vapours of water and carbonic anhydride, 1883, A., 417.
- relation between the tension and temperature of saturated vapours, 1883, A., 951.
- Jassoy, Augusta**, pencedanin, 1890, A., 1154.
- **ostruthin**, 1890, A., 1154.
- Jaunsicker, Karl**. See **Carl Adam Bischoff**.
- Jawein, Ludw.**, crystalline compound from "kannala," 1887, A., 498.
- Jawein, Ludw.**, and **Albert Thillot**, molecular weights of *m*-phosphates, 1889, A., 674.
- Jaworski, Walezy**, relative absorption of neutral salts in the human stomach, 1884, A., 193.
- behaviour of carbonic anhydride, oxygen, and ozone in the human stomach, 1885, A., 280.
- Jaworski, Walezy**, action of acids on the functional activity of the human stomach, 1888, A., 616.
- Jay, Henry**, detection of coal tar colours in wines, 1885, A., 298.
- a substance used to colour wines, 1885, A., 309.
- ash determinations, 1885, A., 598.
- dry extract, 1885, A., 602.
- vinicolore, 1885, A., 711.
- Jay, Rudolf**. See **Adolf von Baeyer, Theodor Curtius**.
- Jayne, Harry W.**, phenylbutyrolactone and phenylparaconic acid, 1883, A., 472.
- Jayne, Harry W.** See also **Rudolph Fittig**.
- Jean, Ferdinand**, detection of cottonseed oil in olive oil, 1888, A., 1136.
- oil testing, 1890, A., 89.
- apparatus for the analysis of oils, 1890, A., 671.
- the oleorefractometer, 1891, A., 505, 625.
- analysis of a mixture of wax, paraffin, stearin, and stearic acid, 1891, A., 1400.
- estimation of glycerol, astringent acids, and colouring matter in wine, 1892, A., 225, 246.
- Jean, Ferdinand**. See also **Emile Hilaire Amagat**.
- Jeannel, Guillaume**, solubility of chlorides in presence of hydrochloric acid, 1886, A., 972.
- Jeannel, Sidoine**. See **Joseph Grasset**.
- Jeanprêtre, John**. See **(Mrs.) Helen C. S. Abbott Michael**.
- Jeanrenaud, A.**, condensation of phenylacetaldehyde with ammonia and ethyl acetoacetate, 1888, A., 965.
- action of hydroxylamine on ethereal salts, 1889, A., 870.
- Jedlicka, Carl**. See **Siegmond Levy**.
- Jehn, Carl**, insoluble fatty acid of goats' butter, 1884, A., 535.
- action of polyatomic alcohols on solutions of boric acid and hydrogen sodium carbonate, 1887, A., 790; 1888, A., 1172.
- Jeller, Rudolf**. See **Eduard Donath**.
- Jellinek, Gustav**, diquinoline, 1886, A., 1045.
- purification of flavopurpurin, 1888, A., 1204.
- Jellinek, Gustav**. See also **Carl Theodor Liebermann**.
- Jenckel, Ludolf**. See **Otto Wallach**.
- Jenisch, Carl**. See **Hans (Freiherr) von Pechmann**.

- Jenkins, Edward H.**, American milk, 1884, A., 533.  
 — analyses of tobacco leaves and stems, 1886, A., 177.
- Jenkins, Edward H.** (and others), maize as dry food and as silage, 1889, A., 743.
- Jennings, E. P.**, estimation of titanium and phosphorus in iron ores, 1889, A., 189.
- Jensch, Edmund**, tetracalcium phosphate and basic converter slag, 1887, A., 216.  
 — composition of some ancient ceramics from Brandenburg, 1887, A., 218.  
 — manurial action of the free lime in basic slag, 1888, A., 525.  
 — calcium sulphite as a preventive of loss of nitrogen in manure heaps, 1889, A., 184.  
 — estimation of zinc in manganeseiferous fine deposits, 1890, A., 294.
- Jensen, H. Otto**, formation of nitroprussides without the use of nitric acid, 1885, A., 739.
- Jensen, J. L.**, cure for potato disease, 1883, A., 233.  
 — protection of potatoes against disease, 1885, A., 1154.
- Jentys, Stef.**, intramolecular respiration of plants, 1887, A., 686.  
 — influence of compressed oxygen on the growth of plants, 1888, A., 1125.
- Jentzsch, Albin**, chrysoylincarbamide: amidophenylencarbamide, 1889, A., 45.
- Jeréméeff, Pavel V. von**, Russian calcitonite and linarite, 1885, A., 1186.  
 — apatite from Turkestan, 1886, A., 600.
- Jeroféeff, M.**, and **Paul A. Latschinoff**, meteorite from Novo-Urei, 1889, A., 224.
- Jessel, Henry**. See **William Ridgely Orndorff**.
- Jesseman, Alexander**, obituary notice of, 1883, T., 254.
- Jessen, Ernst**, experiments on the time required for digestion of meat and milk, 1884, A., 470.
- Jesser, L.** See **Mar Höinig**.
- Jesurun, J. A.**, *m-isocymphenol*, 1886, A., 696.
- Joachim, Joseph**. See **Adolph Claus**.
- Joannis, Jean Alexandre**, copper oxides, 1885, A., 872.  
 — modifications of cupric oxide, 1886, A., 666.  
 — alloys of sodium and potassium, 1888, A., 1238.
- Joannis, Jean Alexandre**, combination of potassium and sodium with ammonia, 1890, A., 209, 560.  
 — heat of formation of potassammonium and sodammonium, 1890, A., 319.  
 — sodamide and disodammonium chloride, 1891, A., 642.  
 — combination of ammonia with chlorides, 1891, A., 643.  
 — action of sodammonium and potassammonium on metals, 1892, A., 275.  
 — definite alloys of sodium, 1892, A., 773.
- Joannis, Jean Alexandre**. See also **Jules Henri Debray**.
- Jobst, Jul. von**, preparation and utilisation of grape-seed oil, 1885, A., 710.
- Jochum, Paul**, action of sodium thiosulphate on metallic salts, 1886, A., 17.
- Jodin, F. Victor**, function of silica in the growth of maize, 1884, A., 201, 669.  
 — comparative growth of peas and maize in mineral and organic solutions, 1884, A., 1208.  
 — chlorophyll, 1886, A., 476.  
 — Schutzenberger's oxymetric solution, 1886, A., 648.  
 — action of mercurial vapour on leaves, 1887, A., 395.  
 — unicellular Alge, 1888, A., 1124.
- Jodlbauer, Max**, estimation of nitrogen in nitrates by Kjeldahl's method, 1886, A., 834.  
 — estimation of sugar by alcoholic fermentation, 1888, A., 994.
- Jödicke, Friedrich**. See **Ludwig Knorr**.
- Jørgensen, Sofus Mads**, chemistry of the chromammonium compounds, 1883, A., 554; 1885, A., 23.  
 — contributions to the chemistry of rhodammonium compounds, 1883, A., 1058.  
 — relation between luteo- and roseo-salts, 1884, A., 1093.  
 — chromammonium compounds; luteochromium salts, 1885, A., 23.  
 — roseocobalt salts, 1885, A., 726.  
 — cobalt-ammonium compounds, 1885, A., 874; 1887, A., 775; 1890, A., 953, 1213; 1892, A., 783.  
 — constitution of double platinum salts, 1886, A., 857.  
 — roseorhodium salts, 1887, A., 113.  
 — nitratopurpleorhodium salts, 1887, A., 114.  
 — xanthorhodium salts, 1887, A., 111.  
 — metallic diamine-compounds, 1889, A., 351; 1890, A., 953.  
 — constitution of the cobalt bases, 1890, A., 953.

- Jørgensen, Sofus Mads,** constitution of the cobalt, chromium, and rhodium bases, 1890, A., 1213; 1892, A., 783.  
 — luteorhodium salts, 1891, A., 1325.  
 — acid luteorhodium and roseorhodium nitrates, 1891, A., 1327.  
 — roseochromium salts, 1892, A., 782.  
**Joffe, Jules,** new method of detecting dyes on yarns or tissues, 1888, A., 523.  
 — agricultural value of retrograde phosphates, 1887, A., 861.  
 — resistance to light of colouring matters fixed in tissues, 1889, A., 12.  
**Johannsen, Wilhelm Ludwig,** influence of oxygen at high pressure on the disengagement of carbonic anhydride, 1886, A., 274.  
 — respiration of plants under abnormal conditions, 1886, A., 575.  
 — continuation of respiration in dead vegetable cells, 1888, A., 741.  
 — mealy and steely barley, 1888, A., 748.  
 — distribution of amygdalin and emulsin in almonds, 1888, A., 869.  
 — gluten and its presence in wheat grain, 1889, A., 296.  
**Johannsson, Ernst,** detection of colocyntheïn, elaterin, and bryonin, 1885, A., 606.  
**Johanny, Gustav,** action of hydrocyanic acid on unsaturated aldehydes, 1891, A., 37.  
**Johanny, Gustav, and Simon Zeisel,** colchicine, 1889, A., 282.  
**Johanson, Carl J.** See *Ake (Gerhardt) Ekstrand*.  
**Johansson, J. E.,** behaviour of serum albumin towards acids and neutral salts, 1885, A., 913.  
**John (Edler von Johnesberg), Conrad Heinrich,** rocks of the eruptive mass of Jablonica, 1891, A., 652.  
**John (Edler von Johnesberg), Conrad Heinrich.** See also *Friedrich Teller*.  
**John, O.,** action of organic acids on salivary digestion, 1891, A., 592.  
**Johnson, physiological action of boric acid and borax,** 1886, A., 572.  
**Johnson, Alfred E.,** colorimetric estimation of nitrates in potable waters, 1890, A., 832.  
**Johnson, Edward Sullivan.** See *Ludwig Gattermann*.  
**Johnson, Frank,** precipitation of copper as thiocyanate, 1890, A., 547.  
**Johnson, (Sir) George,** picric acid as a test for albumin and sugar in urine, 1883, A., 1176.  
 — tests for albumin in urine, 1885, A., 845.  
**Johnson, George Stillingfleet,** action of potash on albumin, 1883, A., 671.  
 — electrochemical researches on nitrogen, 1884, A., 383.  
 — modification of Dumas' method for the estimation of nitrogen, 1885, A., 189.  
 — silver carbonate, 1886, A., 980.  
 — creatinines, 1888, A., 506; 1889, A., 165.  
 — detection of acetic acid in presence of morphine, 1888, A., 633.  
 — barium sulphite, 1889, A., 16.  
 — solubility of 'white precipitate' in solution of ammonia containing ammonium carbonate, 1889, A., 755.  
 — atomic weight of oxygen, 1889, A., 935.  
 — reducing agents in normal human urine, 1892, A., 1504.  
**Johnson, George Stillingfleet, and Arnold Eiloart,** estimation of nitrogen by combustion, 1886, A., 488.  
**Johnson, John G.,** poisoning by canned goods, 1885, A., 1016.  
**Johnson, Karl Rudolf,** some phosphates of polyvalent metals, 1889, A., 756.  
**Johnson, Samuel William,** nitrogen estimation by combustion with calcium hydroxide, 1884, A., 1422.  
**Johnstone, Alexander,** decomposition of insoluble silicates, 1889, A., 440.  
 — detection of antimony in minerals, 1889, A., 444.  
 — detection of mercury in minerals, 1889, A., 797.  
 — detection of minute quantities of iron in minerals, 1889, A., 797.  
 — prolonged action of sea water on pure magnesium silicate, 1890, A., 451.  
 — detection of metallic silver in the presence of lead, 1890, A., 826.  
 — detection of tin in minerals, 1890, A., 830.  
 — detection of traces of iodine in the presence of much chlorine, 1891, A., 242.  
 — action of water on mica, 1892, A., 573.  
**Johnstone, M.,** fertility of heavy loam increased by lime, 1892, A., 523.  
**Johnstone, William,** use of acetic acid in milk analysis, 1886, A., 583.  
 — Flitwick water, 1887, A., 1087.  
 — precipitation of hop-bitter by lead acetate, 1888, A., 763.  
 — volatile alkaloid in pepper, 1889, A., 298.  
 — estimation of soluble and insoluble fatty acids in butter, 1890, A., 98; 1891, A., 868.

- Johnstone, William**, analysis of pepper and the occurrence of piperidine therein, 1890, A., 95.  
 — composition of butter fat, 1891, A., 849.  
 — estimation of glycerol by alkaline permanganate, 1892, A., 544.
- Johnstone, William**. See also *James Alfred Wanklyn*.
- Johnston-Lavis, Henry James**, celestine containing free sulphur, 1891, A., 272.
- Johnstrup, Johannes Frederik**, occurrence of cryolite in Greenland, 1886, A., 431.
- Jolin, Severin**, the acids of pig's bile, 1887, A., 742; 1888, A., 1213; 1889, A., 422.  
 — conditions of absorption of various hæmoglobins, 1890, A., 182.
- Jolles, Adolf**, washing and drying precipitates without exposure to the air, 1886, A., 1070.  
 — new chloroform reaction, 1887, A., 866.  
 — potassium manganite, 1888, A., 229.  
 — preparation of potassium manganate, 1888, A., 556; 1889, A., 798.  
 — determination of chlorine in plant ashes, 1889, A., 73.  
 — volumetric estimation of stannous chloride, 1889, A., 189.  
 — volumetric estimation of antimonious and arsenious acids, 1889, A., 311.  
 — volumetric estimation of antimonious acid, 1889, A., 444.  
 — estimation of tartaric acid in vinegar, 1890, A., 428.  
 — detection of bile constituents in urine, 1891, A., 135.  
 — new test for albumin, 1891, A., 136.  
 — detection of albumin in bacterial urines, 1891, A., 136.  
 — the chemical detection of glycosuria, 1891, A., 869.  
 — new method of estimating uncombined hydrochloric acid in gastric juice, 1891, A., 613.  
 — detection and estimation of iodine in urine, 1891, A., 1238.
- Jolles, Oscar**,  $\alpha$ - and  $\beta$ -naphthylglycines and their derivatives, 1889, A., 1199.
- Jolly, Leopold**, clinical examination of urine by means of Fehling's solution, 1886, A., 744.
- Joly, Alexandre**, boron, 1884, A., 156.  
 — decomposition of the acid phosphates of the alkaline earths in the presence of water, 1884, A., 556.
- Joly, Alexandre**, barium hydrogen phosphates, 1884, A., 891.  
 — saturation of phosphoric acid by bases, 1885, A., 348.  
 — action of boric acid on some colouring matters, 1885, A., 440.  
 — crystallised hydrate of phosphoric acid, 1885, A., 482.  
 — preparation of arsenic acid, 1885, A., 871.  
 — hypophosphoric acid, 1886, A., 200.  
 — hydrates of arsenic acid, 1886, A., 202.  
 — hydrates of hypophosphoric acid, 1886, A., 303.  
 — thermochemistry of hypophosphoric acid, 1886, A., 408.  
 — preparation and titration of orthophosphoric acid, 1886, A., 418.  
 — decomposition of hypophosphoric acid, 1886, A., 593, 662.  
 — thermochemistry of bibasic phosphates and their congeners, 1887, A., 202.  
 — bimetallic phosphates, 1887, A., 214.  
 — silver phosphates and arsenates, 1887, A., 215.  
 — double phosphates and arsenates of strontium and sodium, 1887, A., 637.  
 — trimetallic phosphates, 1887, A., 877.  
 — ruthenium nitrosochlorides, 1889, A., 352.  
 — atomic weight of ruthenium, 1889, A., 352, 835.  
 — nitroso-compounds of ruthenium, 1889, A., 678.  
 — ammoniacal derivatives of ruthenium, 1889, A., 948.  
 — chloro-salts and atomic weight of iridium, 1890, A., 1067.  
 — ammoniacal derivatives of ruthenium nitrosochloride, 1891, A., 401.  
 — osmium, osmiumic acid, and osmiumates, 1891, A., 1433.  
 — saline compounds of the lower ruthenium oxides with the higher oxides, 1892, A., 282.  
 — action of light on ruthenium peroxide, 1892, A., 282.  
 — ruthenium chloride and hydroxychloride, 1892, A., 688.
- Joly, Alexandre**, and **Henri Dufet**, sodium arsenate and sodium phosphate, 1886, A., 769.
- Joly, Alexandre**, and **Enile Leidié**, electrolytic estimation of rhodium, 1891, A., 1141.

- Joly, Alexandre**, and **Enile Leidié**, detection and separation of metals of the platinum group in presence of other metals, 1891, A., 1554.
- Joly, Alexandre**, and **Maurice Vèzes**, ruthenium potassium nitrites, 1890, A., 17.
- Joly, Alexandre**. See also **Jules Henri Debray**.
- Joly, John**, specific gravity determination, 1888, A., 103.
- harmotome in Wicklow, 1888, A., 116.
- beryl and iolite of Glencullen, 1888, A., 117.
- specific heats of gases at constant volume, 1889, A., 459.
- method for determining the absolute density of a gas, 1891, A., 379.
- determination of the melting-point of minerals, 1892, A., 414.
- Joly, Nicolas**, glairin or baregin, 1883, A., 302.
- Jolyet, Félix**, and **Clément Sigalas**, dissolved nitrogen in blood, 1892, A., 1257.
- Jonas, August**, and **Hans (Freiherr) von Pechmann**, methyl-*n*-phenylosotriazole and its derivatives, 1891, A., 1111.
- Jones, Clemens**, method of rapid evaporation for the estimation of silicon in pig iron, 1889, A., 1246.
- reduction of ferric sulphate in volumetric analysis, 1889, A., 1248.
- phosphorus in pig-iron, steel, and iron ore, 1891, A., 363.
- Jones, E. J.**, decomposition of  $\alpha$ -methyl-propyl- $\beta$ -hydroxybutyric acid by heat, 1885, A., 376.
- Jones, Edward William Taylor**, estimation of iron oxide and alumina in phosphates, 1886, A., 491.
- examination of starch and wort, 1888, A., 199.
- lard adulterated with cotton-seed oil, 1889, A., 320.
- lactose, 1890, A., 22.
- Jones, Ernest Lloyd**, specific gravity of human blood, 1887, A., 608; 1891, A., 1527.
- Jones, Francis**, detection of chlorine, bromine, and iodine, 1884, A., 492.
- Jones, Harry Clary**. See **Harmon Northrup Morse**.
- Jones, Henry Chapman**, determination of the boiling-point with small quantities of material, 1891, A., 1146.
- volumetric estimation of mercury, 1892, T., 364; P., 46.
- Jones, Henry Williams**, estimation of emetine, 1886, A., 1086.
- Jones, Jesse**, decomposition of minerals containing titanium, 1892, A., 664.
- Jones, R.**, estimation of iron oxide and alumina in phosphates, 1891, A., 114.
- analysis of phosphates, 1892, A., 99.
- Jonsson, Bengt.**, effects of running water on plants, 1885, A., 419.
- Jordan, A. E.**, and **Thomas Turner**, condition of silicon in pig iron, 1886, T., 215; P., 155; discussion, P., 156.
- Jordan, Frank**. See **Percy Faraday Frankland**.
- Jordan, Whitman Howard**, action of manures on the quantity and quality of a wheat crop, 1883, A., 681.
- effect of various manures on the ash of tobacco, 1886, A., 177.
- Jordan, Whitman Howard**, **James Monroe Bartlett**, and **Lucius Herbert Merrill**, composition and digestibility of some foods, with observations on the determination of digestibility of protein and carbohydrates, 1889, A., 913.
- Jordanoff**. See **Iordanoff**.
- Jorissen, Armand**, germination of linseed and sweet almonds, 1885, A., 181.
- Jorissen, Armand**, and **Léonard Grosjean**, solaniline of potato sprouts, 1890, A., 1182; 1891, A., 473.
- Jorissen, Armand**, and **Eugène Hairs**, linamarin, 1892, A., 502.
- Joseph, Walter**. See **Martin Freund**.
- Joslin, Elliot P.** See **Russell H. Chittenden**.
- Joslin, Omar T.** See **Frank Wigglesworth Clarke**.
- Joubert, J.**, method of determining the ohm, 1883, A., 4.
- crystallisation of sodium ammonium *p*-tartrate, 1886, A., 533.
- Joukowsky**. See **Schnukowski**.
- Joule, James Prescott**, obituary notice of, 1890, T., 449.
- Joulie, H.**, loss of nitrogen during the fermentation of manure, 1884, A., 1070, 1413.
- estimation of phosphoric acid in commercial products, 1885, A., 931.
- absorption of nitrogen by cultivated soils, 1886, A., 275.
- Joulie, H.** See also **Julius Kühn**.
- Jourdan, Friedrich**, decomposition of benzil by potassium cyanide, 1883, A., 805.
- new synthesis of derivatives of hydroacridine and acridine, 1885, A., 987.

- Jourdan, Friedrich.** See also *Emil Fischer*.
- Jowanowitsch.** See *Iowanowitsch*.
- Judd, John Wesley,** evidence afforded by petrographical research of the occurrence of chemical change under great pressure, 1890, T., 404; P., 35.  
— conversion of a felspar into a scapolite, 1891, A., 277.
- Judd, John Wesley, and Grenville Alfred James Cole,** trachylite of the Western Isles of Scotland, 1884, A., 570.
- Jünemann,** manufacture of sugar and purification of beet juice by means of magnesia and alumina, 1885, A., 1021.
- Jüptner, Hanns (Freiherr) von,** Haswell's method for the volumetric estimation of mercury, 1883, A., 242.  
— Wiborgh's gasometric method for the estimation of carbon in iron and steel, 1889, A., 186; 1892, A., 1030.
- Jürgens, Alexander,** aconitine, 1886, A., 565.  
— Schreiner's base (spermine), 1891, A., 759.
- Juillard, P., and Curchod,** depression of the melting-point, 1892, A., 555.
- Juillard, Paul,** diphthalic acid, 1888, A., 707.  
— isomeride of *o*-phenylphthalide-carboxylic acid, 1888, A., 955.  
— Turkey-red oil, 1892, A., 819.
- Juillard, Paul and Georges Tissot,** preparation of hydrobenzoin and of deoxybenzoin, 1891, A., 1492.
- Juillard, Paul.** See also *Carl Graebe*.
- Julhe,** method of hardening plaster, 1885, A., 707.
- Julius, Paul,** behaviour of silver chloride, bromide, and iodide with bromine and iodine, 1884, A., 393.  
— action of bromine and iodine on silver chloride, bromide, and iodide, 1884, A., 556.  
— new reaction of benzidine, 1884, A., 1181.  
— hydrobromapoquinine, 1886, A., 83.  
— Magdala-red, 1886, A., 712.  
— new diamidodinaphthyl, 1887, A., 56.  
— use of Congo-red in titrating aniline, 1887, A., 90.  
— dinaphthyl derivatives, 1888, A., 161.
- Julius, Paul.** See also *Rudolf Benedikt, Karl Harura, Emil Jacobsen*.
- Jumelle, Henri,** relation between the assimilation and transpiration produced by chlorophyll, 1890, A., 190.  
— chlorophyllic assimilation of trees with red leaves, 1891, A., 102.
- Jumelle, Henri,** assimilation by lichens, 1891, A., 1132.
- Jung, Otto,** daphnetin, 1886, A., 558.
- Jung, Otto.** See also *Wilhelm Will*.
- Jungck, Siemens-Martin process,** 1885, A., 98.
- Jungfer, Paul,** estimation of traces of bismuth and antimony in commercial copper, 1888, A., 324.
- Jungfleisch, Emile Cl.,** decomposition of optically inactive compounds, 1884, A., 1303.  
— quinine sulphate, 1887, A., 405.  
— camphoric acids, 1890, A., 790.
- Jungfleisch, Emile Cl., and Léon Grimbert,** levulose, 1888, A., 1266.  
— invert sugar, 1889, A., 479.  
— analysis of sugars, 1890, A., 301.
- Jungfleisch, Emile Cl., and Eugène Léger,** optical isomerides of cinchonine, 1885, A., 380.  
— derivatives of cinchonine, 1888, A., 507.  
— cinchonigine, 1888, A., 612.  
— cinchoniline, 1888, A., 729.  
— cinchonibine, 1888, A., 969.  
—  $\alpha$ -hydroxycinchonine, 1889, A., 906.  
— isocinchonine, 1891, A., 1121; 1892, A., 222.  
— apocinchonine and diapocinchonine, 1892, A., 1258.
- Junghahn, Alfred.** See *Arnold Reissert*.
- Jungk, J. F. Carl,** analysis of malt extract, 1884, A., 529.
- Jurisch, Konrad W.,** decomposition of ammonium chloride by phosphoric acid, 1888, A., 650.
- Juslin, Wilh.,** *n*- $\alpha$ -oxyvaleric acid, 1885, A., 137.
- Just, Feodor,** influence of asymmetrical carbon-atoms on the ethanes derived from active amyl alcohol, 1884, A., 169.  
— method for introducing nitrogenous radicles into ethyl malonate, 1885, A., 513.  
— ethyl diacetofumarate, 1886, A., 141.  
— action of benzanilidoimide chloride on ethyl sodomalonate, 1886, A., 149.  
— synthesis in the quinoline series, 1886, A., 161, 811, 812.  
— imidochlorides and their reactions, 1886, A., 617.  
— action of phenylhydrazine on amido-compounds of benzene, 1886, A., 699.  
— phenylhydrazine and acid amides, 1886, A., 700.  
— oximido-compounds and phenylhydrazine, 1886, A., 701.

- Just, L.**, injury to vegetation by sulphurous acid, 1888, A., 318.  
**Just, L.**, and **H. Heine**, damage done to plants by acid vapours, 1889, A., 795.  
**Just, Richard**. See **Eugen Lellmann**.  
**Juttke, Julius**, water of crystallisation of alums, 1888, A., 112.  
**Juvalta, Nicolaus**, is the benzene nucleus destroyed in the body? 1889, A., 289.

## K.

- Kablukoff, Ivan A.**, glycide of hexylic glycerol, 1885, A., 617.  
 — the laws governing the reactions of direct addition, 1888, A., 1154.  
 — butallyl methyl pinacone, 1888, A., 1170.  
 — derivatives of hexyl glycerol, 1888, A., 1171.  
 — electrical conductivity of hydrogen chloride in different solvents, 1890, A., 97.  
**Kachler, J.**, presence of mannitol in the cambium sap of pines, 1886, A., 1062.  
 — behaviour on dry distillation of the silver salts of organic acids, 1892, A., 37.  
**Kachler, J.**, and **Fr. V. Spitzer**, action of nitric acid on hydroxycamphor from  $\beta$ -dibromocamphor, 1883, A., 215.  
 — bromolinitiomethane, 1883, A., 961.  
 — action of sodium on camphor, 1883, A., 1006.  
 — mode of formation of the isomeric dibromocamphors, 1883, A., 1007.  
 — reaction of the two isomeric dibromocamphors with nitric acid, 1883, A., 1008.  
 — hydroxycamphor from  $\beta$ -dibromocamphor, 1883, A., 1008.  
 — borneol from camphor, 1884, A., 754.  
 — camphoronic acid, 1885, A., 59, 807.  
 — the so-called campholenic acid, 1885, A., 173.  
 — hydroxycamphoronic acids, 1889, A., 158.  
**Kachler**, horse-chestnuts as cattle food, 1884, A., 1411.  
**Kaemmerer, Hermann**, preparation of nitric oxide, 1886, A., 200.  
**Kaeswurm, August**, condensation of aromatic bases with aldehydes, 1886, A., 552.  
**Kafka, Emil**, benzaldehydesulphonic acid, 1891, A., 720.  
**Kahlbaum, Georg W.**, dependence of the boiling-point on pressure, 1884, A., 141, 950; 1885, A., 1176; 1886, A., 590; 1887, A., 206.  
 — refractive indices of the three methyl acrylates, 1885, A., 1173.  
 — do the statical and dynamical methods of measuring vapour tensions give different results? 1886, A., 193.  
 — temperature regulator, 1887, A., 206.  
 — boiling-points of the fatty acids,  $C_3H_7O_2$  to  $C_{10}H_{19}O_2$ , 1887, A., 207.  
 — apparatus for measuring the tension of vapours, 1887, A., 207.  
**Kahn, Myrtil**, quinoline derivatives from *n*-butaldehyde, 1886, A., 262.  
**Kahnweiler, Charles Francis**. See **Howard Bears Gibson**.  
**Kaiser, A.** See **A. Goldzweig**.  
**Kaiser, Adolf**, nitro-*p*- and *m*-acetamidobenzoic acids, 1886, A., 149.  
**Kaiser, Adolf**. See also **Ludwig Gattermann**.  
**Kaiser, Heinrich**, and **Joh. Schmieder**, changes in milk by freezing, 1887, A., 745.  
**Kaiser, Joseph**, diphenyl derivatives, 1890, A., 897.  
**Kalantaroff, A.**, Russian cheese, 1884, A., 700.  
**Kalb, Georg Wilhelm**, composition of tourmaline, 1891, A., 24.  
**Kalb, Georg Wilhelm**. See also **Paul Ehrhardt Jannasch**.  
**Kalckhoff, Franz A.**, amidophenols, 1883, A., 734, 1109.  
**Kalckhoff, Franz A.** See also **Robert Hirsch**.  
**Kalecsinszky, Alexander**, apparatus for chemical laboratories, 1886, A., 15.  
 — native gold from Thibet, 1887, A., 780.  
 — phillipsite from Somoskő, 1890, A., 718.  
 — helvine from Hungary, 1892, A., 1412.  
**Kalischer, S.**, production of electricity by condensation of aqueous vapour, 1884, A., 138.  
 — new secondary element, 1887, A., 314.  
 — electromotive force produced by light in selenium, 1887, A., 693.  
 — effect of light on the conductivity of selenium, 1888, A., 99.  
 — apparent manifestation of chemical as mechanical attraction, 1888, A., 1242.  
 — electromotive force of selenium, 1889, A., 3; 1890, A., 97.

- Kall, Henry von der**, action of thio-carbarnides on hydroxylamine, 1891, A., 1222.
- Kallen, J. P.**, and **Albert Stutzer**, examination of clover at different stages of growth, 1884, A., 100.
- Kallir, Jacob**, water of crystallisation of dissolved cobalt salts, 1888, A., 23.
- Kalman, Wilhelm**, estimation of phosphorus in iron and steel, 1886, A., 280.
- standardising iodine solutions, 1886, A., 579; 1887, A., 618.
- estimation of sulphurous acid in presence of thiosulphuric acid, 1887, A., 618.
- Kalman, Wilhelm**, and **Alois Smolka**, estimation of manganese in spiegel-eisen, ferromanganese, &c., 1885, A., 690.
- Kalman, Wilhelm**, and **Jos. Spüller**, examination of crude soda lyes and red liquors, 1887, A., 1063.
- Kalman, Wilhelm**. See also **Moric Gläser**.
- Kamensky, George**, electric conductivity of copper antimony alloys, 1885, A., 323.
- Kamnitzer, Isaak**, medicinal properties of the root bark of the pomegranate. 1885, A., 850.
- Kanera, Franz**. See **Ian Horbaczewski**.
- Kanonnikoff, Innocentius I.**, refractive power of organic compounds in solution, 1883, A., 1041.
- specific refractive energy, 1885, A., 1.
- refractive power of chemical compounds, 1885, A., 949.
- azo-compounds with mixed and substituted radicles, 1886, A., 145.
- refractive power of organic compounds, 1886, A., 335.
- relation between the rotatory and refractive powers of chemical compounds, 1889, A., 326, 453; 1891, A., 138.
- specific rotary power of tartaric acid and its salts, 1892, A., 1308.
- Kanthack, Alfredo Antunes**, cobra poison, 1892, A., 1118.
- Kapf, Siegmund**, and **Carl Paal**, ethyl phenacylbenzoylacetate, 1888, A., 839.
- derivatives of ethyl phenacylbenzoylacetate, 1889, A., 147.
- Kappel, S.**, formation of ozone and hydrogen peroxide, 1883, A., 282.
- nitrification in presence of copper and other metals, 1883, A., 286.
- formation of nitrites, 1887, A., 106.
- Karau, Georg**, tetravinylpyridine, 1892, A., 1483.
- Karau, Georg**. See also **Albert Ladenburg**.
- Karbe, J.**, krugite as manure for potatoes, 1884, A., 926.
- Karchowski, Dionysius von**. See **Albert Töhl**.
- Karcy, M.**, glyoxalcananthylene and its derivatives, 1887, A., 911.
- Karmenski, S. S.**, physiological action of acetophenone, 1889, A., 1076.
- Karpinsky, Alexander**, metamorphic graphite: garnet in the Ural Mountains, 1888, A., 115.
- Karstens, Harald**. See **Friedrich Krafft**.
- Kassner, Georg**, lactucein, 1887, A., 605.
- solanine, 1887, A., 860.
- elementary analysis of highly volatile organic liquids, 1888, A., 197.
- millet oil and some of its products of decomposition, 1888, A., 673.
- decomposition products of panicole, 1888, A., 1183.
- volumetric estimation of mercuric chloride, 1889, A., 78.
- basic zinc-ammonium carbonate, 1889, A., 1049.
- new method of preparing potassium ferricyanide, 1890, A., 352.
- new application of potassium ferricyanide, 1890, A., 352.
- barium, strontium, and calcium plumbates, 1890, A., 561.
- lead oxides, 1890, A., 699.
- volumetric estimation of potassium ferricyanide, 1890, A., 834.
- estimation of peroxides of the alkaline earths, 1891, A., 245.
- utilisation of atmospheric oxygen, 1891, A., 392.
- Kast, Alfred**, fate of certain chlorine compounds in the organism, 1887, A., 612.
- aromatic products of putrefaction in human sweat, 1887, A., 1132.
- output of chlorides in its relation to metabolism, 1888, A., 513.
- Kast, Alfred**. See also **Eugen Baumann**.
- Kast, Herm.** See **P. Behrend**.
- Kastle, J. H.**, *p*-nitro-*o*-sulphobenzoic acid, 1889, A., 711.
- separation of copper from cadmium, 1890, A., 295.
- Katayama, Kuniyosi**, test for carbonic oxide poisoning in blood, 1889, A., 88, 650.
- Kathrein, St.**, tannin in urine, 1891, A., 964.

- Katzer, Friedrich**, minerals from Bohemia, 1888, A., 922.  
 — geology of the district of Ričan, 1889, A., 357.
- Kauder, E.** cryptopine, 1887, A., 1122.  
 — tritopine and other rare opium bases, 1891, A., 227.
- Kauder, Ernst**, action of phosphorus pentachloride on succinic chloride, 1884, A., 40.  
 — action of phosphorus pentachloride on succinyl compounds and on tartaric acid, 1885, A., 651.
- Kauffmann, Georg**,  $\beta$ -naphthacoumarin, 1883, A., 1136.
- Kaufmann, Herbert**. See **Rudolf Nietzki, Otto Nikolaus Witt**.
- Kaufmann, Maurice**, diastatic ferment of the liver, 1890, A., 185.
- Kaufmann, Maurice**. See also **Jean Baptiste Auguste Chauveau**.
- Kaulfuss, Alexander**, apparatus for distilling zinc methyl and zinc ethyl, 1888, A., 255.
- Kautz, Heinrich**. See **Adolph Claus**.
- Kawakita, Michitatsu**. See **Edward Divers**.
- Kay, Percy**, antimony potassium oxalate, 1888, A., 675.
- Kayser, Heinrich**, condensation of carbonic anhydride on glass, 1885, A., 214.  
 — new form of thermopile, 1886, A., 3.  
 — disintegration of glowing platinum, 1888, A., 1014.
- Kayser, Heinrich**, and **Carl Runge**, spectra of the alkali metals, 1891, A., 137.  
 — spectra of the elements of the second periodic group, 1891, A., 965.
- Kayser, Johann Emanuel Friedrich Robert**, examination of an apple-must and of the cider obtained therefrom, 1884, A., 98.  
 — estimation of tartaric acid in wine, 1884, A., 504.  
 — chemistry of wine, 1884, A., 1445.  
 — substances contained in saffron, 1885, A., 59.  
 — casein-glue, a substitute for gum arabic, 1885, A., 1024.  
 — bleaching and dyeing bone and ivory, 1886, A., 188.  
 — lokao, or Chinese-green, 1886, A., 254.
- Kayser, Walter**, and **Arnold Reissert**, julole, 1892, A., 883.
- Kayser, Walter**. See also **Arnold Reissert**.
- Kebler, Eliot Abbott**. See **Frank Wiggelsworth Clarke**.
- Kebler, John Thayer**, and **Thomas Herbert Norton**, acenaphthene and chlorine, 1888, A., 961.
- Kebler, Lynum F.**, estimation of nitrogen in nitrates by Kjeldahl's method, 1891, A., 1397.
- Keeler, James Edward**, absorption of radiant heat by carbonic anhydride, 1885, A., 626.
- Kees, Alfred**. See **Ferdinand Tiemann**.
- Kegel, Eduard**. See **Oscar Emil Beyer**.
- Kegel, Otto**, isomeric naphthyl phenyl ketones, 1888, A., 1307.
- Kegel, Otto**. See also **Theodor Zincke**.
- Kehrer, Eduard Alexandre**, condensation of levulinic acid with furfuraldehyde, 1892, A., 442.
- Kehrer, Eduard Alexandre**. See also **Carl Hell, A. Ludwig**.
- Kehrmann, Friedrich**, a new class of cobaltic salts, 1887, A., 220.  
 — structure of complex inorganic acids, 1887, A., 777.  
 — phosphotungstic acids, 1887, A., 777.  
 — potassium manganic oxalate, 1887, A., 800.  
 — separation of phosphoric acid from tungstic acid, 1887, A., 866.  
 — iodophenolsulphonic acids, 1888, A., 595, 841; 1889, A., 993, 1184.  
 — phosphotungstates and arsenotungstates, 1888, A., 788.  
 — di-iodophenolsulphonic acid, 1888, A., 842.  
 — action of alkali nitrites on halogen derivatives of quinones, 1888, A., 940.  
 — influence of the presence of halogens and alkyl-groups on the displacement of oxygen in quinone derivatives by the isonitroso-group, 1889, A., 243.  
 — action of alkalis and ammonia on halogen-substituted quinones, 1889, A., 707; 1890, A., 186.  
 — iodophenolsulphonic acids and iodoquinones, 1889, A., 993, 1184.  
 — oxidation of aromatic diamines, 1889, A., 1154.  
 — derivatives of *s*-dinitroresorcinol, 1890, A., 241.  
 — isomerism of halogen thymoquinones, 1890, A., 367.  
 — dependence of substitution phenomena on the atomic or molecular weights of certain atoms or groups, 1890, A., 484.  
 — quinoneimides and amidoquinones, 1890, A., 756.  
 — constitution of eurhodine, induline, and allied dyes, 1890, A., 1265.

- Kehrmann, Friedrich**, influence of mass on chemical processes, 1891, A., 257.  
 — constitution of quinone, 1891, A., 432.  
 — action of alkalis and amines on halogen substituted quinones, 1891, A., 903.  
 — thymol, 1892, A., 1078.  
 — dinitrosoazobenzene, 1892, A., 1198.
- Kehrmann, Friedrich, and Richard Brasch**, tolunitranilic acid: nitro-derivatives of toluquinol, 1889, A., 969.
- Kehrmann, Friedrich, and Moses Freinkel**, complex inorganic acids: phosphotungstic acids, 1891, A., 1159; 1892, A., 1160.
- Kehrmann, Friedrich, and Josef Messinger**, action of hydroxylamine on nitrosophenols, 1890, A., 1403.  
 — thymoquinonedioxime, 1891, A., 297.  
 — relations of the eurhodines to the indulines and saffianines, 1891, A., 746, 1213.  
 — azonium bases, 1891, A., 945, 1109; 1892, A., 1108.  
 — so-called dinitrosoazobenzene, 1892, A., 889.  
 — nomenclature of rings consisting of two carbon and three nitrogen atoms, 1892, A., 889.
- Kehrmann, Friedrich, and Nicolas Pickersgill**, electrolysis of cobalt salts of oxalic acid, 1891, A., 1189.
- Kehrmann, Friedrich, and Wilhelm Tiesler**, derivatives of *m*-dichloroquinone, 1890, A., 241.  
 — action of hydroxylamine hydrochloride on *p*-dihydroxyquinones, 1890, A., 493.
- Kehrmann, Friedrich, and Oscar Weichardt**, derivatives of nitrohydroxynaphthaquinone, 1889, A., 1197.
- Kehrmann, Friedrich**. See also *Rudolf Nietzsche*.
- Keim, A., and F. Thenn**, preserving and colouring stone-work, 1884, A., 880.
- Keim, Wilhelm**, ripening of cherries; fermentation of cherry and currant juice; colouring matters of red and black currants, 1891, A., 1539.
- Keiser, Edward Harrison**, estimation of sulphur in organic compounds, 1884, A., 500.  
 — new apparatus for gas analysis, 1886, A., 647.  
 — lecture experiment on nitrogen oxides, 1886, A., 660.
- Keiser, Edward Harrison**, action of chlorine on pyridine, 1887, A., 277.  
 — new pyrometer, 1887, A., 1073.  
 — combustion of weighed amounts of hydrogen, 1887, A., 1078.  
 — atomic weight of oxygen, 1887, A., 1078; 1891, A., 1154.  
 — atomic weight of palladium, 1890, A., 17.  
 — synthesis of fumaric acid, 1890, A., 594.  
 — silver and copper compounds of acetylene, 1892, A., 1416.
- Keiser, Edward Harrison**. See also *Harmon Northrup Morse, Ira Remsen*.
- Kekulé, August Friedrich**, carbonyl tartaric acid, 1884, A., 41.  
 — formaldehyde, 1892, A., 1423.  
 — congratulatory address to, 1890, P., 29.
- Kekulé, August Friedrich, and Otto Strecker**, trichlorophenomalonic acid, 1884, A., 1122.
- Kekulé, August Friedrich**. See also *Richard Anschütz, Julius Busz*.
- Kelbe, Werner**, oxidising action of dilute nitric acid on *m*-isobutyltoluene, 1883, A., 796.  
 — displacement of the sulphonic group by chlorine, 1883, A., 806.  
 — barium *p*-toluenesulphonate, 1883, A., 807.  
 — action of acid amides on aromatic amines, 1883, A., 915.  
 — hydrolysis of aromatic sulphonic acids by means of superheated steam, 1886, A., 355.  
 — presence of ordinary cymene and an aromatic hydrocarbon,  $C_9H_{12}$ , in resin spirit, 1886, A., 939.  
 — retene from rosin oil, 1888, A., 605.
- Kelbe, Werner, and Albert Baur**, butyltoluenes in rosin spirit, 1884, A., 300.
- Kelbe, Werner, and Nicolaus von Czarnomski**,  $\beta$ -*m*-isocymenesulphonic acid, 1884, A., 1355.  
 — action of bromine and water on  $\alpha$ -*m*-isocymenesulphonic acid: constitution of  $\alpha$ - and  $\beta$ -*m*-isocymenesulphonic acids, 1887, A., 147.
- Kelbe, Werner, and Michael Koschnitzky**, action of bromine on *p*-cymenesulphonic acid, 1886, A., 884.
- Kelbe, Werner, and J. Lwoff**, occurrence of methyl alcohol in the products of the dry distillation of colophony, 1883, A., 738.
- Kelbe, Werner, and Kari Pathe**,  $\psi$ -cumene derivatives, 1886, A., 804.

- Kelbe, Werner, and Gustav Pfeiffer**, *m*- and *p*-isobutylbenzoic acids and isobutylbenzene, 1886, A., 877.
- Kelbe, Werner, and H. Stein**, action of bromine on xylenesulphonic acids, 1886, A., 1032.
- Kelbe, Werner, and Constantin Warth**, *m*-isocymidine, 1884, A., 46.
- Keller, A.**, products of the action of aromatic carbodiimides on *o*-diamines, 1891, A., 1468.
- Keller, H.**, influence of ethyl alcohol on metabolism in man, 1889, A., 288.
- Keller, Harry Frederick**, kobellite from Colorado, 1890, A., 218.
- *s*-tetrabromodiacetyl, 1890, A., 359.
- Keller, Harry Frederick, and Alfred Church Lane**, chloritoid from Champion, Michigan, 1891, A., 1439.
- Keller, Harry Frederick**. See also **Rudolph Fittig, Alfred Church Lane, Edgar Francis Smith**.
- Keller, Paul**, cyanmethine, 1885, A., 961.
- Kellner, Oscar**, researches on the digestibility of purified lupine seeds by the horse, and observations on the working power of the horse when fed with lupines and oats, 1883, A., 102.
- notes on the chemical alterations of green fodder during its conversion into ensilage, 1884, T., 612.
- development and nutrition of Japanese silkworms, 1884, A., 667; 1887, A., 68.
- vegetables used as food in Japan, 1884, A., 674.
- action of ferrous oxide on vegetation, 1886, A., 486.
- composition of tea-leaves, 1887, A., 78.
- estimation of absorbed bases in soils, 1887, A., 77.
- relative nutritive value of fat and carbohydrate, 1888, A., 173.
- digestibility of rice-straw, 1890, A., 546.
- Kellner, Oscar, and H. Imai**, examination of certain soils in Japan, 1884, A., 680.
- Kellner, Oscar, and J. Sawano**, rice culture in Japan, 1884, A., 672.
- changes in fodder during ensilage, 1885, A., 1087.
- preparation of silage, 1890, A., 546.
- Kellner, Oscar, and T. Yoshii**, development of free nitrogen in putrefaction and nitrification, 1888, A., 185.
- Kellner, Oscar, Yoshinao Kozai, and Yōtarō Mori**, changes occurring during ensilage, 1891, A., 1287.
- Kellner, Oscar, Yōtarō Mori, and Muneshige Nagaoka**, inverting ferment, 1890, A., 281.
- Kellner, Oscar, Yoshinao Kozai, Yōtarō Mori, and Muneshige Nagaoka**, manuring experiments with rice, 1891, A., 1547.
- Kellner, Oscar, H. Sakano, D. Sato, and S. Shinjo**, action of lime as a manure, with special regard to paddy fields, 1892, A., 93.
- Kellner, Oscar** (and others), use of carbolic acid in the disinfection of sewage, 1884, A., 697.
- development and nourishment of the silk-worm, 1884, A., 1202.
- absorption by soils, 1887, A., 76.
- behaviour of urea in soils, 1887, A., 524.
- Kemp, James F.**, diorite dyke in Orange Co., New York, 1888, A., 1045.
- porphyrite bosses in New Jersey, 1890, A., 345.
- minerals from Port Henry, New York, 1891, A., 158.
- Kemp, William Joel**, decomposition of soda waste by means of carbonic anhydride, 1885, A., 1017.
- Kempff, Karl**, action of benzylamine on methylene chloride, 1890, A., 887.
- Kempner, G.**, influence of air somewhat deficient in oxygen on animals, 1884, A., 344.
- Kendall, James Alfred**, new method of generating electricity, 1884, A., 652.
- Kennepohl, H.**, estimation of phosphoric acid in basic slag, 1888, A., 321.
- estimation of iron and aluminium in the presence of calcium and phosphoric acid, 1889, A., 188.
- Kenngott, Gustav Adolf**, calculation of analyses of augites and amphiboles from Finland, 1883, A., 1065.
- analysis of humite, 1883, A., 1068.
- minerals from Brazil, 1884, A., 564.
- priceite, coemanite, and pandermite, 1885, A., 1117.
- nephrite from Jordansmühl in Silesia, 1885, A., 1119.
- crocidolite and arfvedsonite, 1886, A., 128.
- composition of idocrase, 1891, A., 651.
- formula of axinite, 1891, A., 1168; 1892, A., 125.

- Kenngott, Gustav Adolf**, formulæ of Vesuvian minerals, 1892, A., 417.  
 — formula of tourmaline, 1892, A., 1410.
- Kent, Walter Henry**, and **Bernhard Tollens**, lactose and mucic acid. 1884, A., 980.  
 — milk-sugar, and galactose, 1885, A., 647.
- Keppich, Paul**, solubility of the silver, calcium, and barium salts of *n*-caproic and diethylacetic acids, 1889, A., 122.
- Keppler, Ferdinand**, and **Victor Meyer**, 1:3-dinitropropane, 1892, A., 1061, 1415.
- Kerez, Conrad**, action of the aluminium halogen compounds on the halogen derivatives of the paraffins, 1886, A., 435.
- Kern, Eduard**, a new milk ferment, 1883, A., 229.
- Kern, Ernst**, artificial digestion of meadow-lay, 1883, A., 1025.
- Kern, Ernst**, and **H. Wattenberg**, effect of increasing the proteids in food rations of grown animals, 1891, A., 753.
- Kern, Ernst, H. Wattenberg**, and **Theodor Pfeiffer**, influence of work on the material-exchange of sheep, 1891, A., 1392.
- Kern, Sergius**, Russian basic steel, 1883, A., 1036.
- Kernbaum, Alexander**. See **Paul Walden**.
- Kerner, George**, and **Albert Weller**, testing quinine sulphate, 1887, A., 1146.
- Kerp, Wilhelm**. See **Richard Anschütz**.
- Kerry, Richard**, decomposition of albumin by the bacillus of malignant edema, 1890, A., 542.
- Kerry, Richard**, and **Sigmund Fraenkel**, action of the bacillus of malignant edema on carbohydrates, 1890, A., 1454; 1892, A., 91.  
 — action of the bacillus of malignant edema on lactic acid, 1892, A., 91.
- Kershaw, J. B. C.**, improved form of Orsat's apparatus for the estimation of oxygen, 1884, A., 695.
- Kerstein, Wilhelm**, hydrastine, 1890, A., 74.
- Kerstein, Wilhelm**. See also **Ernst Albert Schmidt**.
- Kertész, A.**, detection of magenta in extract of archil, 1885, A., 1015.
- Kessler, Alex**. See **Alexander I. Gorboff**.
- Kessler, Arthur**. See **Julius Giersbach**.
- Kessler, L.**, hardening of soft calcareous rocks by means of fluosilicates of soluble bases, 1883, A., 940.
- Kestner**. See **Scheurer-Kestner**.
- Kette, W.**, three processes for obtaining albuminoid matter from potato-waste, 1884, A., 948.  
 — influence of krugite on the percentage of starch in potatoes, 1884 A., 1401.
- Ketteler, Eduard**, dispersion in rock salt, 1887, A., 754.  
 — refraction of liquids between wide limits of temperature, 1888, A., 541; 1889, A., 197.  
 — new theory of molecular volume and refraction, 1889, A., 326.
- Keutgen, C. H.**, action of sulphur on glycerol, 1890, A., 577.
- Key, M.**, influence of light on the growth of yeast, 1886, A., 387.
- Kiby, Wilhelm**. See **Carl Engler**.
- Kickelhayn, Friedrich Mortz**. See **Adolph Claus**.
- Kiener, Paul Louis**. See **Rodolphe Engel**.
- Kienlen, P.**, extraction of selenium from a waste product, 1883, A., 16.
- Kiesewetter, Paul**, and **Gerhard Krüss**, absorption spectra of the rare earths, 1888, A., 1038.
- Kietz, Albert**, researches on digestion in the stomach, 1883, A., 815.
- Kijner, S. N.**, action of hydrogen chloride and bromide on ethyl allyl ether, 1891, A., 164.
- Kikuchi, Yasushi**, anorthite from Miyakejima, Japan, 1890, A., 718.  
 — cordierite as contact mineral, 1892, A., 1056.
- Kilian, Heinrich**, saccharin and saccharic acid, 1883, A., 565.  
 — saccharone and saccharin, 1883, A., 962.  
 — a new saccharin from milk-sugar, 1884, A., 283.  
 — preparation of glycollic acid from glycerol, 1884, A., 295.  
 — isosaccharin, 1885, A., 741.  
 — *n*-saccharin, 1885, A., 745.  
 — tihiydroxyadipic acid, 1885, A., 967.  
 — galactonic acid, 1885, A., 967.  
 — constitution of isosaccharic acid, 1886, A., 48.  
 — cyanhydrin of levulose, 1886, A., 219, 438.  
 — ethylpropylacetic acid, 1886, A., 441.  
 — action of hydrocyanic acid on dextrose, 1886, A., 526.  
 — constitution of dextrosecarboxylic acid, 1886, A., 687.  
 — lactone of levulosecarboxylic acid, 1886, A., 869.

- Kiliani, Heinrich**, *n*-pentahydroxypimelic acid and its lactone, 1886, A., 936.
- arabinose, 1887, A., 229, 465.
  - arabinosecarboxylic acid, 1887, A., 465.
  - action of sodium amalgam on arabinose, 1887, A., 714.
  - double lactone of *m*-saccharic acid, 1888, A., 46.
  - action of hydrocyanic acid on galactose, 1888, A., 581.
  - *m*-saccharic acid, 1888, A., 821; 1889, A., 590.
  - oxidation of arabinose with nitric acid, 1889, A., 32.
  - oxidation of galactosecarboxylic acid, 1889, A., 589.
  - aldehyde galactonic acid, 1889, A., 857.
  - composition of digitonin, 1890, A., 996.
  - digitonin and digitogenin, 1891, A., 576.
  - digitonin, 1892, A., 501.
  - digitalonic acid, 1892, A., 1241.
  - digitalin, 1892, A., 1482.
  - preparation of digitogenin, 1892, A., 1483.
- Kiliani, Heinrich**, and **Georg Düll**, preparation of levulosecarboxylic acid, 1890, A., 596.
- Kiliani, Heinrich**, and **Samuel Klee-mann**, conversion of gluconic acid into *n*-caprolactone, 1884, A., 730, 993.
- Kiliani, Heinrich**, and **Carl Bernhard Wilhelm Scheibler**, constitution of sorbinose, 1889, A., 116.
- quercitol, 1889, A., 581.
- Kiliani, Heinrich**. See also **Léon Cuisinier**.
- Kimball, James Putnam**, specular iron ores of Cuba, 1885, A., 356.
- genesis of iron ores by replacement of limestone, 1892, A., 126.
- Kimmins, Charles William**, periodates, 1887, T., 356; P., 22; 1889, T., 148; P., 3.
- Kinch, Edward**, soja bean, 1883, A., 235.
- note on the nitrogenous matters in grass and ensilage from grass, 1884, T., 122.
  - composition of the food of Scotch hill sheep, 1885, A., 291.
  - amount of chlorine in rain-water collected at Cirencester, 1886, P., 258; 1887, T., 92.
  - platnerite, 1887, A., 451.
  - dufenite from Cornwall, 1891, A., 274.
- Kinch, Edward, Francis Henry Butler**, and **Henry Alexander Miers**, variety of dufenite from Cornwall, 1887, A., 451.
- King, Alfred John**, Clerget's method of sugar analysis by inversion, 1884, A., 503.
- King, Charles Millard**, fat extraction apparatus, 1888, A., 1134.
- Kingzett, Charles Thomas**, on camphoric peroxide and camphorate of barium, 1884, T., 93.
- rape oil, beef fat, and mutton dripping, 1885, A., 446.
  - atmospheric oxidation of turpentine, camphor oil, and oil of sunflower, 1888, A., 605.
  - estimation of hydrogen peroxide, 1889, A., 301.
- Kinkelin, Friedrich**, preparation of *m*-nitrocinnamaldehyde, 1885, A., 791.
- Kinkelin, Friedrich**. See also **Wilhelm von Miller**.
- Kinnicutt, Leonard P.**, modification of Noack's method of preparing carbonic oxide, 1884, A., 260.
- Kinnicutt, Leonard P.**, and **George Dunning Moore**, action of an alcoholic solution of silver nitrate on ethyl phenyldibromopropionate, 1891, A., 1055.
- Kinnicutt, Leonard P.**, and **John Ulric Nef**, volumetric estimation of combined nitrous acid, 1884, A., 493.
- Kinnicutt, Leonard P.**, and **George M. Palmer**,  $\beta$ -phenyltribromopropionic acid, 1884, A., 603.
- Kinnicutt, Leonard P.**, and **George W. Patterson**, estimation of chromium in chrome iron, 1891, A., 366.
- Kinnicutt, Leonard P.**, and **R. C. Sweetser**, Schulze's process for the estimation of the halogens in aromatic compounds, 1885, A., 1010.
- Kinzel, Wilhelm**, estimation of pyridine bases in gas liquor, 1890, A., 1349.
- oxidation products of *p*-amido-phenetol, 1892, A., 158.
- Kierskou, Hjalmar Frederik Christian**, separation of wheat-meal from rye-meal, 1884, A., 376.
- Kipping, Frederick Stanley**, synthetical formation of closed carbon chains in the aromatic series, 1887, P., 93; discussion, P., 94; 1888, T., 21.
- action of phosphoric anhydride on fatty acids, 1890, T., 532, 980; P., 24, 67, 115.
  - formation of a hydrocarbon,  $C_{10}H_{12}$ , from phenylpropionic acid, 1892, P., 107.

- Kipping, Frederick Stanley**, the reduction products of dimethyldiacetylpentane, 1892, P., 198.  
 — synthesis of hydrindone, 1892, P., 216.
- Kipping, Frederick Stanley**, and **John Edwin Mackenzie**,  $\alpha\alpha$ -dimethyl- $\alpha\alpha$ -diacetylpentane, 1890, P., 116.  
 — ethyl  $\alpha\alpha$ -dimethyl- $\alpha\alpha$ -diacetylmelate and its decomposition products, 1891, T., 569; P., 110.
- Kipping, Frederick Stanley**, and **William Henry Perkin, junior**,  $\alpha\omega$ -diacetylpentane and  $\alpha\omega$ -dibenzoylpentane, 1889, T., 330; P., 79.  
 — action of dehydrating agents on  $\alpha\omega$ -diacetylpentane; synthesis of methylethylhexamethylene, 1889, P., 143; 1890, T., 13.  
 — action of reducing agents on  $\alpha\omega$ -diacetylpentane: formation of dimethylheptamethylene, 1889, P., 145.  
 — derivatives of phenylhexamethylene, 1889, P., 161; 1890, T., 304.  
 —  $\alpha\omega$ -diacetyl- $\alpha\omega$ -diethylpentane, 1890, T., 29.  
 — action of reducing agents on  $\alpha\alpha$ -diacetylpentane: synthesis of dimethylhydroxyheptamethylene, 1891, T., 214; P., 24; discussion, P., 25.
- Kipping, Frederick Stanley**. See also **Henry Edward Armstrong**.
- Kircher, Georg**, chlorinated anthraquinones, 1884, A., 1039.  
 — tetrachlor-*o*-benzoylbenzoic acid, 1887, A., 831.
- Kirchner, Leopold**, phenyllutidinedicarboxylic acid and phenyllupetidinedicarboxylic acid, 1892, A., 1486.
- Kirchner, Wilhelm Julius Otto Leopold** (and others), ensilage experiments with various fodders, 1885, A., 422.
- Kirchner, Wilhelm Julius Otto Leopold**. See also **Albert Wüst**.
- Kirchoff, Richard**. See **Hugo Erdmann**.
- Kirk, Robert**, alcaptonuria, 1888, A., 1121; 1890, A., 188.  
 — uroleucic acid, 1890, A., 188.
- Kirkaldy, Patrick H.**, urea oxalate, 1892, A., 1421.
- Kirkland, John Booth**. See **David Orme Masson**.
- Kirman, Walter**. See **Thomas Edward Thorpe**.
- Kirpal, Alfred**, first product of the reduction of nitro-compounds with stannous chloride, 1892, A., 1067.
- Kisch, W.**, estimation of free oxygen dissolved in water, 1892, A., 98.
- Kisch, W.** See also **Franz Josef König**.
- Kislakowsky, Eugene D.**, meteorite of Tungusk, 1892, A., 418.
- Kislakowsky, Eugene D.** See also **Alexander P. Sabaneff**.
- Kissel, J.**, constitution of nitroparaffins, 1885, A., 364.  
 — action of zinc ethyl on nitroethane, 1888, A., 436.  
 — action of methyl iodide and of chloroform on nitroisopropane, 1892, A., 1290.
- Kisser, Elias**. See **Heinrich Goldschmidt, Ernst Schulze**.
- Kissling, Richard**, tobacco fat, 1884, A., 173.  
 — estimation of nicotine in tobacco, 1890, A., 430.  
 — sodium carbonate: detection of traces of alkali hydroxides, 1891, 364.
- Kissling, Richard**. See also **Hermann Anton Moritz Fleischer**.
- Kistiakowski, Vladimir A.**, aqueous solutions of double salts, 1891, A., 6.
- Kitiesan, S.**, distillation of wine, 1883, A., 934.
- Kitrosky, Chuna**. See **Carl Hell**.
- Kitschelt, Max**. See **Eugen Bamberger**.
- Kitt, Moritz**. See **Hugo Strache**.
- Kittler, Erasmus**, electromotive force of a Daniell's element, 1883, A., 409.
- Kjeldahl, Johan Gustav Christophe Thorsager**, invertin, 1883, A., 225.  
 — a new method of determining nitrogen in organic substances, 1884, A., 364.
- Kjellin, Carl**. See **Heinrich Goldschmidt**.
- Klason, Johan Peter**, cyanuric acid: di- and tri-thiocyanuric acids, 1886, A., 324.  
 — *n*-melamines, 1886, A., 522.  
 — melam compounds, 1886, A., 521.  
 — estimation of sulphur and halogens in organic compounds, 1886, A., 918.  
 — cyanuric radicle and its compounds with halogens, 1886, A., 1001.  
 — sugar formed in the inversion of lichens, 1887, A., 25.  
 — toluenedisulphonic acids, 1887, A., 264, 491.  
 — synthesis of cyanphenin, 1887, A., 363.  
 — substitution of amidogen by the hydrothionyl- and oxysulphuryl-groups, 1887, A., 478.  
 — free thiocyanic and cyanuric acids and their compounds with ethers and alcohols, 1887, A., 789.  
 — carbon oxysulphide, 1887, A., 1015.

- Klason, Johan Peter**, action of chlorine on carbon bisulphide and of sulphur on carbon tetrachloride, 1887, A., 1015.
- action of acids on thiocyanic acid, 1887, A., 1025.
- thio-derivatives of ethyl carbonate, 1887, A., 1029.
- estimation of thiocyanic acid, 1887, A., 1144.
- estimation of sulphur, chlorine, bromine, and iodine in organic substances, 1888, A., 320.
- preparation of sulphides and hydrosulphides of methyl and ethyl, 1888, A., 356.
- alkyl polysulphides, 1888, A., 356.
- perthiocyanic and dithiocyanic acids, 1889, A., 227.
- preparation of chlorine gas for laboratory purposes, 1890, A., 445.
- thiocarbimidoacetic acid and thiohydantoin, 1891, A., 179.
- Klatt, Virgil**, and **Philipp Lenard**, phosphorescence of copper, bismuth, and manganese in the sulphides of the alkaline earths, 1890, A., 201.
- Klauber, Alfred**, xylolhydrazine, 1890, A., 1410.
- *a-m*-xylolhydrazine, 1891, A., 1362.
- Klaudy, Josef**. See **Theodor Morawski**.
- Klawitter**, Chili saltpetre for barley, 1884, A., 1419.
- Kleber, Clemens**, action of ethyl sodium-malonate on chloromethyl ether, 1888, A., 1056.
- Kleber, Clemens**. See also **Friedrich Carl Adolf Stohmann**.
- Kleeberg, Felix**. See **William James Comstock**, **William Gilbert Mixer**.
- Kleeberg, IV.**, action of formaldehyde on phenols, 1891, A., 1199.
- Kleemann, Samuel**, method of preparing diacetyl cyanide, 1885, A., 505.
- action of alkalis on nitracetanilides and nitracetonaphthalides, 1886, A., 472.
- peculiar reaction of malonic acid, 1886, A., 985.
- reduction of nitro-opianic acid, 1887, A., 584.
- Kleemann, Samuel**, and **Wilhelm Wense**,  $\alpha$ -diamidophenanthraquinol, 1885, A., 1240.
- Kleemann, Samuel**. See also **Heinrich Kiliani**, **Carl Theodor Liebermann**.
- Klein, Daniel**, borotungstates, 1883, A., 23, 786; 1884, A., 559, 1266.
- modification of the usual statement of the law of isomorphism, 1883, A., 147.
- Klein, Daniel**, antimony derivatives of nuccic and saccharic acids, 1881, A., 121.
- compounds of tellurous anhydride with acids, 1884, A., 1256.
- general reaction of polyhydric alcohols in presence of borax and *p*-tungstates, 1884, A., 1284.
- action of tellurous and telluric acids on *p*-tungstates, 1885, A., 218.
- telluryl tartrate and citrate, 1886, A., 336.
- tellurous anhydride, 1886, A., 767.
- Klein, Daniel**, and **Armand Berg**, corrosion of boilers by solutions of sugar, 1886, A., 1004.
- Klein, Daniel**, and **Jules Morel**, action of nitric acid on tellurium, 1885, A., 16.
- action of water and nitric acid on basic tellurium nitrate, 1885, A., 17.
- tellurous anhydride, 1885, A., 870.
- Klein, Edvard Emmanuel**, bacteriological research from a biologist's point of view, 1886, T., 197; P., 148; discussion, P., 149.
- Klein, Emil**, electrical conductivity of double salts, 1886, A., 407.
- Klein, F.**, examination of argol and wine lees, 1886, A., 182.
- Klein, G.**, experiments with manures containing thiocyanates, 1885, A., 76.
- adulteration of linseed-cake and rape-cake, 1885, A., 425.
- Klein, Johann Friedrich Carl**, cryolite, pachenolite, and thomsenolite, 1883, A., 427.
- Klein, Johann Friedrich Carl**, and **Paul Ehrhardt Jannasch**, ullmannite from Lolling and from Sarrahus, 1888, A., 31.
- Klein, Joseph**, estimation of phosphoric acid in basic slag, 1886, A., 740, 835.
- estimation of formic acid and of organic matter in water, 1887, A., 1000.
- detection of mercury, 1889, A., 651.
- detection of manganese, 1889, A., 653.
- Klein, Joseph**. See also **Richard Anschütz**.
- Klein, Otto**,  $\alpha$ -picolylfurylalkine and  $\alpha$ -pipecolylfurylalkine, 1890, A., 1437.
- Klein, Otto**. See also **Alfred Einhorn**.
- Klein, Wilhelm**, optical modifications produced in crystals by the action of heat, 1885, A., 622.

**Kleiner, Ed.** See **Robert Ebert**.

**Kleinert**, estimation of phenol in commercial carbolic acid, 1884, A., 503.

— halymetric estimation of alcohol in beer, 1884, A., 641.

**Kleinstück, U.**, specific gravity and composition of tin-lead alloys, 1889, A., 1051.

— determination of the specific gravity of solids, 1891, A., 11.

— specific gravity of Japan wax, 1892, A., 428.

**Klemenčič, Ignaz**, dielectric constant of certain gases and vapours, 1885, A., 1030.

**Klement, Constantin**, rocks from the Congo, 1888, A., 34.

— meteorite of Saint-Denis-Westrem, 1888, A., 238.

— water from artesian wells, 1888, A., 239.

— ilmenite from the Ardennes, 1888, A., 430.

— apatite, chlorite, and mica from Belgian localities, 1891, A., 528.

**Klement, Constantin**. See also (*Rev.*) *Alphonse François Benard*.

**Klemp, G.**, valuation of zinc dust, 1890, A., 1190.

— estimation of aluminium in commercial aluminium, 1891, A., 114.

**Klenze, von**, digestibility of cheese, 1885, A., 1252.

**Klepl, Arthur**, preparation of methyl chlorocarbonate, 1883, A., 311.

— compound of phenol with carbonic anhydride, 1883, A., 584.

— hydroxybenzoic acid, 1883, A., 664.

— dry distillation of *p*-hydroxybenzoic acid, 1884, A., 446.

**Klett, Max**. See *Eugen Baumann, Max Busch*.

**Klewitz, Adolph**, and *Gustav Krieger*, removal of juice from sugar-beet, 1884, A., 647.

**Kliche, Theodor** copper oxysulphides, 1890, A., 1211.

**Kliebhan, G.**, recognition of pyrogallol, 1888, A., 198.

— separation of resins, 1888, A., 761.

**Klien, Georg**, composition of barley and peas, 1887, A., 73.

— value of nitrogen in sodium nitrate and in ammonium sulphate, 1888, A., 872.

**Klimenko, Euthyme**, ethylenelactic acid from flesh extract, 1890, A., 235.

— *p*-acrylic and hydracrylic acids, 1891, A., 170.

**Klimenko, Euthyme**, and *Lucian Buchstab*, action of phosphoric chloride on citric and aconitic acids, 1891, A., 178.

**Klimenko, Euthyme**, and *George Peka-toros*, action of hydrogen chloride and metallic chlorides on the photochemical decomposition of chlorine water, 1889, A., 1093.

**Klingel, Julius**, amidoacetophenone and allied substances, 1884, A., 1343.

— *p*-amidoacetophenone, *o*-amido-*m*-acetyltoluene, and some of their derivatives, 1886, A., 60.

**Klingemann, Felix**, action of aromatic amines on acetylcitric anhydride, 1889, A., 768.

— quantity of nitric oxide produced in the combustion of nitrogenous organic compounds with copper oxide, 1890, A., 292.

— 1-methyl-3-diphenyl-4:5-diphenylpyrrolone, 1891, A., 736.

— is alcohol eliminated by the milk? 1892, A., 365.

— action of phenylhydrazine on unsaturated  $\gamma$ -diketones, 1892, A., 995.

— desylacetic acid, 1892, A., 1002.

**Klingemann, Felix**, and *William Frederick Laycock*, action of ammonia and of methylamines on the oxylepidines, 1890, P., 149; 1891, T., 140.

**Klingemann, Felix**. See also *Richard Anschütz, Francis Robert Japp, William Frederick Laycock*.

**Klingenberg, Karl**, oxidation of aromatic substances in the animal organism, 1891, A., 1529.

**Klinger, A.** See *Alfons Bujard*.

**Klinger, Heinrich Conr.**, basic double salts, 1883, A., 904.

— isobenzil, 1883, A., 920; 1886, A., 888.

— action of sunlight on organic compounds, 1888, A., 888; 1889, A., 405.

**Klinger, Heinrich Conr.**, and *Adolf Krenz*, action of methyl iodide on sodium arsenite, 1889, A., 363.

**Klinger, Heinrich Conr.**, and *Albert Maassen*, sulphines and the valency of sulphur, 1888, A., 357; 1889, A., 1135.

**Klinger, Heinrich Conr.**, and *R. Pitschke*, oxidation of *p*-toluidine, 1885, A., 151.

— sieburgite, 1885, A., 220.

— *m*-dinitroazoxybenzene and *o*-azoxytoluene, 1886, A., 53.

**Klinger, Heinrich Conr.**, and *Ludolf Schmitz*, dibutyl and diisovaleryl, 1891, A., 890.

- Klinger, Heinrich Conr.**, and **Ludolf Schmitz**, new synthesis of isobenzil, 1891, A., 932.
- Klinger, Heinrich Conr.**, and **Alto Standke**, benzoic acid and its derivatives, 1889, A., 885.
- action of sunlight on organic compounds, 1891, A., 900.
- isobenzil, 1891, A., 931.
- Klinger, Heinrich Conr.**, and **Johann Zuurdeeg**, trinitroazoxybenzenes and trinitroazobenzenes, 1890, A., 761.
- Klinger, Heinrich Conr.** See also **Friedr. Heusler**.
- Klinkenberg, Wilhelm**, proportion of nitrogen in the form of amides, albumin, and nuclein in different feeding-stuffs, 1883, A., 748.
- Klinkenberg, Wilhelm**, and **Albert Stutzer**, nuclein, 1883, A., 814.
- Klinkenberg, Wilhelm**. See also **Albert Stutzer**.
- Klobb, Constant Timothy**, compounds of ammonia with metallic permanganates, 1886, A., 983; 1888, A., 230; 1890, A., 947.
- mineralising influence of ammonium sulphate, 1892, A., 1399.
- Klobb, P.**, crystallised anhydrous sulphates, 1892, A., 941.
- Klobbie, Eduard August**, nitramine from mesidine, 1888, A., 466.
- action of nitrous acid on amido-derivatives, 1891, A., 292.
- Klobbie, Eduard August**. See also **Antoine Paul Nicolas Franchimont**.
- Klobukoff, Nicolaus von**, apparatus for the determination of vapour densities at low temperature, 1885, A., 9.
- estimation of vapour densities of liquids of high boiling-points, 1885, A., 9.
- alkaline tetrathionates, 1885, A., 1110.
- volumetric estimation of sulphur, 1885, A., 1159.
- relation between molecular structure and absorption of light, 1885, A., 1173.
- air pump regulator, 1886, A., 118.
- apparatus for operations in a vacuum, 1886, A., 178.
- new apparatus for electrochemical research, 1886, A., 653; 1887, A., 200; 1888, A., 769; 1889, A., 1094.
- decomposition of ethyl ether by the induction spark, 1886, A., 1003.
- safety retort for preparing gases, 1888, A., 1244.
- Klobukoff, Nicolaus von**, cryoscopic behaviour of solutions of iodotum in benzene and acetic acid, 1889, A., 821.
- cryoscopic behaviour of solutions of morphine compounds in benzene, acetic acid, and water, 1889, A., 933.
- modifications of precipitated cadmium sulphide, 1889, A., 946.
- apparatus for cryoscopic investigations, 1889, A., 1013.
- cryoscopic behaviour of the aqueous solutions of the sugars obtained synthetically from formaldehyde, 1890, A., 465.
- influence of capillarity and diffusion on the solvent action of liquids, 1890, A., 555.
- use of the induction spark for detecting traces of arsenic, 1890, A., 922.
- Klockmann, Friedrich**, eukaliite, umangite, and luzonite from the Argentine, 1891, A., 1435.
- Kloos, Johan Herman**, the granite district of the Black Forest, 1884, A., 1273.
- alteration of labradorite into an albite and a zeolitic mineral, 1886, A., 128.
- hornblende containing manganese and zinc from Franklin, 1886, A., 678.
- martinite from the West Indies, 1888, A., 233.
- Kloos, Johan Herman**. See also **Robert Otto**.
- Klopsch, Reinhard**, benz- $\beta$ -naphthylamide and  $\beta$ -dinaphthylamine, 1885, A., 990.
- estimation of the oil in linseed cake, 1888, A., 1349.
- Klotz, Karl**,  $\alpha$ -amidolepidine, 1888, A., 1113.
- Klotz, Karl**. See also **Ludwig Knorr**, **Eugen Lellmann**.
- Klüss, Karl**, dithionates, 1888, A., 784, 1156.
- Klüss, Karl**. See also **Andreas Fock**.
- Klug, Ferdinand**, products of the artificial digestion of glue, 1891, A., 232.
- Kluge, Paul**, mono- and di-chloroxylene: chloro- $p$ -xylylene, 1885, A., 1208.
- Knappe, Emil**, formyl and oxalyl derivatives of  $o$ -amidobenzamide, 1891, A., 908.
- Knapp, Friedrich Ludwig**, preparation of ultramarine-blue from silica, 1885, A., 847.
- formation of ultramarine in the wet way, 1886, A., 306; 1887, A., 110.
- ultramarine-blue, 1888, A., 1163.
- Magnus' "black sulphur," 1891, A., 877.

- Knapp, L.**, testing for santonin, 1888, A., 1137.
- Knauer, Ferdinand** (and others), peculiarities and cultivation of the beet-wood, 1885, A., 587.
- Knebel, W.**, derivatives of phenyl salicylate (salol), 1890, A., 1284; 1891, A., 915.
- Knecht, Edmund**, dyeing of wool and silk with basic coal-tar dyes, 1888, A., 832.  
— theory of dyeing, 1889, A., 49.
- Knecht, Edmund**, and **James Robert Appleyard**, the theory of dyeing, 1889, A., 869.
- Knerr, Ellsworth B.** See **Elgar Francis Smith**.
- Knieriem, Woldemar von**, manuring experiments at Peterhof, 1884, A., 636.  
— assimilation of cellulose, 1885, A., 916.  
— cellulose in the nutrition of herbivorous animals, 1888, A., 515.  
— value of commercial foods, 1890, A., 395.  
— effect of artificial manuring on clover land and meadows, 1891, A., 492.
- Kniesche, Theodor**, tungsten, 1887, A., 14.
- Knietsch, Rudolf**, properties of liquid chlorine, 1891, A., 14.  
— synthesis of indigotindisulphonic acid (indigocarmine), 1891, A., 1231.
- Knöfler, Oskar**, volumetric estimation of the alkaline earths, etc., 1886, A., 180.  
— extraction apparatus, 1890, A., 663.
- Knöfler, Oskar**, and **Paul Ernst Boessneck**, condensation of chloral hydrate with tertiary aromatic amines, 1888, A., 267.
- Knoevenagel, Emil**, negative nature of organic radicals, 1888, A., 705.  
— bidesyls, 1888, A., 706.  
— preparation of anhydrous diazo-salts, 1891, A., 54.
- Knoevenagel, Emil**. See also **Luka Chalaney**.
- Knoevenagel, Oskar**. See **Emil Fischer**.
- Knoll, Albert**, codeine, 1889, A., 625.
- Knop, Adolf**, augites of the Kaiserstuhl Mountains, 1885, A., 734.  
— crystallised niobic anhydride, 1887, A., 642.  
— biotite, 1887, A., 646.  
— pseudobiotite, 1887, A., 646.  
— peridote of Schellinger Matten, 1887, A., 1086.  
— action of phosphorus pentasulphide on aniline, 1888, A., 265.
- Knop, Adolf**, minerals and rocks in the diamond fields of South Africa, 1891, A., 25.  
— undetermined silicates from the Kaiserstuhl, 1891, A., 650.
- Knop, Johann August Ludwrig Wilhelm**, percentage of ash in the sugar-cane, 1883, A., 110.
- Knop, W.**, analysis of silicates, 1883, A., 379.  
— quantitative separation of potash and soda from ferric oxide, alumina, lime, and magnesia in silicates, 1884, A., 110.  
— on concentrated nutritive fluids for plants, 1884, A., 1205.  
— researches on the sugar-cane, 1884, A., 1212.  
— retrogression of superphosphates, 1884, A., 1214.  
— remarks on the analysis of soils, 1885, A., 193.  
— absorption of non-alimentary substances by plants, 1886, A., 171.  
— azotometry and the azotometer, 1886, A., 1072.  
— estimation of ammonia in arable soil, 1887, A., 297; 1888, A., 533.
- Knops, Carl**, molecular refraction of fumaric, maleic, mesaconic, citraconic, and itaconic acids, and of thiophen, 1888, A., 938; 1889, A., 198.
- Knorr, Ludwig**, action of ethyl acetoacetate on phenylhydrazine, 1884, A., 302.  
— synthesis of quinoline derivatives, 1884, A., 334, 1198; 1887, A., 847.  
— piperylhydrazine, 1884, A., 467.  
— action of ethyl acetoacetate on hydrazine-quinizine derivatives, 1884, A., 1153.  
— synthesis of pyrrolidine derivatives, 1884, A., 1368.  
— constitution of quinizine derivatives, 1884, A., 1377.  
— synthesis of furfuran derivatives from ethyl diacetosuccinate, 1885, A., 247.  
— action of ethyl diacetosuccinate on ammonia and primary amines, 1885, A., 554.  
— action of ethyl diacetosuccinate on ammonia, 1885, A., 994.  
— action of ethyl diacetosuccinate on phenylhydrazine, 1885, A., 995.  
— ammonia as a reagent for certain double ketones, 1886, A., 331.  
— synthetical experiments by means of ethyl acetoacetate, 1887, A., 159, 275, 601.

- Knorr, Ludwig**, a correction; action of ethyl acetoacetate on *o*-phenylenediamine, 1887, A., 247.
- cinnamylhydrazine, 1887, A., 665.
- pyrazole-derivatives, 1887, A., 678.
- identity of phenylmethylpyrazoloneazobenzene with phenylhydrazineketophenylmethylpyrazolone, 1888, A., 724.
- syntheses with ethyl acetoacetate, 1888, A., 1111.
- constitution of carbopyrotritaric acid, 1889, A., 384.
- derivatives of ethyl diacetosuccinate, 1889, A., 385.
- hydrolysis of ethyl diacetosuccinate: acetylacetone and diacetosuccinic acid, 1889, A., 385.
- morphine, 1889, A., 417, 905.
- preparation of acetylacetone from ethyl diacetosuccinate, 1889, A., 1139.
- syntheses in the oxazine series, 1889, A., 1218.
- acetoacetanilide, 1892, A., 708.
- Knorr, Ludwig**, and **Otto Antrick**, constitution of quinoline, 1885, A., 273.
- Knorr, Ludwig**, and **Albert Blank**, action of substituted acetoacetates on phenylhydrazine, 1884, A., 1380.
- action of ethylic benzoylacetate on phenylhydrazine, 1885, A., 555.
- action of ethylic acetobenzalacetate on phenylhydrazine, 1885, A., 810.
- Knorr, Ludwig**, and **Curt Bülow**, action of ethylic succinosuccinate on phenylhydrazine, 1884, A., 1380.
- action of ethylic diacetosuccinate on phenylhydrazine, 1884, A., 1381.
- Knorr, Ludwig**, and **Wilhelm Cavallo**, carbopyrotritaric acid, 1889, A., 384.
- Knorr, Ludwig**, and **Paul Duden**, pyrazole derivatives, 1892, A., 731.
- Knorr, Ludwig** and **Friedrich Jodicke**, action of ethylic nitrobenzoylacetates on phenylhydrazine, 1885, A., 1247.
- reduction of hydroxylepidine and methylepidone, 1887, A., 278.
- pyrazolone derivatives from ethyl benzoylacetate, 1887, A., 1121.
- Knorr, Ludwig**, and **Heinrich Laubmann**, pyrazoles and pyrazolines, 1888, A., 725; 1889, A., 409.
- Knorr, Ludwig**, and **Hugo Taufkirch**,  $\beta$ -methylanilidocrotonanilide, 1892, A., 708.
- Knorre, Georg von**, tungsten compounds, 1883, A., 650.
- tungstates of barium, strontium, and calcium, 1885, A., 486.
- *p*-tungstates, 1885, A., 1154; 1886, A., 597.
- use of nitroso- $\alpha$ -naphthol in quantitative analysis, 1887, A., 530.
- volumetric estimation of antimonie acid, 1889, A., 312.
- Knorre, Georg von**, and **Paul Olschewsky**, potassium and sodium salts of antimonie acid, 1885, A., 1184.
- antimonates, 1888, A., 231.
- Knorre, Georg von**, and **Eugen Oppelt**, pyrophosphates, 1888, A., 413.
- Knorre, Georg von**. See also *Michael von Ilinski*.
- Knowles, Joshua**, and **J. Arthur Wilson**, estimation of milk sugar, 1891, A., 1298.
- Knublauch, Oskar**, estimation of sulphur in coal-gas, 1883, A., 382.
- estimation of ferrocyanide in gas lime, 1890, A., 871.
- Knudsen, Peter**, phenylethylenamidoxime, 1885, A., 897.
- derivatives of phenylethylenamidoxime, 1885, A., 1218.
- Knyrim, Max**. See *Adolph Claus, Hennig Christoph Julius Zimmermann*.
- Kobb, Gustaf J.**, spectrum of germanium, 1887, A., 313.
- Kobbé, Karl**. See *Karl Friedrich Otto Seubert*.
- Kobek, Hans**, derivatives of thymol, 1884, A., 56.
- Kobert, E. Rudolf**, constituents of ergot of rye, 1885, A., 821.
- croton oil, 1887, A., 798.
- quillajic acid, 1889, A., 55.
- saponins, 1891 A., 1581.
- note to Nicolai Kruskol's paper, *Agrostemma Githago* (corn cockle), 1892, A., 350.
- cyanmethæmoglobin and detection of hydrogen cyanide, 1892, A., 361.
- Kobus**. See *Mar Heinrich Märcker*.
- Koch, Antal**, new locality for vivianite, 1885, A., 731.
- occurrence of celestine and baryta near Torda, 1890, A., 713.
- Koch, U. F. Aug.**, excretion of urea and inorganic salts under the influence of increased temperature, 1884, A., 1394.
- Koch, Ernst**, butylchloral hydrate and chloral hydrate as antidotes for strychnine and picrotoxin, 1887, A., 391.
- behaviour of tertiary amines towards nitrous acid, 1887, A., 1041.

- Koch, Ernst**, dibromo- and dichloro-xylenes and their transformations by means of sulphuric acid, 1890, A., 1247.
- Koch, Franz**, analyses of Transylvanian minerals, 1885, A., 735.  
— amorphous minerals from Budapest, 1891, A., 1438.
- Koch, Franz**. See also *Theodor Curtius, Josef Alexander Krenner*.
- Koch, Hermann**, action of ethyl chloracetate on benzenylamidoxime, 1890, A., 260.  
— condensation products from thiouramidoximes, 1891, A., 560.
- Koch, Hermann**. See also *Emil Fischer*.
- Koch, Karl Richard**, elasticity of crystals of the regular system, 1884, A., 1096.  
— spectra of gases at low temperatures, 1890, A., 313.
- Koch, Karl Richard**, and *Adolph Willner*, galvanic polarisation at small electrodes, 1892, A., 759.
- Koch, L.**, manuring with bone-meal, 1884, A., 637.  
— manuring experiments with Chili saltpetre, 1885, A., 187.
- Koch, Ludwig**, direct assimilation of vegetable remains by chlorophyll-containing plants, 1883, A., 739.
- Koch, Max**, peridotite from the Harz, 1891, A., 24.
- Koch, Robert**, disinfectants, 1883, A., 249.  
— estimation of the free acid in tannin liquor by titration, 1887, A., 871, 1144.  
— Vienna gravimetric method for estimating tannin in concentrated solutions, 1888, A., 1138.  
— Simand-Kohnstein method of estimating the acids in tanning liquors, 1889, A., 195.
- Koch, Robert**, and *Pierre Miquel*, micro-organisms in soils, 1884, A., 486.
- Koch, Robert** (and others), cattle plague and protective inoculation, 1884, A., 96.
- Koch, Synesius**, wulfenite, 1883, A., 435.
- Kochenderfer, Ernst**. See *Adolf von Baeyer*.
- Kochs, Ewald**. See *Rudolph Fittig*.
- Kochs, Wilhelm**, estimation of sulphur in albuminoids, 1887, A., 396.
- Kock, Eduard**, formation of haloid substitution derivatives of amido-compounds by the reduction of nitro-derivatives of hydrocarbons, 1887, A., 810.  
— triphenylmethane derivatives, 1887, A., 836.
- Kock, Eduard**, aromatic nitroso-bases, 1888, A., 469.
- Kobner, Eduard**. See *Karl Auwers*.
- Kobrich, Alex.**, estimation of nickel on nickelled iron, 1886, A., 836.  
— estimation of organic matter in natural water, 1887, A., 533.  
— estimation of ash in organic substances, 1888, A., 325.
- Koechlin, Horace**, fixation of artificial colouring matters by means of metallic mordants, 1883, A., 256.  
— indophenol, 1883, A., 695.  
— gallocyanins, 1883, A., 796.  
— new chromo-mordanting process, 1885, A., 208.
- Kochlin, P.** See *Karl Heumann*.
- Koeckert, Gustave**. See *A. P. Maurice Ceresole*.
- Koefoed, H. Emil**, acids of butter, 1892, A., 1113.
- Kohler, Albert**. See *Wilhelm Clemens Lossen*.
- Kohler, Albin**, action of guanidine on ethyl acetoacetate, 1886, A., 443.  
— nitro-derivatives of methyluracil, 1887, A., 128.
- Kohler, Hugo**, *p*-ethoxyphenylurethane and some of its derivatives, 1884, A., 1159.  
— formation of anthracene, 1885, A., 806.  
— solubility of antimony oxide in glycerol, 1886, A., 428.  
— products of the distillation of coal-tar, 1890, A., 463.
- Köhler, L.** See *F. Hesemann*.
- Kochler, O.**, quantitative separation of arsenic and antimony, 1889, A., 926.  
— myrrh, 1890, A., 1317.
- Kohne (and others)**, use of dried potatoes, 1883, A., 614.
- Kohnke (and others)**, butter making and the souring of cream, 1884, A., 1448.
- Kohnlein, Benjamin**, preparation of paraffins, 1883, A., 787.  
— exchange of chlorine, bromine, and iodine between inorganic and organic compounds, 1885, A., 35.
- Kolliker, Alfred**, derivatives of triphenylcarbinyl bromide, 1885, A., 990.
- Kolliker, Alfred**. See also *William Allen, Otto Wallach*.
- König, Alfred (and others)**, researches on the behaviour of insoluble phosphates in peaty soils and in dilute solvents, 1883, A., 681.
- König, Arthur**, substitution of hydrogen peroxide for nitric acid in galvanic batteries, 1883, A., 765.

- König, Ernst.** See *Robert Behrend*.
- König, Franz Josef,** nutritive value of skim milk, 1883, A., 102.
- cultivation of lupines, 1883, A., 114.
- purification of contaminated waters, 1883, A., 691; 1886, A., 286.
- comparative estimation of nitrogen in guano, 1883, A., 1030.
- weathering of bone manure, 1884, A., 360.
- manufacture of bone meal, 1884, A., 1419.
- poisonous effects of ammonium thiocyanate, 1885, A., 76.
- a new germulator, 1885, A., 419.
- analyses of cotton seeds. 1885, A., 425.
- investigation of bone meal, 1885, A., 851.
- manuring experiments, 1885, A., 1010.
- composition of the inner brown skin of the earth-nut, 1887, A., 519.
- maintenance and increase of the amount of combined nitrogen on the farm, 1888, A., 523.
- mode of stating the results of wine analyses, 1889, A., 799.
- examination of acid and compressed fodders, and the estimation of total nitrogen therein, 1890, A., 1477.
- importance of asparagine for feeding, 1891, A., 1525.
- Schutzenberger's process for the estimation of free oxygen, 1892, A., 98.
- König, Franz Josef, and Carl Bohmer,** changes occurring during, and the action of water in irrigation, 1886, A., 176.
- purification by irrigation of water flowing from factories, 1886, A., 287.
- König, Franz Josef, and Ferd. Hart,** examination of butter and fats, 1891, A., 1301.
- König, Franz Josef, and W. Kisch,** examination of commercial peptones, 1889, A., 803.
- König, Franz Josef, and M. Wesener,** discrimination of fruit and beet syrups, 1889, A., 1089.
- König, Franz Josef (and others),** ensilage and acidification of green fodder, 1885, A., 183.
- König, Georg,** alkaloids of the roots of *Sanguinaria canadensis* and *Chelidonium majus*, 1891, A., 843.
- König, Georg,** oxidation products of mercapturic acids, 1892, A., 1090.
- Koenig, Georg.** See *Friedrich Krafft*.
- König, George Augustus,** alaskaite, a new bismuth mineral, 1883, A., 429.
- orthite from Virginia, 1883, A., 229.
- cosalite, alaskaite, and beegerite, 1886, A., 515.
- stromeyerite from Mexico, 1887, A., 643; 1888, A., 560.
- manganese-zinc serpentine from Franklin, New Jersey, 1887, A., 646; 1888, A., 565.
- schorlomite, a variety of melanite, 1888, A., 434.
- new mineral from Franklin, New Jersey, 1889, A., 473.
- mazapilite, anhydrite, eleconite, etc., from North America, 1890, A., 218.
- paramelaconite and footsite. 1892, A., 415.
- König, Karl,** hydroxysulphonaphthoic acids, 1889, A., 719; 1890, A., 636.
- Koenig, Theodor, and Otto (Freiherr) von der Pfordten,** titanium, 1888, A., 788.
- titanium compounds, 1889, A., 947. 1122.
- König, W.,** o-hydroxyquinaldinecarboxylic acid, 1888, A., 610.
- Koenigs, Wilhelm,** formation of lepidine derivatives from chinine and cinchine, 1890, A., 1433.
- condensation of unsaturated hydrocarbons with phenols, 1891, A., 208, 571.
- dry distillation of organic silver salts, 1892, A., 293.
- condensation of chloral with ketones, 1892, A., 694.
- Koenigs, Wilhelm, and R. W. Carl,** condensation of isoamylene and cinname with phenols, 1892, A., 446.
- Koenigs, Wilhelm, and August Eppens,** camphorone, 1892, A., 626.
- Koenigs, Wilhelm, and Rudolf Geigy,** pyridine derivatives, 1884, A., 1195, 1368.
- Koenigs, Wilhelm, and Georg Korner,** hydroxycinchonic acid, 1884, A., 84.
- Koenigs, Wilhelm, and Carl Mai,** condensation of unsaturated hydrocarbons with phenols, 1892, A., 1443.
- Koenigs, Wilhelm, and John Ulric Ne,** phenylquinaldine acid and phenylquinoline, 1886, A., 1043.
- 4-phenylquinoline and the derived diquinolyls, 1887, A., 599.

- Koenigs, Wilhelm.** See also *Albert Busch, William James Comstock, Emil Erwig, Adolf Feer, Rudolf Geigy, Bernhard Heymann, Leo Hoffmann.*
- Körner, A.,** derivatives of phenyldibromoisobutyric acid, 1888, A., 368.  
— analysis of olein, 1891, A., 1144.
- Körner, Georg.** See *Otto Fischer, Wilhelm Koenigs.*
- Körner, Guglielmo.** See *Wilhelm Körner.*
- Körner, Hermann,** *p*-dipropylbenzene, 1883, A., 321.
- Körner, Moritz,** derivatives of benzoyl- $\alpha$ -amidobenzamide, 1887, A., 1044.
- Körner, Moritz.** See also *Anton Weddige.*
- Körner, Theodor,** derivatives of phenyl- $\alpha$ -dibromoisobutyric acid, 1889, A., 372.
- Körner, Wilhelm,** caffeic acid from cuprea bark, 1883, A., 66.  
— syringin, 1889, A., 159.
- Körner, Wilhelm,** and *Pietro Biginelli,* fraxin and fraxetin, 1892, A., 628.
- Körner, Wilhelm,** and *Christian Böhringer,* alkaloids of angustura bark, 1884, A., 341.
- Körner, Wilhelm,** and *Angelo Menozzi,* action of methyl iodide on leucine and analogous compounds, 1884, A., 425.  
—  $\alpha$ -amidoisocaproic acid, 1887, A., 801.  
— action of ammonia on ethyl bromosuccinate, 1887, A., 1031.  
— transformation of fumaric and maleic acids into aspartic acid and asparagine, 1887, A., 1100.  
— derivatives of isosuccinic acid, 1888, A., 182.  
— action of methylamine on ethyl maleate and fumarate, 1890, A., 869.
- Körner, Wilhelm,** and *Vizio Wender,* benzene derivatives, 1888, A., 1278.
- Koeth, Dael (Freiherr) von,** culture of various descriptions of sugar-beet, 1883, A., 1026.
- Kötze, Arthur.** See *Wilhelm Wislicenus.*
- Koga, Yoshimasa.** See *William Gowland.*
- Kohl, Georg Friedrich,** formation of calcium oxalate in plants, 1890, A., 191.  
— physiological importance of calcium oxalate in plants, 1891, A., 857.
- Kohler, Lorenz,** benzylidene compounds, 1888, A., 49.  
— *m*-hydroxy-*p*-nitrosodiphenylamine, 1888, A., 587.
- Kohlrausch, Friedrich,** electrical conductivity of water, 1885, A., 323.  
— coefficient of conductivity of electrolytes in very dilute solutions, 1886, A., 113.  
— theory of the electrolysis of solutions, 1888, A., 1231.  
— electrical resistance of mercury, 1889, A., 201.  
— solubility of glass in cold water, 1892, A., 277.
- Kohlrausch, Friedrich,** and *Wilhelm Friedrich Kohlrausch,* electrochemical equivalents of silver and copper, 1884, A., 1089.
- Kohlrausch, Karl,** action of methylhydrazine on dialdehydes and diketones, 1890, A., 24.
- Kohlrausch, Otto,** preparation of sugar from *Sorghum saccharatum*, 1885, A., 1021.
- Kohlrausch, Otto,** and *Friedrich Strohmmer,* experiments with beet-root, 1890, A., 1022.
- Kohlrausch, Wilhelm Friedrich,** specific conductivity of sulphuric and pyrosulphuric acids, and the specific gravity of concentrated sulphuric acid, 1883, A., 413.  
— electrical conductivity of silver haloid salts, 1883, A., 769.
- Kohlstock, Hans.** See *Adolph Claus.*
- Kohn, Charles A.,** ammonium compounds and other derivatives of  $\alpha$ -1'-hydroxyquinoline, 1886, T., 500; P., 210.  
— first synthetically prepared base isomeric with quinine, 1890, A., 523.  
— test for glycerol, 1890, A., 1473.  
— application of electrolysis to qualitative analysis, 1892, A., 540.
- Kohn, Otto.** See *Emilio Nolting.*
- Köhner, Adolf,** estimation of cadmium and its separation from copper, 1887, A., 398.
- Kohnstein, B.,** estimation of free sulphuric acid in vinegar, 1885, A., 933.  
— detection of grape-sugar in leather, 1886, A., 745.
- Kohnstein, B.,** and *Ferd. Simand,* estimation of the free acids contained in tannin liquor, 1885, A., 935.
- Kokosinski, Ed.,** estimation of tannin in hops, 1891, A., 870.
- Kokscharoff, Nicolai Iwan von,** turquoise (calcite) in Russia, 1886, A., 516; 1887, A., 1021.  
— mürsinskite, 1888, A., 116.
- Koláček, Franz,** alteration of freezing-points, 1887, A., 879.
- Kolb, Adulbert.** See *Wilhelm Staedel.*

- Kolbe, Adolf Wilhelm Hermann**, anti-septic properties of carbonic anhydride, 1883, A., 395; 1884, A., 508.  
 — preparation of phenetol, 1883, A., 1113.  
 — isatin, 1883, A., 1130; 1885, A., 58.  
 — chemical constitution of acetyl-satin and acetyl-satinic acid, 1884, A., 78.  
 — experiments on the preparation of nitrophenetol, 1884, A., 433.  
 — preparation of anthranilic acid, 1885, A., 159.  
 — chemical constitution of isatin, 1885, A., 665.
- Kolbe, Carl**, brom-addition derivatives of the crotonic acids and of methacrylic acid, 1883, A., 573.
- Kolenko, B. von**, pseudomorphs of hornblende after olivine, 1885, A., 1188.
- Kolf, A. P. van der, and Frederik Hendrik van Leent**, ethyl cinchonate and cinchonamide, 1889, A., 1017.
- Koll, Alexander**, chlorocrotonic acids, 1889, A., 488.  
 —  $\alpha\beta$ -benzenyl-naphthylenediamine, 1891, A., 1239.
- Kollbeck, F.** See *E. W. Neubert*.
- Koller, Gustav**, derivatives of *p*-phenylbenzophenone, 1892, A., 186.
- Kollert, J.**, electric properties of flames, 1884, A., 651; 1885, A., 2.
- Kollrepp, Alexander**, derivatives of chlorinated *p*-nitrophenols, 1886, A., 1018.
- Kolotoff, Sergei S.**, action of amines on methaldehyde, 1885, A., 647.  
 — action of oxymethylene on amines, 1886, A., 138.  
 — nitro-compounds of the fatty series, 1889, A., 1140.
- Komnenos, Telemachos**, action of fatty aldehydes on malonic acid and its ethyl salt, 1884, A., 422.
- Kondakoff, Iwan L.**, action of chlorine on trimethylethylene, 1885, A., 736; 1886, A., 136.  
 — action of chlorine on amylene, 1888, A., 123.  
 — methylisopropenylcarbinol, 1888, A., 125.  
 — tertiary ethyl amyl ether, 1888, A., 802.  
 — action of chlorine on isopropylethylene, 1889, A., 113.  
 — trimethylethylene glycol from methylisopropenylcarbinol, 1889, A., 115.  
 — oxidation of angelic and tiglic acids, 1889, A., 374.  
 — amylene from tertiary amyl iodide, 1889, A., 1127.
- Kondakoff, Iwan L.**, action of hydrochloric acid on dimethylallylene, 1889, A., 1127.  
 — halogen derivatives of amylene, 1891, A., 809.  
 — constitution of tiglic and angelic acids, 1892, A., 1304.
- Koninck, Lucien Louis de**, detection of chlorides in the presence of bromides and iodides, 1886, A., 179.  
 — detection of ammonia, nitric or nitrous acids, and thiosulphuric acid, 1887, A., 297.  
 — reaction of thiosulphates, 1887, A., 297.  
 — estimation of carbon in iron, 1888, A., 1341.  
 — estimation of hydrogen sulphide, 1889, A., 437.  
 — reduction of ferric bromide by boiling, 1890, A., 111.  
 — gasometric absorption of oxygen, 1891, A., 616.  
 — estimation of free oxygen by means of nitric oxide, 1892, A., 97.
- Koninck, Lucien Louis de, and Adolphe Lecrenier**, separation of arsenic, antimony, and tin from gold and platinum, 1888, A., 1344.  
 — estimation of available oxygen in peroxides by means of gaseous hydrochloric acid, 1891, A., 1136.
- Koninck, Lucien Louis de, and Marcel Ledent**, action of alkali sulphides on metals of the iron group, 1892, A., 537.
- Koninck, Lucien Louis de, and Edouard Nihoul**, iodometric estimation of nitrates and chlorates, 1891, A., 618.  
 — estimation of soluble chlorides, bromides, and iodides, 1892, A., 527.
- Koningh, Leonard de**, chromium and barium in foods, 1890, A., 195.
- Koningh, Leonard de.** See also *John Muter*.
- Kononowitsch, N.**, isopropylallyldimethylcarbinol, 1885, A., 497.
- Konowaloff, Dmitri P.**, pyrosulphuric chloride, 1883, A., 553, 782, 900.  
 — heat of formation of pyrosulphuric chloride, 1884, A., 250.  
 — thermal effect of mixing liquids, 1884, A., 1244.  
 — mixed liquids of constant boiling-point, 1884, A., 1247.  
 — contact action in dissociation, 1886, A., 9.  
 — decomposition of liquid tertiary amyl acetate, 1888, A., 340.  
 — theory of liquids, 1888, A., 1019.

- Konowaloff, Dmitri P.**, action of acids on tertiary amyl acetate, 1888, A., 1053.
- formation and decomposition of ethereal salts; compounds of amylene (trimethylethylene) with acids, as cases of chemical equilibrium, 1888, A., 1167.
- Konowaloff, Dmitri P.** See also *Nicolai A. Menshutkin*.
- Konowaloff, Michael I.**, hexahydro- $\psi$ -cumene and its relation to nononaphthene, 1888, A., 679.
- nononaphthene and its derivatives, 1891, A., 184.
- action of dilute nitric acid on nononaphthene, 1892, A., 443.
- nitration of hydrocarbons of the methane series, 1892, A., 575.
- Konther, F.**, treating celestine and heavy spar, 1886, A., 108.
- Koosen, J. H.**, depolarisation of an electric cell by bromine, 1885, A., 3.
- property of the alkalis of increasing the E.M.F. of zinc, 1888, A., 209.
- Kopp, Adolph.** See *Arthur Michael*.
- Kopp, Hermann Franz Moritz**, specific volumes of liquid substances, 1884, A., 147.
- mixed crystallisation, 1884, A., 958.
- relation between the specific heat and composition of solid organic compounds, 1886, A., 587.
- molecular heat of solid compounds, 1888, A., 893.
- molecular volume of liquids, 1889, A., 566.
- Kopp, Karl**, substitution products of stilbene and thionessal, 1892, A., 718.
- Koppe, Maz.** See *Siegmund Gabriel*.
- Koppeschaar, W. F.**, examination of commercial quinine sulphate, 1886, A., 182.
- Koral, M.**, inversion of cane sugar by benzoic acid and the hydroxybenzoic acids, 1886, A., 932.
- Koreff, Richard**,  $\alpha$ -naphthaquinone derivatives, 1886, A., 363.
- Koreff, Richard.** See also *Heinrich Goldschmidt*.
- Korn, Otto**, idocrase from Kedabék in the Caucasus, 1883, A., 1067.
- derivatives of nitro- $\beta$ -naphthaquinone, 1884, A., 1186.
- dinaphthyldiquinone, 1885, A., 392.
- Kornatzki, Oscar**, *p*-bromotoluenedisulphonic acid, 1884, A., 70.
- azotoluenedisulphonic acids, 1884, A., 71.
- Kornauth, C.**, and *Alto Arche*, metabolism in pigs fed with corn cockle, 1892, A., 1018.
- Kornblum, Arthur.** See *Conrad Willgerodt*.
- Kornblum, Herwarth**, excretion of nitrogen in kidney disease, 1892, A., 743.
- Korschelt, O.**, Japanese soils—a natural cement, 1888, A., 131.
- Kortright, Frederick Lawrence.** See *William Ridgely Orndorff*.
- Koschnitzky, Michael.** See *Werner Kelbe*.
- Kosmann, Hans Bernhard**, roasting of zinc-blende, 1883, A., 399.
- minerals from Upper Silesia, 1883, A., 955; 1884, A., 969.
- clays, 1885, A., 1020.
- estimation of phosphoric acid, iron, and alumina in slags, 1886, A., 489.
- thallium in raw zinc, 1886, A., 851.
- nature of steel, 1890, A., 215.
- Kossakowsky, Ludwig.** See *Joh. Friedrich Carl Schall*.
- Kossel, Albrecht Carl Ludwig Martin Leonhard**, xanthine and hypoxanthine, 1883, A., 924.
- chemistry of the nucleus, 1884, A., 97.
- guanine, 1885, A., 286.
- new base in the animal organism, 1885, A., 566.
- peptone-like constituent of the cell nucleus, 1885, A., 572.
- adenine, 1885, A., 1080; 1888, A., 303.
- nuclein, 1886, A., 566.
- new vegetable base, 1888, A., 1114.
- chemical composition of the notochord, 1891, A., 1126.
- derivatives of phenylamidoacetic acid, 1892, A., 467.
- Kossel, Albrecht Carl Ludwig Martin Leonhard**, and *Martin Krüger*, saponification by means of sodium ethoxide, 1891, A., 1143.
- Kossel, Albrecht Carl Ludwig Martin Leonhard**, and *Kuno Obermüller*, method of saponification, 1890, A., 1474.
- Kossel, Albrecht Carl Ludwig Martin Leonhard.** See also *Gustav Bruhns*.
- Kossovič, P.**, citric acid in *Oxycoccus palustris*, 1888, A., 314.
- Kost, U.**, modification of the methyl-violet reaction for the detection of free hydrochloric acid in gastric juice, 1888, A., 996.

- Kostanecki, Stanislaus von**, introduction of the carboxyl group into phenols, 1886, A., 242.  
 — synthesis of  $\beta$ -orcinol, 1887, A., 39.  
 — formation of euxanthic acid, 1887, A., 272.  
 — dinitroresorcinol, 1888, A., 263.  
 — dyes which can be fixed with mordants, 1888, A., 274.  
 — synthesis of anthracoumarins from cinnamic and *m*-hydroxybenzoic acids, 1888, A., 291.  
 — nitroso-derivatives of resorcinol-azo-dyes, 1889, A., 137.  
 — isomeric phenyldiazo-resorcinols, 1889, A., 138.  
 — substances which form coloured compounds with mordants, 1889, A., 868.  
 — nitroso- and dinitroso-naphtharesorcinol, 1889, A., 887.  
 — azo-colours from naphtharesorcinol, 1890, A., 261.  
 — tinctorial properties of nitrosoxy-quinolines, 1891, A., 579.  
 — gentisin, 1891, A., 1244, 1386.  
 — xanthoncs and hydroxyxanthoncs of the naphthalene and quinoline series, 1892, A., 1098.
- Kostanecki, Stanislaus von**, and **Boleslau Feinstein**, constitution of styphnic acid, 1889, A., 130.
- Kostanecki, Stanislaus von**, and **Benno Nessler**, syntheses of hydroxyxanthoncs, 1891, A., 1060; 1892, A., 504.
- Kostanecki, Stanislaus von**, and **Stefan Nientowski**, synthesis of nitroco-cusic acid, 1885, A., 531.  
 — isomeric dihydroxydimethyl-anthraquinones, 1885, A., 1240.
- Kostanecki, Stanislaus von**, and **Max Reichcr**, quinolinedihydroximes, 1891, A., 580.
- Kostanecki, Stanislaus von**, and **Rudolf Rutishauser**, hydroxyxanthoncs, 1892, A., 1096.
- Kostanecki, Stanislaus von**, and **Edmund Schmidt**, gentisin, 1891, A., 1386.
- Kostanecki, Stanislaus von**, and **S. Seidmann**, bye-products in the preparation of hydroxyxanthoncs, 1892, A., 1097.
- Kostanecki, Stanislaus von**, and **J. D. Zibell**, *o*-hydroxyazo-dyes, 1891, A., 1038.
- Kostanecki, Stanislaus von**. See also **Augustin Bistrzycki**, **S. Ganelin**, **Carl Theodor Liebermann**.
- Kostitscheff, Paul A.**, formation and properties of humus, 1891, A., 611.
- Kostiurin, Stephan**, action of pepsin on amyloid, 1887, A., 506.
- Kotcheroff**. See **Kutscheroff**.
- Kothe, Richard**, syntheses of dialkyl-phthalides, 1889, A., 257.  
 — alkyl-derivatives of hydroxylamine, 1892, A., 316.
- Kotô, Bundjiro**, Japanese rocks, 1887, A., 564.  
 — glaucophane, 1887, A., 1086.  
 — piemontite, 1889, A., 25.
- Kotoff, A.** See **Ernst Leopold Salkowski**.
- Kottenhahn, Werner**, *m*-bromobenzophenone and its oximes, 1891, A., 1236.
- Kottmann, Gustav**, use of strontium chloride in purifying syrups, 1883, A., 252.
- Kouklin, E.**, action of potassium sulphate on strontium carbonate, 1892, A., 1276.
- Kovář, František**, delvauxite and diaochite from Vysočany, Bohemia, 1890, A., 715.
- Kowalewsky, Nicolaus**, uranyl acetate as a reagent for albumin, 1886, A., 285.  
 — formation of methæmoglobin in blood by the action of alloxantin, 1887, A., 508.  
 — action of alloxantin on blood, 1888, A., 732.  
 — action of ozone on guaiacum resin, 1889, A., 900.
- Kowalski, M.**, hydroxyquinones, 1892, A., 45, 1098.
- Koydl, Theodor**, precipitation of raffinose by ammoniacal lead acetate, 1892, A., 1294.
- Kozai, Yoshinao**, preparation of teas, 1892, A., 1371.
- Kozai, Yoshinao**. See also **Oscar Kellner**.
- Koziorowski, K.**, artificial production of rock-forming minerals, 1890, A., 718.
- Kozowski, N.**, manganese ores of Transcaucasia, 1891, A., 647.  
 — manganese ore in Ekaterinoslav, 1891, A., 648.
- Kraaz, Rudolf**. See **Ferdinand Tie-mann**.
- Krabbe, Gustav**, action of the diastase ferment on starch grains within the plant, 1891, A., 605; 1892, A., 92.
- Kraemer, Charles**, phenol colouring matters, 1884, A., 1340.
- Kraemer, Charles**. See also **Heinrich Brunner**.
- Kraemer, Gustav**, and **Wilhelm Böttcher**, relation between petroleum and the hydrocarbons of coal-tar and shale-tar, 1887, A., 648.

- Kraemer, Gustav, and Adolf Spilker**, coumarone in coal-tar, 1890, A., 496.
- — — — — syntheses of chrysene and allied hydrocarbons, 1890, A., 515.
- — — — — indene and cinnamene in coal-tar, 1891, A., 205.
- — — — — condensation of cinnamene with methylbenzene derivatives, 1891, A., 206.
- — — — — artificial mineral lubricating oil: condensation products of allyl alcohol with methylbenzenes, 1891, A., 1462; 1892, A., 156.
- Kraemer, Gustav, Adolf Spilker, and Paul Eberhardt**, cinnamene derivatives of aromatic hydrocarbons and their conversion into anthracene, 1891, A., 207.
- Kraencker, Jacob**. See *Rudolph Fittig*.
- Krafft, Friedrich**, preparation of *n*-primary decyl, dodecyl, tetradecyl, hexadecyl, and octadecyl alcohols, 1888, A., 1075.
- — — — — preparation of the higher olefines, 1884, A., 571.
- — — — — higher homologues of acetylene, 1884, A., 1108.
- — — — — cetyl alcohol and cetylacetic acids, 1884, A., 1280.
- — — — — higher normal paraffins, 1886, A., 998.
- — — — — benzene derivatives of high molecular weight, 1887, A., 252; 1888, A., 1087.
- — — — — isolation of the higher normal paraffins from lignite petroleum, 1888, A., 1047.
- — — — — ricinoleic acid, 1888, A., 1271.
- — — — — synthesis of cyanphenin, 1889, A., 951.
- — — — — myristic aldehyde, 1890, A., 1234.
- — — — — dibenzamide, 1890, A., 1289.
- — — — — dinaphthyl sulphides and dinaphthylsulphones, 1890, A., 1311.
- Krafft, Friedrich, and Alfred Beddies**, action of bromine on the higher fatty acids, 1892, A., 695.
- Krafft, Friedrich, and Edouard Bourgeois**, naphthyl sulphides, 1891, A., 76.
- — — — — imidosulphonic acids, 1892, A., 700.
- Krafft, Friedrich, and Philipp Brunner**, residue obtained by the distillation of castor-oil in a vacuum, 1885, A., 373.
- Krafft, Friedrich, and Josef Bürger**, higher homologues of acetic chloride, 1884, A., 1125.
- Krafft, Friedrich, and Joseph Götting**, benzene derivatives of high molecular weight, 1889, A., 120.
- Krafft, Friedrich, and Léonard Grosjean**, hexadecylene bromide derivatives, 1890, A., 1218.
- Krafft, Friedrich, and Arthur von Hansen**, tricyanides, 1889, A., 696.
- Krafft, Friedrich, and Harald Karstens**, di-*p*-toluamide and di-*o*-toluamide, 1892, A., 712.
- Krafft, Friedrich, and Georg Koenig**, new series of tricyanides, 1890, A., 1252.
- Krafft, Friedrich, and Julius Mai**, myristic aldehyde, 1889, A., 1017.
- Krafft, Friedrich, and Albert Moye**, conversion of palmitonitile into hexadecylamine, 1889, A., 688.
- Krafft, Friedrich, and Hugo Noerdlinger**, boiling-points in the oxalic and oleic acid series, 1889, A., 690.
- Krafft, Friedrich, and Ludwig Reuter**, higher homologues of acetylene, 1892, A., 1163.
- Krafft, Friedrich, and Alfred Roos**, alkyl salts of sulphonic acids, 1892, A., 1219.
- Krafft, Friedrich, and Rudolf F. Schönherr**, thionaphthols, 1889, A., 715.
- Krafft, Friedrich**. See also *Paul Eitner, Rhadikaram D. Phookan*.
- Krafft, Gustave**. See *Amé Pictet*.
- Kraft, Friedrich**, synthesis with ethyl sodiocarbamate, 1891, A., 42.
- — — — — possibility of the existence of an asymmetric nitrogen atom, 1891, A., 51.
- Kraft, Friedrich**. See also *Arthur Rudolf Hantzsch*.
- Krakau, Alexander A.**, action of alkalis on cinchonine and other cinchona alkaloids, 1885, A., 1081.
- — — — — action of caustic alkalis on cinchonine, 1886, A., 161.
- Kramer, Ernst**, mucous fermentation, 1890, A., 76.
- Kramer, Theodor**. See *Adolph Claus*.
- Krandauer**, influence of manures on the composition of barley, 1888, A., 870.
- Krannhals, E.**, electrical conductivity of some solutions at temperatures between 18° and 100°, 1890, A., 676.
- Kranzfeld, Jacob**. See *Eugen Bamberger*.
- Krapirvin, Sergei G., and Nicolai D. Zelinsky**, vapour density of ethyl isocyanurate at different temperatures, 1889, A., 1128.
- Krapirvin, Sergei G.** See also *Nicolai D. Zelinsky*.
- Krasnicki, Emil (Ritter) von**, solubility of calcium and barium formates, acetates, and propionates, 1888, A., 359.

- Krasser, Fridolin**, presence of albumin in vegetable tissues: microchemical test for albuminoids, 1887, A., 407.
- Kratzohmer, Florian**, carbohydrates in human liver, 1885, A., 679.
- estimation of carbonic anhydride, 1886, A., 179.
- use of sodium bromate in volumetric analysis, 1886, A., 280.
- apparatus for nitric acid determination, 1888, A., 193.
- Kratzohmer, Florian**, and **Johann Sztankovanszky**, volumetric estimation of phosphoric acid, 1883, A., 380.
- Krauch, C.**, Otto's method for the estimation of fusel oil in brandy, 1883, A., 123.
- poisoning of plants, 1883, A., 612.
- effect of water containing zinc sulphate and common salt on soils and plants, 1883, A., 1027.
- Kraus, Alfred**, methylation of *s*-oreinol, 1891, A., 1347.
- action of nitrous acid on resorcinol diethyl ether and on triethylresorcinol, 1892, A., 44.
- Kraus, Carl**, easily oxidisable substances in plant-sap, 1884, A., 918.
- manuring hops, 1888, A., 319.
- Kraus, Gregor**, acidity of cell-sap, 1884, A., 1209.
- physiology of tannin, 1889, A., 917.
- calcium oxalate in the bark of trees, 1892, A., 1370.
- Kraus, J.**, so-called soluble starch, 1887, A., 173.
- Krause, Albert**, note on the diamond, 1890, A., 1210.
- isomeric forms of *o*-nitrophenylglyoxylic hydrazone, 1891, A., 302.
- Krause, Albert**, and **Victor Meyer**, some vapour-density determinations, 1890, A., 1865.
- slow combustion of gaseous mixtures, 1891, A., 1153.
- Krause, Albert H.** See **Charles Frederic Mabery**.
- Krause, Ernst**. See **Adolph Claus**.
- Krause, H.**, absorption and condensation of carbonic anhydride on clean glass surfaces, 1889, A., 751.
- Krause, H. von**, the loss of nitrogen during the fermentation of nitrogenous organic matters, and the means for its prevention, 1890, A., 1340.
- Krauss, Constantin**, separation and estimation of nickel and cobalt, 1891, A., 1139.
- Krauss, Edl.**, glycogen in muscle after section of the nerve and the tendon, 1889, A., 61.
- Krauss, Jakob**. See **Adolph Claus**.
- Krauss, Karl**, papaveroline, 1891, A., 85.
- Kraut, Karl**, chloride of lime and chloride of lithia, 1883, A., 17; 1884, A., 16.
- *Magnesia alba*, 1883, A., 153.
- action of nitric acid on mercuric iodide, 1886, A., 204.
- behaviour of plumbiferous zinc on remelting, 1886, A., 594.
- chromammonium compounds, 1886, A., 349.
- oxidation of ammonia in presence of platinum or palladium, 1887, A., 635.
- indirect estimation of alkalis in presence of lithium, 1888, A., 195.
- nickel ammonium oxalate, 1889, A., 788.
- formation of glycochine from chloroacetic acid, 1890, A., 1395.
- Kraut, Karl**, and **York Schwartz**, hipparaffin, 1884, A., 838.
- Kraut, Karl, Wilhelm Eschweiler**, and **Gustav Grossmann**, formaldehyde, 1890, A., 1092.
- Kraut, Karl**. See also **C. Heinrich Brandhorst**, **Boris Goldberg**.
- Krawkoff, N.**, obtaining non-organised ferments in pure aqueous infusions, 1888, A., 862.
- unorganised ferments, 1889, A., 515.
- Krebs, Georg**, an elementary demonstration of Avogadro's law, 1885, A., 13.
- Krechel, Georges**, analysis of white carrot fodder, 1885, A., 292.
- Krecke, Friedrich**. See **Carl Paal**.
- Kreckeler, Karl**, isobutyrothiënone and propiothiënone, 1886, A., 538.
- action of sulphuric acid on aromatic ketones, 1887, A., 141.
- pentathiophen group, 1887, A., 239.
- Kreckeler, Karl**, and **Bernhard Tollens**, methylhydroxyglutaric acid from levulinic acid, 1885, A., 1202.
- Kreiling, Ph.**, occurrence of lignoceric and arachidic acids in earth-nut oil, 1888, A., 578.
- Kreis, Hans**, different methods of distillation compared, 1884, A., 1248.
- nitration of thiophen derivatives, 1884, A., 1314.
- Kreis, Hans**. See also **Richard E. Meyer**, **Victor Meyer**.

- Kremel, Alois**, estimation of morphine in opium, 1888, A., 635.  
 — estimation of caffeine in guarana, 1888, A., 876.  
 — estimation of emetine, 1888, A., 1351.  
 — estimation of alkaloids in nuxvomica, 1889, A., 323.  
 — estimation of colchicine in colchicum seeds, 1891, A., 512.  
**Kremers, Eduard**, citronellaldehyde, 1892, A., 1068.  
**Kremers, Edward**. See also *F. A. Sieker*.  
**Kremp**, manurial experiments with various phosphates, 1887, A., 1137.  
**Kremsier, W.**, variations in rainfall, 1885, A., 425.  
**Krenner, Josef Alexander**, jadeite, 1883, A., 1066.  
 — minerals of the cryolite group from Greenland, 1885, A., 27.  
 — stibnite from Japan, 1885, A., 221.  
 — orpiment and realgar from Bosnia, 1885, A., 730.  
 — optical properties of allacite, 1885, A., 731.  
 — emplectite from Rézbánya, 1886, A., 126.  
 — zygadite, 1886, A., 518.  
 — pseudobrookite from Vesuvius, 1890, A., 712.  
**Krenner, Josef Alexander**, and *Franz Koch*, szaboite, 1886, A., 432.  
**Kresling, Karl**, pollen of *Pinus sylvestris*, 1892, A., 232.  
**Kretschy, Michael**, oxidation of kynurine and kynurenic acid, 1883, A., 674.  
 — kynuric acid, 1884, A., 750.  
**Kretschy, Michael**. See also *Ludwig (Ritter) Barth (von Barthenau)*.  
**Kretschmar, Curt**. See *Rudolf Wilhelm Schmitt*.  
**Kretschmar, Ludwig**, test for life, 1883, A., 489.  
**Kretschmar, Max**, estimation of iron and aluminium in phosphates, 1886, A., 393.  
 — estimation of alkalis, 1886, A., 490.  
 — estimation of fat, 1887, A., 402.  
 — detection of boron in milk, etc., 1887, A., 864.  
 — estimation of potassium in ashes and minerals, 1887, A., 864.  
 — commercial assay of alums, 1892, A., 535.  
**Kreusler, Gottfried Adolf Ernst Wilhelm Ulrich**, apparatus for the reduction of measured gas-volumes to normal conditions, 1884, A., 775.  
**Kreusler, Gottfried Adolf Ernst Wilhelm Ulrich**, estimation of nitrogen, 1885, A., 130.  
 — percentage of oxygen in the atmosphere, 1886, A., 199; 1887, A., 631.  
 — thermo-regulator, 1886, A., 301.  
 — method of observing the respiration of plants, 1886, A., 574.  
 — observations on the growth of potatoes, 1887, A., 71.  
 — is nitric acid formed in the organism of higher plants? 1887, A., 686.  
 — assimilation and expiration of plants, 1888, A., 186, 712.  
 — detection of nitrates in soils, 1889, A., 547.  
 — direct combination of chlorine with metals, 1892, A., 401.  
**Kreusler, Gottfried Adolf Ernst Wilhelm Ulrich**, and *Franz W. Dufert*, glutinous ice, 1886, A., 390.  
**Kreusler, Gottfried Adolf Ernst Wilhelm Ulrich**, and *Otto Henzold*, alkaline reaction of glass as a source of error in analysis, 1884, A., 775.  
**Kreusler, Gottfried Adolf Ernst Wilhelm Ulrich**, and *Hans Heinrich Landolt*, examination of H. Grouven's method of nitrogen estimation, 1884, A., 1215.  
**Kreutz, Adolf**. See *Heinrich Conr. Klinger*.  
**Kreuzhage, C.**, and *Emil Theodor von Wolff*, importance of silicic acid in the culture of oats, 1884, A., 1211.  
**Kreuzhage, C.** See also *Emil Theodor von Wolff*.  
**Kreysler, Edward**, phosphates of the phenols, 1885, A., 1054.  
 — reactions of the phosphates of the aromatic series, 1885, A., 1055.  
**Krieger, Gustav**. See *Adolph Klewitz*.  
**Krippendorff, Franz**, hydroxycomazine, 1885, A., 1243.  
**Kritschenko**. See *Petrenko-Kritschenko*.  
**Kritschewsky, Leo**. See *Schwarzenbach*.  
**Kröber, Th.**, derivatives of *o*- and *p*-tolubenzylamine, 1890, A., 968.  
**Krömer, Hermann**, commercial  $\psi$ -cumidine, 1891, A., 1351.  
**Krohl, Paul**, action of oxalic acid and its derivatives on the animal economy, 1892, A., 1019.  
**Krohn, Carl W.**, hydroxy- $\beta$ -isodurylic acid, 1888, A., 594.  
 —  $\alpha$ -naphtholdiazobenzene and  $\alpha$ -naphthylaminediazobenzene, 1889, A., 152.  
**Krohn, Carl W.** See also *Richard Möhlau*.  
**Krohn, Isidor**. See *Alfred Gruenhagen*.

- Krohn, L.** *Monrad*, analysis of red wine by means of electrolysis, 1885, A., 298.
- Krolkowski, S.**, and *Marcellus Nencki*, behaviour of *o*-hydroxyquinoline-carboxylic acid and its derivatives in the organism, 1888, A., 864.
- Kronberg, H.**, incineration of organic substances, 1888, A., 993.
- Krone, Werner**, *p*-hydroxybenzenylamidoxime, 1891, A., 700.
- Kronfeld, E.**, bromine derivatives from amidonaphthaquinonimide, 1884, A., 1037.
- hydroxynaphthaquinonimide and amidonaphthaquinonimide, 1884, A., 1037.
- Kronstein, Abraham**, preparation of *s*-tribromhydrin, 1892, A., 577.
- Kroseberg, Karl**. See *Adolph Claus, Siegmund Gabriel*.
- Krouchkoll**, variation of the constant of capillarity of the surfaces of water and ether, and water and carbon bisulphide under the action of electromotive force, 1883, A., 1047.
- currents produced by immersion and emersion and by the movement of a metal in a liquid, 1884, A., 2.
- polarisation of copper, 1887, A., 757.
- Kroupa, Gustav**, volumetric estimation of mercury, 1884, A., 695.
- detection of mercury, 1886, A., 921.
- Krüger, Albert**, chloroxylenes and their oxidation products, 1885, A., 1053.
- the sulphur of proteids, 1889, A., 528.
- chemistry of gluten, 1889, A., 910.
- Krüger, Friedrich**, absorption of light by oxyhæmoglobin, 1887, A., 1126.
- coagulation of fibrin, and intravascular clotting, 1888, A., 305.
- resistance of hæmoglobin towards different decomposing agents, 1888, A., 510.
- differences between arterial and venous blood in different blood-vessels, 1890, A., 808.
- Krüger, Friedrich, C. Meyer**, and *M. Pernot*, iron in the liver and spleen, 1891, A., 848.
- Krüger, Martin**, betaines of pyridine bases, 1890, A., 1431; 1891, A., 941, 1888.
- adenine, 1892, A., 219, 890.
- estimation of small quantities of calcium, 1892, A., 914.
- Krüger, Martin**. See also *Albrecht Carl Ludwig Martin Leonard Kossel*.
- Krüger, Paul**, derivatives of benzenylamidoxime, 1885, A., 895.
- Krüger, Paul**. See also *Ferdinand Tiemann*.
- Krüger, Theodor Richard**, derivatives of melidoacetic acid, 1891, A., 162.
- Krüger, Theodor Richard**. See also *Edmund Drechsel*.
- Krüss, Gerhard**, sulphur compounds of molybdenum, 1884, A., 160, 1267, 1268.
- preparation of nitriles, 1884, A., 1314.
- copper peroxide, 1885, A., 124.
- influence of temperature on spectroscopic observations, 1885, A., 209.
- quantitative spectrum analysis, 1885, A., 835.
- relation between the composition and absorption spectra of organic compounds, 1885, A., 949.
- standardising solutions of potassium permanganate, 1885, A., 1013.
- molecular movements, 1886, A., 14.
- gold oxides, 1887, A., 15.
- universal spectroscope, 1887, A., 179.
- atomic weight of gold, 1887, A., 340, 1019; 1888, A., 345.
- sublimed auric chloride, 1887, A., 341.
- gold, 1887, A., 450, 554, 778.
- new source of germanium, 1888, A., 345.
- relations between the composition and absorption spectrum of organic compounds, 1888, A., 1141.
- erbium and didymium, 1891, A., 1421.
- Krüss, Gerhard**, and *Hermann Morath*, double thiocyanates of iron and potassium, 1889, A., 1129.
- spectrocoulometric estimation of iron and thiocyanates, 1889, A., 1247.
- beryllium, 1890, A., 697, 1375; 1891, A., 881.
- Krüss, Gerhard**, and *Lars Fredrik Nilson*, equivalent and atomic weight of thorium, 1887, A., 704.
- potassium germanium fluoride, 1887, A., 704.
- reduction of potassium niobium fluoride with sodium, 1887, A., 706.
- earths and niobic acid from fergusonite, 1887, A., 706.
- components of the rare earths yielding absorption spectra, 1887, A., 890; 1888, A., 208, 890.
- Krüss, Gerhard**, and *Spiridon Oeconomidis*, relation between the composition of organic compounds and their absorption spectra, 1883, A., 1041.
- Krüss, Gerhard**, and *Karl Ohnmais*, thiovanadates, 1890, A., 1381; 1891, A., 989.

- Krüss, Gerhard**, and **F. W. Schmidt**, halogen compounds of gold, 1888, A., 28, 1256.  
 ——— cobalt and nickel, 1889, A., 319, 1114.  
**Krüss, Gerhard**, and **Hans Solereder**, reduction of inorganic sulpho-salts by hydrogen, 1887, A., 111.  
**Krüss, Gerhard**. See also **Max Althausse**, **Ludwig Hoffmann**, **Erich Jaeger**, **Paul Kiesewetter**.  
**Krug, W. H.**, estimation of iron and aluminium in the presence of phosphoric acid, 1892, A., 755.  
**Kruis, Josef**. See **Bohuslav Rayman**.  
**Kruis, Karl**, fermentative strength of beer-yeast in distillery mash, 1884, A., 939.  
 ——— estimation of extract of malt, 1884, A., 1439.  
 ——— reducing power of certain sugars, 1885, A., 1013.  
**Krukenberg, C. Fr. W.**, cornum, 1881, A., 1390.  
 ——— chemical constitution of cartilage, 1885, A., 405.  
 ——— conchiolin, 1885, A., 826.  
 ——— skeletons, 1886, A., 481.  
 ——— hyalogenes, 1886, A., 481.  
 ——— solubility of chitin, 1886, A., 808.  
 ——— chemical formation of albumin, 1888, A., 73.  
**Krukenberg, C. Fr. W.**, and **Henry Wagner**, carmine, 1885, A., 674.  
 ——— composition of the contractile tissues, 1885, A., 920.  
**Krukenberg, C. Fr. W.** See also **August Ewald**.  
**Krummacher, Otto**, influence of muscular work on proteid metabolism, 1891, A., 479.  
**Kruskal, Nicolai**, *Agrostemma Githago* (corn cockle), 1892, A., 350.  
**Krutwig, Jean**, separation of iodine and chlorine in the dry way, 1884, A., 1073.  
 ——— rate of oxidation of tartaric acid, 1889, A., 239.  
**Krutwig, Jean**, and **Albert Cochetoux**, estimation of iron by means of permanganate, 1883, A., 1168.  
**Kubel, W.**, magnesium acetate, 1886, A., 530.  
 ——— preparation of lead carbonate, 1887, A., 446.  
 ——— analysis of Carlsbad salt, 1892, A., 659.  
 ——— action of magnesium acetate on magnesium oxide and on lead oxide, 1892, A., 1178.  
**Kubierschky, C.**, thiophosphoric acids, 1885, A., 632.  
**Kubierschky, C.** See also **W. Feit**.  
**Kuckein, Franz**, tissue-waste in the fowl during starvation, 1883, A., 603.  
**Kuckert, Otto**, action of alkylamines on ethyl acetoacetate, 1885, A., 751.  
**Kudelka, F.**, and **M. Hollrung**, large and small hulled beet-root seed, 1885, A., 832.  
**Kügelgen, Arwed von**, detection of sanguinaine and chelidonine, 1885, A., 608.  
**Kügler, Karl**, maticoecampbor, 1884, A., 611.  
**Kühling, Otto**, derivatives of pyrrolidone, 1889, A., 1211.  
 ——— preparation and properties of certain pyrrolidone derivatives, 1890, A., 793.  
 ——— azines of the uric acid group, 1891, A., 1341; 1892, A., 70.  
 ——— alloxanhydrazone, 1892, A., 442.  
**Kühling, Otto**. See also **Carl Theodor Liebermann**.  
**Kühn, Carl Bernhard**, action of phenyl isocyanate on amido-compounds, 1885, A., 260, 979.  
**Kühn, Carl Bernhard**, and **Eduard Henschel**, substituted biurets, 1888, A., 474.  
**Kühn, Carl Bernhard**, and **Nathan Landau**,  $\beta$ -dinaphthylcarbamide chloride, 1890, A., 634.  
 ———  $\beta$ -dinaphthylcarbamide chloride and  $\beta$ -tetranaphthylcarbamide, 1890, A., 1311.  
**Kühn, Carl Bernhard**, and **Martin Liebert**, preparation of phenyl cyanate, 1890, A., 962.  
**Kühn, Carl Bernhard**, and **Joseph Riesenfeld**, action of carbonyl chloride on benzylamine, 1892, A., 812.  
**Kühn, Carl Bernhard**, and **Oscar Saeger**, estimation of arsenic by Marsh's method, 1890, A., 1187.  
**Kühn, Gustav** (and others), digestibility of meadow-hay and wheat bran treated with hot and cold water, 1883, A., 816.  
 ——— digestibility of wheat-chaff and the changes which it undergoes by different methods of preparation, 1884, A., 772.  
**Kühn, Johannes**, examination of ophites from the Pyrenees, 1883, A., 448.  
**Kühn, Julius**, *Phoma Gentiane*, a newly observed parasitic fungus, 1883, A., 1025.  
**Kühn, Julius**, and **H. Joulie**, diseases of sugar-beet, 1883, A., 111.

- Kühn, M.**, estimation of fat in sour milk, 1890, A., 804.  
 — composition of the milk of cows in the early and late periods of lactation, 1891, A., 97.  
 — examination of potato spirit liquor, 1891, A., 105.  
 — estimation of sugar in milk, 1891, A., 127.  
 — estimation of fat in milk, 1891, A., 1402.  
**Kühne, Willie**, hemialbumose in urine, 1884, A., 854.  
 — silicic acid as a culture medium for organisms, 1890, A., 1338.  
**Kühne, Willie, and Russell H. Chittenden**, decomposition products of albumin, 1884, A., 849.  
 — new form of albumose, 1884, A., 1389; 1885, A., 278.  
 — globulin and globuloses, 1886, A., 818.  
 — peptones, 1886, A., 819.  
 — myosin and myosinoses, 1889, A., 423.  
 — neurokeratin, 1890, A., 807.  
**Kühnlenz, F. A.**, bottle for washing and absorbing gases, 1890, A., 288.  
**Külz, Richard**, laserpitin, 1884, A., 182.  
 — estimation of glycogen, 1886, A., 494.  
 — gases of parotid saliva, 1887, A., 287.  
**Külz, Rudolph Eduard**, cystin, 1885, A., 140.  
 — action of trichloroethyl and trichlorobutyl alcohol in the animal organism, 1885, A., 283.  
 — new laevorotatory substance,  $\psi$ -hydroxybutyric acid, 1885, A., 284.  
 — active  $\beta$ -hydroxybutyric acid, 1887, A., 290.  
 — Indian-yellow and glycuronic acid, 1887, A., 498.  
 — decomposition of bromides and iodides by the stomach, 1887, A., 508.  
 — compounds of glycuronic acid, 1890, A., 1286.  
 — formation of glycogen in muscle with an artificial circulation, 1890, A., 1335.  
 — cystin in pancreatic digestion, 1891, A., 235.  
**Külz, Rudolph Eduard, and Alnroth Edward Wright**, phloridzin diabetes, 1890, A., 1337.  
**Kummell, Gottfried**, rotatory dispersion of tartrates, 1891, A., 1145.  
 — separation of precipitates at the boundary of electrolytes, 1892, A., 1038.  
**Kueny, Ludwig**, benzoyl derivatives of carbohydrates, etc., 1890, A., 578.  
**Kürsten, Rudolf**, constituents of *Rhizopus podophylli*, 1891, A., 1138.  
**Kürzel, Camillo**, action of sulphuric acid on *s*-iodo- $\psi$ -cumene, 1889, A., 995.  
**Kues, Werner, and Carl Paal**,  $\beta$ -benzoisosuccinic acid, 1886, A., 354.  
 — synthesis of thiotolen and hydroxythiotolen, 1886, A., 536.  
 — synthesis of  $\alpha$ -phenylthiophen, 1887, A., 238.  
 — diketonic acids, 1887, A., 261.  
**Küsel, Albert**, constitution of aniluvitonic acid, 1886, A., 1027.  
**Küss, H.**, epsomite from the Pechagnard anthracite mine, 1886, A., 516.  
**Küstel**, roasting of gold telluride, 1883, A., 691.  
**Küster, Friedrich Wilhelm**, freezing-points of isomorphous mixtures, 1890, A., 1209; 1892, A., 396.  
**Küster, Friedrich Wilhelm**. See also Theodor Zincke.  
**Küttner, Paul**. See Adolph Claus.  
**Kuh, Felix**. See Martin Freund.  
**Kuhara, Misuru**, *o*-tolylphthalimide, 1887, A., 586.  
 — specific volumes of camphor and borneol, 1889, A., 785; 1890, A., 169.  
**Kuhlberg, Alfons von**. See Carl Adam Bischoff.  
**Kuhlmann, E.**, estimation of normal carbonates in "bicarbonates," 1887, A., 528.  
**Kuhlwein, Ad.**, formation of amidines, 1890, A., 371.  
**Kuhn, aqueous humour**, 1889, A., 177.  
**Kuijper, H. F.**, alcohol in the brain in cases of inebriation, 1884, A., 370.  
**Kulisch, Paul**, action of hydrogen phosphide on solutions of metallic salts, 1886, A., 200.  
 — estimation of nitrogen in wine, must, and lees, 1886, A., 652.  
**Kumagawa, Muneo**. See Ernst Leopold Salkowski.  
**Kumpf, Georg**, nitrobenzyl chlorides and iodides, 1884, A., 1004.  
 — *p*-nitrophenyl benzyl ethers and phenyl *p*-nitrobenzyl ethers, 1884, A., 1005.  
**Kunath, Heinrich**. See Adolph Claus.  
**Kundt, August**, electromagnetic rotation of the plane of polarisation of light by iron, nickel, and cobalt, 1885, A., 5.  
 — refractive indices of the metals, 1888, A., 997.

- Kundt, August**, variation with temperature of the velocity of light in metals, 1889, A., 749.
- Kuntze, L.**, parallel experiments on peat dust and Chili saltpetre as manures for sugar-beet, 1885, A., 429.
- Kuntze, P.** See *Oscar Gustav Doebner*.
- Kuntzmann, M.**, preparation of cuprous acetylide, 1892, A., 421.
- Kunz, George Frederick**, white garnet from Wakefield, Canada, 1884, A., 828.
- native antimony from New Brunswick, 1886, A., 311.
- meteoric iron from Glorieta Mountain, New Mexico, 1886, A., 321; 1887, A., 120.
- meteoric iron from West Virginia, 1886, A., 520.
- meteoric iron from Augusta Co., Virginia, 1887, A., 454.
- meteorites from Kentucky and Mexico, 1887, A., 564.
- mineralogical notes, 1888, A., 346.
- Powder-mill Creek meteorite, 1888, A., 353.
- some American meteorites, 1888, A., 353.
- phenacite, apatite, cyanite, etc., 1889, A., 24.
- two new masses of meteoric iron, 1889, A., 358.
- fluor spar, opal, amber, and diamond, 1890, A., 337.
- five new American meteorites, 1891, A., 278.
- brookite, octahedrite, quartz, and ruby, 1892, A., 1055.
- meteoric iron from Colfax Township, North Carolina, 1892, A., 1059.
- meteoric iron from Ferguson, North Carolina, 1892, A., 1059.
- Kunz, George Frederick**, and **Ernst Weinschenk**, aerolite from Kansas, 1892, A., 795.
- Kunz, Hermann**, new constituents of *Atropa Belladonna*, 1886, A., 255.
- emetine, 1887, A., 980.
- morphine hydriodide, 1888, A., 855.
- the constituents of *Acorus Calamus*, 1888, A., 1221.
- Kunz, James**, manufacture of milk sugar in Switzerland, 1885, A., 848.
- bacteriological and chemical investigation of some bacilli, 1888, A., 1122.
- Kunz, Ph.** See *Georg Goldberg*.
- Kunze, E.**, nitro-*p*-diphenols 1889, A., 262.
- Kupelwieser, Ernst**, manufacture of iron and steel, and methods of testing them, 1884, A., 519.
- Kupfferschläger, Isidore F. J.**, purification of sulphuric acid, 1886, A., 302.
- titration of zinc powder, 1887, A., 865.
- separation of calcium, barium, and strontium, 1889, A., 77.
- detection of free chlorine in hydrochloric acid, 1890, A., 289.
- Kuriloff, Basil B.**, terpenes from oil of *Pinus Abies*, 1890, A., 789.
- terpenes from the resin of *Pinus Abies*, 1892, A., 625.
- action of hydrogen peroxide on the hydrated oxides of cadmium, zinc, and magnesium, 1892, A., 1278.
- Kurnakow, Nicolai S.**, silver compound of thiocarbamide, 1892, A., 441.
- Kurtenacker, Ludwig**. See *Rudolf Nietzki*.
- Kurz, Hermann**. See *Adolph Claus*.
- Kusserow, R.**, derivatives of anilido-succinic acid, 1889, A., 1064.
- acids obtained by heating *m*-hydroxybenzoic acid with stannous chloride, 1890, A., 778.
- Kusserow, R.** See also *Karl Löschner*.
- Kutscher, Emil**, function of tannin in plants, 1884, A., 628.
- Kutscheroff, M.**, action of hydrocarbons of the acetylene series on mercuric salts, 1888, A., 172; 1884, A., 572.
- action of the hydrocarbons of the acetylene series on mercuric oxide and its salts, 1884, A., 719.
- Kutschig, Carl von**, reaction product of phosphorus pentasulphide and carbamide, 1888, A., 1064.
- Kutzeb, Victor**, causes of clover sickness, 1888, A., 233.
- Kuwschinoff, Ivan E.**, action of zinc methyl on valeraldehyde, 1888, A., 125.
- Kuzel, Hans**. See *Emil Fischer*.
- Kwasnick, H.**, action of barium peroxide on metallic salts, 1892, A., 108.
- Kwasnick, Wilhelm**, use of calcium plumbate in the estimation of ash in food and drugs, 1890, A., 833.
- Kuromoji oil, 1891, A., 464; 1892, A., 1480.
- action of ammonia on zinc chloride, 1891, A., 1157.
- action of ammonia on cadmium chloride, 1892, A., 566.
- crystalline constituent of *Geniops brasiliensis*, 1892, A., 1509.
- Kwasnick, Wilhelm**. See also *Carl Thümmel*.

- Kwisda, Adolf**, action of hydriodic acid on amido-acids, 1892, A., 38.
- Kym, Otto**, thio-derivatives of  $\beta$ -dinaphthylamine, 1889, A., 51.
- aromatic carbamide chlorides, 1890, A., 633.
- $\beta$ -dinaphthylcarbamide chloride and  $\beta$ -tetranaphthylcarbamide, 1890, A., 993.
- thio-derivatives of aromatic amines, 1890, A., 1306.
- Kyritz, G. M.**, acid derivatives of *o*-amidoquinoline, 1890, A., 1324.
- L.**
- Laar, Conrad**, use of diphenylamine and aniline in qualitative analysis, 1883, A., 239.
- possibility of several structural formulæ for the same chemical compound, 1885, A., 722.
- hypothesis of interchangeable union, 1886, A., 504.
- Laatsch, Hermann**, ethylidene oxychloride, 1883, A., 788.
- Labbé, D.**, and **Oudin**, therapeutic and physiological effects of ozone, 1891, A., 1531.
- Laborde, J. B. Vincent**, physiological action of the soluble salts of strontium, 1891, A., 99; 1892, A., 227.
- Laborde, J. B. Vincent**, and **Magnan**, toxic action of alcohols and artificial bouquets, 1888, A., 737.
- Laborde, J. B. Vincent**, and **Alfred Riche**, physiological action of nickel salts, 1888, A., 738.
- Lach, B.**, aldioximes, 1883, A., 1104; 1884, A., 1154.
- shaded and unshaded sugar-beets, 1885, A., 1155.
- valuation of ozokerite, 1885, A., 1266.
- treating vegetable tallow, 1885, A., 1275.
- Lach, J.** See **Paul Degener**.
- Lachaud, Marcel**, and **Charles Lepierre**, double chromates, 1890, A., 1065.
- lead chromate, 1892, A., 567.
- thallium chromate, 1892, A., 567.
- analysis of chrome-yellow, 1892, A., 663.
- new iron salts, 1892, A., 943.
- Lachaud, Marcel**. See also **Charles Lepierre**.
- Lachmann, Siegbert**. See **Martin Freund**.
- Lachowicz, Bronislaw**, action of the chlorides of phosphorus on phenanthraquinone, 1883, A., 666.
- Lachowicz, Bronislaw**, reduction of dichlorophenanthrene, 1884, A., 81.
- Galician petroleum, 1884, A., 166.
- some paraffins and their derivatives, 1884, A., 166.
- preparation of acid anhydrides, 1884, A., 990.
- replacement of ketonic chlorine atoms by hydrogen, 1884, A., 1039.
- action of acid chlorides on inorganic compounds, 1886, A., 222.
- constants of benzene, 1883, A., 1068.
- piperidine dyes, 1883, A., 1314.
- action of amines on nitrogenous organic compounds, 1889, A., 132.
- acid character of the salts of the heavy metals, 1889, A., 569.
- formation of benzaldoxime, 1890, A., 141.
- residual affinity of inorganic salts, 1890, A., 444.
- dis-ociation of ferric phosphate in presence of water and of saline solutions, 1892, A., 1282.
- Lachowicz, Bronislaw**, and **Franz Xaver Bandrowski**, compounds of organic bases with metallic salts, 1888, A., 1281.
- Lachowicz, Bronislaw**, and **Marcellus Nencki**, parahæmoglobin, 1885, A., 1251.
- La Coste, Wilhelm**, nitro- and amido-bromoquinolines, 1883, A., 90.
- bromoquinolinesulphonic acids, 1883, A., 96.
- nitroquinolines, 1883, A., 811.
- quinoline iodides, 1885, A., 814.
- estimation of vapour densities at a diminished pressure, 1885, A., 1180.
- *m*-chloroquinoline, 1886, A., 159.
- La Coste, Wilhelm**, and **J. Bodewig**, *m*-chloroquinoline, 1884, A., 1196.
- methylformyl-*o*-amidochlorobenzoic acid and methyl- $\psi$ -chlorisatin, 1885, A., 792.
- La Coste, Wilhelm**, and **C. Sorger**, *p*- and *o*-phenylquinolines, 1886, A., 80.
- La Coste, Wilhelm**, and **Fredrik Valeur**, quinolinedisulphonic acids and their derivatives, 1886, A., 628; 1887, A., 379.
- derivatives of  $\alpha$ -quinolinedisulphonic acid, 1887, A., 973.
- $\beta$ -quinolinedisulphonic acid, 1883, A., 297.
- La Coste, Wilhelm**. See also **Carl Arnold August Michaelis**.
- Lacroix, Alfred**, melanite from Lantigné (Rhône), 1883, A., 438.

- Lacroix, Alfred**, accidental formation of cerussite crystals on Roman coins, 1885, A., 224.  
 — artificial gypsum crystals, 1885, A., 226.  
 — wulfenite from Beaujolais, 1885, A., 226.  
 — diagnosis of zeolites, 1885, A., 1187.  
 — olivine from the Isle of Bourbon, 1886, A., 775.  
 — lamellar thomsonite, 1887, A., 350.  
 — white epidote from the Beagle Canal, Terra del Fuego, 1887, A., 350.  
 — critical examination of some minerals, 1887, A., 350.  
 — plumbocalcite from Wunlock Head, 1887, A., 557.  
 — identity of dreelite and barytes, 1888, A., 33.  
 — albite in Norwegian pegmatites, 1888, A., 236.  
 — anorthite from Saint-Clément, 1888, A., 432.  
 — two varieties of gothite from Saône-et-Loire, 1888, A., 563.  
 — barium sulphate, 1889, A., 838.  
 — rock containing sodium-amphibole, astrophyllite, pyrochlorite, and zircon, 1889, A., 1054.  
 — French minerals, 1891, A., 408.  
 — fouqueite, a new mineral, 1892, A., 1056.  
**Ladd, E. F.**, composition and relative digestibility of feeding stuffs, 1886, A., 646.  
 — artificial *versus* animal digestion, 1887, A., 513; 1889, A., 734.  
 — sugars and starch in fodders and their determination, 1888, A., 748.  
 — changes occurring in Timothy-grass (*Phleum pratense*), 1888, A., 1220.  
 — influence of food on the composition of butter, 1889, A., 1023.  
**Ladenburg, Albert**, benzene formulae, 1883, A., 51; 1890, A., 881.  
 — constitution of atropine, 1883, A., 670.  
 — imines, 1883, A., 910; 1886, A., 139.  
 — lecture experiments, 1883, A., 1048.  
 — preparation of chlorhydrins, 1883, A., 1077.  
 — synthesis of  $\gamma$ -ethylpyridine, 1883, A., 1151.  
 — synthesis in the pyridine series, 1883, A., 1151; 1884, A., 1195.  
 — action of methyl alcohol on piperidine hydrochloride, 1883, A., 1154.  
 — hydrotropidine, 1883, A., 1155.  
 — behaviour of diamines towards nitrous acid, 1884, A., 738.

- Ladenburg, Albert**, bases of the pyridine and piperidine series, 1881, A., 759; 1885, A., 992.  
 — piperethylalkaline bromide, 1884, A., 760.  
 — synthesis of piperidine, 1884, A., 760.  
 — synthesis of homologues of piperidine, 1884, A., 1054.  
 — synthesis of pyridine and piperidine bases, 1884, A., 1195.  
 —  $\alpha$ -isopropylpiperidine, 1884, A., 1386.  
 — derivatives of dimethylpiperidine, 1885, A., 565.  
 — method for determining positions in the pyridine series, 1886, A., 158.  
 — ethylpyridine and ethylpiperidine, 1886, A., 159.  
 — piperidine from pentamethylenediamine, 1886, A., 269.  
 — synthesis of conine, 1886, A., 478; 1887, A., 160.  
 — penta- and tetra-methylenediamines, 1886, A., 528.  
 — hopene, 1886, A., 563.  
 — constitution of benzene, 1886, A., 613; 1887, A., 362; 1888, A., 1181.  
 — pyridine bases, 1887, A., 59.  
 — piperidine bases, 1887, A., 64.  
 — identity of cadaverine with pentamethylenediamine, 1887, A., 125, 1057.  
 — specific rotation of piperidine bases, 1887, A., 164, 282.  
 — pyrrolidine, 1887, A., 499, 1052.  
 — the cinnamene of the pyridine series, 1887, A., 737.  
 — the piperidine series, 1887, A., 740.  
 — constitution of tropine, 1887, A., 740.  
 —  $\gamma$ -picoline and  $\gamma$ -pipecoline, 1888, A., 498.  
 — dipicolylmethane, 1889, A., 161.  
 — relations between atropine and hyoscyamine, 1889, A., 167.  
 — molecular weight determinations from osmotic pressure, 1889, A., 820.  
 — synthesis of oxypyridine and piperidine bases, 1890, A., 67; 1891, A., 1092.  
 — conversion of tropidine into tropine, 1890, A., 1167, 1333.  
 — the second  $\beta$ -picoline and the constitution of pyridine and benzene, 1890, A., 1432.  
 —  $\beta$ -picoline, 1891, A., 325.  
 — diethylenediamine (piperazine), 1891, A., 416, 1333.  
 — piperidinecarboxylic acids, 1891, A., 735; 1892, A., 1486.

- Ladenburg, Albert**, tropine, 1891, A., 1121.  
 — hyosine, 1892, A., 1366.  
 — nipecotinic acid, 1892, A., 1485.  
 — dimethyldipiperidyl, 1892, A., 1487.  
**Ladenburg, Albert**, and **Julius Abel**, ethylenimine (spermin), 1888, A., 441, 1268.  
**Ladenburg, Albert**, and **George Adam**, new alkaloid from *Conium maculatum*, 1891, A., 1119.  
**Ladenburg, Albert**, and **Christian Hundt**, formation of optically active tropic acids and optically active atropines, 1890, A., 74.  
**Ladenburg, Albert**, and **Georg Karau**, isonipecotinic acid, 1892, A., 1486.  
**Ladenburg, Albert**, and **Carl Oelschlägel**, pseudophedine, 1889, A., 1020.  
**Ladenburg, Albert**, and **Friedrich Carl Petersen**, duboisine, 1877, A., 740.  
**Ladenburg, Albert**, and **Carl Franz Roth**, belladonnine, 1884, A., 761.  
 — — hyosine, 1884, A., 761.  
 — — synthetical piperidine, 1884, A., 1202.  
 — — commercial picoline, 1885, A., 557.  
 — — isolation of the so-called  $\alpha$ -lutidine, 1885, A., 815.  
 — — a new lutidine, 1885, A., 994.  
 — — bases from animal oil, 1887, A., 157.  
**Ladenburg, Albert**, and **Indurig Schrader**, isopropylpyridines, 1884, A., 1048.  
**Ladenburg, Albert**, and **Josef Sieber**, trimethylenimine, and a new synthesis of  $\beta$ -picoline, 1890, A., 1394.  
**Ladiore** or **Ladrière, F.**, phosphatic minerals at Montay and Forest, 1889, A., 222.  
**Ladureau, Albert**, cultivation of the sugar-beet, 1888, A., 114.  
 — sulphurous anhydride in the air of Lille, 1884, A., 710.  
 — the ammoniacal ferment, 1885, A., 181; 1886, A., 386.  
 — sugar-beet and phosphates, 1885, A., 1157.  
 — inverting ferment of cane sugar, 1886, A., 169.  
 — Algerian soils, 1889, A., 436.  
**Ladureau, Albert**, and **Mousseaux**, wheat experiments in 1887, 1888, A., 388.  
**Lafar, Franz**, cochineal-carmin, 1891, A., 578.  
**Lafitte, Prosper de** (and others), on phylloxera, 1893, A., 233.  
**Lafon, Ph.**, new reaction of digitalin, 1885, A., 1014.  
 — new reaction for codine, 1885, A., 1095.  
**Lafont, Justin**, action of glacial acetic acid on levogyrate camphene, 1887, A., 969.  
 — action of formic acid on French terebenthene, 1888, A., 495.  
 — action of acetic acid on citrene, 1888, A., 718.  
 — action of acids and anhydrides on terpenols, 1888, A., 845.  
**Lafont, Justin**. See also **Gustave Bouchardat**.  
**Lagai, Georg**, ethoxyphenylsulphonic acids, 1892, A., 1089.  
**Lagai, Georg**. See also **Alfred Delisle**.  
**Lagarde, Henri**, photometric intensity of the lines of the hydrogen spectrum, 1883, A., 537.  
**Lagarde, Henri**. See also **Julien Thoulet**.  
**Lagodzinski, Kasimir**. See **Carl Graebe**.  
**Lagorce, E.**, detection of cochineal in alimentary substances, 1889, A., 324.  
**Lagorio, Alexander E.**, crystallographic form of hæmin, 1885, A., 567.  
**Lagrange, Prosper**, estimation of glucose, 1884, A., 370.  
**Lahousse, Emile**, gases of peptone blood, 1889, A., 581.  
**Laible, estimation of phosphoric acid**, 1887, A., 526.  
**Lailler, A.**, elimination of phosphoric acids in the urine in insanity and epilepsy, 1885, A., 73.  
**Lainer, Alexander**, hydroxylamine hydrochloride in quantitative analysis, 1888, A., 1343.  
 — a new anhydrous double chloride of gold and potassium, 1890, A., 1217.  
 — estimation of silver and gold by means of hydroxylamine hydrochloride, 1892, A., 662.  
**Laist, Alexander**, and **Thomas Herbert Norton**, copper antimonide, 1888, A., 658.  
**Lajoux, Henri**, and **Alexandre Grandval**, mercury salicylates, 1889, A., 1062.  
**Lajoux, Henri**. See also **Alexandre Grandval**.  
**Lala, Ulysse**, compressibility of mixtures of air and carbonic anhydride, 1891, A., 253.  
 — compressibility of mixtures of air and hydrogen, 1891, A., 634.

- Lalande, Edmé de**, copper oxide battery, 1891, A., 1405.
- Lalande, Edmé de**, and **H. Chaperon**, copper oxide battery, 1884, A., 1, 511.
- Lalieu, J.**, estimation of free oxygen in water, 1888, A., 874.
- direct estimation of oxygen and nitrogen in natural waters, 1889, A., 551.
- Lamb, Thornton Charles**. See **George Herbert Bailey**.
- Lambert, Alexander**. See **Russell H. Chittenden**.
- Lambert Auguste**, action of borax on polyhydric alcohols, 1889, A., 845, 864.
- estimation of morphine, 1891, A., 1403.
- Lambert, Pierre**. See **Alexandre Léon Etard**.
- Langling, Eugène Frédéric**, application of spectrophotometry to chemical physiology, 1889, A., 73.
- reducing action of indigo-white on oxyhæmoglobin, 1889, A., 530.
- waxy degeneration of the kidney, 1889, A., 536.
- estimation of methæmoglobin in the presence of oxyhæmoglobin, 1889, A., 660.
- Lampe, Hermann**. See **Rudolf Leuckart**.
- Lampe, Otto**. See **Carl Arnold August Michaelis**.
- Lampert, Friedrich**, derivatives of tri-chloro-*p*-amidophenol, 1886, A., 616.
- Lampert, K.** See **Albert Hilger**.
- Landau, Nathan**. See **Carl Bernhard Kühn**.
- Landau, Willy**, action of ammonia and amines on arsenious bromide, 1889, A., 211.
- Landero, de**, and **Ramón Prieto**, some laws of chemical combination, 1887, A., 99.
- Landero, C. F. de**, tellurium-silver-bismuth from Jalisco, Mexico, 1887, A., 1084.
- pink grossularite from Mexico, 1891, A., 993.
- Landmann, B.**, estimation of acetic acid in wine by distillation with steam, 1884, A., 641.
- Landolt, Fr.**, decomposition of  $\alpha$ -fluoracetone by water, 1883, A., 655.
- Landolt, Hans Heinrich**, time of existence of thiosulphuric acid in aqueous solution, 1884, A., 554.
- solid carbonic anhydride, 1884, A., 992.
- laboratory apparatus, 1885, A., 481.
- Landolt, Hans Heinrich**, supposed optical rotatory power of picoline, 1886, A., 368.
- rate of chemical change between iodic and sulphurous acids, 1886, A., 658.
- polaristrobometric analysis, 1888, A., 386.
- nitrification of ammonium salts, 1888, A., 1328.
- molecular refraction, 1890, A., 1.
- exact determination of the melting-point of organic substances, 1890, A., 1.
- Landolt, Hans Heinrich**. See also **Gottfried Adolf Ernst Wilhelm Ulrich Kreusler**.
- Landolt, Hans Heinrich, junior**, action of halogens on chloranilic and bromanilic acids, 1892, A., 834.
- Landolt, Ludw.** See **Georg Lunge**.
- Landrin, Edouard**, analysis of puzzolan and estimation of their comparative value, 1883, A., 628.
- action of different varieties of silica on lime water, 1883, A., 712.
- hydraulic silica and its functions in hydraulic cements, 1883, A., 754.
- action of water on the "lime of Thiel"; existence of a new compound, "Pouzzo-Portland," 1883, A., 830.
- influence of calcination and of carbonic anhydride on the setting of hydraulic cements, 1884, A., 933.
- adulteration of pepper with olive residues, 1885, A., 451.
- analysis of cinchonas, 1889, A., 802.
- Landrin, Edouard**. See also **Henri Moissan**.
- Landriset, Auguste**. See **Carl Graebe**.
- Landsberg, Ludwig**, preparation of vanillin, 1887, A., 483.
- displacement of the amido group by the sulphonic group, 1890, A., 1137.
- Landsberg, Max**, imides of bibasic acids, 1883, A., 475.
- essential oil of *Daucus Carota*, 1889, A., 277.
- Landshoff, Ludwig**,  $\beta$ -naphthylamine-sulphonic acid, 1883, A., 1135.
- preparation of naphthylamine compounds, 1885, A., 312.
- Landsteiner, Karl**, influence of nutrition on the composition of blood-ash, 1892, A., 225.
- Landsteiner, Karl**. See also **Emil Fischer**.
- Landwehr, Herm. Ad.**, new method for preparing and estimating glycogen, 1884, A., 1287.

- Landwehr, Hermann**, *Al.*, assimilation (resorption) of fat, 1885, A., 999.  
 — animal gum, 1887, A., 26; 1888, A., 175.  
 — reagent for the hydroxyl group, 1887, A., 121.  
 — free hydrochloric acid of the gastric juice, 1887, A., 287.  
 — precipitation of dextrin by iron, 1887, A., 401.
- Lane, Alfred Church, Harry Frederick Keller, and Fred Fraley Sharpless**, chloritoid, grunerite, and riebeckite from Michigan, 1892, A., 793.
- Lane, Alfred Church.** See also *Harry Frederick Keller*.
- Lang, Edward**, diisobutylketone, 1885, A., 963.  
 — action of zinc alkyl compounds on ethyl malonate, 1887, A., 261.  
 — furfuran derivatives from phloroglucinol, 1887, A., 262.  
 — decomposition of ethylacetomalonnate and its homologues, 1887, A., 717.
- Lang, Eduard.** See also *Arthur Rudolf Hantzsch*.
- Lang, Hans.** See *Theodor Curtius*.
- Lang, Julius**, bauxite from Langsdorf, 1885, A., 357.  
 — reverse actions between antimony sulphide and hydrochloric acid, 1886, A., 20.  
 — reactions occurring in the preparation of water-gas and heating gas, 1888, A., 1029.
- Lang, Wilhelm**, action of pyridine on metallic salts, 1888, A., 850.  
 — oxalyl-*o*-amidophenyl mercaptan and oxalyl-*o*-amido- $\alpha$ -naphthyl mercaptan, 1892, A., 1079.
- Langbeck, H. W.**, detection of adulterated essential oils, 1885, A., 599.
- Langbein, E.**, analysis of nickel, 1886, A., 1077; 1888, A., 531.
- Langbein, Hermann.** See *Friedrich Carl Adolf Stohmann, Johannes Wislicenus*.
- Lange, Gerhard**, acidity of cell-wap, 1888, A., 744.  
 — lignin, 1889, A., 1235; 1890, A., 228.  
 — estimation of cellulose, 1890, A., 303.
- Lange, Gerhard.** See also *Eugen Lellmann*.
- Lange, K., and A. Zufall**, new method for the preparation of some aromatic nitroketones, 1892, A., 1459.
- Lange, Martin**, formation of rosaniline by the nitrobenzene process, 1885, A., 1130.
- Lange, Martin**, synthesis of mixed azodyes from aromatic diamines, 1886, A., 886  
 — sulphonation of acetanaphthalide, 1888, A., 160.  
 — action of sulphur on the salts of aromatic hydroxy-compounds, 1888, A., 375.
- Lange, Martin.** See also *Ernst L. Cahn*.
- Lange, Otto**,  $\alpha$ - and  $\gamma$ -picolines, 1886, A., 256.  
 — estimation of nitrogen and phosphoric acid in organic substances, 1889, A., 517.
- Lange, Otto.** See also *Carl Franz Roth*.
- Langeli, Tommaso**, trimethylpropylammonium iodide and hydroxide, 1887, A., 461.
- Langer, Alfons**, constituents of lycopodium spores, 1889, A., 741.  
 — oily acids from Lycopodium, 1889, A., 1059.
- Langer, Carl, and Victor Meyer**, dissociation of chlorine and bromine, 1883, A., 546.  
 — density of sulphurous anhydride at a white heat, 1885, A., 950.
- Langer, Carl.** See also *Ludwig Mond*.
- Langer, Jos.**, isomeric thiophensulphonic acids, 1884, A., 1133; 1885, A., 765, 887.
- Langer, Theod.**, amount of carbonic anhydride in beer, 1883, A., 535.  
 — absorption of carbonic anhydride by beer, 1884, A., 1233.
- Langermann, G.**, estimation of hydrochloric acid in the contents of the stomach, 1892, A., 1125.
- Langhaus, G.**, psilomelane, 1889, A., 216.
- Langkopf, Otto**, estimation of fat in milk in dairies, 1890, A., 1346.
- Langlebert, A.**, properties of linseed and sesame seed, 1884, A., 852.  
 — *Convallaria majalis* (lily of the valley), 1885, A., 271.
- Langlet, N. A.**, action of  $\beta$ -iodopropionic acid on ethyl thiocarbamate, 1892, A., 440.
- Langley, John Newport**, decomposition of digestive ferments, 1883, A., 815.  
 — influence of atropine on salivary secretion, 1888, A., 1216.  
 — influence of nicotine and atropine on salivary secretion, 1890, A., 897.
- Langley, John Newport, and William Lee Dickinson**, physiological action of pituri and nicotine, 1890, A., 1178.  
 — action of poisons on nerve fibres and peripheral nerve-cells, 1891, A., 485.

- Langley, John Newport**, and **John Sydney Edkins**, pepsinogen and pepsin, 1886, A., 1051.
- Langley, John Newport**, and **Herbert Morley Fletcher**, secretion of saliva, 1889, A., 534.
- Langley, John W.**, an explanation of Gladstone and Tribe's "2-3 law in chemical dynamics," 1894, T., 633.
- apparent manifestation of chemical attraction as mechanical attraction, 1888, A., 1009.
- Langley, Samuel Pierpont**, observations on the solar spectrum, 1883, A., 137.
- amount of atmospheric absorption, 1883, A., 319.
- invisible lunar and solar spectra, 1889, A., 325.
- Langlois, Marcellin**, specific heats of liquids, 1887, A., 419.
- Langlois, Paul**, physiological action of nickel-carbon oxide, 1892, A., 365.
- Langsdorff, Karl Alex. von**, fattening calves, 1883, A., 815.
- Lapicque, Louis**, quantity of iron in the spleen and liver of young animals, 1890, A., 185.
- estimation of iron in blood, 1890, A., 297.
- colorimetric estimation of iron, 1892, A., 240.
- Lapicque, Louis**. See also **Pierre Camille Chabrie**.
- Lapparent, Albert de**, relation between solfataras and acidic eruptive rocks, 1889, A., 474.
- Larkin, Th.**, new sulphate furnace, 1885, A., 1268.
- Larsen, Einar**. See **Karl Elbs**.
- Lasareva, (Miss) Pelagia E.**, mutual displacement of haloids, 1892, A., 1270.
- displacement of hydrogen by haloids in aromatic hydrocarbons, 1892, A., 1310.
- Lasaulx, Arnold Constantin Peter Franz von**, twin-crystals of dichroite from the Leacher See, 1884, A., 407.
- reaction to determine the presence of metallic iron, 1884, A., 1078.
- conversion of rutile into ilmenite, 1884, A., 1104.
- pseudomorphs after rutile, 1885, A., 28.
- optical properties and micro-structure of corundum, 1886, A., 23.
- meteoric iron of Santa Rosa, Columbia, 1886, A., 193.
- liparites and sanidophyres from the Siebengebirge, 1886, A., 603.
- Lasaulx, Arnold Constantin Peter Franz von** (and others), Kiakatoa ashes, 1884, A., 974.
- Lasch, K.**, sodium nitroprusside as a reagent for sugars, 1885, A., 600.
- Laskowsky**. See **Liaskowski**.
- Lasne, Henri**, estimation of fluoiline, 1889, A., 74.
- analysis of natural phosphates, 1890, A., 293.
- Laspeyres, Ernst Adolph Hugo**, artificial crystals of manganese-iron-olivine, 1884, A., 410.
- kallilite, a new nickel ore, 1891, A., 1167.
- sychnodymite, a new cobalt ore, 1891, A., 1167.
- korynite from Silesia, 1891, A., 1167.
- polydymite, ullmanite and wolfsbergite, 1892, A., 124.
- Lassar-Cohn**, sodium and potassium ethyl tartrates, 1887, A., 918.
- electrolysis of organic potassium salts, 1889, A., 1056.
- condensation of phenylenediamines with butaldehydes, 1890, A., 138.
- cholic acid and dehydrocholic acid, 1892, A., 741.
- presence of myristic acid in oxgall, 1892, A., 1114, 1503.
- Laszló, Eduard**, estimation of dissolved solids in wine, 1891, A., 123.
- Latham, Peter Wallwork**, composition of albumin, 1886, A., 635.
- blood changes in disease, 1888, A., 1324.
- Latschenberger, Johann**, detection and estimation of ammonia in animal liquids, 1884, A., 1215.
- formation of the colouring matter of bile, 1888, A., 620.
- Latschinoff, Paul A.**, new acid analogous to cholic acid, 1886, A., 270.
- cholanie and bilianie acids, 1886, A., 566.
- choleic acid, 1886, A., 718.
- cholidanic and  $\psi$ -cholidanic acids, 1886, A., 817.
- isocholanie and isobilianie acids, 1886, A., 817.
- bile acids, 1887, A., 682.
- crystalline form of choleic acid, 1887, A., 683.
- empirical formula of cholic acid, 1888, A., 303.
- Latschinoff, Paul A.** See also **M. Jeroffeff**.
- Latten, Matthias**. See **Theodor Zincke**.
- Lattermann, Georg**, pseudobrookite, 1889, A., 680.

- Lattermann**, *Gaug*, the Lautenthal brine spring, 1891, A., 652.
- Laube**, *Gustav Carl*, occurrence of hornstone and haytes at Teplitz, 1886, A., 21.
- estimation of small quantities of sodium chloride in presence of potassium chloride, 1886, A., 920.
- decolorizing power of bone black, 1887, A., 619.
- Lauber**, *Eduard*, "red spots" in light rose dye, 1885, A., 108.
- Lauber**, *Eduard*, and **Haussmann**, thiocyanates, 1883, A., 286.
- Lauber**, *Eduard*, and *A. Steinheil*, use of soap in dyeing, 1883, A., 894.
- Lauber**, *Eduard*, and *Carl Weinreb*, chromium chlorate, 1885, A., 1272.
- Laubmann**, *Heinrich*, compounds of phenylhydrazine with ketone alcohols, 1888, A., 366.
- 1:5-diphenylpyrazoline, 1888, A., 726.
- Laubmann**, *Heinrich*. See also *Ludwig Knorr*.
- Lauch**, *Richard*, preparation of additive products of hypochlorous acid, 1885, A., 1194.
- Lauch**, *Richard*. See also *Alfred Einhorn*.
- Lauder**, *Alexander*. See *James Johnstone Dobbie*.
- Lauenstein**, *Carl*, viscosity of aqueous salt solutions, 1892, A., 1044.
- Lauer**, *William Eggleston*, derivatives of propylamine, 1890, A., 1089.
- Lauer**, *William Eggleston*. See also *Siegmund Gabriel*.
- Laugier**, *Prosper*, action of selenious acid on manganese dioxide, 1887, A., 775.
- Laujorrais**, *P. J.*, potassium dichromate as an antiseptic, 1885, A., 704.
- Laun**, *Wilhelm*, aromatic alkanes, 1884, A., 1011.
- piperpropylalkine, 1884, A., 1054.
- Laurent**, *Emile*, the bacillus of panary fermentation, 1887, A., 70.
- formation of glycogen in beer yeast, 1888, A., 981.
- formation of starch by plants from organic solutions, 1888, A., 1126.
- value of nitrates and ammonium salts as foods for ferments and other plants, 1891, A., 1135.
- Laurent**, *Emile*. See also *Th. Schloesing, junior*.
- Laurie**, *Arthur Pillans*, measurement of the electromotive forces produced by the combination of cadmium and iodine in presence of water, 1886, T., 700; P., 227.
- Laurie**, *Arthur Pillans*, electromotive forces developed during the combination of zinc and iodine in presence of water, 1886, A., 751.
- constitution of copper-zinc and copper-tin alloys, 1887, P., 117; discussion, P., 118; 1888, T., 104.
- electromotive force of a constant cell with moving plates, 1887, A., 314.
- electromotive force of a voltaic cell having an aluminium plate as electrode, 1887, A., 315.
- alloys of lead, tin, zinc, and cadmium, 1889, T., 677; P., 147.
- Laurie**, *Arthur Pillans*. See also *Thomas Edward Thorpe*.
- Lauth**, *Charles*, Boulier's pyrometer, 1884, A., 543.
- manufacture of Sèvres blue, 1884, A., 644.
- moulding of porcelain, 1885, A., 307.
- colour reactions of aromatic amines, 1891, A., 433.
- derivatives of dimethylaniline, 1891, A., 457.
- oxidation of azo-compounds, 1892, A., 48.
- preparation of  $\beta$ -alizarinamide, 1892, A., 864.
- diamidosulphobenzide and its derivatives, 1892, A., 1093.
- *m*-diamidotetramethylbenzidine, 1892, A., 1222.
- Lauth**, *Charles*, and *Gabriel Dutailly*, so-called crackle china, 1889, A., 18.
- porcelain glazes, 1889, A., 214.
- La Valle**, *Ricseppo*. See *Alfonso Cossa*.
- Lavenir**, *A.*, martite, 1892, A., 1055.
- Laves**, *E.*, oxidation of phenyl trithioformate, 1890, A., 988.
- chemical and physiological relations of sulphones, 1892, A., 153.
- trithio-o-formates, 1892, A., 611.
- formation of trisulphones from disulphones, 1892, A., 613, 850.
- Lavis**. See *Johnston-Lavis*.
- Lavrand**, *Hubert*. See *Albéric Baelde*.
- Lawas**, (*Sir*) *John Bennet*, ensilage, 1885, A., 1088, 1255.
- history of a field newly laid down to permanent grass, 1889, A., 920.
- Lawas**, (*Sir*) *John Bennet*, and (*Sir*) *Joseph Henry Gilbert*, composition of the ash of the entire animals, and of certain separate parts of some of the animals used as human food, 1883, A., 1019.
- on the composition of the ash of wheat-grain and wheat-straw grown at Rothamsted in different seasons, and by different manures, 1884, T., 305.

- Lawes, (Sir) John Bennet, and (Sir) Joseph Henry Gilbert**, estimations of nitrogen in the soils of experimental fields at Rothamsted, and bearing of the results on the question of the sources of nitrogen in our crops, 1884, A., 682.
- composition of soils: fertility of the Manitoba prairie soils, 1885, T., 880; P., 55.
- continuous growth of wheat at Rothamsted from 1864 to 1883, 1885, A., 583.
- valuation of unexhausted manures, 1886, A., 177.
- sources of nitrogen in vegetation, 1888, A., 745.
- the fixation of free nitrogen, 1890, A., 814.
- sources of nitrogen of our leguminous crops, 1892, A., 367.
- Lawes, (Sir) John Bennet, (Sir) Joseph Henry Gilbert, and Robert Warington**, contributions to the chemistry of "fairy rings," 1883, T., 208.
- ammonia, chlorine, and sulphuric acid in the rain-water collected at Rothamsted, 1884, A., 209.
- nitric acid in soils and subsoils at Rothamsted, 1884, A., 357.
- Lawson, Thomas Atkinson**, action of diazo-compounds on  $\beta$ -naphthylamine, 1885, A., 802.
- $\alpha\beta$ -diamidonaphthalene, 1885, A., 1288.
- Lawson, Thomas Atkinson, and John Norman Collie**, action of heat on salts of tetramethylammonium, 1888, T., 624; P., 61.
- Lawson, Thomas Atkinson**. See also **Arthur George Green, Theodor Zincke**.
- Laycock, William Frederick**, isophorone, 1890, A., 1235.
- Laycock, William Frederick, and Felix Klingemann**, an examination of the products obtained by the dry distillation of bran with lime, 1892, P., 138.
- Laycock, William Frederick**. See also **Enil Fischer, Felix Klingemann**.
- Lazarus, Maurice Julius**, fractional distillation in a current of steam, 1885, P., 46; discussion, P., 46; A., 716.
- Lazarus, Maurice Julius**. See also **Adolf von Baeyer, Paul Friedländer**.
- Lea, Arthur Sheridan**, ferment from the seeds of *Withania coagulans*, 1884, A., 535.
- soluble ferment from the *Torula urea*, 1886, A., 641.
- artificial and natural digestions, 1890, A., 536.
- Lea, Arthur Sheridan, and William Le Dickinson**, action of rennin (rennet) and fibrin-filament, 1890, A., 1175.
- Lea, Matthew Carey**, combinations of silver chloride, bromide, and iodide with colouring matters, 1885, A., 350.
- action of light and reducing agents on silver salts: formation of photo-salts, 1888, A., 1.
- combination of silver chloride with metallic chlorides, 1888, A., 109.
- allotropic forms of silver, 1890, A., 210. 334; 1891, A., 808; 1892, A., 15, 116.
- darkened silver chloride not an oxychloride, 1890, A., 335.
- blue silver, 1892, A., 15.
- Lean, Bevan, and William Arthur Bone**, behaviour of ethylene on explosion with less than its own volume of oxygen, 1892, T., 873; P., 144.
- Leather, John Walter**. See **Richard Anschütz**.
- Lebeau, Paul**, estimation of free halogens, and of iodides in presence of chlorides and bromides, 1890, A., 825.
- Lebeau, Paul**. See also **Alexandre Léon Etard**.
- Lebedeff, A.**, reduction of cetyl iodide, 1885, A., 736.
- Lebedeff, Alexander N.**, nutrition by fat, 1888, A., 740.
- pathological formation of fat, 1881, A., 1392.
- Lebedinzeff, Arsenius**, modification of Pettenkofer's method of estimating carbonic anhydride in air, 1891, A., 1290.
- Le Bel, Joseph Achille**, geometrical formulae of malic and fumaric acids, 1883, A., 44.
- formation of amyl alcohol in alcoholic fermentation, 1883, A., 908.
- Russian petroleum, 1887, A., 225.
- mineral matter in natural petroleum, 1889, A., 226.
- constitution of petroleum, 1890, A., 223.
- absence of rotatory power in amine salts, 1890, A., 228.
- derivatives of ammonium chloride, 1890, A., 475.
- dissymmetry and optical activity of alkyl derivatives of ammonium chloride, 1891, A., 1002.
- rotatory power of diacetyltartaric derivatives, 1892, A., 669.
- Le Bel, Joseph Achille, and Max Wassermann**, reduction of hexahydric alcohols, 1885, A., 1046.

- Lebensbaum, Max**, amount of oxygen taken up in the decomposition of haemoglobin into albumin and haematin, 1887, A., 851.
- Le Blanc, Max**, isquinoline and its derivatives, 1888, A., 1114.
- homo-*o*-phthalic acid, 1889, A., 256.
- studies in chemical optics with reference to the dissociation theory, 1890, A., 313.
- amalgams, 1890, A., 1204.
- electromotive force of polarisation, 1891, A., 1405.
- Le Blanc, Max**, and **Arthur Amos Noyes**, augmented solubility, 1891, A., 388.
- Le Bon, Gustave**, properties of antiseptics, and of the volatile products of decay, 1884, A., 225.
- Lecco, Marco T.**, toxicological detection of mercury chlorides, 1886, A., 743; 1891, A., 864.
- thiophen in aniline, 1887, A., 471.
- estimation of glycerol in sweet wines, 1892, A., 1263.
- Lecco, Marco T.** See also **Victor Meyer**.
- Lechartier, H.**, assimilability of the phosphoric acid in rocks and soils, 1884, A., 868.
- analysis of soils, 1884, A., 921.
- use of potash manures in Brittany, 1885, A., 83.
- use of cider mark as manure and fodder, 1885, A., 834.
- application of the densimeter to cider must, 1885, A., 842.
- effect of the presence of magnesia in Portland cement, 1886, A., 770.
- cider ash, 1887, A., 520.
- freezing of ciders, 1888, A., 188.
- incineration of vegetable matter, 1890, A., 196.
- composition and cultivation of the Jerusalem artichoke, 1892, A., 1024.
- Le Chatelier, Henry Louis**, the setting of plaster of Paris, 1883, A., 712.
- hydraulic silica, 1883, A., 755.
- hardening of cements, 1883, A., 831.
- decomposition of salts by water, 1884, A., 807; 1885, A., 630.
- compounds of haloid salts with oxy-salts of the same metal, 1884, A., 1261.
- decomposition of cements by water, 1884, A., 1448.
- general statement of the laws of chemical equilibrium, 1885, A., 117.
- chemical reactions in the setting of hydraulic mortar, 1885, A., 306.
- Le Chatelier, Henry Louis**, laws of solution, 1885, A., 310, 473; 1887, A., 548.
- dissociation of chlorine hydrate, 1885, A., 471.
- numerical laws of chemical equilibrium, 1886, A., 196; 1888, A., 548, 549, 782.
- application of the numerical laws of chemical equilibrium to the dissociation of chlorine hydrate, 1886, A., 299.
- influence of temperature on the electromotive force of thermoelectric couples, 1886, A., 587.
- dissociation of calcium carbonate, 1886, A., 760.
- principle of equivalence in phenomena of chemical equilibrium, 1886, A., 762.
- thermodynamics and chemistry, 1887, A., 431.
- action of heat on clays, 1887, A., 785.
- constitution of clays, 1887, A., 785.
- molecular heats of gases, 1888, A., 213, 772.
- oxidation of silver, 1888, A., 651.
- constitution of hydraulic cements, 1888, A., 1030.
- dissociation of carbonic anhydride, 1889, A., 205.
- solubility of salts, 1889, A., 671.
- equilibrium between hydrogen, chlorine, and oxygen, 1890, A., 8.
- electrical resistance of iron and its alloys at high temperatures, 1890, A., 549.
- expansion of silica, 1890, A., 1871.
- electrical resistance of metals, 1891, A., 4.
- molecular changes in metals as shown by their electrical conductivity, 1891, A., 1808.
- second law of thermodynamics and its application to chemical phenomena, 1892, A., 3.
- reproduction of acid rocks, 1892, A., 23.
- metallic borates, 1892, A., 404.
- optical measurement of high temperatures, 1892, A., 761.
- equilibrium of chemical systems under unequal pressures, 1892, A., 937.
- Le Chatelier, Henry Louis**. See also **François Ernest Mallard**.
- Leclerc, A.**, cutaneous excretion of albumin by the horse, 1888, A., 1320.
- estimation of starch in fodder, etc., 1890, A., 1197.

- Leclere**, estimation of silica in presence of iron, 1891, A., 1397.
- Le Conte, Joseph**, and **William Bradley Rising**, metalliferous vein formation at Sulphur Bank, 1883, A., 1070.
- Lecoq de Boisbaudran**. See **Boisbaudran**.
- Lecouteux, E.**, composition of pig-dung, 1883, A., 117.
- Leclercq, Adolphe**, estimation of nickel by precipitation as sulphide, 1890, A., 297.
- electrolytic estimation of antimony, 1890, A., 421.
- Leclercq, Adolphe**. See also **Lucien Louis de Koninck, Walther Spring**.
- Ledderboge, Hermann**. See **Oscar Georg Jacobsen**.
- Ledebur, C. H. A.**, estimation of oxygen and carbon in iron, 1883, A., 121.
- colorimetric estimation of manganese, 1883, A., 242.
- so-called "burning" of iron and steel, 1884, A., 935.
- crucible steel, 1885, A., 616.
- oxidation and reduction, 1885, A., 631.
- Ledent, Murel**. See **Lucien Louis de Koninck**.
- Lederer, Georg**. See **Theodor Curtius**.
- Lederer, Leonard**,  $\beta$ -bromopropaldehyde and  $\beta$ -bromopropionic acid, 1891, A., 87.
- synthesis of indigo from phenylglycoccine, 1891, A., 75, 311, 928.
- synthesis of pyrazolone derivatives, 1892, A., 634.
- amido- and methamido-crotonanilide, 1892, A., 965.
- nomenclature of pyrazolones, 1892, A., 1004.
- Lederer, Leonard**, and **Carl Paal**, synthesis of pyrroline derivatives, 1886, A., 75.
- Ledermann, Bernhard**, tetrabenzylphosphonium compounds, 1888, A., 475.
- Ledingham, Lawrence Napier**, weight voltameter for measuring electric currents, 1884, A., 654.
- Ledoux, Albert R.**, Pipe Creek meteorite, 1891, A., 532.
- Ledroit, J. M.**, so-called trachyte-dolerites of the Vogelsberg, 1887, A., 904.
- Leduc, Anatole**, new method of directly measuring absolute magnetic intensity, 1884, A., 1243.
- density of oxygen and hydrogen and the composition of the air, 1890, A., 1370.
- gravimetric composition of the air, 1891, A., 1416.
- Leduc, Anatole**, specific gravities of oxygen, hydrogen, and nitrogen, 1891, A., 1416.
- copper hydrides, 1891, A., 1422.
- dilatation of phosphorus and its change of volume at the melting-point, 1892, A., 7.
- composition of water and Gay Lussac's law of volumes, 1892, A., 1271.
- atomic weight of oxygen, 1892, A., 1388.
- Lee, Charles Tennant**, indigo assaying, 1884, A., 1438.
- Lee, Herbert C.** See **Edward Ralph Moritz**.
- Leeds, Albert R.**, insoluble residue from the distillation of castor oil, 1883, A., 655.
- $\alpha$ -naphthalaniline,  $\alpha$ -naphthalylidene, and  $\alpha$ -naphthalnaphthylamine, 1883, A., 659.
- acrolein-ureide and condensed ureides, 1883, A., 664.
- cryptidine, 1883, A., 669.
- conversion of carbonic oxide into carbonic anhydride by nascent oxygen, 1884, A., 15.
- soap analysis, 1884, A., 223.
- estimation of organic matter in water, 1884, A., 369.
- titration of organic matter in potable waters by means of permanganate, 1884, A., 499.
- moist phosphorus, air, and carbonic oxide, 1884, A., 660.
- presence of hydrogen peroxide, and ammonium nitrite, and absence of ozone in the products of the combustion of hydrogen and hydrocarbons in air, 1884, A., 818.
- analysis of flour, 1884, A., 1080.
- composition and methods of analysis of human milk, 1885, A., 282.
- Leeds, Albert R.**, and **Edgar Everhart**, analysis of mustard, 1884, A., 878.
- Leent, Frederik Hendrik van**. See **Cornelis Adriaan Lobry de Bruyn (van Troastenburg), A. P. van der Kolf**.
- Lees, Samuel**. See **W. Lawrence Gadd**.
- Lefevre, Camille**, action of alkaline arsenates on the alkaline earths, 1889, A., 826.
- action of potassium and sodium arsenates on oxides of the magnesium series at high temperatures, 1890, A., 562.
- action of potassium and sodium arsenates on metallic sesquioxides, 1890, A., 1377.

- Lefèvre, *Umile*. See also *René Thomas-Mamert*.
- Lefèvre, *Léon*. See *Edouard Grimaux*.
- Leffmann, *Henry*, geyser waters and deposits, 1884, A., 30.
- examination of butter, 1885, A., 196.
- Leffmann, *Henry*, and *William Beam*, estimation of the total organic nitrogen in water by Kjeldahl's method, 1889, A., 796.
- estimation of fat in milk, 1892, A., 1532.
- Lefort, *Jules*, arsenic in mineral waters, 1885, A., 232.
- Legal, *Emmo*, acetone in urine, 1888, A., 1346.
- Léger, *Eugène*, phenolphthalein as an indicator, 1885, A., 931.
- characteristic reaction for bismuth, 1889, A., 79.
- combination of camphor with phenols, 1890, A., 1427.
- Léger, *Eugène*. See also *Emile Cl. Jungfleisch*.
- Legler, *Ludwig*, a new product of the slow combustion of ether, 1883, A., 860; 1886, A., 327; 1889, A., 579.
- estimation of methaldehyde, 1883, A., 1035.
- estimation of glycerol in fermented liquids, 1887, A., 1142.
- Legrain. See *Debraye*.
- Legros, *Emile*. See *Walther Spring*.
- Lehmann, *C. Friedrich*. See *Otto Wallach*.
- Lehmann, *Curt*, effects of alkalis and acids on respiration, 1885, A., 279.
- Lehmann, *Curt* (and others), "champion spice," 1884, A., 473.
- Lehmann, *Curt*. See also *Nathan Zuntz*.
- Lehmann, *Franz*, and *J. H. Vogel*, digestibility of meadow-hay, beans, barley, swedes, and rice meal, 1891, A., 595.
- Lehmann, *Franz*. See also *Theodor Pfeiffer*.
- Lehmann, *G. W.*, and *W. Mager*, estimation of arsenic in ores, mattes, and in copper, 1886, A., 100, 920.
- Lehmann, *Karl Bernhard*, physiological action of Liebig's extract of meat, 1886, A., 89.
- formation of adipocere, 1889, A., 433.
- Lehmann, *Karl Bernhard*, and *Rintaro Mori*, poison of corn cockle seeds, 1890, A., 1458.
- Lehmann, *Maz*, nitrouracil derivatives, 1890, A., 32.
- Lehmann, *Otto*, crystallisation, 1885, A., 215.
- melting-points of substances in contact, 1885, A., 330.
- spontaneous change of form of homogeneous solid substances, 1885, A., 1033.
- crystallisation of mixtures, 1888, A., 342.
- fluid crystals, 1890, A., 106.
- transfer of ions in fused and solid silver iodide, 1890, A., 317.
- electrolysis of mixed solutions, 1890, A., 317.
- electrolytic crystallisation and dimorphism of lead, 1890, A., 437.
- crystalline liquids, 1891, A., 249.
- artificial colouring of crystals, 1892, A., 269.
- spheres of condensation and evaporation, 1892, A., 1149.
- Lehmann, *Th.*, estimation of alkalis in urine, 1885, A., 609.
- Lehmann, *Th.* See also *Richard Julius Petri*.
- Lehmann, *Victor*, methods of detecting lead, silver, and mercury in the body in cases of poisoning, 1883, A., 687.
- further contributions to the distribution and elimination of lead, 1883, A., 1163.
- self-fermentation of yeast, 1885, A., 1151.
- chinethionic acid, 1889, A., 286.
- Lehne, *Adolf*. See *Maximiliano Dennstedt*.
- Lehnkering, *Paul*. See *Alfred Einhorn*.
- Leibius, *Adolph*, notes on gold, 1886, A., 774.
- Leicester, *James J.*, action of quinones on *o*-diamines, *o*-nitranilines, and nitro-*p*-toluidine, 1890, A., 1445.
- Leidié, *Emile*, rhodium sesquichloride, 1888, A., 790.
- rhodium sesquisulphide, 1888, A., 919.
- rhodium salts, 1888, A., 1256.
- rhodium nitrites, 1890, A., 1382.
- double salts of nitrites of rhodium, 1891, A., 808.
- Leidié, *Emile*. See also *Alexandre Joly*.
- Leighton, *George W.*, crystalline scale formed in the manufacture of sodium hydrogen carbonate, 1887, A., 108.
- mica from Leon Co., Texas, 1887, A., 119.
- Leipen, *Robert*, compounds of ethylidene-lactic acid, 1888, A., 580.
- caffeine, 1889, A., 1017.

- Leitgeb, Hubert**, crystalline deposits in dahlia tubers, 1887, A., 1136.  
 — asparagine and tyrosine in dahlia bulbs, 1889, A., 433.
- Leivish, Th.**, tetrahedrite from the Alaska vein, Colorado, 1886, A., 21.  
 — crystallographic investigations, 1886, A., 543.  
 — 2:6-dimethylpyridine platinumchloride, 1887, A., 378.  
 — conyryne platinumchloride, 1887, A., 383.
- Lellmann, Eugen**, phenylenethiocarbamides, 1883, A., 185.  
 — the three isomeric phenylenediamines, 1883, A., 324.  
 — derivatives of diphenyl, 1883, A., 343.  
 — a case of physical isomerism, 1883, A., 343.  
 — cyanic acid derivatives of the three isomeric phenylenediamines, 1883, A., 798.  
 — nitro- and amido-derivatives of benzenesulphoneanilide and benzenesulphone-*p*-toluidide, 1883, A., 800.  
 — difference in chemical behaviour of aromatic diamines, 1884, A., 49.  
 — derivatives of naphthalene, 1884, A., 751.  
 — Wachendorff's chloronitrotoluene, 1884, A., 1133.  
 — theory of benzene, 1885, A., 251.  
 — constitution of dinitro-*p*-xylenes, 1885, A., 973.  
 — general method for determining the constitution of aromatic diamines, 1885, A., 976; 1886, A., 625.  
 — new tolylenediamine, 1885, A., 976.  
 — preparation of  $\beta$ -nitronaphthalene, 1887, A., 590.  
 — phenylpiperidine, 1887, A., 604.  
 — existence of two series of 4-(ana) derivatives of quinoline, 1887, A., 973.  
 — piperylene nitrogen chloride, 1888, A., 970.  
 — coniceines, 1889, A., 901; 1890, A., 1328.  
 — polymerisation of compounds containing doubly-bound carbon atoms, 1889, A., 903.  
 — estimation of the coefficients of affinity of organic bases and acids, 1889, A., 1104.  
 — reduction of acetyl-*o*-nitrobenzyl-*p*-toluidine and of benzoyl-*o*-nitrobenzylamine, 1891, A., 726.  
 — *is*-chloro-*p*-acetotoluidide, 1892, A., 450.  
 — affinity coefficients of acids, 1892, A., 1269.
- Lellmann, Eugen**, and **Hermann Alt**, quinoline, 1887, A., 502.
- Lellmann, Eugen**, and **Bernhard Arnold**, intramolecular formation of an azo-group, 1892, A., 316.  
 — substance containing a ring of eighteen members, 1892, A., 890.
- Lellmann, Eugen**, and **Emil Benz**, compounds prepared from methylphenylchloroformamide and diphenylchloroformamide, 1891, A., 1214.
- Lellmann, Eugen**, and **Otto Bonhöffer**, introduction of carboxyl into aromatic derivatives by the action of diphenylcarbamide chloride, 1887, A., 254, 935.
- Lellmann, Eugen**, and **Harald Boye**, colouring matter from tetrahydroquinoline, 1890, A., 1005.  
 — intramolecular transformation between a diazo-salt and a phenol-residue, 1890, A., 1116.
- Lellmann, Eugen**, and **Max Büttner**, piperidine bases, 1890, A., 1002.  
 —  $\beta$ -methylpiperidine bases, 1890, A., 1003.
- Lellmann, Eugen**, and **Albert Donner**, phen- $\alpha$ -phenyl-*p*-azoxime, 1890, A., 523.  
 — constitution of the quinoxalines obtained from tolylenediamine and bromacetophenone, 1890, A., 524.
- Lellmann, Eugen**, and **Werner Geller**, piperidine, 1888, A., 970.  
 — tertiary phenylpiperidine, 1888, A., 1107.  
 — derivatives of tertiary phenylpiperidine, 1888, A., 1107.  
 — formation of colouring matters from *p*-amidophenylpiperidine, 1888, A., 1108.
- Lellmann, Eugen**, and **Hermann Gross**, affinity coefficients of bases, 1891, A., 638, 1149.
- Lellmann, Eugen**, and **Rudolf Grothmann**, derivatives of salicylic acid, 1885, A., 265.
- Lellmann, Eugen**, and **Richard Just**, derivatives of piperidine, 1891, A., 1244.  
 — behaviour of piperidine bases towards aromatic halogen compounds, 1891, A., 1245.
- Lellmann, Eugen**, and **Karl Klotz**, dichlorotoluenes and dichlorobenzoic acids, 1886, A., 452.
- Lellmann, Eugen**, and **Gerhard Lange**, quinoline, 1887, A., 737; 1888, A., 296.
- Lellmann, Eugen**, and **Walter Lippert**, formation of bases of the quinoline series, 1891, A., 1509.

- Lellmann, Eugen**, and **Fritz Mack**, dinitrodimethylamidodiphenylamine. 1890, A., 1410.
- Lellmann, Eugen**, and **Wilhelm Otto Müller**,  $\gamma$ -conceine, conyryne, and inactive conine, 1890, A., 802.
- Lellmann, Eugen**, and **Hans Pekrun**, benzyl-derivatives of piperidine, tetrahydroquinoline, and pyridine, 1891, A., 38.
- Lellmann, Eugen**, and **Albert Remy**,  $\beta$ -nitronaphthalene, 1886, A., 471.
- naphthalene derivatives, 1886, A., 623.
- Sandmeyer's reaction, 1886, A., 625.
- Lellmann, Eugen**, and **Hermann Reusch**,  $\psi$ -quinoline-*ana*-nitrile, 1888, A., 499.
- quinoline and tetrahydroquinoline, 1889, A., 905.
- Lellmann, Eugen**, and **Carl Schleich**, nitrobenzyl-derivatives of ethylmalonate, 1887, A., 490.
- formation of colouring matters from *p*-diamidodiphenylpiperazine, 1889, A., 901.
- Lellmann, Eugen**, and **Johannes Schliemann**, affinity coefficients of acids, 1892, A., 1269.
- Lellmann, Eugen**, and **Otto Schmidt**, ring formation with elimination of hydrogen bromide or nitrous acid, 1888, A., 289.
- Lellmann, Eugen**, and **Richard Schwaderer**, piperidine and dipiperidine, 1889, A., 901.
- Lellmann, Eugen**, and **Carl Stickel**, benzylene derivatives, 1886, A., 793.
- Lellmann, Eugen**, and **Emil Würthner**, new nitrotoluidine, 1885, A., 974.
- chemical behaviour of aromatic and fatty diamines, 1885, A., 977.
- Lellmann, Eugen**, and **Hans Ziemssen**, derivatives of 1-methylquinoline and 3-methylquinoline, 1891, A., 1257.
- Lemberg, Johann**, formation and alteration of silicates, 1885, A., 1187; 1890, A., 113.
- Lemme, George**, separation of bismuth from lead, 1890, A., 421.
- Lemoine, Georges**, chemical action of light: decomposition of oxalic acid by ferric chloride, 1884, A., 381.
- sulphur salts derived from phosphorus trisulphide, 1884, A., 555.
- hydrocarbons from American petroleum and their derivatives, 1884, A., 1106.
- influence of heat on the decomposition of oxalic acid by ferric chloride, 1887, A., 324.
- Lemoine, Georges**, chemical effect of light: measurement of physical absorption, 1891, A., 965.
- dissociation of amylene hydrobromide under low pressures, 1891, A., 970.
- Lenard, Philipp**, and **Max Wolf**, fluorescence of pyrogallol, 1888, A., 1000.
- Lenard, Philipp**. See also *Vergil Klatt*.
- Lendrich, Karl**, constituents of *Menyanthes trifoliata* and of *Erythraea Centaurium*, 1892, A., 1262.
- Lengfeld, Felix**, relative stability of the alkyl bromides, 1889, A., 476.
- Lengfeld, Felix**. See also *Eugen Bamberger*.
- Lenk, Hans**, eruptive rocks of the Rhône, 1890, A., 115.
- Lenné, A.**, use of peat as litter, 1883, A., 238.
- Le Nobel, C.**, testing for acetone in acetoneuria, 1885, A., 449.
- a new terpene, 1885, A., 663.
- action of reducing agents on hematin: presence of products of reduction in pathological urine, 1887, A., 1127.
- Lenz, Leop.**, estimation of nitrogen by Kjeldahl's method, 1888, A., 193.
- horse fat, 1889, A., 1076.
- Lenz, Wilhelm**, examination of bismuth subnitrate, 1883, A., 382.
- purification of hydrogen sulphide, 1884, A., 215, 776.
- assay of commercial potassium iodide, 1884, A., 366.
- titrations with potassium permanganate solution, 1885, A., 598.
- pepper powder, 1885, A., 701.
- colour reactions of alkaloids, 1886, A., 581.
- testing indigo dyes on fabrics, 1887, A., 1147.
- recent processes for testing quinine, 1889, A., 86.
- discrimination of jute fibres from those of flax and hemp, 1890, A., 928.
- Lenze, Friedrich**. See *Martin Freund*.
- Leo, Hans**, formation and migration of fat in phosphorus poisoning, 1885, A., 1002.
- fate of pepsin and trypsin, 1886, A., 381.
- trypsin in urine, 1887, A., 69.
- reducing substance in diabetic urine, 1887, A., 513.
- Leo, Hans**. See also *Carl Friedheim*.
- Leon, John Temple**. See *Charles Donnelly Alder Wright*.

- Leonard, Norman**, blue flame produced by sodium chloride in a coal fire, 1889, A., 336.
- Leonardi, Aristide**. See **Girolamo Mazzara**.
- Leone, Teodoro**, amides of  $\alpha$ - and  $\beta$ -naphthoic acids, 1884, A., 1362.
- micro-organisms in potable water, 1886, A., 286.
- changes induced in water by the development of bacteria, 1887, A., 615.
- detection of cotton-seed oil in fats and in olive oil, 1890, A., 930.
- reduction of nitrates by micro-organisms, 1890, A., 1453.
- nitrification and denitrification in soils, 1891, A., 101.
- reducing power of micro-organisms, 1891, A., 102.
- Leone, Teodoro**, and **Antonio Denaro**, detection of blood stains, 1890, A., 840.
- Leone, Teodoro**, and **Antonio Longi**, properties of olive, sesame, and cotton oils, 1887, A., 536.
- Leone, Teodoro**, and **Oreste Magnanini**, nitrification of organic nitrogen, 1892, A., 367.
- Leone, Teodoro**, and **Vincenzo Oliveri**,  $\beta$ -dipyridyl, 1886, A., 78.
- Leonhard, Alexander F.**, occurrence of millerite in St. Louis, 1886, A., 125.
- Leoni, Hugo**. See **Rudolph Fittig**.
- Lepetit**, physiological action of zinc sulphate, 1886, A., 641.
- Lepetit, Robert Albert Emile**, reaction of nitrobenzaldehydes with ethyl acetoacetate and ammonia, 1887, A., 845.
- pyridine derivatives from *m*-nitrobenzaldehyde, 1887, A., 1053.
- action of nitrogen iodide on some organic substances, 1890, A., 1402.
- Lepetit, Robert Albert Emile**. See also **Alfred Biedermann**.
- Lepéz, Carl**, and **Ludwig Storch**, behaviour of *m*-stannic acid to bismuth and iron oxides, 1889, A., 1052.
- Lepéz, Carl**. See also **Carl Zulkowski**.
- Lepierre, Charles**, a property of sulphur, 1891, A., 1417.
- water analysis, 1891, A., 1554.
- Lepierre, Charles**, and **Marcel Lachaud**, thallium compounds, 1891, A., 1422.
- nickel and cobalt, 1892, A., 1282.
- Lepierre, Charles**. See also **Marcel Lachaud**.
- Lépine, Raphael**, action of acetophthalide and dihydroxynaphthalene on blood, 1888, A., 184.
- presence in chyle of a ferment which destroys sugar, 1890, A., 810.
- formation of sugar from peptones in blood, 1892, A., 1502.
- Lépine, Raphael**, and **Pierre Aubert**, relative toxic effect of the organic and saline constituents of urine, 1885, A., 1085.
- Lépine, Raphael**, and **Etienne Barral**, destruction of glucose by blood and chyle, 1890, A., 1172.
- destruction of sugar in blood, 1891, A., 596.
- isolation of the glycolytic ferment of the blood, 1891, A., 755.
- hamatic glycolysis: estimation of glycogen in the blood, 1892, A., 89.
- glycolytic power of blood and artificial production of diabetes, 1892, A., 364.
- variations of the glycolytic and saccharific power of blood in diseases, 1892, A., 517.
- Lépine, Raphael**, and **Gabriel Guérin**, partially oxidised sulphur in urine, 1884, A., 347.
- Lépine, Raphael**, and **Eugène Porteret**, secretion of urine when pressure is exerted on the urinary canals, 1888, A., 1321.
- Lépine, Raphael** (and others), proportion of incompletely oxidised phosphorus contained in the urine, 1881, A., 913.
- Lépine, Raphael**. See also **Paul Cazeaux**.
- Lepay, Hippolyte**, chemistry of white Silesian beetroot, 1883, A., 235, 368.
- chemistry of the maize plant, 1883, A., 366, 747.
- vegetation of the sugar-beet in the second year, 1885, A., 293.
- selective fermentation of invert sugar, 1885, A., 1152.
- absorption of potash and lime by the beetroot, 1886, A., 830.
- formation of organic acids, nitrogenous compounds, and potassium nitrate in beetroot, 1888, A., 868.
- behaviour of the hydroxides of calcium and the alkalis with sugars, 1890, A., 579.
- Leprince**, cascarnine, 1892, A., 1483.
- Lepsius, Bernhard**, dissolved oxygen in deep well waters, 1885, A., 1266.
- percentage of water in different wood papers, 1886, A., 112.

- Lepsius, Bernhard**, lecture experiment for demonstrating the valency of metals, 1888, A., 410.
- water from the Tonnisteiner medicinal spring, 1888, A., 435.
- action of the electric arc on gaseous substances, and its use for demonstrations, 1890, A., 1047.
- lecture experiment for the demonstration of valency, 1890, A., 1050.
- Lerch, Joseph Zd.**, chelidonic acid, 1885, A., 45.
- red dye from chloral hydrate, 1887, A., 793.
- o-nitrosulphanilic acid, 1889, A., 880.
- Lerch, Otto**, magnesium bromide and iodide, 1884, A., 262.
- Lerch, Zdenko**. See **Rudolf Nietzki**.
- Le Roux, François Pierre**, inversion of the E. M. F. of a copper-iron junction at a high temperature, 1885, A., 110.
- Leroy, G. A.**, preparation of alkaline nitrites, 1889, A., 825.
- detection of free chlorine in hydrochloric acid, 1890, A., 547.
- volumetric estimation of sulphur dichloride, 1891, A., 617.
- separation of iron from cobalt and nickel, 1891, A., 1139.
- Leroy, Jules Albert**, bromobenzenes, 1888, A., 258.
- action of phosphoric chloride on methyl naphthyl ketones, 1892, A., 495.
- Le Royer, Alexandre**,  $\beta$ -dichlorophthalic acid, 1887, A., 831.
- Lesage, Pierre**, influence of salt on the formation of starch in vegetable organs containing chlorophyll, 1891, A., 856.
- influence of salt on the quantity of starch contained in the vegetating organs of *Lepidium sativum*, 1891, A., 1133.
- quantity of starch in the tubercles of the radish, 1892, A., 92.
- sodium chloride in plants, 1892, A., 651.
- Lescœur, Henri**, hydrates of baryta, 1883, A., 1052.
- dissociation of hydrated cupric sulphate, 1886, A., 842.
- velocity of dissociation, 1887, A., 100.
- relation between the efflorescence and deliquescence of salts and the maximum vapour tensions of their saturated solutions, 1887, A., 208.
- vapour tension of sodium acetate, 1887, A., 322.
- Lescœur, Henri**, hydrates of sodium arsenate, 1887, A., 698.
- hydrates of barium chloride, 1887, A., 766.
- dissociation of hydrated oxalic acid, 1887, A., 915.
- dissociation of saline hydrates and analogous compounds, 1889, A., 815.
- iodic acid, 1890, A., 106.
- compounds which have a tension of dissociation equal to the vapour pressure of their saturated solutions, 1890, A., 553.
- Lescœur, Henri**, and **Désiré Mathurin**, water of crystallisation of the alums, 1889, A., 7.
- Leser, Georges**, o-xylene derivatives, 1884, A., 1313.
- Lesnik, M.**, and **Marcellus Nencki**, behaviour of  $\alpha$ - and  $\beta$ -naphthols in the system, 1886, A., 822.
- Lespieau, Robert**, nitration of propylbenzene, 1890, A., 962.
- Raoult's ebullioscope, 1891, A., 9.
- dibromopropylene, 1892, A., 420.
- picene, 1892, A., 623.
- Lessen, Abraham Herman van**, nitrites of potassium, lead, and copper, 1891, A., 1157.
- Lesseps, Ferdinand Marie (Vicomte) de**, water from artesian well in the Tunisian Chotts, and from the spring at Oued Ref, 1887, A., 455.
- Lesser, E.**, separation and estimation of arsenic, antimony, and tin, 1888, A., 754.
- Letellier, Augustin**, colouring matter of *Purpura lapillus*, 1889, A., 1207; 1890, A., 1452.
- Leteur, F.**, stannobromides, 1892, A., 121.
- Leteur, F.** See also **G. Geisenheimer**.
- Letts, Edmund Albert**, and **Robert Frederick Blake**, identity of Hofmann's dibenzylphosphine with tribenzylphosphine oxide, 1890, A., 492.
- benzylphosphines and their derivatives, 1890, A., 766.
- Letts, Edmund Albert**, and **John Norman Collie**, salts of tetrethylphosphonium and their decomposition by heat, 1886, P., 164.
- new method of preparing tin tetrethide, 1886, P., 166.
- Leube, Wilhelm Olivier**, alteration of cane sugar in the human stomach, 1884, A., 91.
- new pathological colouring matter in urine, 1888, A., 179.
- glycogen in diabetic urine, 1889, A., 65, 293.

- Leuchs, Karl.** See **Robert Behrend.**
- Leuckart, Rudolf,** reactions of aromatic cyanates, 1885, A., 773.
- *s-* and *us*-dimethylsuccinic acids, 1885, A., 1200.
- tribenzylamine, 1885, A., 1215.
- *o*-nitrotolylglycine: *m*-nitro-*p*-toluonitrile, 1886, A., 351.
- carveol, borneol, and menthol, 1887, A., 376.
- aromatic mercaptans, 1890, A., 306.
- syntheses by means of phenyl cyanate, 1890, A., 759.
- action of ammonium formate on ketones, 1890, A., 783.
- Leuckart, Rudolf, and Eugen Bach,** action of ammonium formate on benzaldehyde and benzophenone, 1886, A., 1023.
- bornylamine, 1887, A., 376.
- Leuckart, Rudolf, and Adolf Hermann,** nitrotolylglycine and oxydihydro-toluquinoxaline, 1887, A., 383.
- Leuckart, Rudolf, and Wilhelm Holtzapfel,** azobenzeneacetoacetamide, 1889, A., 864.
- Leuckart, Rudolf, and Hermann Jansen,** action of ammonium formate on deoxybenzoin, 1889, A., 883.
- Leuckart, Rudolf, and Hermann Lampe,** dibornylamine, 1889, A., 1003.
- Leuckart, Rudolf, and Moritz Schmidt,** action of phenyl cyanate on phenols, 1885, A., 1224.
- Levallois, Albert,** action of cuprammonium solutions of cellulose on polarised light, 1884, A., 577, 833.
- polarimetric investigation of various forms of cellulose, 1884, A., 1288.
- estimation of fragrant essential oils, 1885, A., 301.
- optical activity of cellulose, 1885, A., 369.
- rotatory power of solutions of cellulose in Schweizer's solution, 1885, A., 500.
- characteristics of olive oil, 1887, A., 535.
- effect of chemical manures on the composition of soja, 1888, A., 870.
- Levat,** alcohol from melon juice, 1884, A., 233.
- Lévy, Edouard,** relation between electrical and chemical energy in galvanic cells, 1891, A., 513.
- Levi, Louis E.,** benzylhydroxyanthranol, 1885, A., 1240.
- isomeric thiotolonic acids, 1886, A., 539.
- diphenylthienylmethane, 1886, A., 787.
- Levi, Louis E.,** thiophen-green, 1887, A., 481.
- biophen, 1891, A., 551.
- Levin.** See **Lew.**
- Levinstein, Isaac,**  $\beta$ -naphtholtrisulphonic acid, 1883, A., 737.
- English and Scotch coal-tar xylenes, 1884, A., 898.
- preparation of nitro-derivatives of aromatic amines, 1885, A., 1127.
- Levoir, L. C.,** setting of cement, 1886, A., 851.
- apparatus for the electrolytic estimation of metals, 1889, A., 548.
- Lévy, Albert,** composition of rain water, 1889, A., 299.
- ammonia in rain water, 1892, A., 381.
- Levy, H.** See **Mur Jaffé.**
- Lévy, Lucien,** colour reactions of titanate, niobic, tantalate, and stannic anhydrides, 1887, A., 304.
- colour reactions of arsenic, arsenious, vanadic, and molybdic anhydrides, and of antimony and bismuth oxides, 1887, A., 305.
- estimation of titanate acid, 1887, A., 1064.
- zinc titanates, 1888, A., 27, 1254.
- estimation of titanate oxide, 1888, A., 196.
- alloy of titanium, silicon, and aluminium, 1888, A., 423.
- titanium peroxide, 1889, A., 572.
- action of titanium chloride on metals, 1890, A., 1066.
- Levy, Ludwig,** muscle pigments, 1889, A., 633.
- Levy, Mur,** the so-called liver of *Helicopoma*, 1891, A., 235.
- Levy, Siegmund,** chlorine and bromine derivatives of quinone, 1883, A., 1117.
- constitution of chloranilic acid, 1885, A., 1210.
- oxidation of copaiba balsam, 1886, A., 250.
- action of ammonia and ethylenediamine on tetrachlorodiacetyl, 1890, A., 475.
- Levy, Siegmund, and Americo Andreucci,** action of phosphorus pentachloride on ethyl succinosuccinate, 1888, A., 840.
- dichloroterephthalic acid and dichlorodihydroterephthalic acid, 1888, A., 1091.
- Levy, Siegmund, and Alfred Curchod,** *s*-tetrachloracetone, 1889, A., 1136.
- action of phosphorus pentachloride on ethyl succinosuccinate, 1889, A., 1179.

- Levy, Siegmund**, and **Paul Engländer**, dimethylsuccinic acid, an oxidation product of copaiba balsam, 1886, A., 250.
- oxidation of copaiba balsam, 1888, A., 133.
- Levy, Siegmund**, and **Carl Jedlicka**, action of bromine on bromanilic and chloranilic acids, 1887, A., 1106.
- tetrachlorinated diacetyl, 1888, A., 443.
- products of decomposition of chlor-, brom-, and nitro-anilic acids, 1889, A., 390.
- Levy, Siegmund**, and **Friedrich Carl Witte**, action of phenylhydrazine on tetrachloracetone, 1889, A., 1160.
- Levy, Siegmund**, **Friedrich Carl Witte**, and **Alfred Curchod**, derivatives of tetrachlorodiacyl and tetrachloracetone, 1890, A., 232.
- Levy, Siegmund**. See also **Rudolph Fittig**.
- Lewy, Ignaz**, and **Paul Biehm**, tetramethylquinoline, 1886, A., 721.
- Lewaschew, Sergius W.**, formation of trypsin, 1886, A., 381.
- Lewes, Vivian Byam**, the luminosity of coal-gas flames, 1892, T., 322; P., 2; discussion, P., 6.
- the origin of acetylene in flames, 1892, P., 47.
- analysis of the products of incomplete combustion, 1892, A., 407.
- Lewes, Vivian Byam**. See also **Richard Cowper**.
- Lewin, Louis**, behaviour of "*Folia uva ursi*" and arbutin in the animal organism, 1884, A., 915.
- Lewis, David Stenison**. See **Francis Humphreys Storer**.
- Lewis, Henry Curvill**, substance resembling dopplerite from a peat-bog near Scranton, 1883, A., 427.
- American locality for helvine, 1885, A., 227.
- Lewis, William J.**, crystal of stephanite from Wheel Newton, 1884, A., 405.
- crystalline form of miargyrite, 1885, A., 1116.
- Lewith, S.**, action of salts on the proteids of serum, 1889, A., 424.
- Lewkowitsch, Julius**, separation of inactive mandelic acid into two optically active isomerides, 1883, A., 1124.
- l-mandelic acid, 1883, A., 1124.
- optically active glyceric and lactic acids, 1884, A., 296.
- conversion of active mandelic acid into inactive, 1884, A., 318.
- optical rotatory power of leucine, 1884, A., 1115.
- Lewkowitsch, Julius**, rotatory power of benzene derivatives, 1888, T., 781; P., 87.
- improved Soxhlet extractor and apparatus for distilling in a vacuum, 1889, T., 359; P., 90.
- preparation of glyceric acid, 1889, P., 14.
- Sawarri fat, 1889, P., 69.
- estimation of glycerol in crude glycerol, 1889, A., 748; 1890, A., 300.
- Benedikt's acetyl values, 1890, P., 72, 91.
- analysis of fats, 1891, A., 509.
- estimation of cholesterol, 1892, A., 544.
- Lewy, Leo**, separation of aniline, p-toluidine, and o-toluidine, 1881, A., 16.
- toluidines, 1886, A., 872.
- aniline and its homologues, 1887, A., 131.
- Lewy, Mor**, action of acid amides on bromacetophenone, 1888, A., 55.
- bases from bromacetophenone and acetamide, 1888, A., 593.
- oxazoles and their derivatives, 1888, A., 1101.
- Lextreit, Marius Auguste**, strychnine sulphate, 1883, A., 223.
- action of picric acid on terebenthene, 1886, A., 71.
- borneol or camphor from picrate of turpentine, 1886, A., 557.
- Leybold, W.**, burette jet, 1887, A., 688.
- estimation of hydrogen cyanide in coal gas, 1891, A., 367.
- Leydhecker, Aug.**, cultivation of winter flax, 1884, A., 921.
- Leydhecker, Aug.** (and others), potato-culture, 1883, A., 114.
- Leymann, Hermann**, action of  $\beta$ -chlor-ethylenesulphonic chloride on aniline, 1885, A., 786.
- Leymann, Hermann**. See also **Wilhelm Will**.
- Lezé, R.**, analysis of some cider apples, 1884, A., 203.
- living motors and the theory of heat, 1890, A., 807.
- estimation of fat in milk, 1890, A., 837.
- detection of margarine in butter, 1891, A., 1300.
- Lezé, R.**, and **Allard**, estimation of fat in the products from milk, 1892, A., 391.
- L'Hôte, Louis Désiré**, purification of arseniferous zinc, 1881, A., 962; 1885, A., 307.

- L'Hôte, Louis Désiré.** some properties of zinc, 1886, A., 204.  
 — preparation of vanadyl chloride, 1886, A., 204.  
 — detection and estimation of aluminium in wine and in grapes, 1887, A., 690.  
 — estimation of nitrogen by Kjeldahl's method, 1889, A., 438.  
 — estimation of organic nitrogen, 1889, A., 746.  
 — mineral water of Penon de los Banos, Mexico, 1891, A., 279.  
 — the nitrogenous substance of arable soil, 1891, A., 492.
- L'Hôte, Louis Désiré.** See also *Emile Gatellier, Adam Charles Girard.*
- Laskowski, N.,** analyses of beetroot seed, 1891, A., 764.
- Laborius, Paul,** bacterial life in relation to oxygen, 1887, A., 291.
- Licht, Otto.** See *Rudolph Bergreen.*
- Lidoff, Alexander P.,** analysis of petroleum-coke, 1883, A., 408.  
 — solubility of fibroin, 1885, A., 406.  
 — formation of hydroxylamine, 1885, A., 722.  
 — method for determining active chlorine in bleaching powder, 1886, A., 487.  
 — estimation of tannic acid in Caucasian wild sumach, 1889, A., 541.
- Lidoff, Alexander P., and Vladimir A. Tichomiroff,** action of the galvanic current on chlorates, 1883, A., 149; 1884, A., 542.
- Lieben, Adolf,** dry distillation of silver salts of organic acids, 1892, A., 811.  
 — errors arising in chemical operations owing to the use of gas-flames, 1892, A., 1374.  
 — preparation of crotonaldehyde, 1892, A., 1424.
- Lieben, Adolf, and Ludwig Haitinger,** chelidonic acid, 1883, A., 870.  
 — — — nitrogenous derivatives of chelidonic acid, 1884, A., 1196.
- Lieben, Adolf, and Simon Zeisel,** condensation products of aldehydes and their derivatives, 1883, A., 570, 963.  
 — — — tiglic aldehyde and its derivatives, 1886, A., 783.
- Lieben, Adolf.** See also *Ludwig Haitinger.*
- Liebenberg, Adolf (Ritter) von,** part played by lime in the germination of seeds, 1883, A., 490.  
 — influence of intermittent heat on the germination of seeds, 1885, A., 419.  
 — manuring barley, 1888, A., 189.
- Liebenberg, Adolf (Ritter) von,** manuring oat, 1888, A., 189.  
 — manuring of winter wheat and winter rye, 1888, A., 189.
- Lieber, Karl,** application of aluminium palmitate, 1883, A., 405.
- Liebermann, Carl Theodor,** action of concentrated sulphuric acid on dinitroanthraquinone, 1883, A., 597.  
 — decomposition of rosaniline by water, 1883, A., 1097.  
 — constitution of azonaphthol dyes, 1884, A., 609.  
 — — —  $\alpha$ -nitroanthraquinonesulphonic acid, 1884, A., 1040.  
 — the quinovin group, 1884, A., 1191.  
 — sylvic and pimicic acids, 1884, A., 1364.  
 — derivatives of quercetin, 1884, A., 1365.  
 — behaviour of  $\alpha$ -naphthaquinone and benzoquinone towards sulphuric acid, 1885, A., 802.  
 — the wax and fat of cochineal, 1885, A., 1045.  
 — oxyquinoterpena, 1885, A., 1075.  
 — cochineal and carmine, 1885, A., 1076.  
 — constitution of alkyl hydroxy-anthranols, 1885, A., 1240.  
 — quercetin and rhamnetin, 1886, A., 366.  
 — coccerin\* from living cochineal, 1886, A., 441.  
 — azo-opiatic acid and a new indigo-derivative, 1886, A., 468.  
 — behaviour of opiatic and nitro-opiatic acids towards phenylhydrazine, 1886, A., 550.  
 — derivatives of opiatic acid, 1887, A., 45.  
 — constitution of azo-opiatic acid, 1887, A., 257.  
 — isomeride of hemipipinide, 1887, A., 258.  
 — thiophen reaction with nitrous-sulphuric acid, 1888, A., 325.  
 — leuco-compounds from anthraquinone dyes, 1888, A., 492, 717.  
 — therapeutic substitutes for chrysarobin, 1888, A., 518.  
 — methyloxyanthranol, 1888, A., 715.  
 — new apparatus, 1888, A., 1155.  
 — spectra of the alkoxyanthraquinones, 1888, A., 1203.  
 — a new dihydroxyanthraquinone (hystazarin), 1888, A., 1203.  
 — isotropylcocaine, 1888, A., 1210.  
 — cinnamylcocaine, 1889, A., 283.  
 — cocaines, 1889, A., 419.  
 — coca bases, 1889, A., 732.

- Liebermann, *Carl Theodor*, hygrine, 1889, A., 732.  
 — isomeric truxillic acids, 1889, A., 1194; 1890, A., 1424.  
 — cinnamylcocaine from coca leaves, 1890, A., 76.  
 — occurrence of isocinnamic acid in the alkaloids of cocaine, 1890, A., 494.  
 — isocinnamic acid, 1890, A., 620.  
 — isocinnamic and allocinnamic acids, 1890, A., 1417; 1891, A., 832.  
 — theory of the truxillic acids, 1890, A., 1124.  
 — oxidation of ergonine, 1890, A., 1449.  
 — tropic acid and oxidation products of *d*- and *l*-ergonine and of tropine, 1891, A., 749.  
 — allocinnamic acid, 1891, A., 832.  
 — benzoyl- $\psi$ -tropine, an alkaloid of Java coca leaves, 1891, A., 1265.  
 —  $\psi$ -tropine, 1891, A., 1520.  
 — heat evolved in the isomeric change of the oxime of opianic anhydride, 1892, A., 459.  
 — stereoisomeric and polymeric cinnamic acids, 1892, A., 469.  
 Liebermann, *Carl Theodor*, and *Otto Bergami*, cocceryl alcohol and cocerylic acid, 1887, A., 650.  
 — ruberythric acid, 1887, A., 1051.  
 — action of sulphuric acid on  $\gamma$ - and  $\delta$ -isotropic acids, 1889, A., 698.  
 — truxene and truxone derivatives, 1890, A., 514.  
 Liebermann, *Carl Theodor*, and *Fritz Damerow*, silver phenylacetylides, 1892, A., 831.  
 Liebermann, *Carl Theodor*, and *Max Dickhuth*, acetylhydrindigotin and acetylindigo, 1892, A., 480.  
 Liebermann, *Carl Theodor*, and *William L. Drory*,  $\delta$ - and  $\gamma$ -isotropylcocaine, 1889, A., 733.  
 Liebermann, *Carl Theodor*, and *Fritz Giesel*, commercial preparation and partial synthesis of cocaine, 1889, A., 168.  
 — by-products from the synthesis of cocaine, 1890, A., 647, 803.  
 Liebermann, *Carl Theodor*, and *Adolf Gimbel*, preparation of anthranol and dianthryl, 1887, A., 965.  
 Liebermann, *Carl Theodor*, and *H. Glock*, anthraquinonecarboxylic acid, 1884, A., 1188.  
 Liebermann, *Carl Theodor*, and *Fritz Haber*, bisdioxymethyleneindigo, 1890, A., 1140.  
 Liebermann, *Carl Theodor*, and *A. Hagen*, action of concentrated sulphuric acid on dinitroanthraquinone, 1883, A., 72.  
 — derivatives of anthrol salts, 1883, A., 73.  
 — action of sulphuric acid on di- and tri-allylamine, 1883, A., 1086.  
 Liebermann, *Carl Theodor*, and *Albert Hartmann*, condensation of allocinnamic acid with phenols, 1891, A., 1184.  
 — condensation of cinnamic and allocinnamic acids, 1892, A., 848.  
 — condensation of cinnamic acid with hydrocarbons, 1892, A., 1228.  
 Liebermann, *Carl Theodor*, and *Michael von Ilinski*, polythymoquinone, 1886, A., 239.  
 Liebermann, *Carl Theodor*, and *Hustav Jellinek*, ethylated hydroxyanthraquinones, 1888, A., 715.  
 Liebermann, *Carl Theodor*, and *Samuel Kleemann*, methylpropylacetic acid, 1884, A., 1120.  
 — opianic acid derivatives, 1887, A., 47.  
 — etherification of opianic acid, 1887, A., 584.  
 Liebermann, *Carl Theodor*, and *Stanislaus von Kostanecki*, *p*-azocresol, 1884, A., 736.  
 — azo-compounds, 1884, A., 1146.  
 — reactions dependent on position, 1885, A., 1209.  
 — synthesis of hydroxyanthraquinones from *m*-hydroxybenzoic acids, 1886, A., 474.  
 — spectra of the methyl derivatives of hydroxyanthraquinone, 1887, A., 1.  
 Liebermann, *Carl Theodor*, and *Otto Kühling*, oxidation of hygrine, 1891, A., 586.  
 Liebermann, *Carl Theodor*, and *Ludwig Limpach*,  $\psi$ -tropine and some  $\psi$ -tropines, 1892, A., 891.  
 Liebermann, *Carl Theodor*, and *Carl Paal*, allylamine derivatives, 1883, A., 908.  
 Liebermann, *Carl Theodor*, and *Melchior Römer*, alkannin, 1887, A., 1051.  
 Liebermann, *Carl Theodor*, and *Hermann Sachse*, diiodocinnamic acid, 1891, A., 1483; 1892, A., 470.  
 Liebermann, *Carl Theodor*, and *Carl Bernhard Wilhelm Scheibler*, reduction of saccharin, 1883, A., 1078.  
 Liebermann, *Carl Theodor*, and *Wilhelm Scholz*, formation of allocinnamic acid from phenylpropionic acid, 1892, A., 848.

- Liebermann, Carl Theodor**, and **Paul Seidler**, opium, 1857, A., 580.
- Liebermann, Carl Theodor**, and **Alphonse Seyewitz**, purity of benzene, 1891, A., 684.
- Liebermann, Carl Theodor**, and **Leopold Spiegel**, chrysene hydrides, 1889, A., 405.
- — — perhydrides of the higher aromatic hydrocarbons, 1889, A., 719.
- Liebermann, Carl Theodor**, and **Wilhelm Wense**, hydroxyanthraquinone dyes, 1887, A., 593.
- Liebermann, Carl Theodor**, and **Otto Nikolaus Witt**, azines of chrysosquinone, 1887, A., 1049.
- Liebermann, Carl Theodor**, **William L. Drory**, and **Otto Bergami**,  $\gamma$ - and  $\delta$ -isotropic acids, 1889, A., 395.
- Liebermann, Leo**, detection of sulphurous acid in wine, 1883, A., 384.
- — — volumetric method for the estimation of fat in milk, 1884, A., 372.
- — — estimation of milk fat, 1885, A., 695.
- — — detection of albumin in urine, 1887, A., 1150.
- — — animal dextran, 1888, A., 177.
- — — nuclein from yeast: artificial preparation of nuclein from albumin and *m*-phosphoric acid, 1888, A., 510.
- — — nuclein, 1889, A., 1021.
- — — *m*-phosphoric acid in the nuclein of yeast, 1891, A., 477.
- — — gum arabic and gum senegal, 1891, A., 866.
- Liebert, Martin**. See **Carl Bernhard Kühn**.
- Liebig**, cause of the rapid curdling of milk during thunder-storms, 1892, A., 1370.
- Liebisch, Theodor**, apparatus for measuring the angle of the optic-axes, 1885, A., 622.
- Liebmann, Adolf**, isobutylphenol and amylphenol, 1883, A., 59.
- Liebmann, Adolf**, and **Arthur Studer**, detection of rosaniline salts, 1887, A., 405.
- Liebmann, Louis**. See **Rudolph Fittig**.
- Liebrecht, Arthur**, reduction of nicotine, 1886, A., 161; 1887, A., 161.
- Liebrecht, Arthur**. See also **Alfred Einhorn**.
- Liebreich, Oscar**, the dead space in chemical reactions, 1888, A., 1242; 1890, A., 1207; 1891, A., 1150.
- — — lanolin and the detection of the cholesterol fats in man, 1891, A., 97.
- Liebscher, Georg**, bitter milk, 1885, A., 105.
- Liebscher, Georg**, cultivation of Swedish and German cereals, 1885, A., 122.
- — — cultivation of various sugar-beets, 1885, A., 421.
- — — manuring sugar-beet, 1885, A., 429.
- — — preservation of sliced beets in silos, 1886, A., 275.
- — — supply of food constituents at different periods of plant growth, 1888, A., 382.
- Liechti, L.**, and **Wilhelm Suida**, composition of Turkey-red oil, 1884, A., 238; 1885, A., 315.
- — — chemistry of mordants, 1884, A., 791.
- — — behaviour of different ferric oxide mordants with silk, 1885, A., 315.
- Liechti, Paul Robert**, kind of *Garcinia Mangostana*, 1892, A., 205.
- Lietzmann, E.**, permeability of vegetable membranes for air, 1888, A., 1023.
- Lifschütz, Isaac**, action of concentrated sulphuric acid on nitroanthraquinone, 1884, A., 1187.
- — — action of concentrated sulphuric acid on  $\alpha$ -nitroanthraquinonesulphonic acid, 1884, A., 1189.
- — — action of nitric and sulphuric acids on vegetable fibre, 1891, A., 814.
- Lifschütz, Isaac**. See also **Adolf Pinner**.
- Lignon, Maurice**. See **Georges Linsolier**.
- Likiernik, Arthur**, lupeol, 1891, A., 551, 1446.
- — — constituents of the seed pods of *Pinus sativum* and *Pinus vulgaris*, 1891, A., 606.
- Likiernik, Arthur**. See also **Ernst Schulze**.
- Lill, Max von**, and **Leopold Schneider**, manganese ores, 1884, A., 24.
- Limb, C.**, electrolysis of barium chloride, 1891, A., 1421.
- Limb, C.** See also **Edmé Jules Maumené**.
- Limbourg, Philipp**, antiseptic action of bile acids, 1889, A., 291.
- — — solution and precipitation of proteids by salts, 1889, A., 787.
- Limpach, Leonhard**, naphtholtrisulphonic acid, 1883, A., 1136.
- — — laws of substitution of the aromatic amines, 1888, A., 464.
- — — methylation of *s-m*-xylidine, 1888, A., 464.
- Limpach, Leonhard**. See also **Max Conrad**, **William Richard Eaton Hodgkinson**.

- Limpach, Ludwig**, *m*-amido-*p*-cresyl methyl ether, 1889, A., 199.  
 — amido-*p*-cresyl methyl ethers, 1889, A., 698.  
 — synthesis of the sixth dihydroxytoluene, 1892, A., 447.
- Limpach, Ludwig**. See also *Carl Theodor Liebermann*.
- Limpricht, Heinrich**, nitrotoluidines, 1885, A., 974.  
 — oxidation of amidobenzenesulphonic acids, 1885, A., 984.  
 — azobenzenethiosulphonic and azobenzenesulphinic acids, 1885, A., 984.  
 — hydrazine compounds, 1885, A., 1216.  
 — sulphonic and disulphonic acids, 1885, A., 1232.  
 — sulphazides, 1887, A., 723.  
 — hydrazinesulphonic acids and triazocompounds, 1889, A., 397.  
 — behaviour of aniline towards substitution derivatives of hydroxybenzoic acids at high temperatures, 1890, A., 158.  
 — hydrazobenzenedisulphonic acid, 1890, A., 987.  
 — benzinedisulphonic acid, 1891, A., 929.  
 — azo-derivatives, 1891, A., 1036.  
 — preparation of nitrososulphonic acids, 1892, A., 475.
- Limpricht, Heinrich**, and *Franz Hermann Friedrich Carl Meyer*, azobenzene-, hydrazobenzene-, and benzinedisulphonamides, 1892, A., 973.
- Limpricht, Heinrich**, and *Otto von Rechenberg*, action of aniline on amidosalicylic acid, 1890, A., 158.
- Linck, Gottlob Ed.**, analyses of felspar, augite, and mica, 1886, A., 212.  
 — crystallography of cadmium boratungstate, 1887, A., 334.  
 — the basalts of Alsace, 1888, A., 567.
- Linde, Otto**, estimation of hydrocyanic acid, 1887, A., 1143.
- Lindeck, Stephan**, electromotive force of amalgams, 1889, A., 2.
- Lindemann, Th. v.**, action of epichlorhydrin on phenols, 1891, A., 1198.
- Linder, S. Ernest**, and *Harold Picton*, hydrosulphides, 1890, P., 49.  
 — some metallic hydrosulphides, 1891, P., 176; 1892, T., 114.
- Linder, S. Ernest**. See also *Harold Picton*.
- Lindet, Léon**, presence of mannitol in the anana, 1884, A., 629.  
 — compounds of gold chlorides with phosphorus chlorides, 1884, A., 968.
- Lindet, Léon**, gold phosphobromides and phosphochlorobromides, 1885, A., 1115.  
 — compounds of auric chloride with sulphur and selenium tetrachloride, 1886, A., 310.  
 — new solvents of anhydrous auric chloride, 1886, A., 430.  
 — action of alcohols on aurophosphorous chloride, 1887, A., 227.  
 — bases in alcoholic liquids, 1888, A., 634.  
 — action of chlorine on gold, 1888, A., 919.  
 — influence of temperature on the production of higher alcohols by fermentation, 1888, A., 1263.  
 — saccharification of dextrin by diastase, 1889, A., 581.  
 — simultaneous estimation of saccharose and raffinose, 1889, A., 1249.  
 — influence of carbonic anhydride on the products of fermentation, 1890, A., 281.  
 — extraction of raffinose from molasses, and separation of raffinose from saccharose, 1890, A., 732.  
 — presence of furfuraldehyde in commercial alcohols, 1890, A., 1400.  
 — production of higher alcohols in fermentation, 1891, A., 411.  
 — origin of the higher alcohols contained in commercial spirits, 1891, A., 813.
- Lindgren, Waldemar**, arsenates from Långban, 1883, A., 434.  
 — minerals of the Pacific coast, 1889, A., 472.  
 — analcime as a rock-forming mineral, 1892, A., 1413.
- Lindgren, Waldemar**. See also *William Harlow Melville*.
- Lindner, J.**, bromonitrophenols and their amido-derivatives, 1885, A., 774.
- Lindner, P.**, new lactic ferment occurring in malt-wort, 1888, A., 622.
- Lindo, David**, estimation of phosphoric acid as magnesium pyrophosphate, 1884, A., 493.  
 — estimation of phosphoric acid; the oxalic acid method as compared with the molybdic method, 1884, A., 929.  
 — vitreous and ordinary amorphous silica, 1884, A., 1258.  
 — new sugar reactions, 1887, A., 751.  
 — estimation of potash in commercial manures, 1888, A., 89.  
 — preservation of solutions of hydrogen sulphide, 1888, A., 750.  
 — phenol, etc., as tests for nitrites, nitrates, and chlorates, 1888, A., 1337.

- Lindo, David**, Griess' sulphanilic acid test for nitrous acid modified, 1888, A., 1340.
- tests for Fahlberg's "saccharin," antipyrin, and antifebrin, 1888, A., 1350.
- resorcinol as a test for nitrates, 1889, A., 75.
- test for "saccharin," 1889, A., 86.
- analysis of glass, 1889, A., 1246.
- Lindsey, C. R.** See *A. E. Fasnacht*.
- Lindsey, J. B.**, and *Bernhard Tollens*, dextrose from sulphite-cellulose and from fir-wood, 1892, A., 801.
- wood-sulphite liquor and lignin, 1892, A., 802.
- so-called artificial peptic acid from fir-wood, 1892, A., 827.
- Lindsey, J. B.** See also *Fred. C. Weld*.
- Lindström, Axel Fredrik**, occurrence of kaolin in N. Sweden, 1884, A., 278.
- Lindström, Gustaf**, analysis of ganomalite, 1884, A., 972.
- copper mineral from Sunnerskog, Sweden, 1887, A., 343.
- phosphoric anhydride in felspar, 1887, A., 347.
- analysis of natrolite, 1889, A., 219.
- hyalotekite from Långban, 1889, A., 219.
- analyses of idocrase, 1890, A., 718.
- bismuth minerals from Gladhammar, 1891, A., 20.
- Lindt, Otto**, microchemical test for brucine and strychnine, 1885, A., 449.
- Linebarger, Charles Elijah**, hydroxy-anthranol, 1892, A., 346.
- reaction between benzene and benzal chloride in presence of aluminium chloride, 1892, A., 719.
- reaction between triphenylmethane and chloroform in presence of aluminium chloride, 1892, A., 722.
- nature of colloid solutions, 1892, A., 760.
- formation of layers in solutions of salts in mixtures of water and organic liquids, 1892, A., 1146.
- Linebarger, Charles Elijah**. See also *John Harper Long*.
- Ling, Arthur R.**, isomeric change in the phenol series, 1886, P., 268; discussion, P., 268; 1887, T., 147, 782; 1889, T., 583; P., 125.
- metallic derivatives of halogen nitrophenols, 1888, P., 122; 1889, T., 56.
- studies on isomeric change. No. IV. Halogen derivatives of quinone. Part I., 1890, P., 32; 1892, T., 558; P., 105.
- Ling, Arthur R.**, and *Julian L. Baker*, halogen derivatives of quinone. Part II., 1892, T., 589; P., 106.
- Link, Carl**, berberine and hydroberberine, 1892, A., 1498.
- Link, G.**, purification of naphthalene, 1886, A., 713.
- Link, Walther**. See *Hermann Roemer*.
- Linn, Alvin Frank**. See *Ira Remsen*, *Harmon Northrup Morse*.
- Linnemann, Eduard**, extraction of zirconia and the qualitative composition of zircon, 1885, A., 1042.
- oxidation of propylene oxide, 1885, A., 1044.
- absorption phenomena of zircon, 1885, A., 1173.
- oxy-coal-gas blowpipe and the zirconium light, 1886, A., 417.
- austrium, a new metallic element, 1886, A., 773.
- Linossier, Georges**, volumetric estimation of iron, 1885, A., 840.
- compound of haematin with nitric oxide, 1887, A., 854.
- localisation of barium in the organism after chronic poisoning with a barium salt, 1888, A., 183.
- spectroscopic examination of blood, 1888, A., 1189.
- general method for the separation and volumetric estimation of acids, 1889, A., 75, 795.
- estimation of phosphoric acid, 1889, A., 308.
- effect of carbonic oxide on germination, 1889, A., 645, 739.
- estimation of oxygen dissolved in water, 1891, A., 616.
- aspergillin, a vegetable haematin, 1891, A., 751, 1089.
- resolution of inactive lactic acid by *Penicillium glaucum*, 1892, A., 297.
- Linossier, Georges**, and *Maurice Lignon*, estimation of chlorine, 1889, A., 302.
- Linossier, Georges**, and *Gabriel Roux*, alcoholic fermentation and conversion of alcohol into aldehyde by "Champignons du Muguet," 1890, A., 1179; 1891, A., 854.
- Linossier, Georges**. See also *Paul Cazeneuve*.
- Lintner, Carl Joseph**, nitrogenous constituents of barley and malt, 1884, A., 790.
- determination of diastatic activity, 1886, A., 386.
- diastase, 1887, A., 165; 1888, A., 497.
- compounds of starch with the alkaline earths, 1889, A., 316.

- Lintner, Carl Joseph**, diastatic ferment of ungerminated wheat, 1890, A., 650.  
 - action of potassium permanganate on starch, 1891, A., 537.  
 ---- non-nitrogenous extract-substance from barley, malt, and beer, 1891, A., 957.  
 ---- isomaltose, 1892, A., 1293.
- Lintner, Carl Joseph**, and **Franz Eckhardt**, diastase, 1890, A., 519.
- Lipp, Andreas**, phenylglyceric acid, 1883, A., 994.  
 ---- indole, 1884, A., 1030.  
 - - methylated indoles, 1885, A., 167.  
 ----  $\delta$ -hexylene glycol and oxide, 1886, A., 218.  
 - - *p*- and *o*-nitrophenyloxyacrylic acid, 1887, A., 142.  
 ---- tetrahydropicoline, 1887, A., 277.  
 ---- *n*-acetopropyl alcohol, 1889, A., 813.  
 ----  $\gamma$ -pentylene glycol and its anhydride, 1890, A., 20.  
 ---- synthesis of tetrahydropyridine derivatives, and their conversion into piperidine derivatives, 1892, A., 1213.  
 ---- 1-methyl- $\Delta^2$ -tetrahydro-2-hydroxy-ethylpyridine, 1892, A., 1211.
- Lipp, Andreas**. See also **Emil Erlenmeyer**.
- Lipp, F.** See **Leopold Schneider**.
- Lippe, Hugo von der**. See **Adolph Claus**.
- Lippert, Walter**. See **Hugen Lellmann**.
- Lippitt, T. P.**, native ferrous and aluminium sulphate from Mexico, 1884, A., 24.
- Lippmann, Edmund O. von**, occurrence of coniferin in the woody structure of the beetroot, 1888, A., 611.  
 ---- occurrence of a new acid in beet-juice, 1888, A., 913.  
 - non-identity of arabinose and galactose, 1885, A., 41.  
 - occurrence of leucine and tyrosine in beetroot molasses, 1885, A., 215.  
 raffinose, 1886, A., 221.  
 - occurrence of coniferin and vanillin in asparagus, 1886, A., 387.  
 - a new galactan: properties of galactose, 1887, A., 652.  
 - catechol in raw beet-sugar, 1888, A., 262.  
 ---- organic constituents of beetroot juice, 1888, A., 314.  
 - - - rare constituents of the ash of sugar-beet, 1889, A., 295.  
 ---- gummy exudation from the sugar-beet, 1891, A., 284.  
 - - organic acids in beet-juice, 1892, A., 231.
- Lippmann, Edmund O. von** (and others), beet-sugar, 1881, A., 939.
- Lippmann, Edmund O. von** (and others), preparation of sugar from molasses, 1885, A., 102.
- Lippmann, Eduard**, addition of bromine to ethyl acetoacetate, 1883, A., 177.  
 ---- diamidocumic acid, 1883, A., 191.  
 ---- action of benzoic peroxide on amylene, 1885, A., 366.  
 ---- dehydrogenation by means of benzoic peroxide, 1887, A., 151.  
 ---- ethyl hydroxyquinoline carbonate, 1888, A., 164.  
 ---- dithiocarboxylic acids of resorcinol and pyrogallol, 1890, A., 163.  
 ---- preparation of homologues of quinine, 1892, A., 222.
- Lippmann, Eduard**, and **Franz Fleissner**, azylines, 1883, A., 55, 181, 869, 1100; 1884, A., 178.  
 ---- cyanhydrins of nitro-*o*-compounds, 1885, A., 1212.  
 - - - action of potassium cyanide on dinitrodimethylaniline, 1886, A., 235.  
 ---- estimation of carbon and hydrogen by means of copper oxide asbestos, 1886, A., 590.  
 ---- action of potassium cyanide on dinitroaniline, 1886, A., 791.  
 ---- synthesis of hydroxyquinoline-carboxylic acid, 1887, A., 63, 1119.  
 ---- phenoldicarboxylic acids, 1888, A., 1092.  
 ---- alkyl derivatives of 1-hydroxyquinoline, 1890, A., 171.  
 ---- derivatives of 1-hydroxyquinoline, 1890, A., 265.  
 ---- hydroxyquinolinesulphonic acids, 1890, A., 268.  
 - - - action of hydriodic acid on quinine and cinchonine, 1891, A., 1517; 1892, A., 639.  
 - - - action of hydriodic acid on quinine: isoquinine, 1892, A., 81.  
 - - - action of hydriodic acid on cinchonine, 1892, A., 639.  
 - - - the hydriodic-compounds of the cinchona alkaloids, 1892, A., 1363.
- Lippmann, Friedrich**, constitution of allyl cyanide, 1892, A., 27.
- Lippmann, Gabriel**, a mercurial galvanometer, 1881, A., 881.  
 ---- a mercurial electro-dynamometer, 1881, A., 949.
- Lipski, A. A.**, comparative estimation of preparations of pepsin, 1887, A., 66.
- Lissenko, Konon I.**, decomposition of petroleum by heat, 1888, A., 436.
- List, Ed.**, formic acid in rum, 1884, A., 378.  
 ---- organic and inorganic constituents of grapes, 1887, A., 860.

- List, K.**, detection of nitrobenzene in presence of oil of bitter almonds, 1889, A., 552.
- List, Reinhold**, action of thiocarbamide on ethyl acetate, 1886, A., 113; 1887, A., 127.
- List, Reinhold**. See also *Constantin Fahlberg*.
- Litthauer, Siegfried**, action of phosphonium iodide on benzaldehyde, 1889, A., 1168.
- Livache, Ach.**, action of certain metals on oils, 1883, A., 756.
- acceleration of the oxidation of drying oils, 1884, A., 532.
- preparation of standard solutions of carbon bisulphide, 1885, A., 84.
- oxidation of oils, 1886, A., 687.
- solid product of the oxidation of drying oils, 1891, A., 1454.
- Liveing, George Downing, and James Dewar**, spectra of carbon and its compounds, 1883, A., 1, 261.
- disappearance of some spectral lines and the variation of metallic spectra due to mixed vapours, 1883, A., 2.
- spectrum of water, 1883, A., 140.
- an arrangement of the electric arc for the study of radiation of vapours, 1883, A., 262.
- the ultra-violet spectra of elements, 1883, A., 262.
- origin of the hydrocarbon flame spectrum, 1883, A., 641.
- note on the absorption of ultra-violet rays by various substances, 1883, A., 837.
- reversal of hydrogen lines, 1883, A., 838.
- order of reversibility of lithium lines, 1883, A., 839.
- spectral lines of metals developed by exploding gases, 1885, A., 317.
- spectroscopic studies on gaseous explosions, 1885, A., 465.
- spectrum of the oxyhydrogen flame, 1888, A., 637.
- ultra-violet absorption spectrum of oxygen, 1889, A., 1.
- spectrum of magnesium, 1889, A., 89.
- ultra-violet spectra of nickel and cobalt, 1889, A., 89.
- absorption spectra of oxygen, 1890, A., 675.
- Livermore, William Downing**. See *Lewis Mills Norton*.
- Liversidge, Archibald**, the Bingera meteorite, 1886, A., 133.
- the Demiliquin of Banatta meteorite, 1886, A., 131.
- some New South Wales minerals, 1886, A., 771.
- Australian meteorites, 1891, A., 279.
- hot spring waters, 1891, A., 280.
- removal of gold from suspension and solution by fungoid growths, 1891, A., 401.
- Liweh**. See *Leiveh*.
- Ljubavin, Nicolai N.**, action of ammonium cyanate on glyoxal, 1883, A., 178.
- investigation of a saltpetre earth from Turkestan, 1885, A., 128.
- freezing of colloidal solutions, 1890, A., 685.
- Lloyd, Frederick James**, insoluble phosphate, 1884, A., 213.
- changes which take place in the conversion of hay into silage, 1881, A., 772.
- superphosphate, 1884, A., 867.
- milk of abnormal quality, 1890, T., 201; P., 3; discussion, P., 3.
- Lloyd, J. U.**, separation by capillary attraction, 1885, A., 477.
- asiminine, 1887, A., 981.
- Lloyd, Rachel**, conversion of the higher homologues of phenol into amines, 1887, A., 721.
- conversion of some homologues of phenol into primary and secondary amines, 1889, A., 700.
- Lloyd, Rachel**. See also *Charles Frederic Mabery*.
- Lobach, Walter**, anomalous rotatory dispersion in iron, nickel, and cobalt, 1890, A., 673.
- Locher, Max**, action of potassium ferrocyanide on diazobenzene nitrate, 1888, A., 589.
- Locher, Max**. See also *J. Henri Ziegler*.
- Lochert, H.**, compounds of glycol with some aldehydes, 1888, A., 670.
- action of bromine on the compounds of glycol with aldehydes, 1888, A., 671.
- acetals of *n*-propyl glycol, 1888, A., 935.
- diethylnuscarinepyridine, 1891, A., 82.
- Lockyer, Joseph Norman**, spectra of meteorites, 1888, A., 638.
- Loczka, Josef**, smithsonite from Pelsitz Ardó, 1885, A., 730.
- wollastonite from Rézshánya, 1885, A., 731.

- Loczka, Józef**, mineralogical notes, 1886, A., 513.  
 — analyses of Hungarian arsenical pyrites, 1886, A., 514.  
 — arsenopyrite from Serbia, 1889, A., 215.  
 — constitution of arsenopyrite, 1889, A., 216.  
 — Hungarian minerals, 1892, A., 1054.
- Lodeman**, storage of acorns, 1881, A., 100.
- Lodge, Oliver Joseph**, sent of the E.M.F. in the voltaic cell, 1885, A., 1027; 1886, A., 751.  
 — theory of solution, 1891, A., 789.
- Lodin, Arthur**, brown coal of Istia and Dalmatia, 1885, A., 125.  
 — new mineral from Val Godemard, Hautes Alpes, 1885, A., 230.
- Lodsinsky**, reactions in secondary cells, 1888, A., 1141.
- Loäter, Wilhelm**. See *Eugen Bamberger*.
- Loë, W.** See *Josef Plöchl*.
- Loeb, Jacques**, influence of light on oxidation in animals, 1889, A., 172.
- Loeb, Morris**, action of carbonyl chloride on ethenyldiphenyldiamine, 1885, A., 1213.  
 — amidino derivatives, 1887, A., 42.  
 — molecular weight of iodine in its solutions, 1888, T., 805.  
 — use of aniline as an absorbent of cyanogen in gas analysis, 1888, T., 812; P., 87.  
 — is chemical action affected by magnetism? 1891, A., 1145.
- Loeb, Morris**, and *Walther Nernst*, kinetics of substances in solution, 1889, A., 327.
- Löb, Walther**. See *Georg Pulvermacher*.
- Löbbecke**, manuring experiments with precipitated phosphate, 1885, A., 429.
- Loebisch, Wilhelm Franz**, mucin from the tendons of the ox, 1886, A., 166.
- Loebisch, Wilhelm Franz**, and *Hans Malfatti*, strychnine, 1889, A., 167.
- Loebisch, Wilhelm Franz**, and *Paul Schoop*, strychnine derivatives, 1886, A., 267; 1887, A., 282.  
 — xanthostrychnol and strychnol, 1886, A., 811.
- Löbner, C. H.**, bleaching wool with hydrogen peroxide, 1886, A., 292.
- Löfasz, Jul. Fr.**, separation of kainite from rock salt, 1885, A., 614.
- Löhr, Philipp**, alkyl compounds of cadmium and magnesium, 1891, A., 682.
- Löhr, Richard**. See *Adolf von Baeyer*.
- Löndahl, Hjalmar**, platinum compounds of butyl, isobutyl, and benzyl sulphides, 1889, A., 368.
- Lösch, A. A.**, brucite from the Ural, 1887, A., 315.
- Lösch, Alexander**, theme estimation, 1887, A., 1002.
- Löschner, Karl**, action of bromine on iodoform, 1888, A., 436.
- Löschner, Karl**, and *H. Kusserow*, action of aniline on bromofumarimide, 1888, A., 1281.
- Lösekann, Gerhard**, estimation of formaldehyde, 1889, A., 1036.  
 — formaldehyde, 1892, A., 123.
- Lösekann, Gerhard**, and *Theodor Ad. Aug. Meyer*, estimation of zinc, 1886, A., 836.
- Löw, Moric**, ethylation of salicylaldehyde, 1892, A., 57.
- Loew, Oscar**, chemical character of living protoplasm, 1883, A., 819.  
 — compounds of silver with albuminoids, 1881, A., 343.  
 — microchemical detection of nuclein, 1885, A., 610.  
 — albumin and its oxidation, 1885, A., 823.  
 — different degrees of resistance in protoplasm, 1885, A., 827.  
 — poisonous action of hydroxylamine, 1885, A., 830.  
 — formaldehyde and its condensation, 1886, A., 609, 864; 1888, A., 358.  
 — diastase, 1887, A., 387.  
 — catalytic actions, 1887, A., 440.  
 — formose, 1887, A., 459; 1889, A., 581.  
 — sugar-like nature of formose, 1888, A., 215.  
 — formose and methylenitan, 1888, A., 571.  
 — unorganised ferments, 1888, A., 607.  
 — formation of saccharoses from formaldehyde, 1889, A., 581.  
 — rôle of formaldehyde in the assimilation of plants, 1889, A., 640.  
 — formation of ozone during rapid combustion, 1890, A., 330.  
 — preparation of very active platinum-black, 1890, A., 453.  
 — catalytic formation of ammonia from nitrates, 1890, A., 689.  
 — formation of volatile fatty acids from dextrose, 1890, A., 731.  
 — formation of nitrous acid and ammonia from free nitrogen, 1890, A., 1051.  
 — elaboration of nitrates in the plant, 1890, A., 1182.

- Loew, Oscar**, catalytic decomposition of ammonium nitrite, 1891, A., 16.  
 — catalytic reduction of the sulphogroup, 1891, A., 237.  
 — poisonous action of hydrazine, 1891, A., 239.  
 — action of azoimide on living organisms, 1892, A., 90.  
 — influence of phosphoric acid on the formation of chlorophyll, 1892, A., 1261, 1372.
- Loew, Oscar**, and **Thomas Bokorny**, use of magenta with sulphurous anhydride as a microchemical test for aldehyde, 1883, A., 829.  
 — chemico-physiological study of Algae, 1888, A., 315.  
 — presence of albumin in cell fluid, 1888, A., 983.  
 — behaviour of the vegetable cell with very dilute alkaline silver solutions, 1890, A., 401.
- Loew, Oscar** (and others), changes occurring in preserved milk, 1883, A., 634.
- Löw, Wilhelm**, indigocarboxylic acid, 1885, A., 799.  
 — action of fuming nitric acid on *p*-xylene bromide, 1885, A., 1208.  
 — terephthalaldehyde, 1886, A., 461.
- Löw, Wilhelm**. See also **Benno Homolka**.
- Loewe, E.**, constitution of dinitro- $\beta$ -naphthol, 1890, A., 1424.
- Loewe, Julius**, adulteration of cochineal, 1883, A., 408.  
 — storage of oxygen in zinc gas-holders, 1883, A., 619.  
 — qualitative and quantitative separation of bismuth from copper, 1884, A., 497.  
 — preparation of bismuth free from arsenic, and atomic weight of bismuth, 1884, A., 538.  
 — use of lime-water in zinc gasometers, 1885, A., 835.
- Löwenberg, Georg Ludwig**, aromatic carbonates, 1886, A., 789.
- Loewenherz, Richard**, molecular refraction of nitrates, 1890, A., 1201.  
 — molecular refraction of substances containing nitrogen, 1891, A., 373.  
 — di-*m*-ditolyl, 1892, A., 852.  
 — *as*-amidisophthalic acid, 1892, A., 1464.
- Loewenherz, Richard**. See also **Ernst Täuber**.
- Löwig**, preparation of caustic potash and soda, 1884, A., 15.
- Löwit, Moriz**, blood tablets and thrombosis, 1889, A., 427.
- Loewy, A.**, influence of saline materials on gaseous metabolism in man, 1889, A., 533.
- Loewy, Karl**, benzene derivatives from ethyl succinosuccinates, 1886, A., 1028.
- Loewy, Karl**. See also **Arthur Rudolf Hantzsch**.
- Loges, Gustav**, estimation of humus in soils, 1888, A., 247, 830.  
 — nitrogenous organic compounds in the soil, 1886, A., 96.  
 — estimation of phosphoric acid in basic slag, 1887, A., 527.
- Loges, Gustav**, and **C. Claessen**, estimation of free fatty acids in fodder, 1891, A., 770.
- Loges, Gustav**. See also **Adolph Emmerling**.
- Lohmann, Julius**,  $\gamma$ -phenoxypropylamine, 1891, A., 1467.
- Lohse, Osw.**, isochromatic gelatin plates, 1885, A., 612.
- Loiseau, Désiré**, action of carbonic anhydride on calcareous solutions of sugar, 1884, A., 419.  
 — fermentation of raffinose by beer yeast, 1890, A., 22.
- Lombard de Bouquet, Émile**, preparation of di- and tri-calcium phosphates, 1884, A., 892, 1263.
- Lommel, Eugen Cornelius Joseph**, fluorescence of iodine vapour, 1883, A., 763.  
 — fluorescence of calespar, 1881, A., 649.  
 — freezing apparatus, 1885, A., 5.  
 — variation of induction machines, 1885, A., 1098.  
 — incandescence of ultra-red rays, 1886, A., 5.  
 — phosphorescence, 1887, A., 410.
- Lonatschewski-Petruniaka, Timofei I.**, absorption of carbonic oxide by cuprous chloride, 1889, A., 187.  
 — action of sulphuric and hydrochloric acids on wood petroleum gas, 1889, A., 187.
- Long, John Harper**, phenolphthalein as an indicator, 1885, A., 885.  
 — densities and refractive indices of oils, 1889, A., 85.  
 — polarisation of tartrate solutions, 1889, A., 380.  
 — behaviour of phenolphthalein with ammonia, 1889, A., 746.  
 — circular polarisation of certain tartrate solutions, 1890, A., 313; 1891, A., 249.  
 — solubility of thallium iodide and estimation of thallium, 1891, A., 1295.

- Long, John Harper**, and **Charles Elijah Linebarger**, American kiesel oil, 1890, A., 859.
- Long, John Harper**, and **Henry Edward Sauer**, precipitation of antimony from solutions of potassium antimony tartrate, 1891, A., 1139.
- Longi, Antonio**, iodide of argentammonium, 1883, A., 1052.
- testing for hydrocyanic, hydrochloric, hydrobromic, hydriodic, chloric, bromic, iodic, hydroferrocyanic, and hydroferricyanic acids, 1883, A., 1172.
- estimation of the quantities of gases dissolved in watery liquids, 1884, A., 364.
- detection of nitric acid in presence of other acids capable of interfering with its reactions, 1884, A., 365.
- *p*-toluidine as a test for nitric acid, 1884, A., 365.
- volumetric estimation of nitric acid, 1884, A., 366; 1885, A., 595.
- estimation of nitrous and nitric acids, 1884, A., 366.
- estimation of nitrogen in saps, etc., 1885, A., 1092.
- Longi, Antonio**. See also **Teodoro Leone**.
- Longmore, James**, preparation of a dyestuff from cotton-seed oil, 1885, A., 108.
- Loe, Henry van**. See **Otto Fischer**.
- Loeff, Gustav**, reactions of arsenic, 1890, A., 1343.
- estimation of morphine in opium, 1890, A., 1349; 1891, A., 771.
- Loos, Dirk de**, Krakatoa ashes, 1884, A., 975.
- mineral water from Aruba, 1884, A., 978.
- Lopatine, Nicolas**, action of aniline on ethyl dibromosuccinate, 1887, A., 1046.
- Lopatkin, Michael**, action of allyl iodide and zinc on epichlorhydrin, 1885, A., 497.
- Lord, Nathaniel Wright**, ammonium fluoride as a blow-pipe reagent, 1884, A., 927.
- oxalic developer for gelatin plates, 1886, A., 106.
- Lorentz, Georg**. See **Otto Wallach**.
- Lorentz, Hendrik Antoon**, kinetic molecular theory of dilute solutions, 1891, A., 637.
- Lorenz, Norbert von**, analysis of materials containing tartaric acid, 1888, A., 327.
- discrimination of phosphoric acid of mineral origin from that of animal origin in artificial manures, 1888, A., 1340.
- Lorenz, Norbert von**, analysis of argol, 1890, A., 303.
- Lorenz, Richard**, valency of boron, 1888, A., 1216.
- compound of gelatin and *m*-phosphonic acid, 1891, A., 477.
- action of dry hydrogen sulphide on metals: synthesis of minerals, 1891, A., 990.
- Lorenzen, Joh.**, minerals in the sodalite-syenite of S. Greenland, 1883, A., 960.
- analyses of metallic iron from Greenland, 1886, A., 639.
- minerals from Greenland, 1886, A., 519, 676.
- Lorenzen, Julius**. See **Eugen Bamberger**.
- Lorin**, a particular case of catalytic action, 1885, A., 181.
- inosite, 1888, A., 245.
- action of some organic acids on ethyl oxalate, 1888, A., 937.
- Lory, Charles**, microscopic crystals of albite in calcareous rocks of the Western Alps, 1887, A., 1023.
- Losanitsch, Simon M.**, formation of dibromodinitromethane and of Villiers' tetraipitroethylene bromides, 1883, A., 564.
- action of iodine on mono- and dinitrodiphenylthiocarbamides, 1883, A., 582.
- dibromodinitromethane, 1884, A., 277.
- chlorine derivatives of dibromodinitromethane, 1884, A., 1107.
- avalite, 1884, A., 1272.
- direct displacement of the amido-group in aromatic amines by halogens, 1885, A., 521.
- melting-point and crystalline form of thiocarbamilide, 1886, A., 876.
- mineral waters from Servia, 1887, A., 618.
- Servian coal, 1888, A., 31.
- aromatic dithiocarbamates, 1892, A., 55.
- meteorite of Joliet, 1892, A., 795.
- Loschmidt, J.**, stereochemical studies, 1890, A., 602.
- Lossen, Clemens**. See **Wilhelm Clemens Lossen**.
- Lossen, Karl August**, palmopierite from Stoppenberg in the Harz, 1889, A., 573.
- Lossen, Wilhelm Clemens**, specific volumes of liquids, 1883, A., 13; 1886, A., 972.
- structure of hydroxylamine derivatives, 1881, A., 1324; 1885, A., 895.

- Lossen, Wilhelm Clemens**, atomic and specific volumes, 1886, A., 972.  
 — representation of atoms in space, 1888, A., 218.  
 — boiling-points and specific volumes, 1888, A., 335.  
 — structural formula of hydroxylamine and its derivatives, 1889, A., 1064.  
 — formulæ for calculating the molecular volumes of organic compounds, 1890, A., 323.  
 — tetrazotic acids, oxy- and dioxy-tetrazotic acids, 1891, A., 1038.  
 — amidines, 1892, A., 51.  
 — decomposition of glutaric acid at a high temperature, 1892, A., 297.  
 — constitution of the hydroxamic acids, 1892, A., 461.  
 — so-called physically isomeric hydroxylamine derivatives, 1892, A., 711.  
**Lossen, Wilhelm Clemens**, and **Albert Köhler**, hydrolysis of ethereal salts of polybasic acids, 1891, A., 1013.  
**Lossen, Wilhelm Clemens**, and **Clemens Lossen**, phenethenyldioxytetrazotic acid, 1891, A., 1041.  
 — reduction of benzenyldioxytetrazotic acid, 1891, A., 1041.  
**Lossen, Wilhelm Clemens**, and **Franc Mierau**, action of nitrous acid on some organic bases, 1888, A., 684.  
 — benzenyldioxytetrazotic acid, 1891, A., 1040.  
**Lossen, Wilhelm Clemens**, and **Max Neubert**, *m*-nitrobenzenyldioxytetrazotic acid, 1891, A., 1040.  
**Lossen, Wilhelm Clemens**, and **Carl Rahnenführer**, composition and crystalline form of barium isophthalate, 1892, A., 179.  
**Lossen, Wilhelm Clemens**, and **Gerhard Voss**, metallic formates, 1892, A., 110.  
**Lossen, Wilhelm Clemens**, and **Albert Zander**, specific volumes of liquids, 1884, A., 1252.  
**Lotman, G.**, estimation of raffinose in beet sugar, 1889, A., 192.  
**Lott, Frank E.**, Heisch's method for detecting sewage contamination in water, 1888, A., 533.  
**Lotz, Dumont**. See **Winthrop E. Stone**.  
**Louguinine**. See **Luginin**.  
**Louis, Henry**, bismutite from the Transvaal, 1888, A., 31.  
**Louise, Emile**, action of anhydrous aluminium chloride on acetone, 1883, A., 176.  
 — a new hydrocarbon, 1883, A., 323.  
 — benzoylmesitylene, 1883, A., 577.  
 — an aromatic diketone, 1884, A., 901.  
**Louise, Emile**, tribenzoylmesitylene, 1884, A., 1000.  
 — benzoylmesitylenic acids, 1886, A., 352.  
 — phenylmesitylenylcarbinol, 1886, A., 512.  
 — synthesis of hydroxypropylenedioamylamine, 1889, A., 118.  
**Louise, Emile**, and **H. Perrier**, metallic compounds of aromatic ketones, 1892, A., 1205.  
**Louise, Emile**, and **Leon Roux**, vapour density of aluminium methide, 1888, A., 583.  
 — freezing-points of solutions of aluminium alkyls, 1889, A., 37.  
**Louise, Emile**. See also **Leon Roux**.  
**Love, Ernest Frederick John**, comparing spectra, 1888, A., 542.  
**Löven, Johan Martin**, thiolactic and thiodilactylic acids, 1884, A., 1298.  
 — some new sulpho-derivatives of the fatty acids, 1885, A., 241.  
 — action of nitrous acid on sulphonediacetic acid, 1886, A., 222.  
 — synthesis of a sulphur derivative of cinnamic acid, 1886, A., 241.  
 — thio-derivatives of butyric, isobutyric, and isovaleric acids, 1886, A., 332.  
 — synthesis of acetic acid from acetylenedicarboxylic acid, 1890, A., 287.  
**Lovett, Robert W.**, strychnine poisoning, 1888, A., 1217.  
**Lovibond, Joseph William**, new method of colour analysis by means of the tintometer, 1890, A., 1461.  
**Loviton, Léon**, determination of melting and solidifying points, 1886, A., 417.  
 — discrimination of thin metallic films, 1886, A., 1076.  
 — separation and estimation of antimony and tin, 1888, A., 992.  
**Low, Albert H.**, volumetric method for the estimation of arsenic, 1884, A., 116.  
 — volumetric estimation of copper with potassium cyanide, 1886, A., 920.  
**Lowe, Clement Ward**, dibenzyl ether, 1887, T., 700.  
**Lowe, Hubert Foster**. See **Harold Bailey Dixon**.  
**Lowman, Oscar**. See **Ludwig Claisen**.  
**Lowndes, Frederick K. S.** See **William Richard Eaton Hodgkinson**.  
**Loye, Paul**. See **P. Brouardel**.  
**Lubarsch, Oscar**, absorption of gases by mixtures of alcohol and water, 1890, A., 103.  
**Lubbe, Arthur**, aconitine, 1891, A., 91.

- Lubisch, Th.**, toughened glass, 1883, A., 399.
- Lucas, Lorenz**, anthracene hydride, 1888, A., 1201.
- hydrides of anthracene and phenanthrene, 1890, A., 637.
- Lucchesi, Adolfo**. See **Ubaldo Antony**.
- Luchini, A.**, reagent for alkaloids, 1886, A., 182.
- Luchsinger, Balthasar**. See **A. Glaue**, **E. Hess**.
- Lucion, Marcel**, precipitation of barium sulphate in the presence of bromine, 1889, A., 187.
- Lucion, Marcel**. See also **Walthere Spring**.
- Lucion, R.**, action of chlorine on carbonic anhydride, 1889, A., 673.
- Luck, E.**, silicic acid, 1889, A., 276.
- Luckenbach, G.**, derivatives of benzyl cyanide, 1884, A., 1134.
- derivatives of isophthalonitrile and terephthalonitrile, 1881, A., 1157.
- Luckow, G.**, separation of metals by means of oxalic acid, 1886, A., 922; 1887, A., 529.
- volumetric estimations and separations by means of potassium ferrocyanide and ferricyanide, 1892, A., 1129, 1527.
- Ludwig, A.**, and **Edmund Alexandre Kehrer**, a fufulallevulinic acid, 1891, A., 1156.
- Ludwig, Ernst**, danburite from the Scopi in Graubünden, 1883, A., 437.
- chemical composition of epidote, 1883, A., 443.
- estimation of uric acid, 1886, A., 102.
- Ludwig, Ernst**, and (*Ren.*) **Alphonse François Renard**, analyses of idocrase from Ala and Monzoni, 1884, A., 408.
- Ludwig, Ernst**, and **Gustav Tschermak**, meteorite from Angra dos Reis, 1887, A., 1087.
- Ludwig, Ernst**, and **Edmund Zillner**, (not **Hofmeister**), estimation of mercury in animal tissues, 1890, A., 962.
- Ludwig, Eugen**, action of sulphurous acid on methyl ethylacetaldehyde, 1889, A., 121; 1892, A., 951.
- Ludwig, Robert**, hydroxybenzaldehyde and coumaric acid, 1885, A., 663.
- Ludwig, Robert**. See also **Alexander Classen**, **Ferdinand Tiemann**.
- Lübavin**. See **Ljubavin**.
- Luedecke, Otto**, tinter ore from the Harz, 1883, A., 1061.
- pyrostilpnite from St. Andreassberg, 1884, A., 403.
- calcium hydroxide as a boiler incrustation, 1886, A., 506.
- Luedecke, Otto**, crystallography of some polyiodides, 1887, A., 910.
- minerals from the Stassfurt salt-mines, 1887, A., 1085.
- heintzite, a new borate from Stassfurt, 1891, A., 528; 1892, A., 791.
- Luedecking, Charles**, specific heats and specific gravities of the acids of the acetic series, 1886, A., 439.
- post-mortem detection of chloroform, 1887, A., 305.
- anomalous density of liquid bismuth, 1888, A., 790.
- chemistry of combustion, 1888, A., 1263.
- physical properties of colloid solutions, 1889, A., 98.
- conductivity of solutions of zinc sulphate containing gelatin, 1889, A., 809.
- prolonged action of the electric discharge on iodine, 1890, A., 687.
- analysis of the barium group, 1891, A., 364.
- hydrated lead oxide, 1891, A., 611.
- synthesis of crocoite and phenico-crocoite, 1892, A., 792.
- Luedecking, Charles**, and **H. A. Wheeler**, barytes from Missouri, 1892, A., 792.
- Luedecking, Charles**. See also **H. A. Wheeler**, **Edhard Wiedemann**.
- Lüders**. See **Weppen**.
- Lüdy, Ernst**, aldehydic condensation products of carbamide, 1889, A., 1059.
- detection of carbamide, 1889, A., 1060.
- Lueger**, clarification of turbid river-water, 1885, A., 198.
- Lüpke, R.**, preparation of hydrogen phosphide, 1891, A., 397.
- Luff, Arthur Pearson**, relations of ptomaines to infectious fevers, 1889, A., 1026.
- Luff, Gust**, nitrohydroxycinnamic acids, 1889, A., 507.
- Lugan, G.** See **M. Notta**.
- Luginin, Vladimir E.**, heats of combustion of ketones and of carbonic ethers, 1884, A., 547.
- heats of combustion of certain carbon compounds, 1885, A., 327.
- heats of combustion of ethereal salts of fatty acids, 1885, A., 327; 1886, A., 192.
- heats of combustion of compounds of the fatty series, 1886, A., 192.
- heats of combustion of fatty acids and their derivatives, 1886, A., 757.
- heats of combustion of fumaric, maleic, and the pyrocitric acids, 1888, A., 893.

- Luginin, Vladimir F.**, heats of combustion of the solid isomeride of benzene, 1888, A., 893.
- heats of combustion of acids of the oxalic and lactic series, 1889, A., 5.
  - heats of combustion of camphoric acids, 1889, A., 6.
  - heats of combustion of terpine, terpin hydrate and terpin, 1889, A., 328.
  - heats of combustion of camphors and borneols, 1889, A., 328.
  - heats of combustion of *m*-aldehyde, erythrol, and tricarballic acid, 1889, A., 668.
- Luginin, Vladimir F.** See also *Murcellin Berthelot*.
- Lukjanow, Sergei M.**, relation of water and solid constituents in the organs and tissues in normal and starving animals, 1889, A., 632.
- bile during inanition, 1892, A., 225.
- Lumpp, Georg.** See *Carl Hell*.
- Lumsden, John S.** See *Percy Faraday Frankland*.
- Luna.** See *Ramon de Luna*.
- Lundin, Eug.**, estimation of arsenic in iron and iron ores, 1885, A., 838.
- Lundström, Carl Herman.** See *Anton Sjögren*.
- Lunge, Georg**, recent progress in the soda industry, 1883, A., 524.
- estimation of caustic alkalis in presence of carbonates, 1883, A., 828.
  - estimation of sulphur in pyrites, 1884, A., 492.
  - the salt-works of Giraud, France, 1884, A., 513.
  - formation of sulphuric acid in the lead chambers, 1884, A., 698.
  - density of milk of lime, 1884, A., 712.
  - titration of sulphurous acid and its salts, 1884, A., 776.
  - action of soda, lime, and magnesia on the salts of ammonia and amines; titration of aniline, 1884, A., 776.
  - chlorides of lithia and lime, 1884, A., 820.
  - manufacture of sulphuric acid from pyrites in America, 1884, A., 1082.
  - density of sulphuric acid, 1884, A., 1256; 1885, A., 216.
  - existence of gaseous nitrous anhydride, 1885, T., 457; P., 61.
  - reaction between nitric oxide and oxygen, 1885, T., 465; P., 61; discussion, P., 62.
  - recovery of sulphur from hydrogen sulphide, 1885, A., 454.
  - reducing action of coke on nitric acid, 1885, A., 936.
- Lunge, Georg**, solubility of nitric oxide in sulphuric acid, 1885, A., 954.
- estimation of potassium permanganate and of pyroluicite by means of hydrogen peroxide, 1885, A., 1162.
  - modification of the nitrometer for use as a ureometer, etc., 1885, A., 1267.
  - action of chlorates on metallic evaporating pans, 1886, A., 184.
  - bleaching vegetable substances with chloride of lime, 1886, A., 188.
  - indicators for volumetric analysis, 1886, A., 278.
  - Clark's process for estimating sulphur in pyrites, 1886, A., 280.
  - supposed error in working with the nitrometer, 1886, A., 391.
  - uses of the nitrometer, 1886, A., 391.
  - estimation of urea, 1886, A., 396.
  - occurrence of sulphur in the island of Saba, 1886, A., 430.
  - estimation of bleaching powder by means of hydrogen peroxide, 1886, A., 738.
  - conversion of calcium hypochlorite into calcium chlorate, 1887, A., 11.
  - analysis of explosives, 1887, A., 86.
  - detection of nitrogen compounds in seleniferous sulphuric acid, 1887, A., 998.
  - theory of the vitriol-chamber process, 1888, P., 3; discussion, P., 4; 1889, A., 103.
  - estimation of sulphur in pyrites, 1888, A., 85; 1890, A., 413.
  - improved form of nitrometer, 1888, A., 526.
  - estimation of sulphuric acid in presence of iron, 1889, A., 1244.
  - estimation of sulphur in burnt pyrites, 1890, A., 193.
  - detection of traces of nitrous acid, 1890, A., 415.
  - precipitation of alumina and ferric oxide by ammonia, 1890, A., 420.
  - the gas-volumeter, 1890, A., 660.
  - gas volumetric analyses of potassium permanganate, bleaching powder, and manganese dioxide, 1890, A., 1468.
  - the gas-volumeter and gravimetric, 1891, P., 168, 171.
  - analysis of sodium aluminate, 1891, A., 365.
  - volumetric estimation of alumina, 1891, A., 365; 1892, A., 535.
  - analytical methods for alkali works, 1891, A., 496.
  - purification of sulphuric acid for Kjeldahl's process, 1891, A., 617.
  - measurement of gases, 1891, A., 1135.

- Lunge, Georg**, levelling instrument for gasometric work, 1892, A., 100.  
 — improvement in gas volumetric apparatus, 1892, A., 521.  
 — gas volumetric analysis, 1892, A., 538.  
 — action of certain liquids on aluminium, 1892, A., 687.  
 — analysis of sodium nitrite, 1892, A., 1029.  
**Lunge, Georg, and Rudolf Burckhardt**, fluoresceins from maleic acid, 1881, A., 1840.  
**Lunge, Georg, and Max Isler**, specific gravity of sulphuric acid, 1891, A., 150.  
**Lunge, Georg, and Ludwig Landolt**, various bleaching liquids, 1886, A., 399.  
**Lunge, Georg, and Leo Marchlewski**, revised hydrochloric acid tables, 1892, A., 11.  
 — new apparatus for the estimation of combined and free carbonic acid, 1892, A., 531.  
**Lunge, Georg, and Paul Naef**, bleaching powder and analogous compounds, 1883, A., 953.  
**Lunge, Georg, and Oscar Neuberg**, determination of vapour densities, 1891, A., 635.  
**Lunge, Georg, and Hermann Rey**, revised nitric acid tables, 1892, A., 13.  
**Lunge, Georg, and Ignaz Rosenberg**, coal-tar lutidines, 1887, A., 499.  
**Lunge, Georg, and Jacob Schmid**, limits of the conversion of sodium carbonate into hydroxide, 1886, A., 203.  
**Lunge, Georg, and Robert Eduard Schmidt**, analysis of the hot springs of Louk, 1886, A., 996.  
**Lunge, Georg, and Rudolf Schoch**, calcium hypoiodite, 1883, A., 17.  
 — action of ammonia on bleaching powder, 1887, A., 700.  
**Lunge, Georg, and Joachim Wiernik**, specific gravity of ammonia solutions, 1890, A., 107.  
**Lunge, Georg, and Adolf Zeckendorf**, estimation of carbonic anhydride in the air for hygienic purposes, 1889, A., 440.  
**Lunge, Georg, Victor Meyer, and Ernst Schulze**, fusel oil in spirit, 1885, A., 708.  
**Lungo**. See *Del Lunge*.  
**Lunt, Joseph**. See (*Sir*) *Henry Enfield Roscoe*.  
**Lupke, Robert**, rôle of potassium in plants, 1890, A., 917.  
**Lupton, Nathaniel Thomas**, meteoric iron from Coahuila, Mexico, 1885, A., 880.  
 — analyses of bituminous coals from Alabama, Tennessee, and Kentucky, 1885, A., 1185.  
**Lupton, Sydney**, compounds of chromium, 1888, P., 81.  
 — reduction of the results of experiments with special reference to the hydrate theory of solution, 1891, A., 973.  
**Lusk, Graham**, influence of carbohydrates on proteid metabolism, 1891, A., 846.  
**Lusk, Graham**. See also *Carl von Voit*.  
**Lussana, Silvio**. See *Manfredo Bellati*.  
**Lustgarten, Sigmund**, detection of iodoform, naphthol, and chloroform, 1883, A., 243.  
**Lustig, Giuseppe**, synthesis of aromatic mercaptans, 1891, A., 1350.  
**Lustig, Siegfried**, carvacrol and its derivatives, 1886, A., 316.  
**Lustig, Siegfried**. See also *Theodor Poleck*.  
**Luther, E.**, examination of urine for sugar, 1891, A., 1559.  
**Luther, R.**, Knop-Hufner method of estimating urea, 1889, A., 1039.  
**Luther, R.** See also *Fedor F. Beilstein*.  
**Lutz, E.**, descent of the series from myristic acid to lauric acid, 1886, A., 685.  
**Luvini, Jean**, spheroidal state, 1881, A., 957.  
 — electrical conductivity of gases and vapours, 1887, A., 4.  
**Lux, Friedrich**, detection of fat oils in mineral oils, 1886, A., 103.  
 — determination of the specific gravity of gases, 1886, A., 412.  
 — new gas balance, 1890, A., 823.  
**Luzzardo, Ottorino**, existence of basic substances in maize, 1883, A., 1156.  
**Luzi, Willi**, graphite, 1892, A., 406.  
 — carbon, 1892, A., 565.  
 — allotropism of amorphous carbon, 1892, A., 945.  
 — artificial corrosion of the diamond, 1892, A., 1394.  
**Luzi, Willi**. See also *Richard Beck*.  
**Luzzato, E.** See *Luigi Zambelli*.  
**Luzzatto, G.**, antimonite from Valdagno, 1887, A., 1084.  
 — natrolite from Monte Baldo, 1890, A., 114; 1892, A., 690.  
**Luzzatto, M.**, Liebig's method for the estimation of carbamide, 1885, A., 610.  
**Lwoff, J.**, fatty acids in resin, 1887, A., 653.

**Lwoff, J.** See also *Werner Kelbe*.

**Lwoff, Michael D., and Maxim I. Scheschukoff,** action of hydrochloric acid on isopropenylcarbinol, 1885, A., 647.

**Lyons, Albert Brown,** cocaine and its salts, 1886, A., 479.

— hydrastine, 1886, A., 633.

— estimation of cocaine, 1886, A., 1087.

— evaluation of ipecacuanha, 1889, A., 803.

**Lyons, Robert Edward.** See *Thomas Charlton van Nuy*s.

**Lyte, Farnham Maxwell,** estimation of chlorine, bromine, and iodine in presence of one another, 1884, A., 694.

— sodium aluminate, 1885, A., 638.

### M.

**Maas, Hermann, Carl Buchmann, and Richard Wasmund,** putrefaction alkaloids in boiled meat, 1885, A., 676.

**Maassen, Albert,** amidocresols, 1884, A., 1145.

**Maassen, Albert.** See also *Heinrich Conr. Klinger*.

**Maben, Thomas,** solubility of calcium hydroxide in water at different temperatures, 1884, A., 891.

— apricot, peach, and walnut oils, 1886, A., 644.

**Maben, Thomas.** See also *Martin Dechan*.

**Mabery, Charles Frederic,** decomposition of chlorotribromopropionic acid by alkaline hydroxides, 1884, A., 663.

— products of the dry distillation of wood at low temperatures, 1884, A., 788.

—  $\beta$ -bromotetrachloropropionic acid, 1885, A., 508.

— products from the Cowles' electrical furnace, 1887, A., 551.

— substituted acrylic and propionic acids, 1887, A., 570.

— new method of preparing anhydrous aluminium chloride, 1890, A., 13.

**Mabery, Charles Frederic, and Albert H. Krause,** action of aromatic amines on bromopropionic acid and on substituted acrylic acids, 1890, A., 371.

**Mabery, Charles Frederic, and Rachel Lloyd,**  $\alpha$ - and  $\beta$ -chlorodibromacrylic acids, 1885, A., 510.

**Mabery, Charles Frederic, and Hudson H. Nicholson,**  $\beta$ -dibromodichloropropionic acid and  $\beta$ -bromodichloroacrylic acid, 1885, A., 507.

**Mabery, Charles Frederic, and George H. Palmer,** *o*-iodotoluenesulphonic acid, 1885, A., 538.

**Mabery, Charles Frederic, and Franklin C. Robinson,** substituted acrylic and propionic acids, 1884, A., 663.

**Mabery, Charles Frederic, and Albert W. Smith,** substituted acrylic and propionic acids, 1890, A., 27.

— sulphur compounds in raw petroleum and in petroleum residues, 1890, A., 350.

— sulphur compounds in Ohio petroleum, 1891, A., 1172.

**Mabery, Charles Frederic.** See also *Eugene H. Cowles, Henry Barker Hill*.

**Macadam, William Ivison,** butyrellite, 1887, A., 17.

— talc used in paper making, 1887, A., 452.

— natural and artificial manures, 1888, A., 625.

— fossil resins from the coal measures, 1889, A., 553.

— analyses of various minerals, 1891, A., 272.

**Macagno, Ippolite,** estimation of tannin in sumach, 1887, A., 624.

**Macallan, John.** See (*Sir*) *Charles Alexander Cameron*.

**Macaluso, Damiano,** spontaneous oxidation of mercury, 1884, A., 263.

**Macaluso, Damiano, and Giovan Pietro Grimaldi,** influence of hygroscopic condensation in glass vessels on the determination of the density of aqueous vapour, 1883, A., 507.

**McArthur, John.** See *William Dittmar*.

**Macarthur, R.,** estimation of zinc as sulphide, 1883, A., 828.

**McBryde, John Bolton,** chemical study of the cotton plant: feeding value of the cotton plant, 1892, A., 1510.

**McCaleb, James F.,** titanite oxide in soils, 1888, A., 745.

— relative rates of dissolution of gypsum and anhydrite, 1889, A., 466.

— hydration of calcium sulphate, 1889, A., 466.

— specific gravity of calcium sulphate, 1889, A., 467.

**McCaleb, James F.** See also *Joseph L. Jarman*.

**McCallum, Hugh,** *Camellia oleifera* seeds, 1883, A., 1166.

**MacCauley, Arthur W.** See *Edgar Francis Smith*.

**McCay, Leroy W.,** water analysis, 1883, A., 829.

— new volumetric method for the estimation of arsenic, 1883, A., 1034.

- McCay, Leroy W.**, cobalt-, nickel-, and iron-pyrites, 1881, A., 1098.  
 — notes on Reichert's method of butter analysis, 1885, A., 197.  
 — reduction of arsenic acid solutions by means of sulphurous anhydride, 1885, A., 634.  
 — massive safflorite, 1886, A., 209.  
 — separation of arsenic from the alkaline earths, 1886, A., 393.  
 — estimation of arsenic, 1886, A., 579.  
 — Reich's method of estimating arsenic, 1886, A., 712.  
 — arsenic penta-sulphide, 1887, A., 213.  
 — estimation of arsenic as penta-sulphide, 1888, A., 528.  
 — action of hydrogen sulphide on arsenic acid, 1889, A., 15.  
 — separation of copper from arsenic by the electric current, 1891, A., 111.  
 — interaction of hydrogen sulphide and the alkali *o*-arsenates, 1891, A., 265.  
 — test for chromium, 1892, A., 1133.  
 — separation of thioarsenic and thioxyarsenic acids, 1892, A., 1519.  
**Macchiati, Luigi**, xanthophyllidrin, 1886, A., 1041; 1889, A., 900.  
 — colouring matter of the cones of *Abies excelsa*, 1890, A., 641.  
**McCulloch, Norman**, estimation of chromate in the presence of dichromate, 1887, A., 304.  
 — volumetric estimation of cobalt in presence of nickel, 1887, A., 1141.  
 — estimation of iodine, 1888, A., 526.  
 — volumetric estimation of iodine in presence of bromine and chlorine, 1888, A., 626.  
 — volumetric estimation of cobalt, 1889, A., 442.  
 — volumetric estimation of bromine in the presence of chlorine and iodine, 1890, A., 821.  
**MacEwan, Peter**, commercial sodium nitrite, 1884, A., 511.  
 — testing Peruvian balsam, 1885, A., 602.  
 — detection of phenol in creosote, 1885, A., 1013.  
 — natural camphor oils, 1886, A., 72.  
**Macfadyen, Allan**. See *Thomas Lauder Brunton*.  
**Macfarlane, Wm. W.**, and *Philip S. Clarkson*, action of chlorine on hæmatoxylin and logwood extract, 1890, A., 905.  
**McGlashan, J.**, volumetric estimation of boric acid and of ammonia in ammonium salts, 1889, A., 75.  
**McGowan, George**, trichloromethylsulphonic chloride, 1881, A., 1126.  
 — trichlorethylsulphonic acid, and the derivatives of methylsulphonic acid, 1885, A., 367.  
 — derivatives of thiocarbamide, 1886, T., 190; P., 143.  
 — dithaloid derivatives of thiocarbamide, 1887, T., 378; P., 36.  
 — sulphinic compounds of carbamide, and thiocarbamide, 1887, T., 666; P., 101.  
 — iodometric estimation of nitric acid in nitrates, 1891, T., 530; P., 84.  
 — iodometric estimation of chloric acid in chlorates, 1891, P., 169; 1892, T., 87.  
**McGregor, James Gordon**, density of weak aqueous solutions of salts, 1887, A., 209.  
 — variation of density with concentration of weak solutions of certain salts, 1891, A., 251.  
**MacGregor, John**. See *Percy Faraday Frankland*.  
**MacGregory, Joseph Frank**. See *Paul Ehrhardt Jannasch*.  
**Mach, E.**, *Peronospora viticola*, 1881, A., 1406.  
 — over-heated lay, 1886, A., 275.  
 — percentage of sulphuric acid in plants destroyed by sulphurous anhydride, 1888, A., 745.  
 — lime and ash in Tyrolese and other wines, 1888, A., 1332.  
 — production of the so-called sweet folder, 1890, A., 82.  
**Mach, E.**, and *K. Portele*, amount of extract in Tyrolese wines, 1888, A., 245.  
 — detection and estimation of lactic and butyric acids in wines, 1890, A., 1344.  
 — fermentation and composition of cranberry-juice, 1890, A., 1455.  
**Machado, Jordano**, petrography of the south-western Brazilian frontier between Minas and S. Paolo; aggrine, 1888, A., 926; 1890, A., 344.  
**Machenbauer, N.**, preparation of a yellow rosaniline dye, 1885, A., 310.  
**MacIvor, Ralph W. Emerson**, New Zealand graphite, 1887, A., 555.  
 — perbromic acid, 1887, A., 698.  
 — bismuthic gold, 1887, A., 707.  
 — minerals occurring in Australian bat-guano, 1887, A., 708.  
 — a New Zealand sulphur island, 1888, A., 427.  
 — chrome iron ore in Australia, 1888, A., 428.

- MacIvor, Ralph W. Emerson**, exhaustion of the virgin soils in Australasia, 1888, A., 523.
- gold, alunite, and sulphur from New South Wales: native antimony from Queensland, 1888, A., 560.
- occurrence of epsomite on White Island, New Zealand, 1888, A., 563.
- Mack, Fritz.** See **Eugen Tellmann.**
- Mack, Karl**, pyroelectric properties of boracite, 1884, A., 655.
- M'Kellar, W. G.**, convenient solution for use in titrating Weldon muds for manganese peroxide, 1890, A., 548.
- McKelvey, John William** siliceous earth from Morris Co., New Jersey, 1885, A., 361.
- McKendrick, John Gray**, and **William Snodgrass**, physiological action of nickel-carbon oxide, 1891, A., 1130.
- McKenna, Alexander G.**, precipitation of manganese as ammonium manganous phosphate, 1891, A., 1138.
- McKenna, Alexander G.** See also **Thomas M. Drown.**
- Mackenzie, G. S.**, rare copper minerals from Utah, 1887, A., 19.
- Mackenzie, John Edwin**, and **William Henry Perkin, junior**, synthesis of hexahydroterephthalic acid, 1892, T., 172; P., 12.
- Mackenzie, John Edwin.** See also **Frederick Stanley Kipping**, **Arthur George Perkin.**
- MacKerrow, W.**, bromine carriers, 1892, A., 155.
- Mackey, William McDonnell.** See **Edmund James Mills.**
- Mackie, Wm.** See **Thomas Carnelley.**
- Mackintosh, James B.**, volumetric estimation of manganese, 1884, A., 220.
- volumetric estimation of manganese; influence of organic matter and iron, 1885, A., 85.
- estimation of graphite in minerals, 1885, A., 689; 1890, A., 928.
- analysis of titanic iron from Brazil, 1885, A., 878.
- estimation of phosphorus in iron and steel, 1886, A., 488.
- action of hydrofluoric acid on silica and silicates, 1886, A., 979.
- improved form of Elliot's gas-apparatus, 1887, A., 1137.
- separation of nickel and cobalt from iron, 1887, A., 1141.
- crystalline sub-sulphide of iron and nickel, 1889, A., 214.
- native iron sulphates from Chili, 1890, A., 454.
- Mackintosh, James B.** See also **William Earl Hidden.**
- McLeod, Herbert**, on evaporation *in vacuo*, 1883, T., 381.
- pressure of mercury vapour at the ordinary temperature, 1881, A., 385.
- sunshine recorder, 1885, A., 320.
- electrolysis of aqueous solutions of sulphuric acid, with special reference to the forms of oxygen evolved, 1886, T., 591; P., 215; discussion, P., 216.
- note on the electrolysis of ammoniac sulphate, 1886, P., 248; discussion, P., 248.
- decomposition of potassium chlorate by heat in presence of manganic peroxide, 1889, T., 184; P., 26; discussion, P., 26.
- McLoughlin, Charles Swain.** See **Charles Edwards Colby.**
- MacMunn, Charles Alexander**, colouring matters of the so-called bile of invertebrates and of the bile of vertebrates; and some unusual urine pigments, etc., 1883, A., 1159; 1884, A., 194.
- enterochlorophyll, 1885, A., 1242.
- chromatology of the Actinur, 1885, A., 1251.
- myohæmatin and the histohæmatins, 1886, A., 568.
- hæmatin and bile pigments, 1886, A., 638.
- hæmatoporphyrin, 1886, A., 638; 1888, A., 304.
- uric acid in insects and molluscs, 1886, A., 1056.
- invertebrate chromatology, 1887, A., 613.
- myohæmatin, 1887, A., 983; 1889, A., 1024; 1890, A., 652.
- urohæmatoporphyrin and allied pigments, 1888, A., 614.
- chromatology of sponges, 1888, A., 619.
- pigment of the urine, 1889, A., 531.
- animal chromatology, 1889, A., 1231.
- McMurtry, George Unnon**, thionyl thiocyanate, 1888, P., 115; 1889, T., 48.
- mercuric chlorothiocyanate, 1888, P., 116; 1889, T., 50.
- Macnair, Duncan Scott**, separation of acetic and formic acids, 1887, A., 751.
- apparatus for vapour density determinations, 1887, A., 765.

- Macnair, Duncan Scott**, derivatives of furon and furil, 1890, A., 1245.  
 — detection of chlorine and bromine in the presence of iodine, 1892, A., 1511.
- Macnair, Duncan Scott**. See also *William Bott*.
- Macpherson, José**, occurrence of arenite, 1883, A., 562.
- Macquaire, P.**, liquid from a cyst, 1886, A., 1055.
- MacWilliam, John Alexander**, new test for proteids, 1891, A., 872.  
 — salicylsulphonic acid as a test for albumoses and peptones, 1892, A., 552.
- Madan, Henry George**, refractive power of *m*-cinnamene, 1885, P., 106.
- Maekler, Hermann**. See *Rudolf Nietzsche*.
- Mähly, Jacob**. See *Paul Friedländer*.
- Mähr, L.** See *W'ilh. Engling*.
- Märcker, Max Heinrich**, manuring Alpine meadows, 1883, A., 238.  
 — manuring with sulphuric acid, 1883, A., 681.  
 — decomposition of diffusion residues from beet-root, 1883, A., 1025.  
 — cultivation and preservation of potatoes, 1884, A., 101.  
 — influence of manuring on the composition of potatoes, 1881, A., 102.  
 — manuring experiments with rye and wheat, 1881, A., 103.  
 — palm oil residues as fodder, 1881, A., 355.  
 — yield of crops under steam cultivation, 1884, A., 359.  
 — value of various nitrogenous manures, 1881, A., 488.  
 — examination of Aves guano, 1881, A., 489.  
 — Stassfurt salts as absorbents in stables, 1884, A., 491.  
 — composition of Saxony barley, 1881, A., 630.  
 — a cause of the differences noticed in the estimation of superphosphates, 1884, A., 639.  
 — poisonous action of ammonium thiocyanate on plant life, 1884, A., 768.  
 — effect of high farming on the amount of nutritious matter in straw, 1884, A., 772.  
 — fertility of a soil which had been removed from its original position and subsequently replaced, 1881, A., 773.  
 — woody fibre as fodder, 1884, A., 861.
- Märcker, Max Heinrich**, varieties of sugar-beet, 1884, A., 865.  
 — manuring potatoes, 1884, A., 865.  
 — diffusion residues as cattle food, 1884, A., 921.  
 — manuring barley and oats with nitrogen and phosphates, 1884, A., 925.  
 — potash manures for potatoes, 1885, A., 83.  
 — loss of weight in the ensilage of beet leaves, 1885, A., 423.  
 — solution of wool-dust, 1885, A., 428.  
 — Sidney Island guano, 1885, A., 429.  
 — manurial value of peat waste, 1885, A., 687.  
 — value of sugar as food for stock, 1885, A., 1149.  
 — Chili saltpetre or ammonium sulphate, 1885, A., 1156; 1886, A., 616.  
 — frothy fermentation, 1885, A., 1168.  
 — properties of malting barley, 1885, A., 1169.  
 — growth of barley from varieties of seed, 1886, A., 274.  
 — composition of certain fodder plants, 1886, A., 645.  
 — action of nitre as compared with ammonium sulphate, 1886, A., 954.  
 — diffusion residues, 1887, A., 521.  
 — value of the phosphoric acid in basic slag, 1887, A., 687.  
 — composition of spring wheats grown in 1887, 1889, A., 183.  
 — composition and nutritive value of oats, 1889, A., 181.  
 — effect of manuring with ammonium sulphate and with sodium nitrate, 1890, A., 287.  
 — economy of phosphoric acid in the growth of beet-root, 1891, A., 612.
- Märcker, Max Heinrich**, and **Kobus**, chemical changes induced by the sprouting of grain, 1881, A., 200.
- Märcker, Max Heinrich** (and others), cultivation of cereals, 1881, A., 482.  
 — cultivation of *Vicia villosa* and of *Pisum arvense*, 1881, A., 769.  
 — cultivation of sugar-beet, 1881, A., 1211.  
 — drying of "diffusion cuttings," 1885, A., 79.
- Märcker, Max Heinrich**. See also *Otto Beseler*.
- Magalhães, Antonio José da Cruz**. See *Karl von Buchka*.
- Magdeburg, Gustav**. See *Georg Vortmann*.

- Magel, Gustav**, mispickel from Auerbach, 1884, A., 1100.
- Mager, W.** See *G. W. Lehmann*.
- Magerstein, Vinc. Th.**, volume-weight of some manures, 1884, A., 1213.
- comparative manurial values of Chili saltpetre and ammonium sulphate, 1887, A., 77.
- experiments with Chili saltpetre, 1887, A., 78.
- addition of wood-ashes to superphosphates, 1888, A., 749.
- Maggi, Leopoldo**, prothistological examination of potable waters, 1884, A., 369.
- Magnaghi, Pietro**. See *Giuseppe Luigi Ciamician*.
- Magnán**. See *J. C. Vincent Laborde*.
- Magnanini, Oreste**, isopropylphenylcinamic and *p*-methylecoumaric acids, 1888, A., 467.
- chloro-derivatives of acetals, 1887, A., 28.
- Magnanini, Oreste**. See also *Tedoro Leone, Salvatore Scichilone, Giovanni Spica*.
- Magnanini, Gaetano**, piperiline, 1887, A., 457.
- transformation of homologues of indole into those of quinoline, 1887, A. 1113; 1890, A., 1322.
- action of acetic anhydride on levulinic acid, 1888, A., 819.
- acetyl-compounds of  $\psi$ -methylketole and scatole, 1888, A., 957.
- conversion of methylketole into quinaldine, 1888, A., 957.
- derivatives of *as*-dimethylpyrroline, 1889, A., 57, 408.
- behaviour of pyrroline and its derivatives as regards Raoult's law, 1889, A., 901.
- molecular weights of the imido-anhydrides of pyrrolinecarboxylic and indolecarboxylic acids, 1890, A., 67.
- emission spectrum of ammonia, 1890, A., 97.
- absorption spectrum of nitrosyl chloride, 1890, A., 97.
- aldol, 1890, A., 861.
- action of ammonia on dehydrodiacetyllevulinic acid, 1890, A., 864.
- molecular weights of pyrroline derivatives, 1890, A., 906.
- conversion of the homologues of indole into quinoline derivatives, 1890, A., 1322.
- behaviour of mannitol towards boric acid, 1890, A., 1357.
- electromotive force of a metal in a series of electrolytes, 1891, A., 3.
- Magnanini, Gaetano**, influence of mineral acids on the velocity of the reaction between bromic and hydriodic acids, 1891, A., 144.
- electrical conductivity of boric acid solutions in presence of dulcitol, 1891, A., 251.
- reaction between ferric salts and soluble thiocyanates, 1891, A., 1150.
- catalytic influence of acids on the velocity of the reaction between hydrogen peroxide and hydriodic acid, 1892, A., 110.
- influence of boric acid on the electrical conductivity of aqueous solutions of organic acids, 1892, A., 256.
- freezing-points of aqueous solutions of boric acid and mannitol, 1892, A., 263.
- absorbent power of coloured salts and electrolytic dissociation, 1892, A., 757.
- influence of boric acid on the electrical conductivity of dilute alcoholic solutions of organic acids, 1892, A., 1265.
- Magnanini, Gaetano**, and **Angelo Angeli**, constitution of lepidine, 1889, A., 729.
- Magnanini, Gaetano**, and **Max Scheidt**, action of phenylhydrazine and hydroxylamine on dehydrodiacetyllevulinic acid, 1892, A., 1429.
- Magnanini, Gaetano**. See also *Giuseppe Luigi Ciamician*.
- Magnier de la Source, Louis**, influence of plastering on the composition of wine, 1884, A., 646.
- mode of combination and detection of sulphuric acid in plastered wines, and the free acid in wines, 1891, A., 768.
- Mahla, Frederick**, new compound of potassium, iron, and cyanogen, 1889, A., 359.
- Mahla, Frederick**. See also *August Wilhelm von Hofmann*.
- Mahler, Pierre**, calorimetry, 1892, A., 260.
- distillation of coal, 1892, A., 305.
- Mai, Carl**. See *Wilhelm Koenigs*.
- Mai, Julius**, elimination of carbonic anhydride by the aid of sodium methoxide, 1889, A., 1126.
- compounds of sulphur and phosphorus, 1892, A., 11.
- action of oximes on diazo-compounds, 1892, A., 163.
- action of hydroxylamine on diazo-benzene and *p*-diazotoluene chlorides, 1892, A., 710.
- action of diazo-compounds on oximes, 1892, A., 1079.

- Mai, Julius**, and **K. Aschoff**, preparation of collidine, 1892, A., 725.
- Mai, Julius**. See also **Friedrich Krafft**.
- Maiden, Joseph Henry**, resin of *Myoporum platycarpum*, 1889, T., 665; P., 127.
- Mainzer, Karl**, products of the decomposition of mixed aromatic thiocarbamides by acids, 1883, A., 1106.
- phenethyl compounds, 1884, A., 1000.
- Mairet, Albert**, biological function of phosphoric acid, 1884, A., 1392.
- influence of intellectual activity on the elimination of phosphoric acid by the urine, 1884, A., 1394.
- Mairet, Albert**, and **François Auguste Frédéric Combemale**, physiological action of acetophenone, 1886, A., 385.
- therapeutic action of urethane, 1886, A., 640.
- physiological action of methylal, 1887, A., 391.
- toxic action of colchicine, 1887, A., 515.
- therapeutic action of colchicine, 1887, A., 614.
- therapeutic action of methylal, 1887, A., 684.
- Mairet, Albert, Pilatte**, and **François Auguste Frédéric Combemale**, action of antiseptics on higher organisms: thymol, 1885, A., 1085.
- action of antiseptics on higher organisms: iodine and silver nitrate, 1885, A., 1253.
- Maisch, Henry Charles Christian**, stearopten from essence of patchouli, 1885, A., 394.
- preparation of boron, 1890, A., 331.
- Maisch, Henry Charles Christian**. See also **Luise Gattermann**.
- Maisch, John Michael**, adulteration of saffron, 1886, A., 581.
- Maissen, Pietro**, additive products of some terpenes, 1883, A., 1140.
- Alfanello meteorite, 1884, A., 415.
- Maissen, Pietro**, and **Enrico Rossi**, estimation of nitrogen in ammonium magnesium phosphate, 1890, A., 291.
- Majert, Wilhelm**, and **Albrecht Schmidt**, piperazine, 1891, A., 415.
- spermine, 1891, A., 538.
- Majmon, Heinrich**. See **Carl Engler**.
- Malbot, A.** See **H. Malbot**.
- Malbot, H.**, preparation of isobutylamines, 1887, A., 356.
- separation of mono- and di-isobutylamines, 1887, A., 357.
- salts of diisobutylamine, 1887, A., 461.
- Malbot, H.**, preparation of *n*-propylamines, and isoamylamines, 1887, A., 652.
- amines of the paraffin and benzene series, 1888, A., 41.
- propylene iodide, 1888, A., 1262.
- preparation of alkyl chlorides from alcohols, 1889, A., 687.
- action of hydriodic acid on allyl iodide, 1889, A., 766.
- purification of amyl iodide, 1890, A., 116.
- heats of combustion of isodibutylene and isotributylene, 1890, A., 320.
- preparation of octyl chloride, 1890, A., 577.
- isobutylamine, 1891, A., 36.
- diisobutylamine ethyl oxalate, 1891, A., 284.
- action of aqueous ammonia on isopropyl iodide and chloride, 1891, A., 413.
- action of aqueous ammonia on isobutyl chloride in closed vessels at 100°, 1891, A., 817.
- Malbot, H.**, and **L. Gentil**, action of zinc chloride on isobutyl alcohol in presence of hydrochloric acid, 1889, A., 842.
- Malbot, H.**, and **A. Malbot**, isopropylamines, 1891, A., 166.
- formation of tetralkylammonium iodides, 1892, A., 133.
- action of isoamyl iodide on trimethylamine, 1892, A., 805.
- action of isobutyl iodide on trimethylamine, 1892, A., 803.
- action of capryl iodide on trimethylamine, 1892, A., 806.
- action of propyl iodide on trimethylamine; trimethylpropylammonium iodide, 1892, A., 1294.
- action of isopropyl iodide on trimethylamine; trimethylpropylammonium iodide, 1892, A., 1295.
- action of allyl iodide on trimethylamine; trimethylallylammonium iodide, 1892, A., 1295.
- Malbot, H.** See also **Edouard Duvillier**.
- Malenfant**, alteration of syrup of tolu, 1883, A., 407.
- Malerba, Pasquale**, fatty constituents of common chestnuts, 1881, A., 202.
- effect of allantoin on the estimation of urea in urine, 1886, A., 583.
- the viscous material formed by the *Bacterium glyserogenum*, 1891, A., 1391.
- Malfatti, Hans**, digestion of various foods in the human intestines, 1886, A., 379.
- nucleins, 1892, A., 224, 1501.

- Malfatti, Hans**, and **Paul Schoop**, determination of vapour densities at low pressure, 1888, A., 336.
- Malfatti, Hans**. See also **Wilhelm Franz Loebisch**.
- Mallard, François Ernest**, action of heat on heulandite, 1884, A., 829.
- determination of the refractive indices of boracite, 1886, A., 209.
- crystalline compounds prepared by Ebelmen, 1888, A., 348.
- lussatite, a new form of silica, 1890, A., 569.
- tridymite and chrysothalite, 1890, A., 1070.
- native iron from Cañon Diablo, 1892, A., 947.
- Mallard, François Ernest**, and **Henry Louis Le Chatelier**, nature of the vibratory movements which accompany the propagation of flame in mixtures of combustible gases, 1883, A., 148.
- momentary pressures produced during the combustion of gaseous mixtures, 1883, A., 542.
- combustion of gaseous mixtures, 1883, A., 844.
- dimorphism of silver iodide, 1884, A., 16.
- combustion of explosive gaseous mixtures, 1884, A., 549.
- relation between the pressure and the temperature of transformation of silver iodide, 1884, A., 1260.
- Mallard, François Ernest**, and **E. Gumenge**, boleite, 1892, A., 123.
- Mallat, A.**, estimation of starch in gluten bread, 1885, A., 445.
- Mallet, Frederick Richard**, native lead and chromite from the Andaman Islands, 1885, A., 1185.
- so-called nepaulite, 1886, A., 207.
- Mallet, John William**, properties of pure aluminium, 1883, A., 151.
- crystalline form of sipylite, 1883, A., 435.
- estimation of organic matter in potable water, 1883, A., 1171.
- meteoric iron from Wichita Co., Texas, 1885, A., 493.
- silver in Cotopaxi volcanic ash, 1887, A., 451.
- atomic weight of gold, 1890, A., 708.
- occurrence of silver in volcanic dust, 1891, A., 277.
- Jean Servais Stas and the measurement of the relative masses of the atoms of the chemical elements (memorial lecture), 1892, P., 201; discussion, I., 207.
- Mallèvre, Alfred**, effect of acetic acid on respiratory changes, 1891, A., 344.
- Malot, Ch.**, estimation of phosphoric acid, 1887, A., 1063.
- estimation of phosphorus in iron and steel, 1892, A., 528.
- Maltschewsky, Paul L.**, estimation of tannin in tea, 1891, A., 132.
- Maly, Richard L.**, andesite from Tifail in Steiermark, 1885, A., 735.
- oxidation of albumin with permanganate, 1885, A., 824; 1888, A., 1120.
- oxidation of gelatin with potassium permanganate, 1889, A., 629.
- conversion of thiocarbamide into carbamide, 1890, A., 1399.
- Maly, Richard L.**, and **Rudolf Andreasch**, caffeine and theobromine, 1883, A., 1016.
- Maly, Richard L.**, and **Friedrich Emich**, behaviour of the bile acids with albumin and peptones; antiseptic action of the bile acids, 1883, A., 673.
- Manasse, Otto**, vanadates of the alkaline earths, 1887, A., 339.
- action of anil nitrite on nitroso-ketones, 1888, A., 1088.
- Manasse, Otto**. See also **Ludwig Claisen**.
- Manasse, Paul**, lecithin and cholesterol in red blood corpuscles, 1890, A., 1017.
- Manché, Edouard**, effect of muscular work on the glycogen in the muscles, 1889, A., 428.
- Mandel, John A.** See **L. H. Friedburg**.
- Mandelin, Karl Fr.**, viola-querutrin, 1884, A., 1191.
- aconitine, 1885, A., 911.
- Mandl, Alex.**, cyanhydrin of nitrosodipropylaniline, 1886, A., 792.
- Maneuervrier, Georges**, formation of the electric arc without contact of the electrodes, 1887, A., 626.
- Maneuervrier, Georges**, and **James Chapuis**, electrolysis with alternating currents, 1888, A., 1005.
- Maneuervrier, Georges**. See also **Jules Clésin Jamin**.
- Mangin, Louis**, pectic compounds in plants, 1890, A., 80.
- influence of acids on the evolution of gases by plants, 1890, A., 190.
- intercellular matter, 1890, A., 656.
- callose, a new fundamental substance in vegetable membrane, 1890, A., 731.
- Mangin, Louis**. See also **Gaston Bonnier**.

- Mangold, Carl**, analysis of beeswax, 1892, A., 1031.  
 — stereochemistry of trihydroxystearic acids prepared from ricinoleic acid and from ricinelaidic acid, 1892, A., 1301.
- Mangon, Hervé**, the ice plant (*Mesembryanthemum crystallinum*), 1883, A., 499.
- Manhès, Pierre**, extraction of nickel and cobalt from their ores, 1885, A., 201.
- Mankiewicz**, detection of phosphorus, 1887, A., 526.
- Mann**, preparation of chemically pure hydrogen peroxide, 1889, A., 101.
- Mann, Christian**, test for citric acid, 1885, A., 813.  
 — detection and estimation of chlorine in thiocyanates, 1890, A., 663.
- Mann, Christian**. See also **Adolph Claus**.
- Mann, Friedrich**. See **Adolph Claus**.
- Mann, Paul**, rutile as a product of the decomposition of titanite, 1883, A., 33.  
 — chemical composition of augites from phonolites and similar rocks, 1885, A., 34.
- Manning, I. H.**, decomposition of potassium cyanide, 1888, A., 930.
- Manning, I. H.**, and **G. W. Edwards**, salts of camphoric acid, 1888, A., 963.
- Manning, Thomas Darys**. See **Alfred Herbert Tubby**.
- Mannley, G.**, estimation of indigo, 1887, A., 1147.
- Manna, Albert**, malachite-green and derivatives of *p*-amidodiphenylmethane, 1889, A., 261.
- Manoury** (and others), recovery of beet juice by lime, etc., 1885, A., 709.
- Mansbridge, William**, new method for the estimation of unsaponifiable matter in fats, 1892, A., 1533.
- Manseau, M. H.**, detection and estimation of santonin, 1892, A., 666.
- Mansfeld, Moritz**, modification of the Reichert-Meissl method of butter analysis, 1889, A., 85.
- Mansfeld, W.**, compounds of diethylene bisulphide, 1886, A., 525; 1887, A., 122.
- Manteau, A.**, manurial experiments at Reims, 1881, A., 1119.
- Manzoni, G. Searati**, preparation of sodium hyposulphite, 1885, A., 723.  
 — chromium and aluminium sulphates, 1885, A., 725.
- Maquenne, Léon**, action of ozone on hydrocarbons, 1883, A., 37.  
 — decomposition of formic acid by the silent discharge, 1883, A., 457.  
 — ammonio-cobalt compounds, 1883, A., 557.  
 — action of carbonic oxide on steam, 1883, A., 860.  
 — decomposition of carbon compounds by the silent discharge, 1884, A., 542.  
 — crystallisation of sulphur, 1881, A., 1251.  
 — sulphur liberated by the decomposition of hydrogen persulphide, 1885, A., 1037.  
 — methyl alcohol in the products of the distillation of leaves with water, 1886, A., 271.  
 — inosite and its derivatives, 1887, A., 355, 459, 908.  
 — identity of dambosc with inosite, 1887, A., 909.  
 — galactoscarboxylic acid, 1888, A., 580.  
 — derivatives of saccharic and mucic acids, 1888, A., 676.  
 — perseitol, 1888, A., 807.  
 — molecular weight and valency of perseitol, 1889, A., 32.  
 — combination of benzaldehyde with polyhydric alcohols, 1889, A., 116.  
 — heptene from perseitol, 1889, A., 361.  
 — hyponitriles, 1889, A., 911.  
 — preparation of concentrated formic acid, 1889, A., 955.  
 — fucosol, 1890, A., 33.  
 — relation between sugars and furan derivatives, 1890, A., 33.  
 — Eucalyptus honey, 1890, A., 122.  
 — new sugar with an aromatic nucleus, 1890, A., 214.  
 —  $\beta$ -inosite, 1890, A., 355.  
 — derivatives of  $\beta$ -pyrazole, 1890, A., 1439.  
 —  $\beta$ -pyrazoledicarboxylic acid, 1891, A., 330.  
 — trehalose, 1891, A., 1000.  
 — use of phenylhydrazine for the estimation of sugars, 1891, A., 1142.  
 — direct combination of nitrogen with alkaline earth metals, 1892, A., 566.  
 — barium carbide, 1892, A., 685.  
 — nitriles of barium and strontium, 1892, A., 776.  
 — action of sulphuric acid on hydrocarbons with a closed chain, 1892, A., 967.  
 — hydrocarbon derived from perseitol, 1892, A., 1065.

- Maquenne, Léon**, natural synthesis of the vegetable hydrocarbons, 1892, A., 1234.
- Maquenne, Léon**, and **Charles Tanret**, racemo-inosite, 1890, A., 471.
- Maquenne, Léon**. See also **Pierre Paul Dehérain**.
- Mar, Frederick William**, so-called perofskite from Magnet Cove, Arkansas, 1891, A., 529.
- estimation of barium as sulphate, 1891, A., 1137.
- Mar, Frederick William**. See also **Frank Austin Gooch**.
- Marburg, Richard**. See **Rudolph Fittig**.
- Marcacci, Arturo**, action of alkaloids in the animal and vegetable kingdoms, 1887, A., 859.
- conversion products of starch, 1891, A., 357.
- Marcano, Vicente**, direct fermentation of starch, 1883, A., 365.
- bread making, 1884, A., 132.
- formation of alcohol in the fermentation of bread, 1884, A., 532.
- transpiration of plants in the tropics, 1884, A., 1403.
- peptonic fermentation of meat, 1885, A., 181; 1888, A., 1318.
- alcoholic fermentation of the juice of the sugar cane, 1889, A., 915.
- Marcano, Vicente**, and **Achille Müntz**, ammonia in the atmosphere and in the rain water of the tropics, 1892, A., 381.
- Marcano, Vicente**. See also **Achille Müntz**.
- Mareet, William**, volumetric estimation of carbonic anhydride, 1887, A., 528.
- a new form of eudiometer, 1889, A., 301.
- human respiration, 1890, A., 914.
- human respiration, air being re-breathed in a closed vessel, 1891, A., 1270.
- the respiratory exchange of gases, 1891, A., 1270.
- Marcuse, Wilhelm**, formation of lactic acid during muscular activity, 1887, A., 508.
- Marchand, Eugène**, suspended matter in water, 1884, A., 117.
- volumetric estimation of potash, 1884, A., 695.
- Marchand, Félix**, toxic action of chlorates, 1888, A., 977.
- Marchesini, Giacomo**, carbaminethioacetophenone, 1892, A., 1317.
- Marchetti, C.**, picrates of  $\alpha$ - and  $\beta$ -naphthol, 1883, A., 344.
- Marchlewski, Leo**, reaction between hydrogen arsenide and silver nitrate, 1891, A., 1154.
- colour of nitric acid, 1892, A., 113.
- aqueous solutions of tartaric and racemic acids, 1892, A., 961.
- Marchlewski, Leo**. See also **Georg Lunge**.
- Marck, B. van der**, picrotoxin, 1888, A., 848.
- estimation of alkaloids in coca leaves, 1890, A., 310.
- Marckwald, Wilhelm**, decomposition products of thialdine thiocyanate, 1886, A., 864.
- methylthialdine, 1886, A., 1005.
- trithioacetaldehyde, 1888, A., 127.
- furfuran derivatives, 1888, A., 135, 677.
- furfuralmalonic acid, 1888, A., 678.
- quinoline ring formation: constitution of benzene, 1890, A., 1001.
- action of acid chlorides on bases in presence of alkalis, 1891, A., 181.
- imidazoles and the constitution of glyoxaline, 1892, A., 1326.
- Marckwald, Wilhelm, Moritz Neumark, and E. Stelzner**, hydantoins and bases derived from them, 1892, A., 149.
- Marckwald, Wilhelm**. See also **Alfred Wohl**.
- Marckwaldt, Leo**, derivatives of phenylhydrazine, 1889, A., 392.
- Marcus, Ernst**, nitrogenous derivatives of some aromatic dihydroxyaldehydes, 1892, A., 317.
- Marcus, S. H., and William Oechsner de Coninck**, physiological action of  $\beta$ -collidine, 1883, A., 101.
- Mareck, Friedrich**, electrolytic preparation of nitrogen chloride, 1885, A., 347.
- Marek, Gustav**, diffusion of sugar in beet, 1883, A., 121.
- influence of soil, size of seed, etc. on the quality and yield of sugar-beet, 1884, A., 103.
- sugar-beet, 1881, A., 356.
- distribution of sugar in the root of the beet, 1884, A., 766.
- effects of drying and remoistening dry beets and of frost on them, 1881, A., 767.
- salt solutions as indicating the richness of sugar-beet, 1886, A., 283.
- loss of sugar in beet-root, 1891, A., 103.

- Marek, W.**, expansion of water, 1892, A., 106.
- Mareš, František**, excretion of urea and uric acid from the system, 1887, A., 856.  
 — formation of uric acid in mammals, 1892, A., 1257.
- Marfori, Pio**, berberine, 1889, A., 627.  
 — physiological action of guaiacol, 1891, A., 99.
- Margary, Luigi**, bromine derivatives of  $\beta$ -naphtholazobenzene, 1884, A., 326.  
 — decolorising action of ferric salts on indigo, 1884, A., 457.  
 — derivatives of  $\alpha$ - and  $\beta$ -naphtholazobenzene, 1885, A., 546.  
 — synthesis of dyes on tissues, 1885, A., 710.
- Margottet, J.** See *Paul Hautefeuille*.
- Marguerite-Delacharlonny, P.**, transformation of blood into a solid in-odorous manure, 1883, A., 239.  
 — aluminium sulphate, 1883, A., 714.  
 — hydrated aluminium sulphate, 1884, A., 820; 1885, A., 124.  
 — volatilisation of dissolved substances during the evaporation of the solvent, 1887, A., 211.  
 — presence of sodium sulphate in the atmosphere, 1889, A., 945.  
 — normal aluminium sulphate, 1890, A., 1381.
- Marguerite-Delacharlonny, P., and L. Destremx**, action of ferrous sulphate in various soils, 1889, A., 436.
- Margules, Mar**, Dalton's law, 1891, A., 520.
- Margules, Otto**, action of methyl iodide and potash on phloroglucinol, 1889, A., 497.  
 — hexamethylphloroglucinol, 1889, A., 1153.
- Marie, Theod.**, oxidation of cerotic acid by nitric acid, 1890, A., 1237.  
 — preparation of cerotic acid, 1891, A., 288.  
 — monobromocerotic acid, 1892, A., 1302.
- Marié-Davy, Edme Hippolyte**, nitrification in the soil, 1883, A., 116.
- Marignac, Jean Charles Adolphe de**, verification of some atomic weights, 1884, A., 813.  
 — crystallisation, 1885, A., 215.
- Marino-Zuco, Francesco**, the so-called ptomaines in relation to toxicological researches, 1881, A., 312.  
 — ptomaines, 1881, A., 313, 1056.  
 — chemical examination of the suprarenal capsules, 1889, A., 200.
- Marino-Zuco, Francesco**, destruction of organic matter in toxicological investigations, 1889, A., 653.  
 — a higher homologue of cholesterol, 1890, A., 757.  
 — new alkaloid from *Chrysanthemum cinerariæfolium*, 1891, A., 333; 1892, A., 84.
- Marino-Zuco, Francesco.** See also *Angelo Celli, Augusto Piccini*.
- Mariutza, Nicolai**, action of acids on methylisopropenylcarbinol, 1890, A., 728.
- Mariutza, Nicolai.** See also *A. Chupotsky*.
- Markl, Anton**, the system on which rice may be used in brewing, 1884, A., 235.
- Markovsky, Gertscho, E. M. F.** of gas batteries, 1892, A., 393.
- Markownikoff, Wladimir B.**, action of zinc propyl on acetic chloride, 1884, A., 1280.  
 — astrakanite, 1885, A., 732.  
 — Turkestan manna, 1885, A., 943.  
 — aromatic hydrocarbons of Caucasian petroleum, 1886, A., 1015.  
 — occurrence of thenardite in Russia, 1888, A., 793.  
 — dihydrothenardite, a new mineral, 1888, A., 794; 1891, A., 156.  
 — method for avoiding "bumping" in distillation, 1888, A., 1155.  
 — derivatives of heptamethylene, 1890, A., 728.  
 — Caucasian petroleum, 1891, A., 185.  
 — rose oil, 1891, A., 219.  
 — presence of ethylene linkages in terpenes, 1891, A., 464.  
 — hydrobenzoic acids, 1892, A., 714.  
 — naphthalenes and their derivatives in the general system of organic compounds, 1892, A., 1182, 1311.  
 — tetramethylenedicarboxylic acids, 1892, A., 1306.  
 — naphthalenes and polymethylenes, 1892, A., 1310.
- Markownikoff, Wladimir B., and W. Ogloblin**, chlorination of hydrocarbons from Caucasian petroleum, 1883, A., 561.  
 — Caucasian petroleum, 1884, A., 1276.
- Markownikoff, Wladimir B., and Joh. Spady**, constitution of the hydrocarbons,  $C_{20}H_{42}$ , from Caucasian petroleum, 1887, A., 922.
- Marneffe, G. de**, decomposition of the silicates in soil by lime and gypsum, 1891, A., 1135.

- Marpmann, G.**, schizomycetie fermentation, 1883, A., 363.  
 — progress in the knowledge of bacteria, 1883, A., 364.  
 — lactic fermentation, 1886, A., 733.  
 — alantolic acid and alantole, 1888, A., 378.  
**Marquardt, G.**, Japanese bronzes, 1885, A., 201.  
**Marquardt, Albert**, tribenzylamine derivatives, 1886, A., 615.  
 — alkyl compounds of bismuth, 1887, A., 802; 1888, A., 1066.  
**Marquardt, Albert**, and *Carl Arnold August Michaelis*, ethyl telluride, 1888, A., 1066.  
**Marquardt, Albert**. See also *Giovanni Angelo Barbaglia*, *Alfred Einhorn*, *Carl Arnold August Michaelis*.  
**Marquardt, L.**, estimation of zinc in zinc fume, 1886, A., 490.  
 — new thickening material for mineral lubricating oils, 1886, A., 651.  
**Marsenille, Jérôme van**. See *Walther Spring*.  
**Marsh, Charles W.**, ammonia process for water analysis, 1888, A., 514.  
 — detection of chlorine, bromine, iodine, and sulphur in organic compounds, 1889, A., 796.  
 — reduction of barium sulphate to barium sulphide on ignition with filter paper, 1889, A., 1032.  
**Marsh, James Ernest**, a new monobromocamphor, 1890, T., 828; P., 139.  
 — action of acids on litmus, 1890, A., 792.  
 — camphoric acids, 1890, A., 995.  
**Marsh, James Ernest**, and *Herbert Henry Cousins*, the sulphonic derivatives of camphor, 1891, T., 966; P., 124.  
**Marsh, James Ernest**, and *John Addyman Gardner*, researches on the terpenes; on camphene, 1891, T., 648; P., 123.  
 — researches on the terpenes; on turpentine, 1891, T., 725.  
**Marsh, James Ernest**, and *L. Stockdale*, production of camphor from turpentine, 1890, T., 961; P., 140.  
**Marsh, James Ernest**. See also *George J. Burch*.  
**Marshall, Hugh**, cobaltic alums, 1888, A., 557.  
 — oxidation of cobalt salts by electrolysis, 1891, T., 760; P., 121.  
 — the persulphates, 1891, T., 771; P., 124.  
 — potassium persulphate, 1891, A., 932.  
**Marshall, John**, new ureometer, 1887, A., 310.  
 — Huffer's reaction in bile, 1887, A., 390.  
 — glycosuric acid, 1887, A., 1047.  
 — transfusion of mixtures of blood and salt solution, 1891, A., 317.  
**Marshall, John**, and *Walker D. Green*, action of cacodylic acid on the animal economy, 1886, A., 730.  
**Marshall, John**, and *Charles S. Potts*, arsenic in glass and in alkali hydroxides, 1889, A., 341.  
**Marshall, John**. See also *Horatio C. Wood*.  
**Marshall, T. Rhymor**, and *William Henry Perkin, junior* 1:2-methyl-ethylpentamethylene, 1889, P., 143.  
 —  $\omega_1$ -diacetylbutane, 1890, T., 241.  
 — acetyltrimethyleneurboxylic acid, 1890, P., 137.  
 — the synthetical formation of closed carbon chains. Part I (cont.). The action of ethylene bromide on the sodium compounds of ethyl acetoacetate and ethyl benzoylacetate, 1891, T., 853; P., 124.  
**Marshall, William**. See *Thomas Purdie*.  
**Martin**. See *Saint-Martin*.  
**Martin, Edward W.**, detection of artificial colouring matters in butters, etc., 1887, A., 1149.  
**Martin, Henry**. See *Thomas M. Drown*.  
**Martin, Sidney Harris Cor**, papain, 1886, A., 74.  
 — precipitation of peptones, 1886, A., 636.  
 — papain digestion, 1886, A., 611.  
 — nature of papain and its action on vegetable proteids, 1886, A., 642.  
 — proteids of wheat flour, 1886, A., 1065.  
 — vegetable globulins, 1887, A., 507.  
 — proteids of the seeds of jequirity, 1887, A., 990.  
 — detection of proteids in urine, 1888, A., 763.  
 — proteid poisons, 1889, A., 1026.  
 — toxic action of the albumose from jequirity seeds, 1890, A., 398.  
 — pathology of proteids, 1891, A., 761.  
 — chemical pathology of diphtheria, anthrax, and infective endocarditis, 1892, A., 741.  
 — anthrax in man, 1892, A., 1117.  
**Martin, Sidney Harris Cor**, and *Dawson Williams*, influence of bile on digestion, 1888, A., 618.  
 — influence of bile on pancreatic digestion, 1891, A., 96.

- Martin, Sidney Harris Cor.** and **Richard Norris Wolfenden**, physiological action of the active principle of jequinity, 1890, A., 398.
- Martin, Sidney Harris Cor.** See also **Thomas Leander Brunton**.
- Martinand**, beer yeast, 1889, A., 181.
- alcoholic fermentation of milk, 1889, A., 916.
- Martini, Alexander**, and **Adolf Weber**, silicates of the phenols, 1883, A., 983.
- Martini, Giuseppe**, metallic derivatives of phenylhydrazine, 1892, A., 1154.
- Martinoff, A.** See **Paul D. Chrust-schoff**.
- Martinoff, B.** and **Stefan N. Schukowski**, action of ethyl iodide and zinc and of allyl iodide and zinc on ethereal malonates, 1888, A., 820.
- Martinson**, estimation of hydrogen peroxide, 1885, A., 430.
- action of hydrogen peroxide on phenols, 1885, A., 658.
- reducing action of hydrogen peroxide, 1885, A., 1036.
- action of hydrogen peroxide on chromium oxides, 1886, A., 984.
- Martinotti, Friedrich**, estimation of nitrogen by Kjeldahl's method, 1889, A., 1088.
- estimation of total phosphoric acid in manure, 1891, A., 1397.
- Martiny, Benno**, and **Wilhelm Fleischmann**, loss of weight during the ripening of cheese, 1884, A., 1448.
- Martius, Carl Alexander**, new class of azo-dyes, 1886, A., 887.
- Marx, Louis**, comparison of the barleys of different countries, 1885, A., 422.
- Marx, Max**, reduction of trimethylgallamide: acetyl-gallamide, 1891, A., 1218.
- Marxow, Fleischl von**. See **Fleischl von Marxow**.
- Maschke, Leopold**,  $\beta$ -naphthylamine derivatives, 1887, A., 838.
- trimethylnaphthalene, 1887, A., 841.
- Mason, Arthur T.**, alkylonediamines, 1886, A., 329.
- condensation derivatives of ethylenediamine, 1887, A., 493.
- action of ethylenediamine on succinic acid, 1888, P., 96; 1889, T., 10.
- acetamide and phenanthraquinone, 1888, P., 96; 1889, T., 107.
- piazine derivatives, 1888, P., 107; 1889, T., 97.
- Mason, William P.**, viscosity of oils, 1885, A., 196.
- Mason, William P.**, ash in bones of different ages, 1888, A., 80.
- manganeseiferous spring waters, 1890, A., 854.
- carbazole method for the estimation of nitrates in water analysis, 1892, A., 243.
- Massalski, Waweg**, estimation of ammonia as nitrogen in manures, 1884, A., 638.
- Massan, Carl**. See **Adolph Claus**.
- Massie, F. A.**, colourless mimetite from the Richmond mine, 1883, A., 163.
- Massignon, J.** and **E. Vatel**, new process for the manufacture of chromates, 1891, A., 1430.
- Massol, Gustave**, potassium and sodium malonates, 1888, A., 1239.
- heat of neutralisation of malonic acid, 1888, A., 1240.
- calcium and strontium malonates, 1889, A., 691.
- ammonium malonates, 1889, A., 857.
- barium malonates, 1889, A., 958.
- potassium hydrogen malonate, quadromalonate, and quadioxalate, 1890, A., 740.
- lithium malonates, 1890, A., 1396.
- silver malonate, 1890, A., 1397.
- thermochemistry of bibasic organic acids, 1891, A., 908; 1892, A., 395, 1140.
- ethyl hydrogen malonate and ethyl potassium malonate, 1891, A., 1012.
- thermochemistry of propionic acids and of the alkaline propionates, 1891, A., 1313.
- thermal constants of active malic acid and of potassium and sodium malates, 1892, A., 260.
- tartronic acid and alkali tartronates, 1892, A., 675.
- heat of formation of potassium tricarallylate, 1892, A., 762.
- citric acid, 1892, A., 763.
- dibromomalonic acid, 1892, A., 1140.
- thermochemistry of bibasic organic acids; methylmalonic and methylsuccinic acids, 1892, A., 1140.
- glutaric acid, 1892, A., 1141.
- Massol, Gustave**. See also **Jean Lém Soubeiran**.
- Masson, David Orme**, the action of nitrous anhydride on glycerol, 1883, T., 848.
- sulphine salts containing the ethylene radicle; I. Diethylenesulphidomethylsulphine salts, 1886, T., 233; P., 167.

- Masson, David Orme**, sulphine salts containing the ethylene radicle; II. Delm's reaction between ethylene bromide and ethyl sulphide, 1886, T., 249; P., 168.
- relation between the boiling-points, molecular volumes, and chemical characters of liquids, 1891, A., 379.
- deductions from the gaseous theory of solution, 1891, A., 791.
- Masson, David Orme**, and **John Booth Kirkland**, action of bromine and chlorine on the salts of tetraethylphosphonium, 1889, T., 126; P., 19.
- preparation of the salts of triethylsulphine, tetraethylphosphonium, and analogous bases, 1889, T., 135; P., 20.
- Masson, David Orme**, and **U. T. M. Wilmore**, does magnesium form compounds with hydrocarbon radicles? 1891, P., 16; discussion, P., 19.
- Masson, David Orme**. See also **Leonard Dobbin**, **Matthew Hay**.
- Massute, Friedrich**, constituents of *Quassia amara* and *Picroaena crecelsa*, 1890, A., 791.
- Masure, Félix**, evaporation of water from the soil, 1883, A., 615.
- evaporation of water into the atmosphere, 1885, A., 1260.
- Mathëus, J.**, azo-dyes of the hydroxy-quinolines, 1888, A., 851.
- a new quinolinequinone, 1888, A., 965.
- Mathias, Emile**, measurement of the latent heat of vaporisation of liquefied gases, 1888, A., 773.
- specific heats of saline solutions, 1889, A., 4.
- Mathias, Emile**. See also **Louis Paul Cailliet**.
- Mathieu-Plessy, E.**, tribasic aluminium oxalate, 1884, A., 296.
- acetic acid and alkaline thio-sulphates, 1885, A., 1038.
- Mathurin, Désiré**. See **Henri Lescœur**.
- Matignon, Camille**, heats of formation of uric acid and alkaline urates, 1890, A., 1040.
- ureides from normal acids, 1891, A., 1448.
- products of oxidation of uric acid, 1891, A., 1448.
- parabanic and oxaluric acids, 1891, A., 1449.
- characteristic difference between alcohol radicles united directly with carbon or with nitrogen, 1892, A., 106.
- Matignon, Camille**, substitution of radicles in union with carbon and nitrogen respectively: explosives, 1892, A., 1141.
- thermochemistry of guanidine and nitroguanidine, 1892, A., 1142.
- Matignon, Camille**. See also **Murcellin Berthelot**.
- Mattei, Eugenio di**, supposed toxic action of aqueous solutions obtained from fresh animal organisms, 1884, A., 199.
- Mattenoci, Vittorio**. See **Guido Pellizzari**.
- Matthes, Paul**, behaviour of  $\alpha\beta$ -dinaphthylamine when combining with benzene, 1890, A., 385.
- azo-derivatives of secondary  $\beta$ -naphthylamines, 1890, A., 992.
- Matthews, Francis Edward**, on some condensation products of aldehydes with acetoacetic ether and with substituted acetoacetic ethers, 1883, T., 200.
- action of nitric acid on ammonium chloride, 1888, P., 102.
- ethyl cinnamylidethacetate, 1888, P., 102; 1889, T., 38.
- $\alpha$ - and  $\beta$ -modifications of benzene hexachloride, 1890, P., 175; discussion, P., 176; 1891, T., 165.
- $\alpha$ - and  $\beta$ -modifications of chlorobenzene hexachloride, 1891, P., 181.
- action of sulphuric acid on the  $\alpha$ - and  $\beta$ -modifications of chlorobenzene hexachloride, 1892, T., 103.
- Matthews, Francis Edward**, and **William Richard Eaton Hodgkinson**, ethyl acetoacetate, 1883, A., 311.
- Matthews, Francis Edward**. See also **Ludwig Claisen**, **William Richard Eaton Hodgkinson**.
- Matthey, Edward**, metallurgy of bismuth, 1887, A., 900; 1888, A., 656; 1891, A., 1161.
- liqation of gold and platinum, 1890, A., 947.
- Matthiessen, Conrad Henry**, and **William Gilbert Mixer**, *o*-azo-*p*-bromoacetanilide, 1887, A., 251.
- Mattirolo, Ettore**, natrolite of Monte Catini, 1891, A., 1438.
- breithauptite from Sarrabus, Sardinia, 1892, A., 790.
- Matvéeff, V.**, action of allyl iodide and zinc on ethyl malonate, 1889, A., 121.
- Matzdorff, Albert**,  $\alpha$ -picolyloethylalkaline and its derivatives, 1890, A., 1436.
- Matzudaira, C.**, dibenzylaniline and its derivatives, 1887, A., 812.

- Maugini, Francesco**, meteoric sand, 1885, A., 231.  
 — chalybeate water of Raffanello, 1888, A., 1261.
- Maumené, Edmé Jules**, cerocyanin, 1883, A., 215.  
 — chlorine hydrates, 1883, A., 780.  
 — hydrates of baryta, 1883, A., 1052.  
 — melting points of salts, 1884, A., 3.  
 — melting points of nitrates, 1884, A., 384.  
 — presence of manganese in wines and other vegetable and animal products, 1884, A., 879; 1885, A., 421.  
 — decomposition of cupric oxide by heat, 1885, A., 121.  
 — alleged selective fermentation, 1885, A., 1085.  
 — invert sugar and selective fermentation, 1886, A., 90.  
 — alkaline hydrates, 1886, A., 121.  
 — decomposition of potassium chlorate by heat, 1886, A., 591.  
 — alcoholate of potassium hydroxide, 1886, A., 980.  
 — combination of potassium alum with water, 1886, A., 981.  
 — composition of suint, 1886, A., 1055.  
 — water of crystallisation of alums, 1887, A., 218.  
 — action of nitric acid on sugar, 1887, A., 567.  
 — alloys of platinum, iron, and copper, 1887, A., 778.  
 — "saccharin," 1887, A., 836.  
 — inactose of neutral sugar, 1888, A., 668.  
 — hydrazine or protoxide of ammonia, 1889, A., 14.  
 — preparation of the nitrogen hydride,  $N_2H_2$ , 1891, A., 262.
- Maumené, Edmé Jules, and C. Limb**, method for obtaining definite hydrates, 1888, A., 644.
- Maupas, E.**, glycogen in ciliated Infusoriae, 1886, A., 383.  
 — amylaceous granules in Gregarinae, 1886, A., 383.
- Mauritz, Alfred**. See **Julius Tafel**.
- Mauro, Francesco**, ammonium fluoroxymolybdates, 1889, A., 106; 1891, A., 18.  
 — fluoroxysalts of molybdenum, 1890, A., 702.
- Mauthner, Julius**, cystine, 1884, A., 1054; 1885, A., 822.
- Mauthner, Julius, and Wilhelm Suida**, indole from *o*-toluidine derivatives, 1886, A., 886.
- Mauthner, Julius, and Wilhelm Suida**, aromatic derivatives of oxamide and oxamic acid, 1889, A., 139.  
 — phenylglycin-*o*-carboxylic acid:—glycocine derivatives, 1889, A., 143.  
 — indole from phenylamidoacetic acid, 1889, A., 1068.  
 — glycocine, 1891, A., 38.
- Mauzelius, Robert**, action of sulphuric acid on *o*-naphthylamine hydrochloride, 1888, A., 375.  
 — 1:4'-naphthalenesulphonic acid, 1888, A., 376.  
 — alkyl salts of sulphacetic acid and ethylenedisulphonic acid, 1888, A., 821.  
 — 1:4'-fluoronaphthalenesulphonic acid, 1889, A., 1001.  
 — 1:4'-iodonaphthalenesulphonic acid, 1890, A., 168.
- Mauzelius, Robert**. See also **Alfred Ekblom, Åke Gerhard Ekstrand**.
- Maximovitch, J.**, antiseptic properties of naphthols, 1888, A., 621, 978.
- Maxwell, Walter**, soluble carbohydrates in the seeds of leguminous plants, 1889, A., 644; 1890, A., 917.  
 — solubility of the constituents of seeds, 1889, A., 1028.  
 — sugar-yielding insoluble carbohydrates in seeds, 1890, A., 544.  
 — behaviour of the fatty substances, and the rôle of lecithins during normal germination, 1891, A., 489.  
 — estimation of the fatty substances in vegetable organisms, 1891, A., 511.  
 — choline and betaine in cotton-seed foods, 1892, A., 380.
- Maxwell, Walter**. See also **Ernst Schulze, Harvey Washington Wiley**.
- Mayer, Adolf**, antiseptics, 1883, A., 219.  
 — action of invertin, 1883, A., 486.  
 — comparative value of artificial and natural butter as articles of food, 1884, A., 92, 622.  
 — dopplerite, 1884, A., 265.  
 — compost manure, 1884, A., 360.  
 — chlorophyll, 1884, A., 1366.  
 — valuation of hay by chemical analysis, 1885, A., 699.  
 — feeding value of various roots, 1885, A., 1259.  
 — analyses of chicory root, 1886, A., 388.  
 — simple method of detecting adulterated butter, 1886, A., 395.  
 — nature of Nägeli's starch-cellulose, 1887, A., 400.

- Mayer, Adolf**, exhalation of oxygen by fleshy-leaved plants in absence of carbonic anhydride, 1887, A., 988.  
 — analyses of rubbish heaps employed to improve soil, 1888, A., 191.  
 — melting-point and chemical composition of butter as affected by nutrition, 1889, A., 173.  
 — composition of canary-seed, 1889, A., 794.  
 — manurial value of several marine products, 1889, A., 1085.  
 — combustibility of tobacco, 1890, A., 1458.  
 — climatic conditions for the development of nicotine in tobacco plants, 1891, A., 858.  
 — soil analyses, 1891, A., 938.  
**Mayer, Adolf**, and **B. Clausnitzer**, analysis of gas-lime, 1883, A., 506.  
**Mayer, Adolf** (and others), the temperature most favourable to the action of invertin, 1883, A., 101.  
 — valuation of seeds, 1884, A., 200.  
**Mayer, Adolf**. See also **L. Broekema**.  
**Mayer, Ernst**. See **Rudolph Fittig**.  
**Mayer, Friedrich**, reduction of trinitro- $\psi$ -cumene, 1887, A., 36, 659.  
 — nitro- $\psi$ -cumidinesulphonic acid, 1887, A., 953.  
 — action of nitrous acid on hexamethylenamine, 1889, A., 33.  
 — qualitative analysis of the ammonium sulphide precipitate, 1890, A., 84.  
 — preparation of ethylsulphonic acid, 1890, A., 748.  
**Mayer, Friedrich**. See also **Bernhard Tollens**.  
**Mayer, Leopold**, new process for producing a bronze coloured surface on iron, 1881, A., 127.  
**Mayer, Leopold**, and **Emil von Schmid**, estimation of phosphoric acid, 1883, A., 241.  
**Mayer, Leopold**, and **Otto Wagner**, analyses of bauxite, 1883, A., 888.  
**Mayer, Richard**, pyridinecarboxylic acids obtained from berberine, 1892, A., 1357.  
**Mayer, Wilhelm**. See **Carl Hell**.  
**Mayer, William Turner**. See **Gustavus Michaelis**.  
**Mayet, Félix Octave**, crystallised hæmoglobin, 1889, A., 1223.  
**Mayrhofer, Joseph**, estimation of nitric acid in potable water, 1885, A., 691.  
**Mayrhofer, Joseph**. See also **Edward Donath**.  
**Mays, Ant**, neutral litmus paper, 1891, A., 1519.  
**Mays, T. J.**, action of brucine and strychnine, 1888, A., 312.  
**Mazzara, Girolamo**, isopropyl, diisopropyl, and dipropyl-*m*-cresols, 1883, A., 463.  
 — compound of quinine with chloral, 1884, A., 186.  
 — action of benzaldehyde and sulphuric acid on a mixture of aniline and nitrobenzene, 1881, A., 442.  
 — mono- and di-chloracetate of quinine, 1884, A., 165.  
 — action of aromatic aldehydes on quinine, 1884, A., 466.  
 — action of potassium and phenols on diamidotriphenylmethane, 1885, A., 800.  
 — azo-derivatives, 1885, A., 901.  
 — diamidotriphenylmethane, 1885, A., 904.  
 — constitution of phenylazothymol, 1885, A., 1131.  
 — phenylazocarvacrol and diphenylazocarvacrol, 1885, A., 1132.  
 — azo-derivatives of carvacrol, 1886, A., 59.  
 — derivatives of cymene, 1886, A., 1016.  
 — derivatives of bromothymol, 1890, A., 366.  
 — thymol derivatives, 1890, A., 602.  
 — constitution of bromonitrothymol, dinitrothymol, dinitramidocymene, dinitrocymene, and the isomeric chloro- and bromo-thymoquinones, 1890, A., 753.  
 — constitution of derivatives of carvacrol, thymoquinone, and thymol, 1890, A., 881.  
 — new hydroxythymoquinone, 1890, A., 965.  
 — constitution of thymol and cymene derivatives, 1891, A., 46.  
 — constitution of thymoquinone and carvacrol derivatives, 1891, A., 47.  
 — constitution of thymol and carvacrol derivatives, 1891, A., 188.  
 — constitution of thymoquinones and  $\beta$ -hydroxythymoquinone derivatives, 1891, A., 297.  
 — carbazole, 1891, A., 570.  
 — bromamidocarvacrol, 1892, A., 595.  
**Mazzara, Girolamo**, and **Giulio Discalzo**, thymol derivatives, 1886, A., 1019.  
**Mazzara, Girolamo**, and **Aristide Leonardi**, Ladenburg's method for distinguishing *o*-diamines, 1891, A., 1354.

- Mazzara, Girolamo**, and *Aristide Leonardi*, behaviour of aldehydes with *o*-aminodiphenols, 1891, A., 1363.  
 ——— carbazole, 1892, A., 616.
- Mazzara, Girolamo**, and *Giuseppe Plancher*, bromo-derivatives of carvacrol, 1892, A., 156.  
 ——— derivatives of carvacrol, 1892, A., 309.
- Mazzara, Girolamo**, and *Giovanni Possetto*, action of benzyl chloride on quinine, 1884, A., 465.  
 ——— azo-derivatives of thymol, 1885, A., 893.  
 ——— diamidomethoxytriphenylmethane, 1885, A., 1141.  
 ——— azo- and diazo-compounds of thymol, 1886, A., 545.
- Mazzara, Girolamo**, and *Eugenio Vighi*, thymol derivatives, 1890, A., 883.
- Mazzotto, Domenico**, eryohydrates of mixtures of salts, 1891, A., 388.
- Meara, Frank S.** See *Russell H. Chittenden*.
- Mebus, E. Aug.**, and *J. W. Decastro*, preparation of strontium carbonate, 1885, A., 1269.
- Medgyesy, B.**, bluish-grey mineral crusts from Rodna, 1886, A., 515.
- Medicus, Ludwig**, acridine, 1884, A., 748.  
 ——— detection of saccharose in wine, 1885, A., 693.  
 ——— detection of salicylic acid in wine, 1890, A., 1475.  
 ——— estimation of lead, 1892, A., 1522.
- Medicus, Ludwig**, and *Carl Immerheiser*, fermentability of dextrins, 1892, A., 922.
- Meem, John G.**, limonite-pseudomorphs after iron pyrites, 1887, A., 116.
- Meerson, S.**, derivatives of diamido- $\alpha$ -naphthol, 1888, A., 713.  
 ——— an isomeride of oxinidonaphthol, 1888, A., 1200.
- Mehne, P.**, condensation of furfuraldehyde with chloraldehyde, 1888, A., 458.
- Mehne, Paul**, nitrosotoluidines, 1888, A., 463.
- Méhu, Camille Jean Marie**, extraction of indigotin and indirubin from urine, 1884, A., 1059.  
 ——— examination of urine for albumose and peptone, 1885, A., 451.  
 ——— solubility of mercuric iodide in oils, etc., 1886, A., 110.  
 ——— urea estimation, 1887, A., 1001.  
 ——— sugar in urine, 1887, A., 1060.
- Meldinger, Heinrich**, electroplating zinc with nickel, 1884, A., 231.  
 ——— polished brass, 1884, A., 521.
- Meineke, C.**, estimation of phosphorus in steel and iron, 1887, A., 396.  
 ——— volumetric estimation of manganese, 1887, A., 531.  
 ——— analysis of clays, 1887, A., 1139.  
 ——— estimation of manganese, 1887, A., 1139.  
 ——— estimation of phosphorus in iron by molybdate, 1888, A., 1130.  
 ——— estimation of manganese as sulphide, 1888, A., 1132.  
 ——— estimation of iron by nitroso- $\beta$ -naphthol, 1888, A., 1132.  
 ——— separation of manganese and allied metals from the sesquioxide group and phosphoric acid, 1889, A., 309.  
 ——— analysis of the raw materials and products of the iron industry, 1889, A., 441.  
 ——— atomic weight of chromium, 1891, A., 882.
- Meissl, Emerich**, detection of benzoic and boric acids in milk, 1883, A., 385.  
 ——— testing of yeast, 1884, A., 931.  
 ——— exchange of material in the pig, 1886, A., 381.  
 ——— comparison of basic slag with superphosphate, 1889, A., 745.
- Meissl, Emerich**, and *Franz Böcker*, constituents of the beans of the *Soya hispida*, 1883, A., 1024; 1884, A., 918.
- Meissler, Aloys**, ethyl isobutyl ether, 1887, A., 1088.
- Meissler, Aloys**. See also *Heinrich Goldschmidt*.
- Meissner, Franz**, heat evolved when powders are moistened, 1887, A., 9.
- Meister, Johannes**, condensation of urethane with ethyl acetoacetate, 1888, A., 675.
- Meixner, Alexander**. See *Adolph Claus*.
- Meldola, Raphael**, on the constitution of some bromine-derivatives of naphthalene (third notice), 1883, T., 1.  
 ——— researches on secondary and tertiary azo-compounds, 1883, T., 425; 1884, T., 106; 1885, T., 657.  
 ——— on the action of dibrom- $\alpha$ -naphthol on amines, 1883, A., 536; 1884, T., 156.  
 ——— rosaniline colouring matters, 1883, A., 807.  
 ——— constitution of the haloid derivatives of naphthalene, 1885, T., 497; P., 71; discussion, P., 74.  
 ——— constitution of the naphthalene derivatives, 1886, P., 172; discussion, P., 174.

- Meldola, Raphael**, Wallach's explanation of the isomeric transformation of diazoamidobenzene into amidoazobenzene, 1887, P., 27.
- preparation of dinitronaphthylamine: *m*-nitrophenylazodimethylamidobenzene, 1887, A., 152.
- constitution of diazoamido-compounds, 1887, A., 818.
- displacement of the amido-group by the acetyl-group by aid of the diazo-reaction, 1888, A., 487.
- synthesis of heterogeneous mixed alkyl-diazoamido-compounds, 1889, T., 610; P., 127.
- evidence as to the quantivalence of oxygen derived from the study of the azonaphthol compounds, 1889, A., 404.
- formation of triazine derivatives, 1890, T., 328; P., 37.
- the action of nitrous acid on 1- $\alpha$ -amido-2- $\beta$ -naphthol, 1892, P., 218.
- Meldola, Raphael, and John Henry Coste**, benzyl derivatives of the phenylenediamines, 1889, T., 590; P., 116.
- Meldola, Raphael, and Cecil Henry Desch**, some homonuclear tri-derivatives of naphthalene, 1892, T., 765; P., 141.
- Meldola, Raphael, and Frederick James East**, researches on the constitution of azo- and diazo-compounds: compounds of the naphthalene  $\beta$ -series, 1888, T., 460; P., 47.
- Meldola, Raphael, and Reginald Edward Evans**, note on the oxidation of *p*-diamines, 1889, P., 115.
- Meldola, Raphael, and Martin Onslow Forster**, researches on the triazine series, 1891, T., 678; P., 123.
- Meldola, Raphael, and Ernest Mostyn Hawkins**, a method for determining the number of  $\text{NH}_2$  groups in certain organic bases, 1892, P., 133.
- Meldola, Raphael, and Frank Hughes**, formation of indene derivatives from dibrom- $\alpha$ -naphthol, 1890, T., 393; P., 57.
- a third naphthaquinone, 1890, T., 631; P., 88; discussion, P., 89.
- note on the action of nitric acid on dibrom- $\alpha$ -naphthol, 1890, T., 808; P., 139.
- azo-derivatives of  $\beta$ -naphthylamine, 1891, T., 372; P., 83.
- Meldola, Raphael, and Gilbert Thomas Morgan**, constitution of azo- and diazo-derivatives: compounds of the naphthalene  $\beta$ -series, 1889, T., 114; P., 11.
- Meldola, Raphael, and Gilbert Thomas Morgan**, azonaphthols, 1889, T., 603; P., 127.
- Meldola, Raphael, and Edward Ralph Moritz**, Kjeldahl's method of estimating nitrogen, 1888, A., 628.
- Meldola, Raphael, and Edgar Henry Rider Salmon**, amines and amides derived from the nitranilines, 1888, T., 774; P., 87.
- Meldola, Raphael, and Frederick William Streatfeild**, method of investigating the constitution of azo- and diazo-derivatives and analogous compounds, 1886, T., 624; P., 222.
- constitution of azo- and diazo-compounds; diazoamido-compounds, 1886, P., 263; discussions, P., 265; 1887, T., 102, 434; P., 50; discussion, P., 51; 1888, T., 664; P., 63.
- notes on anhydro-bases; ethonyltriamidonaphthalene, 1887, T., 691.
- isomerism of the alkyl derivatives of mixed diazoamido-compounds, 1889, T., 412; P., 98.
- determination of molecular weights of polymeric compounds by Raoult's method, 1889, A., 1105.
- researches on normal and mixed diazoamides, 1890, T., 785; P., 139.
- ethylene derivatives of diazo-amido-compounds, 1892, P., 119.
- Melikoff, Petr G.**, addition of hypochlorous acid to  $\beta$ -crotonic acid, 1883, A., 311.
- derivatives of the isomeric crotonic acids, 1883, A., 969.
- homologues of glycidic acid, 1881, A., 1301; 1885, A., 650.
- glycidic acids, 1886, A., 1008.
- derivatives of tiglic acid, 1887, A., 29.
- constitution of chlorohydroxy-butyric acid and dichlorobutyric acid, 1887, A., 30.
- action of hypochlorous acid on angelic acid, 1888, A., 1177.
- Melikoff, Petr G., and Marc Feldmann**, hydroxycitraconic acid and its derivatives, 1890, A., 29.
- Melikoff, Petr G., and Pavel Ivo. Petrenko-Kritschenko**, chlorhydroxy-acids of the fatty series, 1890, A., 736.
- derivatives of angelic and tiglic acids, 1890, A., 862.
- derivatives of isocrotonic acid, 1892, A., 295.
- $\alpha\beta$ -dimethylglyceric acid from angelic acid, 1892, A., 297.

- Melikoff, Petr G.**, and **Nicolai D. Zelinsky**, ethyl glycidate, 1888, A., 1056.
- Mellin, E.**, triphenylbenzene, 1890, A., 1123.
- Mellinghoff, W.**, *p*-cyanobenzyl chloride and its derivatives, 1890, A., 239.
- Mellon, William W.**, free acid in superphosphates, 1888, A., 527.
- Melnikoff, Michail P.**, zoisite from Orenburg, 1892, A., 690.
- Melville, William Harlow**, crystalline form of tribromacrylic acid, 1883, A., 310.
- metacinnabarite from California, 1891, A., 273.
- powellite, 1891, A., 886.
- Melville, William Harlow**, and **Waldemar Lindgren**, minerals from the Pacific Coast, 1892, A., 1107.
- Melville, William Harlow**. See also **William Francis Hillebrand**.
- Memminger, C. G.**, analysis of tobacco stems, 1884, A., 99.
- platinum silicide, 1886, A., 121.
- allanite from Nelson Co., Virginia, 1886, A., 127.
- Mendeléeff, Dmitri I.**, on the expansion of liquids, 1884, T., 126.
- phenomena of condensation, 1885, A., 114.
- specific gravity of sulphuric acid, 1885, A., 121.
- distillation of American petroleum, 1885, A., 708.
- correlation of physical properties of solution with concentration, 1886, A., 413.
- contact actions, 1886, A., 415.
- the compounds of ethyl alcohol with water, 1887, T., 778.
- specific gravity of sulphuric acid solutions, 1888, A., 343.
- periodic law of the chemical elements, 1889, T., 631.
- dissociation of substances in solutions, 1890, A., 325.
- the discovery of nitrogen hydride, 1891, A., 394.
- Mendenhall, Thomas Corwin**, electrical resistance of soft carbon under pressure, 1887, A., 315.
- Mendini, D.**, monobromo- and dibromocitraconimide, 1885, A., 1126.
- Mengarini, Flavio**, effects of an electric current on wine, 1888, A., 188.
- Menges**, density of liquid oxygen, 1884, A., 553.
- Menges, C.L.R.E.**, apparatus for breaking electric circuit in an atmosphere of hydrogen, 1885, A., 3.
- Menke, Albert Eduard**, action of ferric sulphate on iron, 1887, A., 703.
- Menke, Albert Eduard**. See also **Charles Loring Jackson**, **McNeill Anursa Scovell**.
- Mennell, Ernst**, meconic acid and some of its derivatives, 1883, A., 656.
- nitrogenous derivatives of meconic acid, 1885, A., 1203.
- Menozi, Angelo**, *n*-hydroxyvaleric acid, 1884, A., 1122.
- Menozi, Angelo**, and **Giuseppe Appiani**, derivatives of glutamic acid, 1892, A., 298.
- Menozi, Angelo**, and **Cesare Belloni**,  $\alpha$ -methylamidovaleric acid, 1887, A., 797.
- Menozi, Angelo**. See also **Wilhelm Körner**.
- Menschikoff, Porfirius**, action of zinc ethide and zinc iodoethide on dipropyl ketone, 1888, A., 218.
- Mensching, Justus**, and **Victor Meyer**, vapour density of zinc, 1887, A., 218.
- vapour density of potassium iodide, 1887, A., 550.
- behaviour of phosphorus, arsenic, and antimony at a white heat, 1887, A., 888.
- pyrometer, 1888, A., 331.
- Mensching, Justus**. See also **Karl Polstorff**.
- Menschutkin, Nicolai A.**, decomposition of tertiary amyl acetate by heat, 1883, A., 178, 309.
- decomposition of acetanilide by water, 1883, A., 326.
- mutual displacement of bases of neutral salts in homogeneous systems, 1883, A., 550, 708.
- influence of isomerism on etherification, 1884, A., 726.
- formation of amides from ammonium salts, 1884, A., 836, 1294.
- influence of temperature on the rate of certain reactions, 1884, A., 1295.
- rate of formation of ethereal salts, 1888, A., 105, 901.
- affinity coefficients of alkyl halogen compounds and of amines, 1890, A., 1366.
- Menschutkin, Nicolai A.**, and **Dmitri P. Konowaloff**, vapour density of tertiary amyl compounds, 1884, A., 1119.
- vapour densities of some ethereal salts, 1886, A., 299.
- Menschutkin, Nicolai A.**, and **Michael Th. Wassilieff**, decomposition of acetic anhydride by water, 1890, A., 359.
- affinity coefficients of alkyl iodides and bromides, 1892, A., 1289.

- Mente, Adolf**, amides of phosphorus and sulphur, 1889, A., 210.
- Mente, Adolf**. See also **Herrmann Ost**.
- Mentha, Eugen**, chloro-*p*-azotoluene, 1887, A., 248.
- Mentha, Eugen**, and **Karl Heumann**, *p*-chlorazobenzene derivatives, 1887, A., 247.
- cyanazobenzene and *p*-azobenzenecarboxylic acid, 1887, A., 248.
- Mentha, Eugen**. See also **Karl Heumann**.
- Menton, Karl**, adjacent *o*-xylidine, 1891, A., 1203.
- Menzies, William Jones**, purification of sulphuric acid, 1883, A., 304.
- Mer, Emile**, influence of internal causes on the presence of starch in leaves, 1891, A., 604.
- Mercier, Pierre**, action of borax in developers for photographic plates, 1891, A., 189.
- Merck, Carl Emanuel**, cocaine, 1885, A., 565.
- preparation of peptone, 1886, A., 1051.
- ecgonine, 1887, A., 284.
- Strophanthus and strophanthin, 1887, A., 1116.
- furfurethenepyridine, 1888, A., 1314.
- meconarceine and narceine meconate, 1889, A., 906.
- alkaloids of sahadilla seeds, 1891, A., 844.
- $\psi$ -codeine, 1891, A., 1121.
- dextrose from ipecacuanha root, 1891, A., 1133.
- terpin hydrate from Eucalyptus oil, 1892, A., 1235.
- subsidiary alkaloids of Belladonna, 1892, A., 1255.
- Merck, Emanuel August**. See **Adolph Claus**.
- Merck, Willy**, benzoylcegonine, 1885, A., 997.
- artificial cocaine, 1885, A., 1249.
- artificial preparation of cocaine and its homologues, 1886, A., 163.
- Mercklin, Hermann**. See **Adolph Claus**.
- Mering, Friedrich Joseph (Freiherr)** von, does potato-sugar contain any deleterious matter? 1883, A., 136.
- action of potassium ferrieyanide on blood, 1884, A., 1398.
- estimation of chlorides in dogs' urine, 1884, A., 1423.
- physiological action of potassium chlorate, 1885, A., 1002.
- Mering, Friedrich Joseph (Freiherr)** von. See also **Arnold Cahn**, **Hans Thierfelder**.
- Merling, Georg**, belladonnine, 1884, A., 1055.
- bromo-derivatives of dimethyl-piperidine, 1884, A., 1385.
- action of bromine on dimethyl-piperidine, 1887, A., 164.
- behaviour of dimethylpiperidine and allied bases towards hydrogen chloride, 1891, A., 1506.
- tropine, 1892, A., 358.
- Mermet, J.**, lecture experiments, 1887, A., 769.
- Merrill, George Perkins**, prochlorite from the Columbia district, 1886, A., 520.
- new meteorite from California, 1888, A., 1046.
- serpentine from Montville, New Jersey, 1890, A., 716.
- Merrill, George Perkins**, and **R. L. Packard**, azure-like pyroxenic rock from New Mexico, 1892, A., 1057.
- Merrill, George Perkins**. See also **Frank Wigglesworth Clarke**.
- Merrill, Lucius Herbert**. See **Whitman Howard Jordan**.
- Mertens, Eduard**, action of amines on phthalylacetic acid, 1887, A., 51.
- Mertens, Karel Hendrik**, nitration of methylanilines, 1886, A., 1022.
- Merz, J.**, amount of fat in bone-meal, 1891, A., 106.
- Merz, Victor**, conversion of phenols into nitriles and carboxylic acids, 1883, A., 802.
- magnesium nitride, 1892, A., 409.
- Merz, Victor**, and **Kasimir Gasiorowski**, conversion of alcohols of the ethyl series into amines, 1884, A., 984.
- Merz, Victor**, and **Ernst Holzmann**, formation of hydrogen bromide and hydrogen iodide, 1889, A., 751.
- Merz, Victor**, and **Paul Müller**, aniline and diphenylamine from phenol, 1887, A., 243.
- conversion of phenols into amines, 1887, A., 576.
- Merz, Victor**, and **Christoph Bis**, methylphenazine, 1886, A., 546.
- *o*- and *p*-nitranilines, 1886, A., 872.
- action of ethylenediamine on catechol, 1887, A., 722.
- Merz, Victor**, and **Wilhelm Weith**, nitro-derivatives of naphthalene, 1883, A., 348.
- bromine derivatives, 1884, A., 588.

- Merz, Victor, and Wilhelm J. Weith**, exhaustive chlorination of aromatic substances, 1881, A., 588.
- — — — — dimethylaniline derivatives, 1886, A., 792.
- Merz, Victor.** See also *Kasimir Gasiorowski*.
- Merz, W.**, dimethylquinaldine, 1881, A., 1053.
- Meschtschersky, Ivan**, barium compounds of bisulphur peroxide, 1883, A., 158.
- Meslans, Maurice**, propyl and isopropyl fluorides, 1889, A., 575.
- — — — — fluoroform, 1890, A., 721.
- — — — — allyl fluoride, 1891, A., 109.
- — — — — fluorhydrins from glycerol, 1892, A., 799.
- — — — — acetic fluoride, 1892, A., 1068, 1069.
- Meslans, Maurice.** See also *Henri Moissan*.
- Mesnard, E.**, essence of sandal wood, 1892, A., 1879.
- Messerschmitt, J. B.**, spectrophotometric observations, 1885, A., 1097.
- Messinger, Josef**, thioxylene from coal-tar, 1885, A., 767, 1052, 1205.
- — — — — hydroxylation of pyridine derivatives, 1886, A., 868.
- — — — — wet methods of organic analysis, 1889, A., 80.
- — — — — estimation of acetone in methyl alcohol, 1889, A., 313.
- — — — — wet method for the estimation of carbon in organic substances, 1890, A., 1467.
- Messinger, Josef, and Carl Engels**, action of hydrogen phosphide on aldehydes and ketonic acids, 1888, A., 441; 1889, A., 35.
- Messinger, Josef, and Nicolas Pickersgill**, reduction products of iodophenols, 1890, A., 1402.
- Messinger, Josef, and Georg Vortmann**, new class of iodised phenols, 1889, A., 1150.
- — — — — volumetric estimation of phenols, 1890, A., 1473.
- Messinger, Josef.** See also *Friedrich Kehrmann*.
- Mester, Bruno**, scatoxylsulphuric acid and scatoile-pigment, 1888, A., 174.
- — — — — cystinuria, 1890, A., 189.
- Metger, Stephan Ostendahl, and Adolph Emmerling**, some causes of discrepancy in the analyses of superphosphate, 1886, A., 740.
- Mettegang, Hans.** See *August Bernthsen*.
- Metz, Em. Edl.**, densimetric estimation of the phosphorus in iron, 1891, A., 961.
- Metzdorf, Rich.**, bacillus of cattle plague, 1884, A., 1398.
- Metzeler, Karl**, iodine derivatives of quinone, 1888, A., 1278.
- Metzger, Siegm.**, *p*-dibromoquinoline, 1884, A., 757.
- Meulen, Hendrik Gjalts Landmeter van der.** See *Eduard Mulder*.
- Meunier, Etienne Stanislas**, lithological determination of the meteorite of Estherville, Emmet Co., Iowa, 1883, A., 37.
- — — — — formation of bauxite and of pisolitic iron-ore, 1883, A., 1005.
- — — — — formation of bauxite and gypsum, 1884, A., 406.
- — — — — analysis of the rocky portion of the syssiderite of Atacama, 1881, A., 411.
- — — — — the Pallas meteoric iron, 1884, A., 116.
- — — — — geological history of the syssiderite of Lodran, 1884, A., 417.
- — — — — deposit from a spring at Carmaux, 1885, A., 644.
- — — — — synthesis of anorthite, 1885, A., 960.
- — — — — mineral waters from Java, 1887, A., 224.
- — — — — meteoric iron at Fort Duncan, Texas, 1887, A., 617.
- — — — — artificial formation of rose-spinel or balas ruby, 1887, A., 707.
- — — — — artificial production of chromite, 1889, A., 351.
- — — — — meteorite at Eagle Station, Kentucky, 1889, A., 765.
- — — — — meteorite from Phu-hong, 1890, A., 222.
- — — — — meteorite from Mighei, Russia, 1890, A., 316.
- — — — — chrome-iron, 1890, A., 568.
- — — — — mineral waters of Malaisie and a tin mineral in process of formation, 1890, A., 1081.
- — — — — fluorine and the synthesis of minerals, 1891, A., 21.
- — — — — artificial formation of daubréelite, 1891, A., 990.
- — — — — artificial production of hyalite at the ordinary temperature, 1891, A., 991.
- Meunier, Etienne Stanislas.** See also *Gabriel Auguste Daubrée, G. Dollfus*.
- Meunier, Jean**, action of potassium carbonate on benzyl and benzylene chlorides, 1883, A., 59.
- — — — — new compound formed in the preparation of benzene hexachloride, 1884, A., 733.

- Meunier, Jean**, determination of vapour densities by gaseous displacement under low and variable pressures, 1884, A., 886.  
 — isomeride of benzene hexachloride, 1885, A., 52.  
 — benzene  $\beta$ -hexachloride, 1885, A., 518.  
 — new modes of formation of catechol, 1885, A., 1059.  
 — benzene hexabromide, 1885, A., 1126.  
 — combination of mannitol with benzaldehyde, 1888, A., 950.  
 — compounds of mannitol, 1888, A., 1049.  
 — mannitol dibenzoate, 1888, A., 1265.  
 — benzoic acetals of mannitol, 1889, A., 233.  
 — dibenzoic acetal of sorbite, 1889, A., 479.  
 — combination of mannitol with aldehydes of the acetic series, 1889, A., 580.  
 — benzoic acetals of sorbite, 1890, A., 730.  
 — conversion of glucose into sorbite, 1890, A., 1389.  
 — reduction of benzene hexachloride, 1892, A., 594.  
**Meunier-Dollfus, Charles**. See *Auguste Scheurer-Kestner*.  
**Meurer, Victor**, support for funnels while drying, 1888, A., 192.  
**Miesel, E.**, effects of thiocyanates on vegetation and fermentation, 1887, A., 519.  
**Mewes, Wilhelm**, halogen substitution products of ethyl acetate and their behaviour with sodium ethoxide, 1888, A., 817.  
**Meyenburg, Friedrich von**. See *Karl Auwers*.  
**Meyer, Adolf Bernhard**, unwrought jadeite from Switzerland, 1885, A., 1188.  
 — new locality for nephrite in Asia, 1886, A., 210.  
 — actinolite rock from Dalecarlia, 1886, A., 990.  
 — nephrite from Alaska, 1887, A., 222.  
 — so-called jadeite from Switzerland, 1889, A., 839.  
**Meyer, Alexander**, phenylacetic acid and benzyl cyanide, 1888, A., 693.  
**Meyer, Arthur**, nature of Pringsheim's hypochlorin crystals, 1883, A., 483.  
 — gentianosis, 1883, A., 810.  
 — lactosin, 1884, A., 980.  
**Meyer, Arthur**, formation of starch in leaves supplied with glycerol, mannitol, and sugars, 1886, A., 902.  
**Meyer, Arthur**. See also *Pierre Paul Dehérain*.  
**Meyer, C.** See *Friedrich Krüger*.  
**Meyer, Edouard**. See *Emile Wertheimer*.  
**Meyer, Ernest Sigismund Christian von**, cyanethine and bases derived from it, 1883, A., 352.  
 — cyanmethine, 1883, A., 653.  
 — chemical constitution of anilraquinone, anthracene, etc., 1881, A., 1186.  
 — action of ethyl chlorocarbonate on nitrogenous organic compounds, 1885, A., 140.  
 — isatoic acid, 1885, A., 666.  
 — action of acetone on aniline, 1886, A., 145.  
 — a substance in commercial phenylhydrazine, 1886, A., 349.  
 — preparation of anisic acid, 1886, A., 352.  
 — synthesis of cyanphenin, 1887, A., 363.  
 — preparation of iodobenzene from phenylhydrazine, 1887, A., 1012.  
 — hydrocyanic acid and cyanogen iodide, 1888, A., 242.  
 — action of sodium on homologues of ethyl cyanide, 1888, A., 800.  
 — formation of cyanethine from ethyl cyanide, 1888, A., 802.  
 — polymeride of ethyl cyanide, 1889, A., 114.  
 — new method of obtaining cyanethine and similar bases, 1889, A., 360.  
 — constitution of cyanethine and its analogues, 1889, A., 577.  
 — polymerides of the nitriles, 1889, A., 577.  
 — cyanethine and its derivatives, 1889, A., 685.  
 — hydroxy-*m*-diazines [hydroxypyrimidines], 1890, A., 68.  
 — benzoyl derivatives of acetonitrile, 1890, A., 1251.  
 — a source of error in the estimation of sulphuric acid, 1890, A., 1312.  
 — polymerisation of the nitriles, 1892, A., 576.  
**Meyer, Ernst Sigismund Christian von**, and *Theodor Bellmann*, isatoic acid, 1886, A., 358.  
**Meyer, Ernst Sigismund Christian von**. See also *Carl Riess*.  
**Meyer, F.**, earth-nut and rye meals as food for milch cows, 1885, A., 1252.

**Meyer, Franz Hermann Friedrich Carl.** See **Heinrich Limpricht.**

**Meyer, Georg,** aldehydeammonium bases, 1883, A., 568, 1090.

— some anomalous reactions, 1883, A., 1078.

— incombustible paper and colours, 1884, A., 379.

— refractive index of ice, 1887, A., 753.

— thermal alteration in a Daniell cell and in an accumulator, 1888, A., 393.

— a derivative of boric and phosphoric acids, 1890, A., 108.

— determination of the molecular weights of some metals, 1891, A., 984.

**Meyer, H.,** estimation of cinchona alkaloids, 1883, A., 388.

**Meyer, Hans,** lactates, 1886, A., 1009.

**Meyer, Heinrich,** derivatives of dimethyl- $\alpha$ -resorcylic acid, 1888, A., 148.

**Meyer, Heinrich.** See **Oscar Georg Jacobsen.**

**Meyer, Hugo,** electric resistance of psilomelane, 1883, A., 701.

**Meyer, Jacob.** See **Emil Fischer.**

**Meyer, Julius Lothar,** formation and decomposition of acetanilide, 1883, A., 56.

— recognition of suint in suet and other fats, 1883, A., 750.

— basis of thermochemistry, 1883, A., 773.

— air-baths, 1883, A., 900; 1889, A., 754.

— calculation of gas analyses, 1881, T., 601.

— temperature regulator, 1881, A., 883.

— ethyl glycolate, 1881, A., 992.  
— chlorine and bromine carriers, 1885, A., 1182.

— formation of quinolines from meta-substituted amines, 1886, A., 161.

— ferric chloride as a carrier of iodine, 1886, A., 311.

— combustion of carbonic oxide, 1886, A., 661.

— halogen carriers, 1887, A., 326.

— action of carbon tetrachloride on oxides, 1887, A., 552.

— apparatus for fractional distillation under reduced pressure, 1887, A., 881.

— oxygen carriers, 1883, A., 216.

— preparation of hydrogen iodide, 1888, A., 219.

— nitric anhydride, 1889, A., 341.

— decomposition of amides with alcohols, 1889, A., 380.

**Meyer, Julius Lothar,** nitration, 1889, A., 387.

— gas heating, 1889, A., 751.

— nature of osmotic pressure, 1890, A., 441.

**Meyer, Julius Lothar,** and **Karl Friedrich Otto Seubert,** gas analysis under diminished pressure, 1884, T., 581.

— unit adopted for the atomic weights, 1885, T., 426; 1889, A., 753, 819.

— atomic weight of silver: Prout's hypothesis, 1885, T., 434.

**Meyer, O.,** simple method of examining yeast, 1885, A., 452.

**Meyer, Paul J.,** action of dichloroacetic acid on aromatic amines, 1884, A., 47.

**Meyer, Peter.** See **Richard Anschütz.**

**Meyer, Richard E.,** benzene formula, 1883, A., 51.

— microscopic investigation of dyed cotton fabrics, 1883, A., 751.

— hydroxylation by direct oxidation, 1883, A., 983, 1072.

— phenylacetic acid, 1886, A., 63.

— action of chlorine and bromine on organic bromides and iodides, 1886, A., 929.

— synthesis and constitution of the two propylbenzoic acids, 1886, A., 914.

— benzeneazomalononic acid, 1888, A., 369; 1891, A., 922.

— cymene, 1891, A., 688.

— phthalicins, 1891, A., 1029.

— action of phthalic chloride on phenols, 1891, A., 1485.

**Meyer, Richard E.,** and **Hermann Hoffmeyer,** fluorescein, 1892, A., 970.

— the fluorescein group, 1892, A., 1228.

**Meyer, Richard E.,** and **Hans Kreis,** hydroxyazo-compounds, 1883, A., 982.

**Meyer, Richard E.,** and **Erwin Müller,** synthesis of cumic acid, 1883, A., 63.

**Meyer, Richard E.,** and **Otto Oppelt,** fluorescein, 1889, A., 246.

**Meyer, Theodor Ad. Aug.,** behaviour of basic slag with water charged with carbonic anhydride, 1886, A., 663.

— estimation of iron and alumina in phosphates, 1892, A., 536.

**Meyer, Theodor Ad. Aug.** See also **Gerhard Lösekann.**

**Meyer, Victor,** benzene from various sources, 1883, A., 315.

— isonitroso-compounds, 1883, A., 569.

- Meyer, Victor**, vapour density determinations, 1883, A., 618; 1886, A., 842.
- hydroxylamine hydrochloride, 1883, A., 646.
  - thiophen, a substance contained in coal-tar benzene, 1883, A., 1091.
  - coal-tar toluene, 1883, A., 1092.
  - lecture experiments, 1884, A., 552.
  - the thiophen and pyrroline groups, 1884, A., 586.
  - chlorine monoxide for lecture experiments, 1884, A., 710.
  - vapour density apparatus, 1884, A., 956.
  - ferrous chloride, 1884, A., 965.
  - action of hydroxylamine on chelidonic and meconic acids, 1884, A., 993.
  - isomerism in the thiophen series, 1884, A., 1131.
  - constitution of phthalic chloride and of anthraquinone, 1884, A., 1187.
  - preparation of pure thiophen, 1885, A., 141.
  - synthesis of thiophen, 1885, A., 515.
  - constitution of thiophen derivatives, 1885, A., 763.
  - thiotolen and thiophen, 1885, A., 887.
  - the thiophen group, 1885, A., 1051; 1886, A., 534.
  - drying and heating apparatus, 1886, A., 278.
  - drying apparatus, 1886, A., 417.
  - thionaphthene, 1886, A., 713.
  - relation of  $\alpha$ -thiophenic acid to the  $n$ -thiophenecarboxylic acids, 1887, A., 129.
  - thiodiglycol compounds, 1887, A., 228.
  - preparation of  $\beta$ -iodopropionic acid, 1887, A., 232; 1888, A., 360.
  - properties of some metals, 1887, A., 445.
  - negative nature of the phenyl group, 1887, A., 572.
  - stability of corrosive sublimate solution, 1887, A., 774; 1888, A., 228.
  - physiological action of chlorinated ethyl sulphides, 1887, A., 857.
  - isophthalaldehyde, 1887, A., 940.
  - remarks on Japp and Klingemann's paper on the constitution of certain so-called mixed azo-compounds, 1888, P., 79.
  - question of the existence of true nitroso-compounds, 1888, A., 147.
  - negative nature of organic radicals, 1888, A., 147, 702.
- Meyer, Victor**, *o*-cyanophenol, 1888, A., 266.
- lecture experiments with nitrogen chloride, 1888, A., 343.
  - constitution of mixed azo-compounds, 1888, A., 366.
  - Raoult's method of determining molecular weights, 1888, A., 407.
  - thio-derivatives of deoxybenzoin and its analogues, 1888, A., 484.
  - Genther's views on the constitution of the nitro-derivatives of the fatty hydrocarbons, 1888, A., 570.
  - molecular weight of sulphur, 1888, A., 1028.
  - remarks on Biltz's paper on the molecular weight of sulphur, 1888, A., 1028.
  - ring-formation with elimination of a nitro-group from the benzene-nucleus, 1889, A., 516.
  - aromatic nitriles; benzyl cyanide and hydratropnitrile, 1889, A., 596.
  - results and aims of stereochemical research, 1890, A., 719.
  - molecular weight of the desaurins, 1890, A., 1144.
  - bismuth bromide, 1891, A., 1161.
  - oximes, 1891, A., 1181.
  - benzylthiocarbimide, 1891, A., 1214.
  - lecture experiments on oxy-hydrogen gas, 1892, A., 562.
  - aliphatic nitro-compounds, 1892, A., 575.
  - commercial benzoic chloride, 1892, A., 604.
- Meyer, Victor**, and *A. F. Maurice Ceresole*, constitution of nitroso-compounds, 1883, A., 572.
- Meyer, Victor**, and *Emil Joseph Constanstam*, azanurolic acid, 1883, A., 40.
- Meyer, Victor**, and *Hans Kreis*, the thiophen group, 1884, A., 45.
- homologues of thiophen, 1884, A., 1131.
  - substances accompanying toluene from coal-tar, 1884, A., 1132.
- Meyer, Victor**, and *Marco T. Lecco*, preparation of phenylhydrazine, 1884, A., 597.
- Meyer, Victor**, and *Adolph Müller*, constitution of nitrosomalonic acid, 1883, A., 790.
- Meyer, Victor**, and *Fritz Müller*, substitution in the aliphatic series, 1892, A., 577, 1114.
- Meyer, Victor**, and *Friedrich Münchmeyer*, lactones, 1886, A., 883.
- Meyer, Victor**, and *Ernst Nägeli*, *o*-octenol, 1883, A., 1076.

- Meyer, Victor**, and **K. Neure**, bye-products of the thiophen-manufacture, 1887, A., 805.
- Meyer, Victor**, and **Ludwig Oelkers**, negative nature of organic radicles; examination of deoxybenzoin, 1888, A., 703.
- Meyer, Victor**, and **H. G. Pond**, physico-chemical experiments, 1885, A., 1033.
- Meyer, Victor**, and **Eduard Riecke**, the carbon atom and valency, 1888, A., 519.
- Meyer, Victor**, and **Trugolt Sandmeyer**, artificial formation of thiophen, 1884, A., 45.
- Meyer, Victor**, and **Ernst Schulze**, action of hydroxylamine salts on plants, 1884, A., 1210.
- Meyer, Victor**, and **Otto Stadler**, pyroline dyestuffs, 1884, A., 1045.  
- analysis of volatile organic sulphur compounds, 1884, A., 1215.  
- nitration of thiophen, 1885, A., 141.  
- the thiophen group, 1885, A., 250.  
- direct preparation of dibromothiophen from coal-tar benzene, 1885, A., 971.
- Meyer, Victor**, and **Wilhelm Wachter**, iodosobenzoic acid, 1892, A., 1460.
- Meyer, Victor**, and **Arthur Walley Warrington**, bases from aldoximes, 1886, A., 783.  
- action of acetic chloride on amines, 1887, T., 683; P., 101. \*
- Meyer, Victor**, and **Hermann Wege**, new method of formation of desaurins, 1892, A., 340.
- Meyer, Victor**. See also **Paul Askenasy**, **Karl Auwers**, **Heinrich Biltz**, **Erich Braun**, **William R. Cathcart**, **Giruleno Dacomo**, **Robert Demuth**, **Alua Dittrich**, **Franz Freyer**, **Ludwig Gattermann**, **Heinrich Goldschmidt**, **W. Grinewald**, **Arthur Heidenreich**, **Eduard Hoffmann**, **Paul Ehrhardt Jannasch**, **Ferdinand Keppler**, **Albert Krause**, **Carl Langer**, **Georg Lunge**, **Justus Mensching**, **Frederic P. Treadwell**, **Alua Wittenberg**.
- Meyerhoffer, Wilhelm**, accelerating and retarding influences in chemical processes, 1889, A., 9.  
- reversible transformation of copper potassium sulphate, 1889, A., 819.  
- saturated solutions of compounds of cupric and potassium chlorides, 1890, A., 561.  
- factors of energy, 1891, A., 975.  
- interval of change, 1892, A., 1145.
- Meyerowitz, Louis**. See **Ludwig Claisen**.
- Meysztowicz, W.**, pyrosulphites, 1888, A., 344.
- Mezger, Karl**, cocaine chromate, 1890, A., 839.
- Michael, Arthur**, synthesis of salicin and of anhydrosalicilic glucoside, 1883, A., 77.  
- action of aromatic hydroxy-acids on phenols, 1884, A., 310.  
- action of sodium ethoxide on bromethylidene bromide, 1884, A., 418.  
- action of acetic anhydride and acetic chloride on maize- and potato-starch, 1884, A., 420.  
- convenient method for preparing bromacetic acid, 1884, A., 421.  
- new synthesis of allantoin, 1884, A., 426.  
- synthetical researches in the glucoside group, 1884, A., 439; 1885, A., 521.  
- new synthesis of cinnamic acid, 1884, A., 446.  
- action of aldehydes on phenols, 1884, A., 597.  
- some convenient quantitative lecture apparatus, 1884, A., 658.  
- constitution of resorcin, 1884, A., 736.  
- decomposition of cinchonine by sodium ethoxide, 1886, A., 162.  
- action of phosphorus pentachloride on salts of organic acids, 1886, A., 614.  
- isomerism of paraffinoid hydrocarbons, 1886, A., 687.  
- citraconic acid as a reagent for aromatic amines, 1886, A., 697.  
- formation of anilides, 1886, A., 697.  
- action of aniline on bromomaleic and chlorofumaric acids, 1886, A., 698.  
- nitration of phenylhydrazine, 1886, A., 699.  
- convenient method of preparing brominated fatty acids, 1887, A., 358.  
- behaviour of acetic acid and its derivatives to phosphorus pentachloride, 1887, A., 359.  
- constitution of trimethylenetricarboxylic acid, 1887, A., 468.  
- action of phosphorus pentachloride on acetanilide, 1887, A., 481.  
- reduction of the isomeric bromocinnamic acids, 1887, A., 668.  
- action of ethyl sodacetate and sodomalate on the ethyl salts of unsaturated acids, 1887, A., 672.  
- formation of indigo-blue from  $\alpha$ -nitrophenylpropionic acid, 1887, A., 672.

- Michael, Arthur**, reactions with ethyl sodacetate and ethyl sodomalonate, 1887, A., 716.
- condensation of aldehydes with phenols, 1887, A., 825.
- behaviour of ethyl oxalate with resorcinol, 1887, A., 949.
- constitution of levulinic and malic acids, 1888, A., 134.
- constitution of ethyl sodacetate and ethyl sodacetomalonate, 1888, A., 674.
- action of ethyl sodomalonate on resorcinol, 1888, A., 956.
- constitution of ethyl sodacetate, 1888, A., 1054; 1892, A., 1178, 1428.
- a criticism on "The arrangement in space of the atoms in the molecule of organic compounds," 1888, A., 1147.
- geometrical constitution of the crotonic acids and of their halogen substitution products, 1889, A., 1057.
- regularities in the addition of halogen compounds to unsaturated acids, 1889, A., 1140.
- displacement of the sodium in ethyl diphenylsulphonacetate by alkyls, 1890, A., 781.
- levulinic acid; acetonediacetic acid dilactone, 1891, A., 1837.
- action of zinc on ethyl dibromosuccinate, 1892, A., 40.
- Michael, Arthur**, and **George M. Browne**, isomerism in the cinnamic acid series, 1886, A., 702; 1887, A., 582.
- conversion of ethyl bromocinnamate into ethyl benzoylacetate, 1886, A., 703.
- isomerism in the crotonic acid series, 1887, A., 656, 1029.
- aromatic hydroxylamines, 1887, A., 663.
- Michael, Arthur**, and **Arthur Messinger Comey**, ethyl phenylsulphonacetates, 1884, A., 319.
- action of aldehydes on phenols, 1884, A., 598.
- Michael, Arthur**, and **Paul C. Freer**, action of hydriodic acid on the crotonic acids, 1889, A., 1057.
- additive products of ethyl sodacetate and sodomalonate with ethereal salts of unsaturated acids, 1891, A., 914.
- Michael, Arthur**, and **Adolph Kopp**, formation of crotonaldehyde and  $\beta$ -hydroxybutyraldehyde from acetaldehyde, 1884, A., 420.
- Michael, Arthur**, and **George M. Palmer**, conversion of organic isocyanates into thiocarbimides, 1885, A., 526.
- action of sodium phenylsulphinate on methylene iodide, 1885, A., 536.
- properties of phenylsulphonic acetates, 1885, A., 986.
- simultaneous oxidation and reduction by means of hydrocyanic acid, 1886, A., 155.
- resacetophenone, 1886, A., 239.
- anilides, 1886, A., 698.
- anilides of unsaturated polybasic acids, 1888, A., 461.
- Michael, Arthur**, and **John Hunter Pendleton**, alloisomerism in the crotonic acid series, 1888, A., 1176.
- alloisomerism in the cinnamic acid series, 1889, A., 1063.
- Michael, Arthur**, and **John P. Ryder**, action of aldehydes on phenols, 1886, A., 695; 1887, A., 723.
- Michael, Arthur**, and **Oscar Schulthess**, alloisomerism; dehalogenisation of ethyl salts of  $\alpha\beta$ -halogenised acids, 1891, A., 1184.
- additive products of ethyl sodacetate and sodomalonate with ethereal salts of unsaturated acids, 1892, A., 590.
- Michael, Arthur**, and **Georg Tissot**, homologues of malic acid, 1891, A., 1455.
- Michael, Arthur**, and **John F. Wing**, optically inactive aspartic acid, 1885, A., 377.
- additive compound of phenylhydrazine and hydrogen chloride, 1885, A., 963.
- action of methyl iodide on asparagine, 1885, A., 968.
- action of alkyl iodides on amido-acids, 1886, A., 148.
- Michael, (Mrs.) Helen C. S. Abbot**, and **John Jeanprêtre**, mandelic acid and its nitrile, 1892, A., 1088.
- formation of aromatic nitriles, 1892, A., 1094.
- Michael, (Mrs.) Helen C. S. Abbot**. See also *Helen C. S. Abbot*.
- Michael, Richard**, carboxylic acids from synthetically prepared pyridine bases, 1885, A., 60.
- syntheses of pyridine derivatives from ethyl acetoacetate, aldehydes, and ammonia, 1885, A., 1244.
- Michaelis, Carl**, electric conductivity of impure mercury, 1885, A., 322.

- Michaelis, Carl Arnold August**, diacetylphosphorous chloride and diacetylphosphinous acid, 1881, A., 991.
- acetylphosphorous compounds, 1885, A., 747; 1886, A., 609.
  - sodium phenylhydrazine, 1886, A., 1025; 1889, A., 1158.
  - valency of bismuth, 1887, A., 340.
  - organo-bismuth compounds, 1887, A., 368.
  - vapour density of tellurium tetrachloride: valency of tellurium, 1887, A., 770.
  - tellurium dichloride, 1887, A., 1078.
  - aromatic boron and silicon compounds, 1889, A., 505.
  - sodium phenylhydrazine, 1889, A., 1158.
  - inorganic derivatives of phenylhydrazine, 1889, A., 1163; 1892, A., 1321.
  - thiophenylmethylpyrazolone, 1890, A., 1269.
  - thionylamines, 1891, A., 715.
- Michaelis, Carl Arnold August**, and **Richard Burmeister**, ethyl malonate phenylhydrazide and 1-phenyl-3:5-pyrazolidone, 1892, A., 1001.
- Michaelis, Carl Arnold August**, and **Conrad Claessen**, asymmetrical secondary aromatic hydrazines containing unsaturated alcohol radicals, 1889, A., 1161.
- Michaelis, Carl Arnold August**, and **Ludwig Czimatis**, trimethylphosphorobenzotriamine, 1883, A., 55.
- Michaelis, Carl Arnold August**, and **Ulrich Genzken**, tolylstibines, 1881, A., 1135; 1888, A., 115.
- Michaelis, Carl Arnold August**, and **Ludwig Gleichmann**, aromatic isophosphines, 1883, A., 185.
- Michaelis, Carl Arnold August**, and **Eugen Godchaux**, action of thionyl chloride on tertiary aromatic amines, 1890, A., 610.
- action of thionyl chloride on secondary aromatic amines, 1891, A., 71.
  - aromatic sulphines, 1891, A., 711.
- Michaelis, Carl Arnold August**, and **Richard Hermens**,  $\beta$ -succinylphenylhydrazide: 1-phenyl-3:6- $\alpha$ -piperazone, 1892, A., 1191.
- Michaelis, Carl Arnold August**, and **Richard Herz**, thionylamines, 1891, A., 310.
- Michaelis, Carl Arnold August**, and **Nicholas La Coste**, valency of phosphorus, 1885, A., 1182.
- phenoxydiphenylphosphine, 1885, A., 1214.
- Michaelis, Carl Arnold August**, and **Otto Lampe**, synthesis of phenylpyrazolidine, 1892, A., 355.
- Michaelis, Carl Arnold August**, and **Albert Marquardt**, aromatic bismuth compounds, 1889, A., 1061.
- Michaelis, Carl Arnold August**, and **Fritz Oster**, action of the chlorides of phosphorus, arsenic, boron, and silicon on aromatic hydrazines, 1892, A., 1324.
- Michaelis, Carl Arnold August**, and **Ulrich Paetow**, benzylarsines, 1885, A., 526.
- Michaelis, Carl Arnold August**, and **Bernhard Philips**, ethyl thioacetate, 1890, A., 582.
- Michaelis, Carl Arnold August**, and **Alfred Polis**, triphenylbismuthine and its derivatives, 1887, A., 368.
- Michaelis, Carl Arnold August**, and **Ignaz Rabinerson**, aromatic mercury compounds, 1890, A., 1269.
- action of arsenious chloride on tertiary aromatic amines, 1892, A., 1321.
- Michaelis, Carl Arnold August**, and **August Reese**, aromatic arsenic and antimony compounds, 1883, A., 327.
- aromatic antimony compounds, 1886, A., 881.
- Michaelis, Carl Arnold August**, and **Fritz Rothe**, aromatic phosphorus compounds, 1892, A., 1084.
- Michaelis, Carl Arnold August**, and **Jules Ruhl**, inorganic derivatives of phenylhydrazine, 1890, A., 617.
- thionyl chloride and aromatic hydrazines, 1892, A., 1321.
- Michaelis, Carl Arnold August**, and **Adolf Schenk**, action of phosphorous chloride on tertiary amines, 1891, A., 435.
- Michaelis, Carl Arnold August**, and **Franz Schmidt**, isomeric mono- and di-benzoylphenylhydrazines, 1887, A., 365.
- $\alpha$ -benzylphenylhydrazine, 1887, A., 820.
  - action of acid chlorides on sodium phenylhydrazine, 1889, A., 1159.
- Michaelis, Carl Arnold August**, and **Carl Schulte**, arsenobenzene, arsenonaphthalene, and phenylacetyl, 1888, A., 187.

- Michaelis, Carl Arnold August**, and **Hugo von Soden**, nitro- and amidotriphenylphosphine oxide. 1884, A., 1180.  
 — anilides of *o*-phosphoric acid, 1885, A., 1134.  
 — triphenylphosphine and its derivatives, 1885, A., 1134.
- Michaelis, Carl Arnold August**, and **Ludwig Weitz**, trianisylarsine and its derivatives, 1887, A., 367.
- Michaelis, Carl Arnold August**. See also **Oscar Burchard**, **Richard Burmeister**, **Albert Marquardt**, **Adolf Schenk**.
- Michaelis, Gustavus**, and **William Turner Mayer**, preparation of chloroform, 1886, A., 999.
- Michaelis, Leopold**, nicotenyamidoxime, 1892, A., 206.
- Michaelis, W.**, Portland cement and its adulteration, 1883, A., 530.
- Michailoff, V.**, preparation of albumin, 1885, A., 69.  
 — new reaction for proteids, 1885, A., 198.  
 — animal colouring matters, 1885, A., 676.  
 — new method of separating globulins from albumins, 1886, A., 164.  
 — coagulation of albumin, 1888, A., 73.  
 — detection and estimation of indican and its homologues in urine, 1888, A., 880.  
 — gelatinous state of proteid substances, 1889, A., 171.
- Michaud, Gustave**, cyclamose, a new sugar, 1886, A., 782.  
 — cyclamin, 1888, A., 496.  
 — sapotin: a glucoside, 1892, A., 724.
- Michel, E.**, setting of cement, 1886, A., 851.
- Michel, Léopold**, formation of crystallised selenates in the dry way, 1888, A., 650.  
 — preparation of pyromorphite and mimetosite, 1889, A., 21.
- Michel, Léopold**. See also **Edouard Jannettaz**.
- Michel, Oscar**. See **Eugène Grandmougin**.
- Michel-Lévy, Auguste**, micaceous porphyrite of Morvan, 1883, A., 447.  
 — basic eruptive rocks of Maconnais and Beaujolais, 1884, A., 414.  
 — determination of the double refraction of minerals, 1885, A., 621.  
 — nephelineic teplitzite in the valley of the Janna, 1886, A., 433.  
 — blue tourmaline from Chapoy, 1886, A., 214.
- Michel-Lévy, Auguste**, and **Munier-Chalmas**, new forms of crystallised silica, 1890, A., 712.
- Michel-Lévy, Auguste**. See also **P. Fouqué**.
- Michler, Wilhelm**, and **Hugh Salvin Pattinson**, tetramethylbenzidine, 1884, A., 747.
- Micko, C.**, separation of malic acid from succinic and tartaric acids, 1892, A., 1531.
- Mieczynski, Zygmunt Napoleon**, solubilities of the acids of the oxalic series and of their salts, 1886, A., 935.
- Middendorff, M. von**, hæmoglobin in blood passing to and from the liver and spleen, 1889, A., 1023.
- Mielcke, Paul**. See **Adolph Claus**.
- Mielcke, W.**, calculation of phosphonic acid estimations, 1889, A., 439.
- Mierau, Franz**. See **Wilhelm Clemens Lossen**.
- Mierisch, W. Bruno**, volcanic blocks of Monte Somma, 1888, A., 431.
- Miers, Henry Alexander**, crystallography of bromo-tryptuine, 1885, T., 144; P., 5.  
 — crystallography of tricupaic sulphate, 1885, T., 377.  
 — hemihedrism of cuprite, 1885, A., 358.  
 — crystallography of bournonite, 1886, A., 312.  
 — pyrrargyrite and proustite, 1891, A., 273.
- Miers, Henry Alexander**, and **George Tharland Prior**, proustite containing antimony, 1888, A., 657.
- Miers, Henry Alexander**. See also **Edward Kinch**.
- Miersch, Walther**, formation of hydrindone derivatives from halogen cinchonic acids, 1892, A., 1222.
- Miesler, Julius**, electromotive dilution constants of silver and copper salts, 1887, A., 1072.  
 — electromotive dilution constants, 1888, A., 13.  
 — distribution of electromotive forces in the cells of batteries, 1888, A., 330, 392.
- Miklucho-Maclay, M. N. von**, listwaenite from the Poroschnaja Mountain near Nischne-Tagilsk, 1885, A., 221.  
 — rutile and cassiterite in the Greifenstein granite, 1885, A., 1185.
- Milch, Anton**. See **Robert Otto**.
- Milch, Ludwig**, new boate from Stassfurt, 1891, A., 528.
- Miles, F. P.**, formation of potassium silicide, 1887, A., 150.  
 — supposed meteorite from Highland Co., Virginia, 1887, A., 155.

- Miles, Mary,** nitrifying microbes, 1887, A., 1134.
- Milkowski, Z. von,** estimation of starch in grain, 1890, A., 928.
- examination of brewers' "pitch," 1891, A., 512.
- Mill, Hugh Robert,** salinity of the waters of the Firth of Forth, 1886, A., 322.
- Millar, James Will.** See *John Joseph Sudborough, William Augustus Tilden.*
- Millard, Edgar J.,** molybdate test for hypophosphites, 1889, A., 518.
- Millardet, Alexis,** and *Ulysse Gayon,* copper in vines treated with lime and copper sulphate, 1886, A., 738.
- Miller, Alexander Kenneth,** hydrolysis of sulphonic acids, 1886, P., 231.
- action of bromine on toluene-*p*-sulphonic acid, 1886, P., 235; discussion, P., 235.
- recent papers by A. von Baeyer and J. Thomsen on the constitution of benzene, 1887, T., 208; P., 5.
- compound of amylene with nitric oxide, 1887, P., 108; discussion, P., 110.
- interaction of bromine and toluene; preparation and properties of *o*- and *p*-bromotoluenes and of the dibromotoluenes derivable therefrom; *o*- and *p*-bromotoluenesulphonic acids, 1892, T., 1023; P., 155.
- Miller, Alexander Kenneth,** and *T. Baker,* composition of shale spirit, 1887, P., 97.
- Miller, Alexander Kenneth.** See also *Henry Edward Armstrong, Thomas Edward Thorpe.*
- Miller, Arch. J.,** preserving standard tartar-emetie solutions, 1887, A., 403.
- Miller, Harry East.** See *Rudolph Fittig.*
- Miller, Heinrich von,** and *Carl Opl,* recovery of hydrogen sulphide from alkali waste, 1881, A., 1142.
- Miller, Heinrich Oswald,** preparation of canarine, 1885, A., 365; 1886, A., 186.
- Miller, James Bruce.** See *William Bott.*
- Miller, John A.,** nitriles, 1889, A., 254.
- anisonyl-, salicenyl-, and methyl-salicenyl-amidoximes, 1890, A., 144.
- Miller, N.,** ferment organisms of the alimentary canal, 1887, A., 288.
- Miller, Norman Harry John.** See *Francis Robert Japp.*
- Miller, Oscar,** detection of free sulphuric acid in presence of aluminium sulphate, 1883, A., 1168.
- Miller, Oscar,**  $\alpha$ -hydroxyphthalic acid, 1881, A., 1177.
- $\alpha$ -naphthaquinone, 1885, A., 667.
- Miller, Wilhelm von,** American stear, 1883, A., 407.
- nitrosalicylaldehydes, 1887, A., 938.
- action of aniline on mixtures of fatty aldehydes, 1887, A., 974.
- condensation of quinaldine with aldehydes, 1887, A., 975.
- action of sulphur on quinaldine, 1888, A., 966.
- regularities in the oxidation of quinoline derivatives, 1890, A., 1321.
- oxidation of quinoline derivatives, 1891, A., 1094.
- synthesis of quinaldine, 1891, A., 1101; 1892, A., 1245.
- fluorescent derivatives of aromatic diamines, 1891, A., 1103.
- Miller, Wilhelm von,** and *Friedrich Kinkelin,*  $\alpha$ -*m*-diquinoline, 1885, A., 1144.
- *p*-quinaldine- $\alpha$ -acrylic acid, 1886, A., 264.
- quinoline derivatives, 1886, A., 560.
- reduction of *m*-nitro- $\alpha$ -methylcinnamaldehyde, 1886, A., 701, 799.
- nitrocoumaraldehydes, 1887, A., 939.
- condensation of isobutaldehyde and methylal with aniline, 1887, A., 957.
- action of aniline on a mixture of propaldehyde and acetal, 1887, A., 975.
- $\alpha$ -*m*-nitrophenyl-*p*-methoxyquinoline and its derivatives, 1887, A., 978.
- coumaric and coumainic series, 1889, A., 989.
- transition from the coumaric to the quinoline series, 1889, A., 990.
- Miller, Wilhelm von,** and *Josef Flöckl,* aldehyde-green, 1891, A., 1070.
- colouring matters from hydroquinoline, 1891, A., 1102.
- Miller, Wilhelm von,** and *Georg Rohde,* synthesis of indene derivatives, 1889, A., 984; 1890, A., 1138.
- Etard's reaction, 1890, A., 978.
- hydrocinnamaldehyde, 1890, A., 979.
- oxidation of cymene and isopropylbenzene by chromyl chloride, 1891, A., 898.
- $\alpha$ -phenylhydrocinnamic acid, 1892, A., 1211.
- phenylhydrindone, 1892, A., 1220.

- Miller, Wilhelm von, and Joh. Spady**, quinoline- $\alpha$ -acrylic acid, 1886, A., 264.  
 — quinoline-aldehyde, 1886, A., 370.
- Miller, Wilhelm von, Josef Plöchl (and others)**, Schill's bases, 1892, A., 1189.
- Miller, Wilhelm von.** See also *Oscar Gustav Doebner*.
- Miller, William Lash**, dihydroxytartaric acid, 1889, A., 1149.
- Milliau, Ernest**, detection of cotton-seed oil, 1888, A., 633.  
 — detection of sesame oil in olive oil, 1888, A., 1349.  
 — detection of cotton-seed oil in olive oil, 1888, A., 1349.
- Millot, A.**, oxidation products obtained from carbon by electrolysis, 1883, A., 65.  
 — electrolytic estimation of zinc, 1883, A., 122.  
 — Gladding's process for the estimation of retrograde phosphates, 1884, A., 639.  
 — oxidation of carbon (electrodes) by the electrolysis of a solution of ammonia, 1885, A., 1125.  
 — electrolysis of aqueous ammonia with carbon electrodes, 1886, A., 979.  
 — oxidation of the azulmic matter obtained by the electrolysis of ammonia with carbon electrodes, 1888, A., 242.
- Mills, Edmund James**, melting-points and boiling-points as related to chemical composition, 1885, A., 329.  
 — numerics of the elements, 1885, A., 344.  
 — chemical formula for wool-keratine, 1886, P., 147.  
 — action of heat on potassium chlorate and perchlorate, 1887, A., 767.
- Mills, Edmund James, and William M'Donnell Mackey**, lines of no chemical change, 1885, A., 341.
- Mills, Edmund James, and James Muter**, bromine absorptions, 1886, A., 119.
- Mills, Edmund James, and Jokichi Takamine**, on the absorption of weak reagents by cotton, silk, and wool, 1883, T., 142.
- Mills, Thomas Wesley**, urine of the tortoise, 1887, A., 170.
- Milne, J. M.**, notes on Nesslerising, 1888, A., 87.  
 — extraction of fats by Soxhlet's apparatus, 1888, A., 95.  
 — estimation of ammonia, 1888, A., 195.
- Milone, Ugo**, salts of salicylic acid, 1885, A., 1139.
- Milthaler, Julius**, variation in the specific heat of mercury with temperature, 1889, A., 750.
- Minangoïn, N.**, cultivation of sorghum in France, 1885, A., 79.
- Mincu, C.** See *M. Georgescu*.
- Minet, Adolphe**, electrolysis of fused aluminium oxide and fluoride, 1890, A., 552.  
 — electrolysis of fused aluminium fluoride, 1890, A., 1040.  
 — electrolysis of fused aluminium chloride, 1891, A., 152.  
 — electrometallurgy of aluminium, 1891, A., 525.  
 — electrolysis of fused compounds of boron and silicon, 1891, A., 1321.
- Minguin, Jules**, action of sodium benzyl oxide on cyanocamphor, 1891, A., 463.  
 — action of cyanocamphor on sodium phenoxide and sodium naphthoxide, 1891, A., 464.  
 — methyl and ethyl methylcamphocarboxylates: preparation of methylcamphor, 1891, A., 1500.  
 — action of sodium benzyl oxide on ethyl camphocarboxylate, 1892, A., 74.  
 — methylcamphocarboxylates, methylcamphor, and azo-derivatives of cyanocamphor, 1892, A., 1343.
- Minguin, Jules.** See also *Alvin Haller*.
- Miniati, T., H. Booth, and Julius Berend Cohen**, fractional reduction of *o*- and *p*-nitrotoluenes, and analysis of *o*- and *p*-toluidines, 1888, A., 202.
- Minkowski, Oskar**, occurrence of hydroxybutyric acid in the urine in cases of diabetes mellitus, 1885, A., 113.  
 — hydroxybutyric acid in diabetic urine, 1885, A., 413.  
 — absorption of fat, 1890, A., 1171.
- Minnigerode, Brühl**, the symmetry and elasticity of crystals, 1885, A., 1105.
- Minor, Wilhelm**, estimation of zinc in calamine, 1890, A., 418.  
 — estimation of cadmium in the products of zinc manufacture and in calamine, 1891, A., 112.  
 — estimation of cadmium as sulphide by precipitation with sodium sulphide solution, 1891, A., 112.  
 — estimation of ash in raw sugar, 1891, A., 127.  
 — estimation of free hydrochloric acid in stannous chloride solutions, 1891, A., 241.  
 — estimation of metallic zinc in zinc dust, 1891, A., 863.  
 — estimation of zinc carbonate and silicate in calamine containing lead, 1891, A., 863.

- Mintz, Naam.** See *Carl Adam Bischoff*.
- Minunni, Gaetano,** action of *p*-toluidine and of aniline on phloroglucinol, 1888, A., 1081; 1891, A., 190.
- constitution of benzhydroxamic acid, 1890, A., 256.
- sodium compounds of aromatic anilides and amines, 1891, A., 696.
- constitution of the amido-derivatives of hydroxylamine, 1891, A., 697.
- thiophen, 1891, A., 1342.
- constitution of isomeric oximes, 1891, A., 1354.
- isomerism of oximes 1892, A., 291.
- Minunni, Gaetano,** and *Luigi Caberti*, new mode of formation of benzoic anhydride, 1891, A., 565.
- action of phenylhydrazine on the benzaloximes, 1891, A., 1361.
- Minunni, Gaetano.** See also *Emanuele Paternò*.
- Miolati, Arturo,** so-called isothiocyanethylsulphine, 1891, A., 893.
- constitution of rhodanic acid, 1891, A., 943.
- new method of preparing fatty hydroxamic acids, 1892, A., 698.
- melting points of mixtures, 1892, A., 1139.
- Miolati, Arturo.** See also *Arthur Rudolf Hantzsch*.
- Miquel, Pierre,** action of different antiseptics, 1884, A., 1220.
- the soluble ferment of urea, 1891, A., 100.
- estimation of urea, 1891, A., 132.
- Miquel, Pierre.** See also *Robert Koch*.
- Mischel, Ernst.** See *Leopold Rüggheimer*.
- Mittelbach, Franz,** uric acid in the urine of Herbivora, 1888, A., 1215.
- Mittelmeier, Hans.** See *Carl Bernhard Wilhelm Scheibler*.
- Mittmann, Otto,** bay oil, 1889, A., 1072.
- Miura, Moriji,** melanin, 1887, A., 855.
- Mixter, William Gilbert,** Sauer's method of estimating sulphur, 1883, A., 239.
- reductions with zinc and ammonia, 1884, A., 301, 665.
- reduction of benzoyl-*o*-nitranilide, 1884, A., 1327.
- acid propionates and butyrates, 1887, A., 231.
- decomposition of ethereal nitrates by alkaline solutions, 1892, A., 692.
- Mixter, William Gilbert,** and *Felix Kleeberg*, nitro-derivatives of oxalotoluide, 1889, A., 771.
- Mixter, William Gilbert,** and *Frank Otto Walther*, nitro-derivatives of oxanilide, 1888, A., 141.
- Mixter, William Gilbert,** and *Charles Percy Wilcox*, nitro-derivatives of dibromoxanilide, 1888, A., 142.
- Mixter, William Gilbert.** See also *Joseph Osterman Dyer*, *Conrad Henry Matthiessen*, *Thomas Burr Osborne*.
- Mochsin Beg Chanlaroff,** butyrolactone and  $\alpha$ -ethylbutyrolactone, 1885, A., 374.
- Moddermann, Tjoden,** presence of nitrites in plants, 1889, A., 295.
- Modeen, Hjalman,** action of hydroxylamine on ethyl cyanacetate, 1892, A., 139.
- Möhlau, Richard,** bromacetophenone, 1883, A., 332.
- action of bromacetophenone on phenol, 1883, A., 332.
- acetophenoneanilide, 1883, A., 332.
- diphenyldiisindole, 1883, A., 342.
- azo colouring substances from diphenyldiisindole, 1883, A., 342.
- synthesis of methylene-blue, 1881, A., 306.
- indophenol-like dyes and indophenols, 1881, A., 593.
- methylene-blue, 1884, A., 740.
- helianthin, 1884, A., 1149.
- diphenyl- $\psi$ -amphiphenacylnitrile, 1885, A., 560.
- indophenol and indoaniline, 1886, A., 146.
- nitrosophenol hypochlorite, 1886, A., 453.
- action of concentrated hydrochloric acid on nitrosodimethylaniline, 1886, A., 941.
- colouring properties of benzidine azo-dyes, 1886, A., 947.
- synthesis of acridine, 1886, A., 1033.
- identity of diphenyldiisindole and 3'-phenylindole, 1888, A., 483.
- oxazine dyes, 1892, A., 887.
- Möhlau, Richard,** and *Carl Hoffmann*, alkyl hypochlorites from isonitroso-compounds, 1887, A., 795.
- Möhlau, Richard,** and *Carl W. Krohn*, action of sulphur on methylaniline and dimethylaniline, 1888, A., 364.
- Möllenhoff, Carl,** methylphenylpyrazolone and its derivatives, 1892, A., 1245.
- Möller, Gustav,** Eggert's method of estimating sulphur in iron, 1887, A., 296.
- Moeller, H.** See *A. Gleditsch*.
- Möller, Hermann,** respiration in plants, 1885, A., 832.
- Möller, Max,** tetrahydroquinaldine, 1888, A., 297.
- quinaldine alkyl iodides, 1888, A., 298.

- Moeller, Theodor.** See *F. Cochins*.
- Möller, H.,** law of emanation of light from incandescent substances, 1885, A., 623.
- Moer, J. van de,** cystine and ulexine, 1891, A., 946.
- Moerk, Frank X.,** testing for fixed oils, 1890, A., 200.
- estimation of hypophosphites, 1890, A., 293.
- assay of ferric hypophosphite, 1891, A., 1290.
- Mörner, Carl Th.,** nutritive value of edible fungi, 1886, A., 1053.
- micro-chemical observations on hyaline cartilage, 1888, A., 860.
- chemical composition of cartilage, 1889, A., 736.
- physiological action of gallic and tannic acids, 1892, A., 904.
- Mörner, (Graf) Karl Axel Hampus,** pigments of melanotic sarcomata, 1887, A., 168; 1888, A., 518.
- metabolism of acetamide in the human body, 1889, A., 289.
- Mörner, (Graf) Karl Axel Hampus, and John Sjöquist,** estimation of urea, 1891, A., 758, 1561.
- Mohler, Ed.,** detection of benzoic acid in foods, 1890, A., 1031.
- detection of impurities in alcohol, 1890, A., 1472.
- analysis of brandy and alcohol, 1891, A., 503.
- sensitive reaction for tartaric acid, 1891, A., 867.
- purification of crude alcohol, 1891, A., 997.
- Mohler, Johann,** pyridine bases from coal tar, 1888, A., 727.
- Mohr, Carl,** estimation of reverted phosphoric acid, 1885, A., 688.
- precipitation of phosphoric acid as ammonium magnesium phosphate in presence of ammonium citrate, 1886, A., 831.
- estimation of phosphoric acid, 1887, A., 864.
- Mohr, G.,** benzylsulphonic acid, 1884, A., 69.
- Mohr, Paul,** action of aniline on benzene hexachloride, 1890, A., 614.
- fat of bone marrow, 1890, A., 652.
- Mohr, Paul.** See also *Conrad Willgerodt*.
- Moine, Francesco,** action of bibasic acids on thiocarbimides, 1887, A., 489.
- Moissan, Henri,** chromous sulphate, 1883, A., 22.
- chromic acid and hydrogen peroxide, 1884, A., 20.
- Moissan, Henri,** chromic acid and chromic anhydride, 1884, A., 1267.
- phosphorus trifluoride, 1885, A., 15; 1891, A., 261.
- arsenic trifluoride, 1885, A., 121; 1891, A., 265.
- action of the induction spark on phosphorus trifluoride, 1885, A., 215.
- preparation of phosphorus trifluoride, 1885, A., 482.
- chromyl chloride, 1885, A., 638.
- potassium chromocyanide, 1885, A., 738.
- combination of bromine with phosphorus trifluoride, 1885, A., 955.
- phosphorus pentafluoride, 1886, A., 303; 1887, A., 212.
- action of red-hot platinum on phosphorus fluorides, 1886, A., 592.
- phosphorus oxyfluoride, 1886, A., 767.
- electrolysis of hydrogen fluoride, 1886, A., 849, 976.
- hydrofluorides of potassium fluoride, 1888, A., 553.
- ethyl fluoride, 1888, A., 1262; 1889, A., 363.
- density of fluorine, 1890, A., 208.
- platinum tetrafluoride, 1890, A., 217.
- colour and spectrum of fluorine, 1890, A., 329.
- action of fluorine on different forms of carbon, 1890, A., 557.
- carbon tetrafluoride, 1890, A., 941.
- atomic weight of fluorine, 1891, A., 15.
- preparation of phosphorus oxyfluoride, 1891, A., 261.
- boron triiodide, 1891, A., 979.
- preparation of crystalline barium and calcium fluorides, 1891, A., 1155.
- carbon tetrachloride, 1891, A., 1420.
- silver fluoride, 1891, A., 1421.
- action of phosphorus pentafluoride on heated spongy platinum, 1891, A., 1433.
- place of fluorine in the classification of the elements, 1892, A., 11.
- action of fluorine on phosphorus trifluoride, 1892, A., 12.
- boron phosphoriodides, 1892, A., 114.
- boron phosphides, 1892, A., 272.
- amorphous boron, 1892, A., 681, 1153.
- preparation of amorphous boron, 1892, A., 682.
- boron iodide, 1892, A., 1154.
- carbon diiodide, 1892, A., 1291.
- boron trisulphide, 1892, A., 1392.
- boron pentasulphide, 1892, A., 1394.

- Moissan, Henri**, and **Henri Gautier**, specific gravity of gases, 1892, A., 1267.
- Moissan, Henri**, and **Edouard Landrin**, uric acid, 1890, A., 803.
- Moissan, Henri**, and **Maurice Meslans**, methyl and isobutyl fluorides, 1889, A., 364.
- Moissan, Henri**. See also **Henri Becquerel**, **Marcellin Berthelot**.
- Moitessier, Joseph**, influence of muscular work on the elimination of creatinine, 1892, A., 364.
- estimation of creatinine in urine, 1892, A., 1135.
- Moitessier, Joseph**. See also **Henri Bertin-Sans**.
- Moldenhauer, Carl**, and **Chr. Heinzerling**, purification of glycerol, 1884, A., 938.
- Moldenhauer, Fernando**, estimation of zinc by the ferrocyanide process, 1892, A., 915.
- Molinari, A.** See **Monari**.
- Molinari, Ettore**, apparatus for the estimation of fat in milk, 1891, A., 1299.
- Molinari, Ettore**. See also **Heinrich Goldschmidt**.
- Molisch, Hans**, deviation of roots from the normal direction of growth, 1885, A., 1153.
- new sugar reactions, 1886, A., 923.
- distinguishing animal from vegetable fibre, 1886, A., 1088.
- new test for coniferin, 1887, A., 692.
- relations between inorganic salts containing nitrogen, and plants, 1887, A., 989.
- matter excreted by roots, 1889, A., 68.
- root excretions and their influence on organic matter, 1890, A., 656.
- Molisch, Hans**, and **Simon Zeisel**, new source of coumarin, 1889, A., 644.
- Moll, Jan Willem**, microchemical detection of tannin, 1887, A., 311.
- Moltschanowski, Nicolai Wits**, Klinger's method of preparing azoxybenzene, 1883, A., 180.
- hydrazocumic acid, 1888, A., 277.
- liquefaction of propylene, allylene, and trimethylene, 1889, A., 1126.
- Monari, Adolfo**, new sulphonic acids, 1885, A., 970.
- formation of xanthocreatinine, in the organism, 1887, A., 613; 1888, A., 174.
- change of chemical composition of muscle by fatigue, 1888, A., 174.
- Monari, Adolfo**, changes of glycogen, sugar, and lactic acid of the muscle while performing work, 1890, A., 165.
- Monari, Adolfo**. See also **Piero Giacosa**.
- Monckhoven, D. van**, widening of the lines in the hydrogen spectrum, 1883, A., 139.
- influence of temperature on the spectra of non-metals, 1883, A., 140.
- Monckman, James**, effect of occluded gases on the thermoelectric properties of compounds, 1889, A., 92.
- Mond, Ludwig**, recovery of hydrochloric acid as a bye-product in the ammoniasoda process, 1885, A., 199.
- Mond, Ludwig**, and **Carl Langer**, new form of gas-battery, 1890, A., 841.
- iron-carbonyls, 1891, T., 1090; P., 149.
- Mond, Ludwig**, and **Raffaele Nasini**, some physical properties of nickel-carbon oxide, and of other nickel compounds, 1891, A., 1322.
- Mond, Ludwig**, and **Friedrich Quincke**, volatile compound of iron with carbonic oxide, 1891, T., 604; P., 117; discussion, P., 118.
- Mond, Ludwig**, **Carl Langer**, and **Friedrich Quincke**, action of carbonic oxide on nickel, 1890, T., 749; P., 112.
- Mondésir, Paul de**, particular case of the formation of sodium hydrogen carbonate, 1887, A., 699.
- artificial production of trona or urao, 1887, A., 771.
- Leguminosae in acid soils, 1889, A., 434.
- calcium in soils, 1889, A., 542.
- inorganic acid substance in soils, 1892, A., 1513.
- Monheim**, estimation of starch in grain, 1888, A., 1134.
- Monnet, Eugène**, reduction of copper salts by sugars, 1889, A., 1055.
- colouring matter of wines, 1890, A., 311.
- Monnier, Denis**. See **G. A. Henry Aurioi**.
- Monnier, Dimitri**, Skrivanoff's cell, 1884, A., 881.
- Montemartini, Clemente**, composition of serpentine rocks, 1889, A., 111.
- composition of some rocks from the shore at Nice, 1889, A., 223.
- velocity of decomposition of nitrous acid in aqueous solution, 1891, A., 522.
- serpentine rock from Borzanasen, 1892, A., 1058.

- Montemartini, Clemente**, reaction between nitric acid and metals, 1892, A., 1278, 1402.  
 — action of nitric acid on zinc, 1892, A., 1279.
- Monteverde, Nicolai A.**, calcium and magnesium oxalates in plants, 1891, A., 857.  
 — influence of carbohydrates on the accumulation of asparagine in plants, 1892, A., 91.  
 — chlorophyll, 1892, A., 1355.
- Montgomery, James Walker**, obituary notice of, 1890, T., 453.
- Moody, Gerald Tattersall**, *m*-xylene-sulphonic acids, 1888, P., 77; 1891, P., 189.  
 — combustion of magnesium in water vapour, 1891, P., 20.  
 — studies on isomeric change. Part I. Sulphonic acids derived from anisols, 1892, P., 90.  
 — studies on isomeric change. Part II. *o*-Xylenesulphonic acids, 1892, P., 213.  
 — studies on isomeric change. Part III. Phenetolsulphonic acids, 1892, P., 214.
- Moody, Gerald Tattersall**, and **Thomas Goddard Nicholson**, *p*-xylenesulphonic acids, 1890, T., 958; P., 140.
- Moody, IV.**, celestine, 1885, A., 458.
- Moore, B.**, velocity of reaction in mixtures of isohydric and non-isohydric solutions of acids, 1892, A., 936.
- Moore, George Dunning**. See **Richard Anschütz**, **Charles Loring Jackson**, **Leonard P. Kinnicutt**.
- Moore, Gideon E.**, and **Victor Leopold (Ritter) von Zepharovich**, calaite, pseudomorphous after apatite, from California, 1885, A., 958.
- Moore, Ira**, condensation products from aromatic carbodiimides and *o*-diamines, 1889, A., 983; 1890, A., 246.
- Moore, Russell IV.**, Koettstorfer's method for the examination of butter for foreign fats, 1885, A., 300.  
 — Hübl's method for the examination of oils and fats, 1885, A., 1014.  
 — carrot colour in butter, 1887, A., 810.
- Moore, Thomas**, separation of zinc from nickel, 1885, A., 193.  
 — quantitative chemical analysis by electrolysis, 1886, A., 921.  
 — estimation of nickel in ores, mattes, and slags, 1887, A., 303.  
 — modified ferric chloride cell, 1887, A., 1071.
- Moore, Thomas**, peculiar formation in nickel regulus, 1887, A., 1081.  
 — direct precipitation of nickel oxide in presence of iron, 1887, A., 1141.  
 — separation of iron, nickel, cobalt, manganese, zinc, and aluminium, 1888, A., 631.  
 — volumetric estimation of nickel, 1889, A., 747, 1033.  
 — nickel ore from New Caledonia, 1891, A., 157.  
 — volumetric estimation of manganese, 1891, A., 962.  
 — estimation of cobalt in manganese ores, 1892, A., 917.
- Moos, F.**, condensation products of ethylenedianiline with aldehydes, 1887, A., 577.
- Morant, Hermann**. See **Gerhard Krüss**.
- Morawski, Theodor**, a delicate reaction for pine-wood resin, 1889, A., 660.  
 — estimation of glycerol, 1890, A., 299.
- Morawski, Theodor**, and **Hans Demski**, examination of oils containing unsaponifiable fats, 1886, A., 103.
- Morawski, Theodor**, and **Moric Gläser**, action of citraconic acid on naphthylamine, 1888, A., 1096.
- Morawski, Theodor**, and **Josef Klauudy**, chlorine and bromine derivatives of citraconanil, 1888, A., 53.
- Morawski, Theodor**, and **Johann Stingl**, sugars of the soja bean, 1887, A., 686.  
 — fat of the soja bean, 1887, A., 687.
- Morawski, Theodor**. See also **Hans Demski**, **Moric Gläser**, **Johann Stingl**.
- Morax, V.**, ethereal hydrogen sulphates in urine, 1886, A., 729.
- Mordagne, Jehan**, *Adonis vernalis*, 1886, A., 94.
- Moreaux**. See **Adrian**.
- Morel, Jules**, hydrate of potassium stannichloride, 1891, A., 1160.  
 — action of boric acid on germination, 1892, A., 651.
- Morel, Jules**. See also **Paul Cazeneuve**, **Louis Hugounenq**, **Daniel Klein**.
- Morgan, Gilbert Thomas**. See **Raphael Meldola**.
- Morgan, J. Jas.**, rapid estimation of silicon, sulphur, and manganese in iron and steel, 1887, A., 1140.  
 — estimation of silicon in iron and steel, 1888, A., 195.
- Morgan, J. Jas.** (and others), estimation of sulphur in iron and steel, 1888, A., 1334.

- Morgan, J. M.**, derivatives of *o*-nitro-cinnamic acid, 1884, A., 747.
- Morgan, Thomas M.**, extraction of indigotin from commercial indigo, 1891, A., 722.
- Morgen, August**, feeding value of fresh and dried diffusion residue, 1883, A., 680.
- loss of nitrogen by organic matters during putrefaction, 1884, A., 1214, 1417.
- composition of inferior hay, 1885, A., 292.
- Morgen, August.** See also *Wilhelm Fleischmann.*
- Morgulis, E.** See *Georg Vortmann.*
- Mori, Antonio**, the first product of plant-assimilation, 1883, A., 365.
- Mori, Rintaro.** See *Karl Bernhard Lehmann.*
- Mori, Yotarō.** See *Oscar Kellner.*
- Morin, Ed. Charles**, brandy from a wine from the Charente Inferieure, 1888, A., 125.
- *n*-amyl alcohol from the fermentation of glycerol by *Bacillus butylicus*, 1888, A., 125.
- bases formed by alcoholic fermentation, 1888, A., 572.
- Morin, Ed. Charles.** See also *Edouard Claudon.*
- Morin, Henri**, action of cadmium on ammonium nitrate, 1885, A., 1039.
- essence of rosewood, 1888, A., 1308.
- Moritz, Edward Ralph, and Tom Adrich Glendinning**, diastatic action, 1892, T., 689; P., 112.
- Moritz, Edward Ralph, and Arthur Hartley**, malt extracted by different waters, 1884, A., 1416.
- Moritz, Edward Ralph, and Herbert C. Lee**, behaviour of lumen in hops towards the albuminoids in malt, 1881, A., 527.
- Moritz, Edward Ralph.** See also *Raphael Meldola.*
- Moritz, Fritz, and Wilhelm Prausnitz**, phloridzin diabetes, 1890, A., 1386.
- Moritz, J.**, freezing of wine, 1888, A., 135.
- analysis of wine, 1884, A., 615.
- inversion of cane sugar in sparkling wines, 1886, A., 608.
- Moritz, J., and P. Seucker**, manuring of vines, 1888, A., 190.
- Morley, Edward W.**, quantity of moisture remaining in a gas dried by sulphuric acid, 1886, A., 278.
- moisture remaining in a gas after drying it with phosphoric anhydride, 1888, A., 192.
- Morley, Edward W.**, atomic weight of oxygen, 1888, A., 649.
- carbon as an impurity in hydrogen affecting determinations of its atomic weight, 1890, A., 1369.
- volumetric composition of water, 1891, A., 976.
- Morley, Henry Forster**, substitution in the benzene nucleus, 1887, T., 579; P., 61.
- Morley, Henry Forster, and Arthur George Green**, constitution of propylene chlorhydrin, 1885, T., 132; P., 3.
- action of zinc ethide on propylene chlorhydrin benzoate, 1885, T., 134; P., 3; discussion, P., 4.
- Morley, Henry Forster, and W. Johnston Saint**, thioxalic ether, 1883, T., 400.
- Morley, Henry Forster.** See also *Etsuoggo Hori.*
- Morpurgo, J.**, detection of nitrobenzene, 1890, A., 1194.
- Morrell, Robert Selby.** See *Siegfried Ruhemann.*
- Morris, George Harris**, products of the action of sulphur on resin, 1889, P., 102.
- Morris, George Harris.** See also *Horace T. Brown.*
- Morris, Lemuel J.** See *Rudolph Fittig.*
- Morrison, Robert Milner.** See *John Gibson.*
- Morrison, William**, albertite from Strathpeffer, Ross-shire, 1886, A., 311.
- elaterite from Ross-shire, 1891, A., 272.
- Morse, Harmon Northrup**, apparatus for the correct reading of gas volumes over water, 1885, A., 1009.
- estimation of the value of zinc dust, 1885, A., 1012.
- Morse, Harmon Northrup, and William Shirley Bayley**, laydenite, 1884, A., 1271.
- Morse, Harmon Northrup, and William Merriam Burton**, estimation of butter in milk, 1888, A., 537.
- supposed dissociation of zinc oxide: atmosphere within a platinum vessel heated by a Bunsen flame, 1888, A., 652.
- separation and estimation of boric acid, 1888, A., 755.
- removal of iodate from iodide of potassium, 1888, A., 1246.
- atomic weight of zinc, 1888, A., 1247.
- analysis of butter, oleomargarine, etc., 1888, A., 1347.

- Morse, Harmon Northrup**, and **Harry Clary Jones**, action of metallic cadmium on the halogen cadmium salts: cadmium sub-hydroxide and sub-oxide, 1890, A., 1376.
- re-determination of the atomic weight of cadmium, 1892, A., 1397.
- Morse, Harmon Northrup**, and **Edward Harrison Keiser**, apparatus to determine the equivalents of certain elements, 1885, A., 481.
- Morse, Harmon Northrup**, and **Alvin Frank Linn**, estimation of nitric acid, 1887, A., 181.
- Morse, Harmon Northrup**, and **Cameron Piggot**, estimation of butter in milk, 1887, A., 752.
- Morse, Harmon Northrup**, and **John White**, dissociation of the oxides of zinc and cadmium in the vapours of their respective metals, 1889, A., 755.
- dissociation of the sulphides of cadmium and zinc, 1889, A., 946.
- dissociation of magnesium oxide by means of metallic magnesium, 1891, A., 643.
- transportation of solids in a vacuum by the vapours of metals, 1892, A., 1386.
- Moscattelli, Regulus**, lactic acid of the thymus and thyroid, 1888, A., 860.
- sugar and allantoin in ascitic fluid, 1889, A., 291.
- catechol in the urine of hydrophobic rabbits, 1892, A., 1115.
- Moscattelli, Regulus**. See also *Giuseppe Colasanti*.
- Moschatos, Hermann**, and **Bernhard Tollens**, additive products of hexamethylenamine, 1891, A., 663.
- Moscheles, Robert**, chloralimido-compounds, 1891, A., 1003.
- Moscheles, Robert**, and **Hans Cornelius**, tetric acid and its homologues, 1888, A., 1272.
- molecular weight of pentic acid, 1889, A., 489.
- Moscheles, Robert**, and **R. Stelzner**, analysis of coffee substitutes, 1892, A., 1534.
- Mosenthal, Henry de**, exhibition of Lipmann's "coloured" photographic negatives, 1891, P., 70.
- Moser, James**, electrical properties of salt solutions, 1886, A., 4.
- electrical and thermal properties of salt solutions, 1886, A., 925.
- increase of photoelectric currents, 1888, A., 9.
- Moser, James**, resolution of electromotive forces of galvanic elements into their differences of potential, 1888, A., 209.
- Moses, William Everett**. See *William Albert Noyes*.
- Mosso, Angelo**. See *Isilio Guareschi*.
- Mosso, Ugolino**, chlorophenols, 1888, A., 456.
- physiological action of cocaine, 1888, A., 864; 1891, A., 486.
- Mosso, Ugolino**. See also *Vittorio Aducco*.
- Mott, Frederick Walker**, pernicious anemia, 1890, A., 1177.
- Mott, Frederick Walker**, and **S. Archibald Vasey**, pernicious anemia, 1890, A., 400.
- Moulin, Al.**, atomic weights and the densities of liquids, 1891, A., 1315.
- Moullade, A.**, estimation of tannin by means of iodine, 1890, A., 1348.
- Moulton, Charles W.**, estimation of nitric acid, 1885, A., 930.
- derivatives of phthalic sulphinide, 1891, A., 1063.
- Moulton, John Fletcher**. See *William Spottiswoode*.
- Mourgues, Louis**, mannitol hexachlorhydrin, 1890, A., 1383.
- Mourgues, Louis**. See *Emile Justin Armand Gautier*.
- Mousseaux**. See *Albert Ladureau*.
- Moussette**, fermentation of bread, 1883, A., 1179.
- Moutier, J.**, combination of sodium and potassium with ammonia, 1890, A., 679.
- Moye, Albert**. See *Friedrich Krafft*.
- Muchall, Theodor**. See *Adolph Claus*.
- Muck, Fritz**, recovery of barium and strontium compounds, 1884, A., 394.
- estimation of antimony, 1888, A., 197.
- estimation of alkalis in water, 1890, A., 299.
- Mügge, Otto**, thenardite, 1884, A., 969.
- Mühe, Ed. Georg**. See *Conrad Willgerodt*.
- Mühlhäuser, Otto**, manufacture of methylene-blue, 1887, A., 480.
- manufacture of resorcinol, 1887, A., 574.
- manufacture of dimethylaniline, 1887, A., 576.
- manufacture of benzaldehyde greens, 1887, A., 579.
- manufacture of methyl-violet, 1887, A., 821.
- manufacture of rosaniline, 1888, A., 472.
- manufacture of benzyl-violet, 1889, A., 609.

- Mühlhäuser, Otto**, Egyptian-blue, 1890, A., 215.
- Muhsam, Jomar**. See **Franz Röhmman**.
- Muel, H.**, manuring forest trees, 1883, A., 617.
- Mullenhoff, R.**, heat of formation of ferrous sulphide, 1885, A., 950.
- Müller, feeding with dry and steeped maize**, 1885, A., 1149.
- Müller (and others)**, cattle plague and Pasteur's protective inoculation, 1884, A., 473.
- Müller, Adolph**, isonitroso-acids, 1883, A., 1129.
- action of hydroxylamine on carb-oxyltartronic acid; ethers of isonitrosophenylacetic acid, 1884, A., 584.
- Müller, Adolph**. See also **Victor Meyer**.
- Müller, Albert (Mannheim)**, action of ethylacetacetate on hydrazobenzene, 1886, A., 899.
- Müller, Albert (Mannheim)**. See also **Hennig Christoph Julius Zimmermann**.
- Müller, Albert (Freiburg)**. See **Conrad Willgerodt**.
- Müller, Alexander**, cleaning of glass laboratory vessels, 1883, A., 395.
- utilisation of butter-milk in bread making, 1883, A., 1037.
- sanitation of large towns, and value of the refuse matter from them, 1884, A., 642.
- filtration of sewage through peat, 1885, A., 1268.
- urinary fermentation, 1886, A., 276.
- self-purification of polluted waters, 1886, A., 399.
- sea-sludge and its absorptive power for lime and potash, 1889, A., 1241.
- Mueller, Carl Alfred Ernst**, oil of lime seed, 1892, A., 92.
- Müller, Carl Oskar**, formation of albuminoids in plants, 1887, A., 70.
- Müller, Edward**, oxidation product of triamidobenzene, 1889, A., 700.
- Müller, Eduard**. See also **Rudolf Nietzki**.
- Müller, Erwin**. See **Richard E. Meyer**.
- Müller, Ferdinand**. See **Julius Wilhelm Brühl, Paul Friedländer**.
- Müller, Fr.** (and others), Chili salt-petre for sugar-beet, 1884, A., 1418.
- Müller, Franz**. See **Victor Meyer**.
- Müller, Friedrich**, proteid substance in urine, 1886, A., 87.
- aniline poisoning, 1887, A., 514.
- presence of hydrogen sulphide in urine, 1888, A., 178.
- Müller, Friedrich C. G.**, evolution of gas from steel castings, 1884, A., 787.
- lecture experiments, 1886, A., 976.
- Müller, Friedrich C. G.** (and others), progress in metallurgy, 1885, A., 1167.
- Müller, Gustav**, benzenylamidoxime-carboxylic acids, 1885, A., 1227; 1886, A., 802.
- Müller, Gustav**. See also **Carl Amthor**.
- Müller, Hans**, preparation of potassium sulphate, 1885, A., 1268.
- Müller, Heinrich (Leipzig)**, benzenyl-anilidoxime, 1886, A., 875.
- substituted amidoximes, 1890, A., 43.
- chloro-substitution products of ethyl chloroformate, 1890, A., 1095.
- Müller, Heinrich (Mühlhausen)**. See **Adolf Feer**.
- Müller, Heinrich Wilhelm Hugo**, presidential addresses, 1886, T., 329; P., 179; 1887, T., 452; P., 47.
- Müller, Heinrich Wilhelm Hugo**. See also **Warren De la Rue**.
- Müller, Hermann (Hersfeld)**, preparation of indigo, 1885, A., 850.
- Müller, Hermann (Thurgau)**, contributions to the knowledge of the interchange of material in amylaceous plant organs, 1883, A., 497.
- influence of temperature on the fermentation of must, 1884, A., 647.
- ratio of starch to sugar in tobacco leaves, 1886, A., 901.
- action of diastase and invertin, 1887, A., 166.
- formation of sugar in grapes, 1887, A., 517.
- physiological rôle of vine leaves, 1887, A., 685.
- Müller, Hermann (Thurgau)** (and others), vine diseases and their remedies, 1884, A., 481.
- Müller, Hermann (Munich)**, and **Hans (Freiherr) von Pechmann**, mixed  $\alpha$ -diketones, 1889, A., 1170.
- $\alpha$ -ketoaldehydes, 1890, A., 51.
- Müller, Hermann (Munich)**. See also **Hans (Freiherr) von Pechmann**.
- Müller, Johannes**, diffusion of ammonia through water and through alcohol, 1891, A., 1147.
- Müller, Karl**, manuring experiments with oats, 1888, A., 525.
- Müller, Max**, purple of Cassius, 1885, A., 352.
- action of water on lead, 1888, A., 225.
- estimation of free oxygen in water, 1890, A., 412.
- Müller, Otto**, absorption of carbonic anhydride by mixtures of alcohol and water, 1889, A., 816.

- Müller, Paul**, primary and secondary xylylamines from xylenols, 1887, A., 663.
- Müller, Paul**. See also *Victor Merz, Moric Nathanson*.
- Mueller, Peter Friedrich**. See *Adolph Claus*.
- Müller, Rudolf**. See *Eugen Bamberger*.
- Müller, Wilhelm** (Berlin), chiasolite, 1888, A., 566.
- garnet from Kedabek in Caucasia, 1891, A., 1169.
- Müller, Wilhelm** (Braunschweig), double salt of cocaine, 1891, A., 585.
- cocaine chromate, 1891, A., 585.
- Müller, Wilhelm** (Munich), *m*-methylcinnamic acid and its derivatives, 1887, A. 724.
- Müller, Wilhelm Otto**. See *Eugen Lellmann*.
- Müller, X.**, Weiller's silicon bronze, 1885, A., 308.
- Müller-Erbach, Wilhelm**, specific gravity of, and chemical affinities of elements in various allotropic modifications, 1883, A., 779.
- relation of the heats of combustion of isomeric organic compounds to their densities, 1883, A., 1044.
- law of smallest volumes, 1884, A., 12.
- melting points of haloid salts in relation to the contraction occurring during their formation, 1884, A., 709.
- dissociation of salts containing water and relation of the dissociation to the molecular volume of the combined water, 1884, A., 952.
- tension of aqueous vapours of hydrated salts, 1885, A., 218.
- dissociation of salts containing water of crystallisation, 1886, A., 10; 1887, A., 207.
- influence of moisture on the oxidation of hydrogen, 1886, A., 199.
- dissociation of copper sulphate, 1887, A., 208; 1888, A., 104.
- dissociation of sodium phosphate, 1887, A., 436.
- dependence of chemical affinity on temperature, 1887, A., 628.
- rate and vapour tension of dissociation, 1887, A., 696.
- hydrates of barium and strontium hydroxides, 1887, A., 765.
- dissociation of crystallised lead acetate and sodium thiosulphate, 1888, A., 213.
- determination of vapour-pressure from the rate of evaporation, 1888, A., 1016.
- Müller-Erbach, Wilhelm**, dissociation of some alums and of sodium acetate, 1888, A., 1022.
- equilibrium in the retention of water by dilute sulphuric acid and hydrated salts, 1888, A., 1021.
- water of crystallisation of the alums, 1889, A., 331.
- statical and dynamical methods of measuring the vapour pressure of chemically combined and of absorbed water, 1889, A., 1045.
- dissociation of salts containing water, and the constitution of the combined water, 1890, A., 206.
- Müller-Jacobs, Armand**, composition of Turkey-red oil and its mode of action, 1884, A., 946.
- abridged process for Turkey-red dyeing, and printing with alizarin, 1884, A., 1236.
- determination of the nature of the crude oil in Turkey-red oil, 1885, A., 95.
- Turkey-red oil, 1885, A., 313.
- Müllner, Franz**. See *Edvard Donath*.
- Münchmeyer, Friedrich**, the hydroxylamine reaction, 1886, A., 350.
- action of hydroxylamine on diketones, 1886, A., 877; 1887, A., 373.
- action of hydroxylamine and phenylhydrazine on dialdehydes and ketones, 1887, A., 482.
- Münchmeyer, Friedrich**. See also *Victor Meyer*.
- Muencke, A.**, apparatus for preparing pure carbonic anhydride, 1885, A., 634.
- Muencke, Robert**, high pressure digestors, 1886, A., 112.
- Münster, Chr. A.**, garnierite from Norway, 1892, A., 1409.
- Müntz, Achille**, estimation of carbon bisulphide in thiocarbonates, 1883, A., 935.
- oxidation of iodine during nitrification, 1885, A., 870.
- oxidation and reduction under the influence of microscopic organisms in the soil, 1885, A., 1151.
- formation of beds of sodium nitrate, 1886, A., 210.
- existence of the elements of milk-sugar in plants, 1886, A., 575.
- constituents of milk-sugar in plants, 1886, A., 643.
- ripening of seeds, 1887, A., 173.
- distribution of the nitric ferment and its function in the disintegration of rocks, 1887, A., 1135.

- Muntz, Achille**, water of the Nile, 1888, A., 1261.  
 — fertilising properties of the water of the Nile, 1889, A., 616.  
 — function of ammonia salts in the nutrition of higher plants, 1890, A., 79, 287.  
 — decomposition of rocks and formation of arable soils, 1890, A., 1183.  
 — decomposition of organic manures in soils, 1890, A., 1183.  
 — green manures as suppliers of nitrogen, 1890, A., 1184.  
 — increase of the quantity of hæmoglobin in the blood according to the conditions of existence, 1891, A., 751.  
 — formation of nitrates in soil, 1891, A., 1395.  
 — ammonia in rain water and in the atmosphere, 1892, A., 909.
- Muntz, Achille**, and **Emile Aubin**, estimation of carbonic anhydride in the atmosphere, 1883, A., 121; 1884, A., 659.  
 — atmospheric nitrification, 1883, A., 233.  
 — origin of combined terrestrial nitrogen, 1884, A., 104.  
 — combustible organic matter in the air, 1885, A., 118.  
 — analysis of air from Cape Horn, 1886, A., 418.
- Müntz, Achille**, and **Charles Antoine Girard**, alimentary value of oats, 1885, A., 281.  
 — digestibility of substances used as food for horses, 1885, A., 282.  
 — production of farm-yard manure, 1887, A., 175.  
 — value of animal débris as nitrogenous dressing, 1892, A., 96.
- Müntz, Achille**, and **Vicente Marciano**, perseitol, a sugar analogous to mannitol, 1884, A., 1285.  
 — formation of deposits of nitrates in tropical regions, 1885, A., 1012.  
 — black rivers in equatorial regions, 1889, A., 226.  
 — formation of deposits of nitrates, 1889, A., 680.  
 — nitrates in the rain of tropical districts, 1889, A., 923.
- Müntz, Achille**. See also **Vicente Marciano**.
- Münzer, Hugo**. See **Victor von Richter**.
- Münzing, Ludwig**, compound of vanadic pentoxide with sulphuric acid, 1890, A., 336.
- Muhlert, Franz**,  $\gamma$ -thiophenic acid, 1886, A., 229.
- Muhlert, Franz**, diethylthiophen, 1886, A., 535.  
 — methylthiophen-sulphonic acid, 1886, A., 787.  
 — action of acetamide on *o*-chloroquinoline, 1887, A., 818.
- Muhlert, Franz**. See also **August Bernthsen**.
- Muhr, Frank**. See **Edgar Francis Smith**.
- Muir, Matthew Moncrieff Pattison**, and **Richard Haliburton Adie**, contributions from the laboratory of Gonville and Caius College, Cambridge. No. X. Interaction of zinc and sulphuric acid, 1887, P., 106; discussion, P., 107; 1888, T., 47.
- Muir, Matthew Moncrieff Pattison**, and **Douglas John Carnegie**, No. VIII. On bis-muthates, 1886, P., 253; 1887, T., 77.
- Muir, Matthew Moncrieff Pattison**, and **Arthur Hutchinson**, No. XIII. Cubical form of bis-muthous oxide, 1889, T., 143; P., 2.
- Muir, Matthew Moncrieff Pattison**. See also **Benjamin Seafie Gott**.
- Mulder, Eduard**, properties of *n*-cyanic acid, 1883, A., 304.  
 — a reaction of the compounds of *n*-cyanuric acid and cyanetholine, 1883, A., 305.  
 — synthesis of optically active carbon compounds, 1883, A., 457.  
 — rate of decomposition of ozone, 1886, A., 9.  
 — cyanogen bromide, 1886, A., 38.  
 — additive compounds of *n*-ethyl cyanurate and cyanogen bromide, 1886, A., 38.  
 — *n*-cyanuric acid derivatives, 1886, A., 38, 860.  
 — polymerisation of cyanogen bromide, 1886, A., 859.  
 — reaction of cyanogen bromide with ethyl alcohol, 1886, A., 859.  
 — constitution of *p*-cyanogen and cyamelide, 1888, A., 1046.  
 — urethane and some of its derivatives, 1888, A., 1063.  
 — action of iodine, iodoform, and methylene iodide on sodium ethoxide, and of iodine on ethyl sodium carbonate, 1889, A., 363.  
 — action of sodium and potassium ethoxides on ethyl tartrate, 1890, A., 595.  
 — transformation of ethyl disolotartrate by ethyl chloride, 1891, A., 830.  
 — tartrotartaric acid, 1892, A., 965.

- Mulder, Eduard, and Hartog Jakob Hamburger**, action of sodium ethoxide on the sodium salt of *s*-dibromosuccinic acid, 1883, A., 312.
- estimation of the halogens in carbon compounds, 1883, A., 379.
- Mulder, Eduard, and Hendrik Gijts Landmeter van der Meulen**, ozone in presence of platinum-black, 1883, A., 284.
- Mulder, Eduard, and Christiaan Welleman**, action of ethyl dibromosuccinate, bromomaleate, and tartrate on potassium ethoxide, 1889, A., 376.
- Muller, Joseph Auguste**, extraction of amines from commercial methylamine, 1885, A., 501.
- heats of formation of salts of the amines, 1885, A., 716.
- action of carbonic anhydride on potassium chloride in presence of amines, 1885, A., 1038.
- heats of combustion of amines, 1886, A., 409.
- decomposition of the amines of the fatty series, 1886, A., 783.
- new class of ferrocyanides and ferricyanides, 1887, A., 649.
- influence of temperature and pressure on the action of potassium chloride on crude methylamine carbonate, 1887, A., 771.
- heats of formation of alkaline carbonates in very dilute solutions, 1889, A., 810.
- carbonylhydroferrocyanic acid and carbonylferrocyanides, 1890, A., 116.
- estimation of nitric acid by diphenylamine, 1890, A., 415.
- volumetric estimation of carbonates in arable soils, 1890, A., 417.
- dissociation of amine hydrochlorides and salts of the fatty acids in solution, 1890, A., 634.
- estimation of hydrogen chloride in solutions of hydroxylamine hydrochloride, 1891, A., 107.
- preparation of crotonaldehyde, 1892, A., 809.
- occurrence of a tetracarbon aldehyde in a brandy, 1892, A., 810.
- Muller, Paul Thiebaut**, action of bibasic acid chlorides on ethyl sodocyanacetate, 1891, A., 1337.
- ethereal nitrosocyanacetates, 1891, A., 1450.
- action of ethyl salts of unsaturated acids on ethyl sodocyanacetate, 1892, A., 1181.
- Muller, Paul Thiebaut, and Jean Louis Hausser**, velocity of decomposition of diazo-compounds by water, 1892, A., 768.
- Munier, J.**, butter testing, 1883, A., 247.
- Munier-Chalmas**. See **Auguste Michel-Lévy**.
- Munk, Hermann**, influence of movement on the secretion of milk, 1884, A., 1205.
- Munk, Immanuel**, formation of neutral fat from fatty acids in the animal system, 1884, A., 852.
- influence of asparagine on the elimination of albumin, 1885, A., 412.
- absorption, formation, and storage of fat in animals, 1885, A., 827.
- assimilation of fats, 1885, A., 1148.
- formation of fat in the dog from carbohydrates, 1887, A., 288.
- influence of glycerol and fatty acids on gaseous metabolism, 1891, A., 345.
- absorption of fats in the absence of bile, 1891, A., 593.
- muscular work and excretion of urea, 1891, A., 847.
- decomposition of albumin during fasting, 1891, A., 1524.
- Munk, Immanuel, and Albrecht Rosenstein**, human lymph and chyle, 1891, A., 755, 849.
- Munro, John May Herbert**, ash of strawberries, 1885, A., 183.
- black soil from Manitoba, 1885, A., 334.
- formation and destruction of nitrates and nitrites in artificial solutions, and in river and well waters, 1886, T., 632; P., 218.
- composition of spurrey (*Spergula arvensis*), 1886, A., 173.
- potassium chloride as a plant poison, 1886, A., 389.
- embolite from Australia, 1886, A., 430.
- composition of Bokhara clover (*Melilotus leucantha*), 1886, A., 828.
- composition of goat's rue (*Halega officinalis*), 1886, A., 829.
- influence of the ferric oxide in basic cinder on the growth of plants, 1887, A., 178.
- formation of nitrites during the nitrification of ammoniacal solutions, 1888, A., 82.
- Munro, John May Herbert**. See also **John Wrightson**.
- Munroe, Charles E.**, flashing test for gunpowder, 1884, A., 927.
- spontaneous decomposition of "explosive gelatin," 1884, A., 947.
- metallic felt filters, 1888, A., 1333.

- Muraközy, Karoly von**, vivianite from the Szentes artesian well, 1890, A., 711.
- Murmann, Ernst**, derivatives of  $\alpha$ -phenylquinoline, 1892, A., 1003.
- Murray, John**, and **Robert Irvine**, silica and the siliceous remains of organisms in modern seas, 1891, A., 995.
- Murray, Thomas Smith**, electrolysis of potassium acetate solutions, 1892, T., 10; P., 134.
- Murtfeld, Wilhelm**. See **Adolph Claus**.
- Muschketoff, Isaac W. von**. See **Wilhelm von Beck**.
- Musculus, Friedrich**, starch, 1884, A., 574.
- Musgrave, R. N.**, analysis of beautifully crystallised albite from Amelia Co., 1883, A., 34.
- nitrites in human saliva, 1883, A., 227.
- Muspratt, Edmund Knowles**, and **George Eschellmann**, preparation of potassium chlorate, 1885, A., 17.
- preparation of sodium chlorate, 1885, A., 17.
- Musset, Franz**, tannin, 1884, A., 1439.
- purification of iodine from chlorine, 1891, A., 392.
- test for thiosulphate in sodium hydrogen carbonate, 1891, A., 498.
- Mussi, Ubaldo**, ecgonine, 1891, A., 333.
- the latex of *Ficus Carica*, 1892, A., 653.
- Muter, James**. See **Edmund James Mills**.
- Muter, John**, detection of methylated nitrous ether, 1891, A., 123.
- analysis of carbolic and sulphurous disinfecting powders, 1891, A., 124.
- detection of cocoa-nut fat in butter, 1892, A., 391.
- Muter, John**, and **Leonard de Koninck**, assay of commercial carbolic compounds, 1888, A., 92.
- analysis of fats and oils, 1890, A., 91.
- analyses of lard, 1891, A., 130.
- Muth, E.**, preparation of ammonium albuminate, 1884, A., 945.
- Muthmann, Wilhelm**, lower oxides of molybdenum, 1887, A., 553.
- argentous compounds, 1887, A., 636.
- messelite, a new mineral, 1890, A., 218.
- isomorphism of sulphur, selenium, and tellurium, 1891, A., 1417.
- Muthmann, Wilhelm**, and **John Uri Nef**, cinchonic acid, 1887, A., 598.
- Mutschler, L.** See **Albert Hilger**.
- Myers, William Shields**. See **John Norman Collie**.
- Myhlertz, Fred. H.**, estimation of manganese in slags, 1891, A., 366.
- Mylius, Ernst**, thaleroquinine reaction, 1887, A., 311.
- red coloration of phenol, 1887, A., 807.
- Mylius, Franz**, sarcosine, 1884, A., 994.
- derivatives of uric acid, 1884, A., 1128.
- $\alpha$ - and  $\beta$ -hydroxyglucosones, 1885, A., 169.
- pipitzahoic acid or perezone, 1885, A., 777.
- hydroxyjuglone, 1885, A., 803.
- relations of  $\alpha$ - to  $\beta$ -hydroxyglucosones, 1886, A., 69.
- cholic acid, 1886, A., 480, 952; 1887, A., 606, 982; 1888, A., 508.
- quinol and formic acid, 1886, A., 706.
- alcoholates of conchicine, 1886, A., 900.
- iodide of starch, 1887, A., 568.
- Pettenkofer's reaction, 1887, A., 1149.
- testing glass by colour reactions, 1889, A., 549.
- Mylius, Franz**, and **Fritz Foerster**, solubility of glass in water, 1889, A., 828.
- estimation of small quantities of alkali: recognition of the neutrality of water, 1891, A., 1136.
- derivatives of carbonyl chloroplatinite, 1891, A., 1162.
- examination of glass for chemical purposes, 1892, A., 411.
- preparation and assaying of pure platinum, 1892, A., 789.

## N.

- Naar, Alex.**, derivatives of cinnamaldehyde, 1891, A., 562.
- Naccari, Andrea**, specific heats of some metals, 1888, A., 1236.
- Nachbaur, K.**, embryos of ungerminated rye, 1883, A., 107.
- Nadeschdin, A.**, expansion of fluids and change of substances from the liquid to the gaseous state, 1888, A., 775.
- Näf, Eduard**, nitroso-derivatives of the thiazoles, 1891, A., 1515.
- Naef, Paul**, action in sulphuric acid chambers, 1886, A., 400.
- Naef, Paul**. See also **Georg Lunge**.
- Nägeli, Ernst**, hydroxylamine reaction, 1883, A., 728.
- reactions of hydroxylamine, 1884, A., 610.
- camphoroxime, 1884, A., 1190.

- Nägeli, Ernst.** See also *Viktor Meyer, Ernst Schulze, Ferdinand Tiemann.*
- Nafziger, Fr.,** acids contained in beeswax, 1884, A., 1297.
- Nagai, Nagajosi,** pconol, 1892, A., 58.  
— dehydrodiacetyl pconol, 1892, A., 845.
- Nagamatzs, Afsusule,** functions of chlorophyll, 1887, A., 516.
- Nagaoka, Muneshige.** See *Oscar Kellner.*
- Nahnsen, R.,** dithienyl, 1884, A., 1132.  
— the thiophen group, 1885, A., 50.  
—  $\beta$ -thiophenic acid, 1885, A., 51.  
— action of ethyl chlorocarbonate and sodium amalgam on dinitrothiophen, 1885, A., 1207.
- Nahrwold, Robert,** conduction of electricity through gases, 1888, A., 769.  
— electrification of a gas by a glowing platinum wire, 1888, A., 1231.
- Namias, Rodolfo,** volumetric estimation of iron, 1892, A., 240.  
— estimation of tungsten in rich alloys and in steel, 1892, A., 539.  
— volumetric estimation of mercury, 1892, A., 663.  
— extended use of arsenious acid in volumetric analysis, 1892, A., 1274.
- Nantier, A.,** manuring experiments with potatoes, beer, and maize, 1884, A., 635.  
— influence of superphosphates on the production of sugar, 1886, A., 832.  
— superphosphate manuring for sugar-beet, 1887, A., 295.  
— experimental plots at La Somme, 1888, A., 1127.  
— enrichment of phosphatic chalk: origin of the rich phosphate of Beauval, 1889, A., 837.
- Napolitano, Mariano,** derivatives of p-cresolglycollic acid, 1888, A., 1126.
- Narr, R.,** conductivity of electricity through gases, 1888, A., 397.
- Nasini, Raffaele,** atomic refraction of sulphur, 1883, A., 264; 1884, A., 149.  
— specific rotatory power of photosantonio acid, 1884, A., 464.  
— specific refraction in reference to the double bond, 1885, A., 210.  
— molecular refraction of carbon compounds, 1887, A., 626.  
— dispersive power of organic compounds, 1891, A., 138.  
— nature of osmotic pressure, 1891, A., 522.  
— distinction of allylbenzene from propylbenzene derivatives by means of their dispersive powers, 1891, A., 551.  
— application of Ketteler's formula to optical chemistry, 1892, A., 253.
- Nasini, Raffaele,** and *Oscar Bernheimer,* relation between refractive power and chemical constitution, 1885, A., 1097.
- Nasini, Raffaele,** and *Tullio Costa,* molecular refractive energy of some triethylsulphine derivatives, 1891, A., 1305.  
— sulphinic derivatives and their analogies with compounds of aromatic amines, 1892, A., 34.
- Nasini, Raffaele,** and *Alberto Scala,* molecular refractive energies of derivatives of carbon bisulphide, 1887, A., 753.  
— molecular refractive energies of thiocyanates and thioaluminides, 1887, A., 754.  
— allyl trisulphide, 1887, A., 1088.  
— sulphines and the valency of sulphur, 1889, A., 115; 1890, A., 1234.
- Nasini, Raffaele,** and *Vittorio Villavecchia,* specific rotatory power of cane sugar in dilute solutions, 1892, A., 801.
- Nasini, Raffaele.** See also *Ludwig Mond, Emanuele Paternò.*
- Nasmyth, Thomas Goodall,** air of coal mines, 1888, A., 1026.
- Nasse, Otto,** new reaction for pyrogallol, 1884, A., 1078.  
— precipitation of colloid substances by salts, 1889, A., 99.  
— primary and secondary oxidation, 1889, A., 172.  
— physiological oxidation, 1892, A., 1018.
- Nastvogel, Oskar,** compounds of dibromopyruvic acid with hydrazines, 1889, A., 237.  
— homologues of diphenyl- $\alpha$ -diketopiperazine, 1889, A., 1012.  
—  $\alpha$ -anilidopropionic acid and  $\alpha$ -anilidobutyric acid, 1890, A., 1159.  
— isomerism of the diphenyl- $\alpha$ -dimethyl- $\beta$ -diketopiperazines, 1890, A., 1160.  
— diphenyl- $\alpha$ -diethyl- $\beta$ -diketopiperazines, 1890, A., 1160.
- Nastvogel, Oskar.** See also *Carl Adam Bischoff.*
- Natanson, Eduard,** cooling of carbonic anhydride on expansion, 1887, A., 880.
- Natanson, Eduard,** and *Ladislavs Natanson,* dissociation of nitrogen tetroxide, 1885, A., 862; 1886, A., 657.
- Natanson, Ladislavs,** law of thermodynamical coincidence and its application to the theory of solution, 1892, A., 557.

- Natanson, Louislaur.** See also *Edmond Natanson*.
- Nathanson, Morris,** and **Paul Muller,** derivatives and reactions of tetramethyldiamidobenzophenone, 1889, A., 1188.
- Natterer, Konrad,**  $\alpha$ -dichlorocrotonaldehyde, a condensation product of chloraldehyde, 1883, A., 964.  
 — compound formed by the addition of hydrochloric acid to  $\alpha$ -dichlorocrotonaldehyde, 1884, A., 1293.  
 — — dichlorether, 1885, A., 365.  
 — — — action of zinc ethyl on  $\alpha$ -dichlorocrotonaldehyde, 1885, A., 497.  
 — —  $p$ -chloraldehyde, 1885, A., 1196.
- Natton, kola nuts** (*Sterculia neumintia*), 1885, A., 712.
- Naudin, Laurent,** essence of angelica root, 1883, A., 809.  
 — extraction of perfumes and essential oils, 1881, A., 378.  
 — purification of alcohol, 1884, A., 615.  
 — anthemene, a hydrocarbon from Roman chamomile, 1885, A., 37.
- Naudin, Laurent,** and **A. Bidet,** electrolysis of sodium chloride, 1884, A., 541.
- Nauen, Otto,** triphenylmethylamine, 1884, A., 899.
- Naumann, Max,** Kahlbaum's so-called "specific remission," 1885, A., 717.  
 — dissociation tension of ammonium carbamate, 1885, A., 859.  
 — stereochemical and mechanical views with reference to single and multiple union of atoms and the changes of one into the other, 1890, A., 555.  
 — reconversion of heat into chemical energy by production of water-generator gas and carbonic anhydride generator gas, 1892, A., 673.
- Naumann, Max,** and **Carl Pistor,** reduction of carbonic anhydride to carbonic oxide by carbon, 1885, A., 1036.  
 — — — behaviour of carbonic anhydride with hydrogen at a high temperature, 1886, A., 16.  
 — — — reaction between carbonic oxide and steam, 1886, A., 120.
- Nawratil, Arnulf,** examination of Galician petroleum, 1883, A., 533.
- Naylor, William Arthur Hurnson,** bitter principle of *Hymenodictyon excoelsum*, 1883, A., 1141.  
 — — — hymenodictyonine, 1885, A., 565.
- Naylor, William Arthur Hurnson,** and **John Oldham Braithwaite,** test for arsenic, 1883, A., 513.
- Nebelthau, Richard,** lactic acid in the urine of cold-blooded animals after extirpation of the liver, 1888, A., 1323.  
 — formation of glycogen in the liver, 1891, A., 1526.  
 — — — formation of glyconic acid during inanition, 1891, A., 1529.
- Neergard, Th. von,** irrigation as preventive of injury from frost, 1881, A., 357.
- Neesen, Friedrich,** specific heat of water, 1883, A., 511.  
 — influence of magnetisation on the resistance of magnetic liquids, 1885, A., 213.
- Nef, John Ulric,** derivatives of durene, 1886, A., 61.  
 — — — derivatives of durylic acid, 1886, A., 241.  
 — — — quinonetetracarboxylic acid, 1886, A., 550.  
 — — — benzoquinonecarboxylic acids, 1887, A., 255.  
 — — — nitranilic acid from chloranil, 1887, A., 926.  
 — — — carboxyl-derivatives of benzoquinone, 1888, T., 428; P., 38.  
 — — — constitution of the anilic acids, 1889, A., 497.  
 — — — tautomeric compounds, 1889, A., 509; 1890, A., 983.  
 — — — constitution of quinone, 1890, A., 1270; 1891, A., 1348.  
 — — — ethyl acetoacetate, 1892, A., 140.  
 — — — divalent carbon, 1892, A., 1438.
- Nef, John Ulric.** See also *Leonard P. Kinnicutt, Wilhelm Koenigs, Wilhelm Muthmann*.
- Negbauer, W.,** practical form of the Latimer-Clark standard cell, 1892, A., 669.  
 — — — standard cell for small differences of potential, 1892, A., 670.  
 — — — potential differences at the surfaces of contact of very dilute solutions, 1892, A., 671.
- Negresanu, Demetre,** specific inductive power of liquids, 1887, A., 113.  
 — — — determination of the velocity of etherification by means of electrical conductivity, 1888, A., 1025, 1213.
- Negri, G. de,** and **Guido Fabris,** olive oil, 1891, A., 1559.
- Negri, Gen. Battista,** natrolite, 1891, A., 1438.
- Nehring, Paul.** See *Heinrich Beckurts*.
- Neilson, Thomas,** estimation of sulphur in coal, etc., 1891, A., 1137.
- Neisser, Ernst,** glycogen, 1889, A., 171.

- Neitzel, Erich**, derivatives of diacetyl-vanillone, 1892, A., 61.
- Nelson, F. E.**, standard solution for Clark's soap test, 1890, A., 198.
- Nemirowsky, J.**, action of carbonyl chloride on ethylene glycol, 1884, A., 419.
- action of carbonyl chloride on glycol chlorhydrin, 1885, A., 741.
- Nencki, Leon**, methyl mercaptan as a constituent of human intestinal gases, 1890, A., 540.
- Nencki, Marcellus**, plastered wine, 1884, A., 233.
- method of preparing glycofine, 1884, A., 583.
- albumin of the splenic fever bacillus, 1885, A., 177.
- preparation of tetramethyldiamidotriphenylmethane, 1889, A., 510.
- testing of reagents used in elementary analysis, 1889, A., 1085.
- decomposition of albumin by anaerobic ferments, 1890, A., 78.
- compounds of volatile fatty acids with phenols, 1890, A., 488.
- Nencki, Marcellus**, and **A. Bourquin**, rhodanic acids, 1885, A., 40.
- Nencki, Marcellus**, and **A. Rotschy**, hæmatoporphyrin and bilirubin, 1890, A., 76.
- Nencki, Marcellus**, and (*Frau*) **Nadine Sieber**, urorosein, 1883, A., 100.
- colouring matter of the blood, 1885, A., 69, 825.
- venous-hæmoglobin crystals, 1886, A., 374, 482.
- hæmatoporphyrin, 1888, A., 971.
- animal melanin, 1888, A., 976.
- gases evolved during the putrefaction of serum-albumin, 1890, A., 78.
- formation of *p*-lactic acid during the fermentation of sugar, 1890, A., 78.
- Nencki, Marcellus**. See also **O. Gresly**, **S. Królikowski**, **Bronisław Lachowicz**, **M. Lesnik**.
- Nernst, Walther**, heats of formation of mercury compounds, 1888, A., 1012.
- electromotive activity of the ions, 1889, A., 1093.
- reciprocal influence on the solubility of salts, 1890, A., 3.
- osmotic experiment, 1890, A., 1365.
- new principle of determining molecular weights, 1890, A., 1363; 1891, A., 389.
- Nernst, Walther**, distribution of a substance between two solvents, 1891, A., 1148.
- solubility of mixed crystals, 1892, A., 560.
- potential-difference of dilute solutions, 1892, A., 671.
- Nernst, Walther**, and **Friedrich Robert Pauli**, electromotive activity of the ions, 1892, A., 671.
- Nernst, Walther**. See also **Paul Drude**, **Albert von Ettingshausen**, **Morris Loeb**, **Wilhelm Ostwald**, **Hustar Tammann**.
- Nessig, Wilhelm Robert**, the more recent eruptive rocks of Elba, 1884, A., 567.
- Nessler, Benna**, synthesis of hydroxyxanthones, 1891, A., 1494.
- Nessler, Benna**. See also **Stanislaus von Kostanecki**.
- Nessler, Julius**, red wine manufacture in Germany, 1884, A., 180.
- clouding and fining of wines, 1884, A., 233.
- manuring experiments on tobacco, 1884, A., 362, 490.
- wool-dust, 1884, A., 637.
- gypsum for manure, 1884, A., 637.
- improvement of inferior wine by addition of the husks of superior grapes, 1884, A., 938.
- Nessler, Julius**, and **Max Barth**, examination of alcoholic liquors, 1883, A., 518.
- wine analysis, 1884, A., 1432.
- volatility of glycerol at 100°, 1884, A., 1434.
- Nettlefold, Frederick**, absorption of nitric oxide by sulphuric acid, 1887, A., 526.
- sodium nitrate in gun-cotton, 1887, A., 715.
- nitrocellulose, 1887, A., 792.
- dye from seaweed, 1888, A., 1313.
- Neubeck, Friedrich**, molecular volumes of aromatic compounds, 1888, A., 895.
- Neuberg, Oscar**, vapour density of ammonium chloride, 1891, A., 1407.
- Neuberg, Oscar**. See also **Ludwig Gattermann**, **Georg Lunge**, **Isidor Traube**.
- Neubert, Alfred**, derivatives of phenethylamine, 1886, A., 873.
- Neubert, E. W.**, and **F. Kollbeck**, iron pyrites containing nickel and cobalt, 1891, A., 1435.
- Neubert, Max**. See **Wilhelm Clemens Lossen**.
- Neubert, Oskar**. See **Max Schmoeger**.
- Neudörfer, Julius**. See **Rudolf Benedikt**.

- Neufeld, Albert**, halogen derivatives of phenylhydrazine, 1889, A., 251.
- Neufville, Rudolf de**, and **Hans (Freiherr) von Fechmann**, diphenyltriketone, 1891, A., 318.
- Neugebauer, Adolf**. See **Julius Tafel**.
- Neugebauer, Edmund L.**, ethylic  $\gamma$ -hydroxyvalerate and  $\gamma$ -hydroxyvaleramide, 1885, A., 651.
- estimation of the hardness of natural waters, 1891, A., 116.
- Neuhöffer, G.**, detection of thiosulphates in water, 1886, A., 99.
- Neukranz, Walter**. See **Adolph Claus**.
- Neumann, Albert**, substituted phthalimides and their conversion into the corresponding primary amines, 1890, A., 890.
- Neumann, Albert**. See also **Siegmund Gabriel**.
- Neumann, Carl von**, nickel and carbon elements, 1887, A., 757.
- Neumann, Ernst**, pathological pigments, 1888, A., 864.
- Neumann, Georg**, double salts of ferric with other metallic chlorides, 1886, A., 124.
- apparatus to extract solutions with liquids, 1886, A., 198.
- nitrophenyl benzoate and nitrobenzoates, etc., 1886, A., 350, 939; 1887, A., 254.
- preparation of oxygen and of sulphurous anhydride with Kipp's apparatus, 1887, A., 769.
- estimation of metallic iron in slags, 1887, A., 1140.
- estimation of thallium, 1888, A., 529.
- double salts of sesquichlorides with other metallic chlorides, 1888, A., 655.
- methods for obtaining constant streams of hydrogen chloride, ammonia, and nitrogen, 1888, A., 784.
- apparatus for quantitative analysis, 1888, A., 1332.
- valuation of crude sodium acetate, 1888, A., 1346.
- estimation of zinc in presence of mercury, 1889, A., 549.
- halogen mercuric acids, 1889, A., 1049.
- $\alpha$ -o-stannic acid, 1892, A., 412.
- behaviour of copper and of the noble metals towards some gases and vapours, 1892, A., 942.
- Neumann, Georg**, and **Franz Streintz**, behaviour of hydrogen towards lead and other metals, 1892, A., 567.
- Neumann, Georg**. See also **Franz Streintz**.
- Neumann, Georg Sigismund**, sulphuric acid as an iodine carrier, 1887, A., 573.
- Neumann, Sigismund**, eudiometric estimation with mixtures of ammonia and oxygen, 1889, A., 1031.
- estimation of quinine in quinine tannate, 1890, A., 672.
- Neumark, Moritz**. See **Wilhelm Marckwald**.
- Neumayer, Johannes**, action of yeast on the animal and human organism, 1891, A., 237.
- Neumeister, Richard**, albumoses and peptones, 1887, A., 285; 1888, A., 509; 1890, A., 804.
- vitelloses, 1887, A., 286.
- physiological action of albumoses and peptones, 1888, A., 516.
- products of the action of superheated steam on fibrin, 1889, A., 910.
- proteid absorption, 1891, A., 233.
- Neure, K.**, substituted benzyl cyanides, 1889, A., 597.
- Neure, K.** See also **Victor Meyer**.
- Neville, Francis Henry**. See **Charles Thomas Heycock**.
- Newall, Hugh Frank**, recalcence of steel, 1888, A., 892.
- Newall, Hugh Frank**. See also **Joseph John Thomson**.
- Newbury, Spencer Baird**, preparation and reactions of crotonaldehyde, 1884, A., 294.
- specimens of nickel ore from Nevada, 1885, A., 489.
- action of light on silver chloride, 1885, A., 956.
- so-called silver sub-chloride, 1886, A., 770.
- apparatus for distillation in a vacuum, 1889, A., 12.
- copper sulphites, 1892, A., 1051.
- Newbury, Spencer Baird**, and **Merritt Wright Barnum**, action of alcohols on propaldehyde, 1891, A., 284.
- Newbury, Spencer Baird**, and **William Somerville Calkin**, action of alcohol on crotonaldehyde, 1891, A., 285.
- Newbury, Spencer Baird**, and **Emile Monnin Chamot**, action of alcohols on acetaldehyde, 1891, A., 285.
- Newbury, Spencer Baird**, and **William Parker Cutter**, safety of commercial kerosene oils, 1889, A., 82.
- Newbury, Spencer Baird**, and **William Ridgely Orndorff**, action of dilute nitric acid on acetone, 1891, A., 287.
- Newbury, Spencer Baird**. See also **William Ridgely Orndorff**.
- Newlands, John A. R.**, the periodic law, 1884, A., 958.

- Newman, H. E.**, derivatives of ethylene-phenyldiamine and its homologues, 1891, A., 1206.
- Newth, G. S.**, preparation of hydrobromic acid, 1892, A., 270.
- lecture experiment; dissociation of phosphonium bromide, 1892, A., 401.
- Ney, Emanuel**, deoxybenzoin and desaurins, 1888, A., 1197.
- Ney, Emanuel**. See also **Paul Jacobson**.
- Nicati, William**, and **Maximilian Rietsch**, odour and poisonous effects of the products of the fermentation produced by the *Comma bacillus*, 1885, A., 180; 1886, A., 169.
- Nichols, Edward Leemington**, duration of colour impressions on the retina, 1885, A., 468.
- chemical behaviour of iron in the magnetic field, 1886, A., 668.
- electrical resistance of the alloys of ferro-manganese and copper, 1890, A., 1356.
- Nichols, William Ripley**, and **C. R. Allen**, sewage, 1886, A., 1072.
- Nicholson, Hudson H.** See **Charles Frederic Mahery**.
- Nicholson, Thomas Goddard**. See **Gerald Tattersall Moody**.
- Nicholson, William Osler**. See **Henry Sanders Carpenter**.
- Nickel, Emil**, formation, detection, and significance of furfuraldehyde, 1891, A., 867.
- physiology of the tannins and trihydroxybenzenes, 1891, A., 1395.
- graphical chemistry of glass, 1892, A., 1158.
- Nickel, Otto**, quantitative estimation of oxalic acid in urine, 1887, A., 401.
- Nickels, Benjamin**, estimation of "light hydrocarbons and non-nitrifiable substances" in benzene, 1886, A., 394.
- obituary notice of, 1890, T., 452.
- Nicol, William Walker James**, on the volume alteration attending the mixture of salt solutions, 1883, T., 135.
- coefficients of expansion of sodium sulphate solutions, 1883, A., 17.
- nature of solution, 1881, A., 253; 1886, A., 300.
- molecular volumes of salt solutions, 1884, A., 658; 1885, A., 334.
- connection between pseudo-solution and true solution, 1885, A., 115.
- boiling-points of saline solutions, 1885, A., 331.
- saturation of salt solutions, 1885, A., 340; 1886, A., 763.
- Nicol, William Walker James**, super-saturation of salt solutions, 1886, A., 300; 1887, T., 389; P., 40; discussion, P., 41.
- water of crystallisation, 1886, T., 690; P., 220; discussion, P., 221; A., 972.
- vapour pressures of water from salt solutions, 1887, A., 321.
- expansion of salt solutions, 1887, A., 760.
- specific gravities of aqueous glycerol solutions, 1888, A., 437.
- mutual solubility of salts in water, 1892, A., 8.
- Nicolaeff**. See **Nikolaeff**.
- Nicolaier, Arthur**. See **Wilhelm Ebstein**.
- Nicolas, Ch.** See **A. Domergue**.
- Nicolas, Cl.** See **Marius Vizern**.
- Nicolas, M.**, preparation of pure phosphoric acid, 1891, A., 398.
- Nicolaysen, Carl**, Norwegian oil of caraway, 1890, A., 902.
- Nicolaysen, Carl**. See also **Adolph Claus**.
- Nicolle, Auguste**. See **Paul Cazeneuve**.
- Nicotera, Luigi**, synthesis of thymolcinnamic acid, 1890, A., 892.
- Niebling, Richard**, Kjeldahl's method of estimating nitrogen, 1890, A., 415.
- artificial digestion of agricultural feeding stuffs, 1890, A., 1451.
- Niederhanser, Emil**, Schneider's method for the estimation of malic acid in wine, 1891, A., 128.
- Niederhofheim, Robert**. See **Paul Ehrhardt Jannasch**.
- Niederist, Gustav**, trimethylene glycol and trimethylene bases, 1883, A., 450.
- Niederstadt**, meat extract from S. America, 1883, A., 406.
- flowers of *Ilex centifolia*, 1881, A., 97.
- constituents and properties of some water plants, 1884, A., 108.
- Niedschlag, W.**, decomposition of saccharose by boiling with lime, 1887, A., 1026.
- Nieme, Alexander**, and **Hans (Freiherr) von Pechmann**, citracinnamic acid, a condensation product of acetonedicarboxylic acid, 1891, A., 675.
- Niementowski, Stefan**, anhydro-compounds, 1886, A., 544; 1887, A., 937; 1892, A., 837.
- *m*-homocanthranilic acid, 1888, A., 837.
- derivatives of *m*-toluquinazoline and *m*-homocanthranilic acid, 1889, A., 1065.

- Niementowski, Stefan**, some nitrated diaz-amido-compounds, 1890, A., 39.  
 — *α*-methylphthalic acid, 1892, A., 607.
- Niementowski, Stefan**, and **Margan Obremsky**, *m*-formotoluidine and its derivatives, 1887, A., 935.
- Niementowski, Stefan**, and **Br. Rozanski**, nitrotoluic acids, 1888, A., 1088.  
 — synthesis of isatoic acid, 1889, A., 996.
- Niementowski, Stefan**. See also *Stanislaus von Kostanecki*.
- Niemeyer, M.**, chlorinated quinones and quinols, 1885, A., 1065.
- Niemilowicz, Ludislaus**, analogues of choline, 1886, A., 933.  
 — action of hydrobromic and sulphuric acids on primary alcohols, 1890, A., 465.  
 — tribromopropaldehyde and tribromopropionic acid, 1890, A., 861.
- Nies, Friedrich**, and **Adolf August Winkelmann**, volume change of metals on fusion, 1883, A., 545.
- Niessing, C.** (and others), diseases of plants and their prevention, 1883, A., 612.
- Nietzki, Rudolf**, quinones and quinols, 1883, A., 465.  
 — colouring matters of the safranine series, 1883, A., 731; 1887, A., 219.  
 — quinone-derivatives, 1884, A., 58.  
 — colouring matters formed by the simultaneous oxidation of *p*-diamines and monamines, 1884, A., 740.  
 — *p*-amidacetanilide and some azo-derivatives, 1884, A., 1016.  
 — azo-colours, 1884, A., 1036.  
 — preparation of quinone and quinol, 1886, A., 790.  
 — constitution of nitranilic acid, 1887, A., 131.  
 — constitution of safranine, 1887, A., 250.  
 — formation of croconic acid from benzene derivatives, 1887, A., 805.  
 — hexa-derivatives of benzene, 1887, A., 929.  
 — formation of azines from *o*-diamines and polyamines, 1890, A., 178.  
 — constitution of rhodizonic acid, 1891, A., 189.  
 — synthesis of Weselsky's resorcinol-blue, 1892, A., 163.
- Nietzki, Rudolf**, and **Theodor Benckiser**, acetyl-derivatives of aromatic amido-sulphonic acid, 1884, A., 1021.  
 — *o*-nitranilinesulphonic acid; new method of preparing *o*-nitraniline, 1885, A., 535.
- Nietzki, Rudolf**, and **Theodor Benckiser**, hexahydroxybenzene derivatives and their relation to croconic and rhodizonic acids, 1885, A., 779.  
 — benzene derivatives obtained by the action of carbonic oxide on potassium, 1885, A., 1127.  
 — croconic and leuconic acids, 1886, A., 449, 540.
- Nietzki, Rudolf**, and **Julius Diesterweg**, bi-azo-compounds, 1888, A., 1082.
- Nietzki, Rudolf**, and **Otto Ernst**, derivatives of diphenylamine and phenazine, 1890, A., 1114.
- Nietzki, Rudolf**, and **Joseph Götting**, *β*-azonaphthalene, 1887, A., 590.
- Nietzki, Rudolf**, and **Otto Goll**, azonaphthalene, 1885, A., 545.  
 — azonaphthalene and its derivatives, 1886, A., 215.  
 — azo-compounds of naphthalene, 1886, A., 711.
- Nietzki, Rudolf**, and **A. L. Guitermann**, naphtholcarboxylic acids, 1887, A., 732.  
 — quinonedioximes, 1888, A., 471.
- Nietzki, Rudolf**, and **Edward Hagenbach**, tetramidobenzene and its derivatives, 1887, A., 476.
- Nietzki, Rudolf**, and **Gustav Hasterlik**, action of dioxyquinones on *o*-diamines, 1891, A., 944.
- Nietzki, Rudolf**, and **Herbert Kaufmann**, derivatives of trinitroquinol, 1892, A., 314.
- Nietzki, Rudolf**, and **Friedrich Kehrmann**, secondary and tertiary quinones, 1887, A., 473.  
 — quinonedioxime and dinitrosobenzene, 1887, A., 575.  
 — hydroxyquinones, 1888, A., 263.
- Nietzki, Rudolf**, and **Ludwig Kurt-nacker**, penta-derivatives of benzene, 1892, A., 596.
- Nietzki, Rudolf**, and **Zdenko Lerch**, *o*-nitranilinesulphonic acid, 1889, A., 144.
- Nietzki, Rudolf**, and **Hermann Maeckler**, resorcinol and orcinol colouring matters, 1890, A., 762.
- Nietzki, Rudolf**, and **Edward Müller**, *s*-tetramidobenzene, 1889, A., 604.
- Nietzki, Rudolf**, and **Richard Otto**, safranines and dyes related thereto, 1888, A., 831.  
 — action of quinonedichloride on naphthylamine, 1888, A., 813.  
 — indamines and indophenols, 1888, A., 949.

- Nietzki, Rudolf**, and **Bernhard Pollini**, nitrotoluidinesulphonic acids, 1890, A., 502.
- Nietzki, Rudolf**, and **Joseph Preusser**, amido-derivatives of quinone and quinol, 1886, A., 1024.
- constitution of dinitroquinol: formation of nitranilic acid, 1887, A., 574.
- Nietzki, Rudolf**, and **Johann Reehberg**, diamidoquinol ether and dihydroxyquinone ether, 1890, A., 967.
- Nietzki, Rudolf**, and **Robert Röscl**, tetramidotoluene, 1891, A., 192.
- Nietzki, Rudolf**, and **Hans Rosemann**, oximes of leuconic acid and their reduction products, 1889, A., 769.
- Nietzki, Rudolf**, and **Friedrich Ruppert**, *o*- and *m*-cresotic acids, 1891, A., 308.
- Nietzki, Rudolf**, and **Anton IV. Schmidt**, benzenetriphenazine, 1888, A., 690.
- — — nitrogenous quinone derivatives, 1888, A., 943.
- Nietzki, Rudolf**, and **Friedrich Schmidt**, dihydroxyquinone and tetrahydroxybenzene, 1888, A., 1181.
- — — derivatives of *s*-dihydroxyquinone, 1889, A., 968.
- Nietzki, Rudolf**, and **Ludwig Schmidt**, *c*-tetramidobenzene, 1889, A., 974.
- Nietzki, Rudolf**, and **Beneditikt Schündelen**, action of dinitrochlorobenzene on polyhydric phenols, 1892, A., 310.
- Nietzki, Rudolf**, and **Theodor Steinmann**, purpurogallin, 1887, A., 733.
- Nietzki, Rudolf**, and **Joseph Zübelen**, nitration of naphthionic acid, 1889, A., 513.
- — —  $\beta$ -naphthol- $\alpha$ -sulphonic acid, 1889, A., 515.
- Nietzki, Rudolf**, **August Dietze**, and **Hermann Maackler**, Weselsky's resorcinol dyes, 1890, A., 156.
- Niewerth, Hermann**, preparation of strontia, 1884, A., 712.
- Nihoul, Edouard**. See **Lucien Louis de Koninck**.
- Nikitinski, Jakov J.**, estimation of the quantity of ash in tea, 1885, A., 845.
- Nikolaeff, Petr D.**, chemical composition of valuwewite, 1888, A., 1068.
- apatite from Turkestan, 1886, A., 600.
- analyses of garnet and analcime, 1886, A., 601.
- Nikolukin, J.**, lead tetrachloride, 1886, A., 123.
- Nikolsky, Wladimir**, and **Johann M. Dogiel**, physiological action of curare, 1891, A., 487.
- Nikolsky, Woldemar**, and **Alexander M. Saytzeff**, hydrocarbon,  $C_{15}H_{20}$ , prepared from allyldimethylealbinol, 1883, A., 1074.
- Nikolsky, Woldemar**. See also **Alerius Albitzky**.
- Nilson, Lars Fredrik**, determination of the equivalent of thorium, 1883, A., 152.
- — — metallic thorium, 1883, A., 152.
- — — the thorite of Arendal, 1883, A., 299; 1884, A., 406.
- — — crystalline form, specific heat, and atomicity of thorium, 1883, A., 553, 649.
- — — variations in the fat of milk, 1888, A., 861.
- — — butter analysis, 1889, A., 801.
- — — amount of nitrogen in cows' milk, 1890, A., 652.
- — — composition of the Leguminosæ, 1892, A., 521.
- — — the lactocrite compared with other methods for estimating fat in milk, 1892, A., 550.
- Nilson, Lars Fredrik**, and **Ollo Pettersson**, vapour density of beryllium chloride, 1884, A., 820.
- — — determining vapour densities, 1886, A., 298.
- — — physical constants of germanium and titanium and their compounds, 1887, A., 778.
- — — two new chlorides of indium, and the vapour density of indium, gallium, iron, and chromium chlorides, 1888, T., 814; P., 87.
- — — vapour density of aluminium chloride, and the valency of metals of the aluminium group, 1888, A., 788.
- — — molecular weight of aluminium chloride, 1889, A., 1118.
- Nilson, Lars Fredrik**. See also **Carl Gustaf Eggertz**, **Gerhard Krüss**.
- Nippgen, J. A.**, artificial manures for vineyards, 1884, A., 637.
- Nishack**, methylsulphonic acid, 1883, A., 972.
- Nissen, U.**,  $\alpha\beta$ -dichlorocinnamic acid, (phenylpropionic acid dichloride), 1892, A., 1464.
- Nissen, Ueller**. See **Robert Behrend**.
- Nissen, W.**, influence of alkalis on the secretion and composition of bile, 1891, A., 950.
- Nitsche, F.**, detection of hydrocarbons in fat and oils, 1886, A., 395.

- Noack**, simple burner for monochromatic light, 1886, A., 14.
- Noack, Ernst**, new method for preparing carbonic oxide, 1883, A., 574.
- phenyl salts of phosphorous acid, 1883, A., 735.
- Noack, Karl**, fluidity of acetic acid, 1886, A., 971.
- Noah, Ernst**, synthesis of xanthopurpurin and purpurin, 1886, A., 475.
- pentahydroxyanthraquinone and anthrachrysone, 1886, A., 556.
- tetrahydroxyanthraquinone, 1887, A., 56.
- Noah, Georg**, derivatives of diethylthiocarbamide, 1890, A., 1241.
- Nobbe, Friedrich**, cultivation and feeding value of some varieties of vetches, 1883, A., 612.
- Jensen's method of protecting potatoes from disease, 1886, A., 1067.
- American red clover, 1889, A., 299.
- Nobbe, Friedrich, Edmund Schmid, Lorenz Hiltner, and Eduard Hotter**, nitrogen assimilation of the Leguminosae, 1891, A., 1533.
- Nobbe, Friedrich** (and others), poisonous effects of arsenic, zinc, and lead on vegetable organisms, 1884, A., 1407.
- Nobel, Alfred Bernhard, and Georg Fehrenbach**, preparation of sulphuric anhydride, 1885, A., 1018.
- Nobel, Le.** See **Le Nobel**.
- Noellner, Alexander**, some artificial products from cryolite, 1883, A., 30.
- Noël-Paton, Diarmid**, human chyle, 1890, A., 394.
- proteids in urine, 1890, A., 1174.
- muscular work and proteid metabolism, 1891, A., 596.
- Noël-Paton, Diarmid, and John Mackintosh Balfour**, human bile, 1891, A., 598.
- Nölting, Emilio**, dissociation of trichloromethyl sulphochloride, 1883, A., 38.
- rosaniline derivatives, 1888, A., 54.
- phenols from coal-tar of high boiling-point, 1884, A., 1003.
- *o*-nitrobenzyl chloride, 1884, A., 1005; 1885, A., 52.
- presence of isocyanates in the first runnings of the distillation of crude benzene, 1885, A., 463.
- azylines, 1885, A., 895.
- constitution of the phthalic acids, 1886, A., 67.
- nitration of benzyl chloride, 1886, A., 344.
- trinitro-*m*-cresol, 1886, A., 345.
- Nölting, Emilio**, *a*-iodonaphthalene, 1886, A., 362.
- nitration of dimethylaniline, 1886, A., 548.
- substitution in azo-compounds, 1888, A., 270.
- the sulphonic acid of methyl phenylcarbamate, 1889, A., 144.
- dyes of the triphenylmethane group, 1891, A., 727; 1892, A., 187.
- nitration of butyltoluenesulphonic acid and butylxylenesulphonic acid, 1892, A., 718.
- Nölting, Emilio, and Alfred Abt**, constitution of azimido-compounds, 1888, A., 273.
- Nölting, Emilio, and Thiebaut Baumann**, derivatives of cumidine and amidoazobenzene, 1885, A., 384.
- — azo-derivatives, 1885, A., 385.
- — quinones, 1885, A., 390.
- — formation of quinones, 1885, A., 892.
- — derivatives of  $\psi$ -cumidine, 1885, A., 893.
- Nölting, Emilio, and Guido de Bachi**, constitution of phthalyl chloride, 1884, A., 1024.
- Nölting, Emilio, and Felice Binder**, diazoamido-derivatives, 1885, A., 385; 1888, A., 271.
- Nölting, Emilio, and Robert Bourcart**, action of sulphuric acid on proto-catechuic acid, 1883, A., 65.
- Nölting, Emilio, and August Collin**, trinitroresorcinol, 1884, A., 1004.
- — nitro-*o*-toluidine (m. p. 107°) and its derivatives, 1884, A., 1006.
- — nitration of benzene derivatives, 1884, A., 1011.
- — note on pyridinedicarboxylic acid, and on blue colouring matters from rosaniline, 1884, A., 1048.
- Nölting, Emilio, and Sylvestre Forel**, xylidines, 1885, A., 381.
- — the six isomeric xylidines, 1886, A., 58.
- — amidoazo-derivatives of the three xylenols, 1886, A., 58.
- Nölting, Emilio, and Joseph Frühling**, *p*-xyloquinolinesulphonic acid, 1889, A., 164.
- Nölting, Emilio, and Celestin Geissmann**, nitro-derivatives of *p*-xylene, 1886, A., 344.
- Nölting, Emilio, and Eugène Grandmougin**, *o*-azo-compounds of  $\alpha$ -naphthol (*8*-naphthaquinone hydrazones), 1891, A., 1074.

- Nölting, Emilio, and Eugène Grandmougin**, molecular change in the formation of bisazo-compounds of  $\alpha$ -naphthol, 1891, A., 1075.
- constitution of the hydrazones of  $\beta$ -naphthaquinone, 1891, A., 1076.
- azoimide, 1891, A., 1478.
- Nölting, Emilio, and Otto Kohn**, azo- and bisazo-compounds of cresols, 1884, A., 900.
- nitroso-*o*-cresol, 1884, A., 1003.
- a new cumidine, 1885, A., 383.
- tetramethylazylidine, 1885, A., 386.
- terephthalophenone, 1885, A., 389.
- *iso*- and *tere*-phthalophenones, 1886, A., 349.
- xylidinesulphonic acids, 1886, A., 355.
- sulphonic acids of *m*- and *p*-xylidines, 1889, A., 611.
- Nölting, Emilio, and Albert Gullatin Palmer**, occurrence of ethylbenzene in commercial xylene, 1891, A., 1197.
- Nölting, Emilio, and Benedict Pick**, dinitro-*o*-xylenols, 1889, A., 129.
- 1:2:3-*m*-xylidine and its identity with Wroblewski's *o*-xylidine, 1889, A., 131.
- Nölting, Emilio, and Emmanuel von Salis**, nitro-derivatives of the cresols, 1883, A., 59.
- Nölting, Emilio, and Charles Schwartz**, triquinylmethane, 1891, A., 1106.
- Nölting, Emilio, and Louis Stoecklin**, nitration of aromatic amines, 1891, A., 692.
- Nölting, Emilio, and Théodore Stricker**, mono- and di-alkyl derivatives of *m*-diamines, 1886, A., 543.
- iodophenols, 1888, A., 262.
- azoxylenes; diamidodixylyls, and the colouring matters derived therefrom, 1889, A., 135.
- Nölting, Emilio, and Emile Trautmann**, derivatives of toluquinoline and *m*-xyloquinoline, 1891, A., 325.
- derivatives of the methylquinolines and of *m*-dimethylquinoline, 1892, A., 726.
- Nölting, Emilio, and Eduard Weingärtner**, colouring matter from *p*-amidophenol, 1885, A., 381.
- ethenyldiphenyldiamine, 1885, A., 384.
- decomposition products of acetanilide hydrochloride, 1885, A., 978.
- Nölting, Emilio, and Eduard Weingärtner**, identity of isoreinol and cresoreinol, 1886, A., 346.
- Nölting, Emilio, and Paul Werner**, diphenyl derivatives from alkylquinols, 1891, A., 209.
- diphenyl bases, 1891, A., 211.
- Nölting, Emilio, and Eugen Wild**, preparation of mononitrophenols from their primary amines, 1885, A., 973.
- Nölting, Emilio, and Otto Nikolaus Witt**, *o*-amidoazo-compounds, 1884, A., 742.
- liquid by-product in the preparation of dinitrotoluene, 1885, A., 1095.
- Nölting, Emilio, Otto Nikolaus Witt, and Sylvestre Forel**, *p*-xylidine, 1886, A., 57.
- Nölting, Emilio.** See also *Otto Nikolaus Witt*.
- Noerdlinger, Hugo**, bicuhyba fat, 1886, A., 139.
- oxidation of myristic acid, 1886, A., 867.
- free fatty acids in oils, 1889, A., 799.
- analysis of fats, 1890, A., 929.
- decamethylenedicarboxylic acid, 1890, A., 1237.
- Noerdlinger, Hugo.** See also *Friedrich Krafft*.
- Nötzli, F.**, investigation of tannins, 1886, A., 496.
- Nordenskiöld, Gustaf**, pholidolite, a new mineral, 1892, A., 1408.
- Nordenskiöld, Nils Adolf Erik (Baron) von**, uranium silicate from Garla, 1885, A., 1119.
- liquid inclusions in Brazilian topaz, 1886, A., 674.
- cosmical powder from San Fernando, Chili, 1887, A., 22.
- equivalent of gadolinium oxide, 1887, A., 109.
- gærksutite from Ivigtut, Greenland, 1887, A., 344.
- arksutite from Ivigtut, Greenland, 1888, A., 231.
- kainosite from Hittero, Norway, 1888, A., 234.
- eudidymite, 1889, A., 219.
- mineralogical notes, 1889, A., 220.
- Nordenskiöld, Otto**, cyanogen additive products of some amidoximes, 1890, A., 1120.
- the Ijungby meteorite, 1892, A., 1060.
- Nordenström, Olof Gustaf**, allanite, from Gyttopp, Sweden, 1892, A., 1409.

- Nordmann, Edward**, *p*-carvacrotic aldehyde, 1885, A., 162.  
 — ethenylamidoxime and its derivatives, 1885, A., 238.
- Nordström, Theodor**, the pyrolusite mines of Bolet, 1883, A., 31.  
 — silver amalgam from the Sala mines, 1883, A., 426.
- Norris, Charles**. See **Russell H. Chittenden**.
- Norris, George L.**, estimation of manganese in slags and ores, 1892, A., 385.
- North, Barker**, Gawalowski's method for the volumetric estimation of sulphuric acid, 1889, P., 5.
- North, Barker**. See also **Thomas Edward Thorpe**.
- North, William**, influence of bodily labour on the elimination of nitrogen, 1885, A., 412; 1886, A., 569.
- Norton, Lewis Mills, and Anson Warren Allen**, action of dilute nitric acid on anilides, 1885, A., 1213.
- Norton, Lewis Mills, and Clement Walker Andrews**, action of heat on liquid paraffins, 1886, A., 601.
- Norton, Lewis Mills, and James Gordon Holder**, oxidation of benzene, 1886, A., 49.
- Norton, Lewis Mills, and William Downing Livermore**, action of dilute nitric acid on substituted amido-compounds, 1887, A., 1038.
- Norton, Lewis Mills, and Arthur Amos Noyes**, action of heat on ethylene, 1887, A., 226.  
 — butines, 1889, A., 361.
- Norton, Lewis Mills, and Charles Oliver Prescott**, continuous etherification, 1885, A., 496.
- Norton, Lewis Mills, and Herbert Appleton Richardson**, linoleic acid, 1888, A., 44.
- Norton, Lewis Mills, and Henry Jules Williams**, action of bromine on isobutylene, 1887, A., 712.
- Norton, Thomas Herbert**, metallic nitroprussides, 1888, A., 932.
- Norton, Thomas Herbert, and Arthur Henry Otten**, apparatus for fractional distillation, 1888, A., 646.  
 — amine salts of *p*-toluenesulphonic acid, 1888, A., 698.
- Norton, Thomas Herbert, and Theodor William Schmidt**, metallic salts of benzenesulphonic acid, 1888, A., 697.
- Norton, Thomas Herbert, and Ernst Twitchell**, alloys of calcium and zinc, 1888, A., 651.
- Norton, Thomas Herbert, and John Hermann Westenhoff**, amine salts of benzenesulphonic acid, 1888, A., 698.  
 — action of silicon tetrafluoride on acetone, 1888, A., 936.  
 — bromination of acetone, 1888, A., 936.
- Norton, Thomas Herbert**. See also **Archibald Irwin Carson, John Thayer Kebler, Alexander Laist, Joseph Tcherniac**.
- Notta, M., and G. Lugan**, detection of morphia in the urine, 1885, A., 447.
- Nourrisson, Charles**, anisophthaloylic acid, 1886, A., 1029.  
 — bromo-*o*-toluic and bromophthalic acids, 1887, A., 668.
- Novi, Ivo**, influence of sodium chloride on the chemical composition of the brain, 1891, A., 1274.
- Novy, Prodrick H.**, homologues of cocaine, 1887, A., 1126.
- Nowoczek, A.**, sugar-beet culture and manuring, 1884, A., 921.
- Noyes, Arthur Amos**, exceptions to the gaseous laws in solutions, 1890, A., 442.  
 — solubility of mixtures of electrolytically dissociated substances, 1891, A., 142.  
 — determination of the electrolytic dissociation of salts by means of solubility experiments, 1892, A., 1143.
- Noyes, Arthur Amos**. See also **Max Le Blanc, Lewis Mills Norton**.
- Noyes, William Albert**, oxidation of the nitrotoluenes by potassium ferricyanide, 1888, A., 577.  
 — oxidation of benzene derivatives with potassium ferricyanide, 1884, A., 299; 1886, A., 142, 801; 1889, A., 394.  
 — *p*-nitrobenzoic sulphide, 1886, A., 803.  
 — atomic weight of oxygen, 1889, A., 672; 1890, A., 1370; 1891, A., 1154.  
 — unit of atomic weights, 1891, A., 523.  
 — detection and estimation of titanium, 1891, A., 1295.  
 — lecture experiment; burning sulphur in oxygen, 1892, A., 679.  
 — dibenzylcarbinamine, 1892, A., 1093.
- Noyes, William Albert, and William Everett Moses**, oxidation of *m*-nitrotoluene, 1886, A., 143.
- Noyes, William Albert, and Charles Walker**, oxidation of *m*-bromotoluene, 1886, A., 788.  
 — oxidation of benzene derivatives with potassium ferricyanide, 1887, A., 727.

**Noyes, William Albert, and Walter Brown Wiley**, oxidation of benzene derivatives with potassium ferri-cyanide, 1889, A., 711.

**Noyes, William Albert.** See also **Adolf von Baeyer**.

**Nüys, Thomas Charlton van**, apparatus for the estimation of carbonic anhydride in air, 1886, A., 835.

— estimation of carbonic anhydride in air, 1887, A., 300.

**Nüys, Thomas Charlton van, and Benjamin F. Adams, junior**, carbonic anhydride in the air, 1887, A., 549.

**Nüys, Thomas Charlton van, and Robert Edward Lyons**, estimation of albumin in urine, 1890, A., 1199.

— carbonic anhydride in the urine, 1892, A., 649.

**Nurcsán, Josef**, method of preparing carbon oxysulphide, 1892, A., 15.

**Nussberger, G.**, stereoisomeric dioximes from ethyl acetoacetate and benzoyl-acetate, 1892, A., 1175.

**Nuth, Georg**, action of *p*-amidodimethyl-aniline on aldehydes, 1885, A., 784.

— furfuran-derivatives, 1887, A., 803.

**Nyiredi, E.**, mean composition of the celestine bed of Koppand, 1890, A., 713.

**Nylander, Emil**, alkaline bismuth solution as a test for glucose in urine, 1884, A., 1433.

## O.

**Obach, Eugen**, purification of carbon bisulphide, 1883, A., 43.

— specific inductive capacity and latent heat of vaporisation, 1892, A., 258.

**Oberbeck, Anton**, electrodynamic interference of alternating currents, 1883, A., 897.

— electrical behaviour of precipitated membranes, 1891, A., 517.

**Oberbeck, Anton, and Johannes Edler**, electromotive force of galvanic elements, 1891, A., 514.

**Obermayer, Fritz**, modification of Jaffé's indican test, 1891, A., 248.

**Obermayer, Fritz.** See also **Ernst Freund, Heinrich Paschke**.

**Obermayer, Joseph**, methyl mercaptan and its derivatives, 1886, A., 124.

**Obermüller, Kuno**, reaction of cholesterol, 1890, A., 932.

— cholesterol, 1891, A., 298.

— saponification with sodium ethoxide, 1892, A., 139.

— estimation of cholesterol, 1892, A., 248.

**Obermüller, Kuno.** See also **Albrecht Carl Ludwig Martin Leonhard Kossel**.

**Obermüller, Paul.** See **Rudolph Fittig**.

**Obernatter, J. B.**, silver bromide gelatin-emulsion, 1883, A., 395.

**Obolenski, Ivan N.**, detection of colchicine in corpses, 1891, A., 135.

**Obrégia, Anastasius**, action of potassium cyanide on halogen derivatives of ketones, 1892, A., 324.

**Obremsky, Maryan.** See **Stefan Nienmentowski, William Henry Perkin, junior**.

**Ochsenius, Carl**, blue rock salt, 1886, A., 515.

— phosphoric acid in Chili saltpetre, 1887, A., 558.

— minerals from the Douglasshall salt mine, 1889, A., 838.

**Oddo, Giuseppe**, diazo-derivatives of the aromatic series, 1891, A., 553.

— triazobenzene, 1891, A., 696.

—  $\alpha$ - and  $\beta$ -naphthylazoacetoacetic acids and their derivatives, 1891, A., 1381.

— relation between the chemical constitution and physiological action of aromatic compounds, 1892, A., 366.

— stereochemistry of the camphor group, 1892, A., 724.

— the camphor group, 1892, A., 721.

**Oddo, Giuseppe, and E. Barabini**,  $\beta$ -isomyl-naphthalene, 1891, A., 730.

**Oddy, Robert Walter, and Julius Berend Cohen**, comparison of the methods in use for estimating organic nitrogen, 1890, A., 1466.

**Odernheimer, Edgar**, furfuraldehyde derivatives, 1884, A., 585.

— Laubenheimer's reaction, 1881, A., 1038.

— action of hydroxylamine on mercuric, comenic, and pyromenic acids, 1884, A., 1302.

**Oebbeke, Konrad**, Krakatoa ashes, 1884, A., 974.

— microcline and muscovite from Forst in the Tyrol, 1886, A., 518.

— arsenical pyrites from Wunsiedel, 1890, A., 711.

— kreittonite from Bodenmais, 1891, A., 527.

**Oechsner de Coninck, William**, quinoline from cinchonine, 1883, A., 38.

— hydrates of pyridic bases derived from cinchonine, 1883, A., 220.

— bases of the pyridine and quinoline series, 1883, A., 738.

— isomerism in the pyridine series, 1883, A., 740.

— 'Anderson's reaction,' 1884, A., 612.

- Oechsner de Coninck, William**, action of pyridine bases on alcoholic iodides, 1881, A., 612.  
 — coal-tar lutidine, 1884, A., 910.  
 — synthesis of pyridic hydrides, 1884, A., 1047.  
 — decomposition of pyridine methiodides and ethiodides by the action of alkalis, 1885, A., 272.  
 — pyridine derivatives from brucine, 1885, A., 273.  
 — brucine, 1885, A., 564.  
 —  $\alpha$ -picoline,  $\gamma$ -lutidine, and pyridine, 1885, A., 671.  
 — homonicotic acid, 1885, A., 671.  
 — reactions of alkaloids, 1885, A., 818.  
 — colouring matters derived from quinoline bases, 1886, A., 82.  
 — pyridine alkaloids, 1886, A., 476.  
 — alkaloids, 1886, A., 897; 1887, A., 58, 603, 851.  
 — volatile alkaloids, 1888, A., 328, 539.  
 — fate of pyridine in the organism, 1888, A., 511.  
 — pionsaure, 1888, A., 730, 1118; 1889, A., 421, 733; 1890, A., 1170; 1891, A., 845.  
 — estimation of total nitrogen in urine, 1889, A., 649.  
 — reactions of amidobenzoic acids, 1892, A., 847, 1880.  
**Oechsner de Coninck, William**. See also **Bochefontaine, S. H. Marcus**.  
**Oeconomides, L.**, ketines, 1887, A., 29.  
**Oeconomides, L.** See also **Karl Heumann**.  
**Oeconomides, Spiridon**. See **Adolf von Baeyer, Gerhard Krüss**.  
**Oelker, A.**, derivatives of bromopiperonal, 1891, A., 1171.  
**Oelkers, Ludwig**, oxamic acid, 1889, A., 902, 1142.  
 — occurrence of mercury in tape-worms, 1890, A., 396.  
**Oelkers, Ludwig**. See also **Victor Meyer**.  
**Oelschlägel, Carl**. See **Albert Ladenburg**.  
**Oettel, Felix**, volumetric method for estimating fluorine, 1887, A., 179.  
 — analysis of German silver, 1888, A., 323.  
 — lecture experiment, 1888, A., 910.  
**Oettingen, Arthur Joachim von, and Adolph von Gernet**, explosion of water-gas, 1888, A., 549.  
**Off, Hussein**. See **Henry Droop Richmond**.  
**Offermann, Heinrich**, estimation of fluorine, 1891, A., 615.  
**Ogata, Massanori**, poisonous nature of sulphurous anhydride, 1885, A., 577.  
**Ogata, Massanori** (and others), experiments in digestion, 1881, A., 912.  
**Ogier, Jules**, pyrosulphuric chloride, 1883, A., 423, 646.  
 — sulphuric chloride, 1883, A., 642.  
**Ogier, Jules**. See also **Marcellin Berthelot**.  
**Ogle, John**, gum tragacanth, 1890, A., 228.  
**Ogialoro-Todaro, Agostino**, synthesis of acetylphenyl-*p*-coumaric and phenyl-*p*-coumaric acids, 1884, A., 176.  
 — action of nitric acid on taurin, 1884, A., 332.  
 — preparation of chloride of phosphorus from phosphates, 1884, A., 392.  
 — sulphur from the fumaroles of Montecito in the Island of Ischia, 1884, A., 1098.  
 — methylatropic acid, 1886, A., 468.  
 — synthesis of phenoxycoumarin, 1888, A., 277.  
 — synthesis of benzyleinnamic acid, 1891, A., 76.  
**Ogialoro-Todaro, Agostino, and Attilio Cannone**, *o*-cresolsolglycollic acid, 1890, A., 375.  
**Ogialoro-Todaro, Agostino, and Oreste Forte**, cresoleinnamic acid and *m*-cresolsolglycollic acid, 1891, A., 320.  
 — action of hydriodic acid and amorphous phosphorus on pterotin, 1892, A., 319.  
**Ogialoro-Todaro, Agostino, and Emilio Rosini**, *o*-nitrophenyleinnamic acid and phenylhydrocarbostyryl, 1891, A., 211.  
**Ogloblin, W.** See **Vladimir B. Markownikoff**.  
**Ogston, G. H.** (and others), estimation of phosphoric acid, 1884, A., 871.  
**Ohlmüller, Wilhelm**, decrease in weight of individual organs in children dying from atrophy, 1883, A., 606.  
**Ohnmais, Karl**. See **Gerhard Krüss**.  
**Oishi, H.**, Japanese camphor oil, 1885, A., 270.  
**Olberg, Gustav**. See **Karl Elbs**.  
**Oldach, H.**,  $\beta$ -methyltetramethylenediamine and  $\beta$ -methylpyrrolidine, 1887, A., 735.  
**Oliveri, Vincenzo**, chemical nature of phlorol, 1884, A., 174.  
 — action of acid chlorides on chloral allylate, 1884, A., 1117.  
 — action of nitrous anhydride on *p*-bromaniline nitrate, 1885, A., 781.  
 — estimation of tartaric acid in wines, 1885, A., 843.

- Oliveri, Vincenzo**, chromium oxyfluoride, 1886, A., 983.  
 — supposed plomanes of cholera. 1886, A., 1019.  
 — constitution of quassin, 1888, A., 1811; 1889, A., 278.  
 — synthetical hydratropic acid, 1890, A., 375.  
 — essence of lemons, 1891, A., 1496.  
**Oliveri, Vincenzo**, and **Antonio Denaro**, quassin, 1884, A., 1192; 1885, A., 907.  
**Oliveri, Vincenzo**, and **Alberto Peratoner**, supposed isomerides of pyromucic acid and of furfuraldehyde, 1890, A., 1242.  
**Oliveri, Vincenzo**, and **Matteo Spica**, volumetric estimation of glycerol in wine, 1891, A., 369.  
**Oliveri, Vincenzo**. See also **Francesco Canzoneri**, **Teodoro Leone**, **Emanuele Paternò**.  
**Olivier, Louis**, method of measuring the chemical effect of radiation, 1885, A., 319.  
**Olivier, Louis**. See also **Alexandre Léon Etard**.  
**Ollech, H. V.**, estimation of "half soluble" phosphoric acid, 1883, A., 508.  
**Olshewsky, Paul**. See **Georg von Knorre**.  
**Olzewski, Karl**, density and coefficient of expansion of liquid oxygen, 1884, A., 816.  
 — temperature of solidification of some gases and liquids, 1884, A., 816.  
 — liquefaction of hydrogen, 1884, A., 889.  
 — critical temperature and pressure of air; relation between its boiling-point and the pressure, 1884, A., 1257.  
 — critical temperature and pressure of nitrogen; boiling-points of nitrogen and ethylene, 1884, A., 1257.  
 — liquid carbonic oxide, 1885, A., 14.  
 — solidification of nitrogen and carbonic oxide, 1885, A., 475.  
 — liquefaction and solidification of methane and nitric oxide, 1885, A., 860.  
 — production of very low temperatures, 1885, A., 1101.  
 — use of boiling oxygen, nitrogen, carbonic oxide, and atmospheric air for producing cold, 1885, A., 1101.  
 — liquefaction and solidification of hydrogen compounds, 1886, A., 977.  
**Olzewski, Karl**, absorption spectrum of liquid oxygen and of atmospheric air, 1887, A., 625.  
 — boiling-point of ozone solidification of ethylene, 1887, A., 631; 1889, A., 821.  
 — density of liquefied methane, oxygen, and nitrogen, 1887, A., 694.  
 — absorption spectrum and colour of liquid oxygen, 1891, A., 773.  
**Olzewski, Karl**. See also **Siegismund A. von Wroblewski**.  
**O'Neill, Charles**, products from indigo-blue, 1892, A., 991.  
**Onimus**, conversion of liquid batteries into dry piles, 1884, A., 1240.  
**Onufrowicz, A.**, action of copper on benzotrichloride, benzal chloride, and benzyl chloride, 1884, A., 1133.  
**Onufrowicz, Stanislas**, sulphides of  $\beta$ -naphthol, 1889, A., 404; 1891, A., 320.  
**Opificius, L.**, analysis of lead peroxide, 1889, A., 187.  
 — estimation of noble metals in potassium cyanide solutions containing them, 1889, A., 189.  
**Opitz, Ernst**, fat and ethereal oil of sabadilla seeds, 1891, A., 1281.  
 — fats of *Amanita pantherina* and *Boletus luridus*, 1891, A., 1285.  
**Opl, Carl**. See **Heinr. von Miller**.  
**Oppelt, Eugen**. See **Georg von Knorre**.  
**Oppelt, Otto**. See **Richard E. Meyer**.  
**Oppenheim, Rudolf**. See **Bernhard Rathke**.  
**Oppenheimer, Ernst**, xylonylamidoxime and its derivatives, 1890, A., 49.  
**Oppenheimer, Hugo**, action of ammonia on terephthalaldehyde, 1886, A., 547.  
 — action of potassium cyanide on terephthalaldehyde, 1886, A., 876.  
 — condensation of terephthalaldehyde with hydrocarbons, 1886, A., 946.  
**Ordonneau, Ch.**, composition of brandy from wine, 1886, A., 436.  
 — cause of acidity of grapes: tartaric acid, 1892, A., 589.  
**Orloff, P.**, hexyl glycerol (trihydroxyhexane), 1886, A., 138, 681.  
**Orlowski, Anton L.**, use of ammonium thiosulphate instead of sulphuretted hydrogen in qualitative analysis, 1884, A., 363.  
**Ormandy, William Reginald**, and **Julius Berend Cohen**, new method for the estimation of nitrates and nitrites in water, 1890, T., 811; P., 139.  
**Ormandy, William Reginald**. See also **Thomas Ewan**.

- Orndorff, William Ridgely**, decomposition of some diazo-compounds with formic and acetic acids, 1889, A., 15.  
 — *p*-propaldehyde and *m*-propaldehyde, 1890, A., 955.
- Orndorff, William Ridgely**, and **Maurice Cauffman**, decomposition of some diazo-compounds of nitronaphthalenes with alcohol, 1892, A., 622.
- Orndorff, William Ridgely**, and **Henry Jessel**, decomposition of acetone with bleaching powder, 1889, A., 34.
- Orndorff, William Ridgely**, and **Frederick Lawrence Kortright**, decomposition of some diazo-compounds of naphthalene with alcohol, 1891, A., 1073.
- Orndorff, William Ridgely**, and **Spencer Baird Newbury**, preparation of aldol and crotonaldehyde, 1892, A., 1423.
- Orndorff, William Ridgely**. See also **Spencer Baird Newbury**, **Ira Remsen**.
- Orsman, William James**. See **William James Russell**.
- Orth, Albert**, mechanical and chemical analysis of soils, 1883, A., 621.
- Orval, Hecquet d'**. See **Hecquet d' Orval**.
- Osann, Alfred**, basaltic rocks from the Faroe Islands, 1884, A., 415.  
 — sandinites from São Miguel, 1888, A., 566.  
 — Labrador-porphyrates of the Vosges, 1888, A., 569.  
 — eruptive rocks of the Cabo de Gata, 1891, A., 26.
- Osann, Alfred**. See also **August Bernthsen**.
- Osborne, Thomas Burr**, separation of zinc in ores, 1885, A., 595.  
 — separation of zinc and nickel, 1885, A., 595.  
 — estimation of niobium, 1886, A., 393.  
 — higher oxides of copper, 1887, A., 334.  
 — filtering "crude fibre" and silver chloride, 1888, A., 1351.  
 — proteids of oat kernels, 1891, A., 1285, 1390; 1892, A., 1120.
- Osborne, Thomas Burr**, and **William Gilbert Mixer**, *p*-nitroformanilide, 1887, A., 250.
- Osborne, Thomas Burr**. See also **Russell H. Chittenden**.
- Oser, Johann**, elementary analysis by an electrothermal method, 1891, A., 621.
- O'Shea, Lucius Trant**, a contribution to the history of the constitution of bleaching powder, 1888, T., 410.  
 — retention of lead salts by filter paper, 1886, P., 206.
- O'Shea, Lucius Trant**. See also **Thomas Carnelley**.
- Osmond, Floris**, estimation of small quantities of hydrogen sulphide, 1885, A., 688.  
 — colorimetric estimation of manganese, 1885, A., 690.  
 — calorimetric study of the effect of tempering and hammering on melted steel, 1885, A., 856.  
 — heating and cooling of cast steel, 1887, A., 14.  
 — heating and cooling of melted steel, 1887, A., 21.  
 — effect of manganese, etc. on the properties of steel, 1887, A., 639.  
 — colorimetric estimation of phosphorus, 1887, A., 999.  
 — influence of certain foreign metals on the properties of steel, 1890, A., 566.  
 — influence of foreign substances on iron and steel: relation between their atomic volume and the allotropic modifications of iron, 1890, A., 567.  
 — carburization of iron by the diamond, 1891, A., 807.  
 — calorimetric researches on the condition of silicon and of aluminium in cast iron, 1892, A., 19.
- Osmond, Floris**, and **Jean Werth**, cellular structure of fused steel, 1885, A., 485.  
 — residues from steel and zinc by the action of acids, 1887, A., 894.
- Osmond, Floris**. See also **Georges Witz**.
- Ossipoff, Isaac P.**, oil of hops, 1884, A., 459.  
 — volatile fatty acids in commercial lupuline, 1886, A., 1007.  
 — heats of combustion of some organic substances, 1889, A., 5.  
 — action of maleic acid on aniline, 1889, A., 124.  
 — isomerism of fumaric and maleic acids, 1889, A., 124.  
 — action of phosphorus sulphides on dibromosuccinic acids, 1889, A., 237.  
 — ethereal salts of fumaric and maleic acids, 1889, A., 237.  
 — heats of combustion of several organic acids, 1889, A., 459.  
 — heats of combustion of stilbene and the isomeric nononaphthenes, 1889, A., 460.  
 — chlorination of ethyl acetoacetate, 1889, A., 1056.  
 — heats of combustion of organic isomerides, 1890, A., 680.  
 — heat of hydration of maleic anhydride, 1890, A., 680.  
 — ethyl  $\alpha\beta$ -diacetopropionate, 1890, A., 803.

- Ost, Hermann** (Leipzig), derivatives of meconic acid containing nitrogen and their conversion into pyridine, 1883, A., 791.
- action of hydroxylamine and ethylamine on conamic acid, 1884, A., 1302.
- nitrogenous derivatives of meconic acid, 1885, A., 48.
- Ost, Hermann**, and **Adolf Mente**, oxalimide, 1887, A., 234.
- Ost, Hermann** (Hanover), estimation of sugars with copper potassium carbonate, 1890, A., 1031; 1891, A., 125, 1298.
- refractive power of levulose and invert sugar, 1891, A., 1000.
- Oster, Fritz**. See *Carl Arnold August Michaelis*.
- Ostermayer, Eugen R.**, diquinolines, 1885, A., 560.
- action of phosgene gas on quinoline, 1885, A., 672.
- methiodides of the quinoline series, 1885, A., 672.
- action of iodine chloride on quinolines, etc., 1885, A., 672.
- iodated azo-colouring matters, 1885, A., 673.
- methochlorides of pyridine and quinoline bases, 1885, A., 813.
- caffeine chloriodide, 1885, A., 1250.
- estimation of water of crystallisation in organic compounds, 1886, A., 96.
- iodophenolsulphonic acids, 1888, A., 596.
- Ostermayer, Eugen R.**, and **Wilhelm Henrichsen**, synthesis of  $\alpha$ -diquinoline, 1885, A., 173.
- Ostermayer, Eugen R.**, and **Josef Rosenhek**, derivatives of the isomeric dinaphthols, 1885, A., 171.
- Ostersetzer, Julius**, nitrogen in artificial manures, 1885, A., 436.
- Ostersetzer, Oscar**, apparatus for the direct estimation of carbonic anhydride, 1888, A., 322.
- compounds of phthalimide with phenols, 1891, A., 65.
- Ostersetzer, Oscar**. See also *Guido Goldschmidt*.
- Ostwald, Wilhelm**, action of acids on acetamide, 1883, A., 575.
- manufacture and correction of burettes, 1883, A., 619.
- action of acids on methyl acetate, 1884, A., 581.
- determination of chemical affinities, 1884, A., 812.
- inversion of cane-sugar, 1884, A., 1113; 1885, A., 882.
- Ostwald, Wilhelm**, electrical conductivity of acids, 1885, A., 323.
- trustworthiness of alternating currents for measuring electrical resistances, 1885, A., 856.
- electrochemical studies, 1885, A., 1029; 1888, A., 331; 1889, A., 202.
- influence of the composition and constitution of acids on their electrical conductivity, 1886, A., 294.
- electrical conductivity of bases, 1886, A., 585.
- coefficients of affinity of bases, 1887, A., 324.
- nature of chemical affinity, 1888, A., 338.
- study of contact electricity, 1888, A., 886.
- chromic acid, 1888, A., 1009.
- theory of solution, 1888, A., 1020; 1891, A., 789.
- studies in chemical dynamics, 1888, A., 1024.
- theory of the dissociation of electrolytes, 1888, A., 1142; 1889, A., 931.
- apparatus for determining the conductivity of electrolytes, 1889, A., 4.
- estimation of the basicity of acids from the conductivity of their sodium salts, 1889, A., 327.
- isomalic acid, 1889, A., 377.
- dropping electrodes, 1889, A., 807.
- constants of affinity of organic acids and their relation to composition and constitution, 1889, A., 818.
- unit of atomic weights, 1889, A., 819, 932.
- electrical properties of semi-permeable walls, 1890, A., 1354.
- electrical conductivity of distilled water, 1890, A., 1357.
- magnetic rotation, 1891, T., 108; P., 1; discussion, P., 2.
- conductivity of isomeric organic acids and their salts, 1891, A., 517, 632.
- autocatalysis, 1891, A., 1151.
- the dissociation of liquid nitrogen peroxide, 1892, T., 242; P., 13.
- the magnetic rotation of dissolved salts, 1892, P., 12.
- chemical action at a distance, 1892, A., 268.
- colour of the ions, 1892, A., 1137.
- polybasic acids, 1892, A., 1145.
- studies on energetics, 1892, A., 1149.
- Ostwald, Wilhelm**, and **Walther Nernst**, free ions, 1889, A., 568.
- O'Sullivan, Cornelius**, on the estimation of starch, 1884, T., 1.

- O'Sullivan, Cornelius**, researches on the gums of the arabin group. Part I. Arabic acid; its composition and the products of its decomposition, 1884, T., 41.
- presence of raffinose in barley, 1885, P., 119; 1886, T., 70.
- sugars of some cereals and the germinated grain, 1885, P., 120; discussion, P., 120; 1886, T., 58; P., 142.
- arabinon, the saccharon of arabinose, 1889, P., 166; 1890, T., 59.
- researches on the gums of the arabin group. Part II. Geddle acid, gedda gums, 1891, T., 1029; P., 131.
- O'Sullivan, Cornelius**, and **Frederick William Tompson**, invertase: a contribution to the history of an unorganised ferment, 1890, T., 831; P., 107.
- estimation of cane-sugar, 1890, P., 160; 1891, T., 46.
- O'Sullivan, James**, specific rotatory and cupric reducing power of invert sugar and of dextrose obtained from cane-sugar by means of invertase, 1892, T., 408; P., 56.
- the hydrolytic functions of yeast, 1892, T., 593, 926; P., 124, 147.
- Oswald, Ferdinand**, constituents of the fruit and seeds of *Mlicium antisatum*, 1891, A., 957.
- Ott, Adolf**, estimation of proteids in urine, 1885, A., 451.
- relations of the phosphates in urine, 1886, A., 167.
- separation of globulin from albumin in urine, 1887, A., 406.
- Ott, Isaac**, and **Charles Collmar**, albumoses, peptone, and neurine as pyrexial agents, 1888, A., 1325.
- Ott, Philipp**, phenylhydroxypivalic acid, 1885, A., 663.
- propylidenacetic acid, 1891, A., 1453.
- Otte, Rudolf**, and **Hans (Freiherr) von Pechmann**, homologues of diacetyl, 1889, A., 1137.
- Otte, Rudolf**. See also **Hans (Freiherr) von Pechmann**.
- Otten, Arthur Henry**. See **Thomas Herbert Norton**.
- Otten, Gerald**. See **Carl Paal**.
- Otto**, faults in butter manufacture, 1884, A., 135.
- Otto, Alex**. See **Otto Wallach**.
- Otto, H.**, tetracalcium phosphate and basic slag, 1887, A., 445.
- soluble phosphates in superphosphates, 1888, A., 553.
- Otto, Jacob G.**, metahæmoglobin, 1881, A., 911.
- changes which proteid matters undergo by the action of the pancreatic ferment, 1884, A., 1056.
- amount of sugar and reducing substances in blood, 1885, A., 829.
- Otto, Jacob G.**. See also **Carl von Voit**, **Jacob Worm-Müller**.
- Otto, Paul**, action of carbonic chloride on glycol chlorhydrins, 1891, A., 1373.
- Otto, Richard**. See **Albert Bernhard Frank**, **Siegmund Gabriel**, **Rudolf Nietzki**.
- Otto, Robert**, value of Lenz's method for the purification of hydrogen sulphide, 1884, A., 638.
- action of potassium permanganate on mercury diphenyl, 1884, A., 1135.
- synthesis of aromatic sulphones, 1885, A., 535.
- formation of sulphones from alkyl sulphonated acids of the series  $C_nH_{2n}O_2$ , 1885, A., 536.
- sulphoneketones, 1886, A., 801.
- conditions necessary for the complete removal of arsenic from hydrochloric acid, 1886, A., 850.
- phenyl benzenesulphonate, 1886, A., 883.
- sulphobenzide-*m*-sulphonic acid, 1886, A., 1031.
- decomposition of sulphobenzide and of sulphotoluidine, 1886, A., 1031.
- synthesis of aromatic polysulphides, 1887, A., 923.
- action of cyanuric chloride and chlorocyanuridiamide on phenols, 1887, A., 1033.
- analogy between ketonic acids and the alkylsulphones of the fatty acids, 1888, A., 360.
- formation of monosulphones, 1888, A., 482.
- methylenedichlorophenylsulphone, 1888, A., 483.
- action of carbonyl chloride on sodium formate, 1888, A., 672.
- discovery of the normal tricyanides, 1889, A., 951.
- synthesis of *s*-diphenylsulphone-acetone, 1889, A., 1186.
- sulphone derivatives, 1890, A., 379.
- molecular weight of the solid  $\alpha$ -dichloropropionitrile, 1890, A., 726.
- eukairite from Argentine, 1890, A., 948.
- ethoxyacrylic acid from  $\alpha$ -dichloropropionic acid, 1890, A., 957.

- Otto, Robert**, behaviour of sodiophenylmercaptide with isobutylene bromide, 1890, A., 962.
- benzenesulphonates of aromatic radicles, 1891, A., 569.
- behaviour of sulphonic chlorides towards thiophenols and thio-alcohols in presence of alkalis, 1891, A., 720.
- unsaturated sulphones, 1891, A., 1067.
- hydrolysis of sulphones, 1891, A., 1229.
- Otto, Robert**, and **Heinrich Beckurts**, pyrocinchonic and dichloradipic acids from  $\alpha$ -dichloropropionic acid, 1885, A., 753.
- Otto, Robert**, and **Raphael Cosme Casanova**, disulphones, 1888, A., 255.
- Otto, Robert**, and **Hermann Damköhler**, disulphones, 1885, A., 261, 537.
- Otto, Robert**, and **Dietrich Drewes**, magnesium lead chloride, 1891, A., 151.
- magnesium lead iodide, 1891, A., 984.
- magnesium lead bromide, 1892, A., 566.
- Otto, Robert**, and **Hermann Engelhardt**, action of sulphinates on dihalogenated fatty acids, 1886, A., 883.
- phenylsulphineacetic acid, 1887, A., 263.
- Otto, Robert**, and **Ernst Heydecke**, aromatic thiosulphonates, 1892, A., 990.
- Otto, Robert**, and **Albert Holst**, ethyl and methyl morphine carbonates, 1892, A., 638.
- Otto, Robert**, and **Georg Holst**,  $\alpha$ -dichloro-substitution products of dimethylsuccinic acid, 1890, A., 957.
- action of phenylhydrazine on pyrocinchonic,  $\alpha$ -dichloro- $\alpha$ -dimethylsuccinic, and  $\alpha$ -dichloropropionic anhydrides, and on pyrocinchonic chloride, 1890, A., 1327.
- Otto, Robert**, and **Johan Herman Kloos**, artificial periclasase, a product of the magnesium chloride industry, 1891, A., 991.
- Otto, Robert**, and **Anton Milch**, synthesis of aromatic sulphinic anhydrides, 1888, A., 281.
- Otto, Robert**, and **Wilhelm Otto**, sulphoneketones, 1888, A., 282.
- analogy between alkyl-sulphonated fatty acids and ketonic acids, 1888, A., 577.
- action of ethyl chlorocarbonate on salts of fatty and aromatic acids, 1888, A., 813.
- Otto, Robert**, and **Wilhelm Otto**, action of alkaline sulphinates on trihalogen substituted hydrocarbons, 1888, A., 811.
- formation of ethereal salts by means of ethyl chlorocarbonate, 1891, A., 288.
- Otto, Robert**, and **Adelbert Rössing**, constitution of the sulphinic acids, 1885, A., 1281.
- ethyl phenylthiocarbonate, 1886, A., 692.
- oxidation of aromatic sulphonic ethers, 1886, A., 710.
- saponification of ethereal thiosulphinates, 1886, A., 711.
- triethylsulphine bromide, 1886, A., 861.
- reaction of organic disulphides with potassium sulphide, 1887, A., 226.
- bisulphides with mixed organic radicles, 1887, A., 242.
- sulphobenzidisedisulphonic acid, 1887, A., 263.
- action of potassium hydroxide on mixed alkyl bisulphides, 1887, A., 371.
- action of potassium hydroxide on phenylene-*m*-diphenylsulphone, 1887, A., 372.
- aromatic sulphonates containing bivalent alcohol radicles, 1887, A., 953.
- reduction of aromatic thiosulphonates containing alkyl radicles by means of hydrogen sulphide, 1887, A., 954.
- behaviour of aromatic sulphinic acids towards hydrogen sulphide, 1887, A., 1047.
- butanedicarboxylic acids, 1888, A., 45.
- behaviour of alkyl halogen compounds towards ethyl sodiophenylsulphoneacetate, 1889, A., 994.
- short communications, 1889, A., 994.
- preparation of sulphones, 1890, A., 780.
- displacement of the sodium in ethyl sodiophenylsulphoneacetate by alkyl radicles, 1890, A., 1187.
- phenylsulphoneacetone-mercaptole, 1891, A., 568.
- action of sodium phenylmercaptide on ethyl chloroacetate, 1891, A., 712.
- aromatic and aliphatic thiosulphonic acids, 1891, A., 926.
- aromatic thiosulphonic acids, 1892, A., 478.

- Otto, Robert, and Adalbert Rössing**, tautomerism of sulphinic acids, 1892, A., 623.
- preparation and properties of Bunte's salt [ethyl thiosulphate], 1892, A., 799.
- Otto, Robert, and Julius Tröger**, synthesis of ketonic acids by the action of acid chlorides on propionitrile, 1889, A., 957.
- products of the action of propionitrile on chlorides of the fatty acids: triethyl tricyanide, 1890, A., 726.
- ethylsulphoneacetone and diethylsulphoneacetone, 1891, A., 665.
- aromatic sulphonie iodides, 1891, A., 718.
- action of zinc ethyl on aromatic sulphonie iodides, 1891, A., 719.
- aromatic thiosulphonie acids, 1891, A., 719.
- action of iodine on sodium benzenesulphinic acid in the presence of mercaptans, 1891, A., 924.
- thioanhydrides of aromatic thiosulphonie acids and polythiosulphonie acids, 1891, A., 924.
- Otto, Robert, and Karl Voigt**, solid  $\alpha$ -dichlorethyl cyanide and its conversion into triethyl cyanuride, 1887, A., 1024.
- Otto, Robert.** See also *Heinrich Beckurts, Georg Fromme, Albert Holst.*
- Otto, Th.**, synthesis of acetovanillone from guaiacol and acetic acid, 1892, A., 61.
- Otto, Wilhelm.** See *Robert Otto.*
- Oudemans, Antonie Cornelis, junior**, laws of the variation of the specific rotatory power of alkaloids under the influence of acids, 1883, A., 81.
- specific rotatory power of apocinchonine and hydrochlorapocinchonine under the influence of acids, 1883, A., 359.
- variation of specific rotatory power, 1886, A., 406.
- specific gravity and index of refraction of ethyl ether, 1886, A., 437.
- decomposition by heat of potassium chloro- and fluo-chromates, 1886, A., 851.
- cupreine, 1889, A., 1018.
- metallic derivatives of cupreine, 1891, A., 474.
- Oudin.** See *D. Labbé.*
- Ouvrard, Léon Victor René**, action of alkaline phosphates on the alkaline earths, 1888, A., 1033.

- Ouvrard, Léon Victor René**, double phosphates in the magnesium group, 1888, A., 1035.
- phosphates of the cerite metals, 1888, A., 1037.
- phosphates of lithium, beryllium, lead, and uranium, 1890, A., 1055.
- double phosphates of tin, titanium, and copper, 1890, A., 1379.
- alkali zirconates, 1891, A., 1431.
- zirconates of the alkaline earths, 1891, A., 1431.
- lithium nitride, 1892, A., 565.
- Ouvrard, Léon Victor René.** See also *Louis Joseph Troost.*
- Owen, F. A.**, estimation of indigotin for commercial purposes, 1890, A., 96; 1891, A., 1404.
- Owens, (Miss) Mary Elizabeth (Mrs. Hooker).** See *Francis Robert Japp.*

## P.

- Paal, Carl**, action of acetic chloride on benzaldehyde in presence of zinc dust, 1883, A., 62, 805.
- action of bromoacetophenone on ethyl sodacetate, 1884, A., 598.
- action of benzoic chloride on benzaldehyde in presence of zinc dust, 1884, A., 1163.
- action of acetic chloride on benzophenone in presence of zinc dust, 1881, A., 1167.
- derivatives of the ethereal salts of acetophenoneacetacetic acid, 1884, A., 1177.
- derivatives of ethyl acetophenoneacetate and of ethyl acetylacetate, 1885, A., 218.
- acetylacetone, 1885, A., 505.
- synthesis of thiophen and pyrrolidine derivatives, 1885, A., 516.
- synthesis of thioxylene derivatives, 1885, A., 1205.
- action of phosphoric selenide on acetylacetone, 1885, A., 1207.
- constitution of pyrotritaric acid, 1887, A., 657.
- epichlorhydrin, 1889, A., 31.
- derivatives of allylamine, 1889, A., 116.
- synthesis of indazole derivatives, 1891, A., 723.
- indazole derivatives, 1892, A., 67.
- unsaturated aliphatic amines, 1892, A., 578.
- peptone salts from glutin, 1892, A., 895.
- Paal, Carl, and Anton Bodewig**, quinazolines, 1891, A., 913.

- Paal, Carl**, and **Anton Bodewig**, action of *o*-nitrobenzyl chloride on phenylhydrazine, 1892, A., 1455.
- Paal, Carl**, and **Nicolaus P. Braikoff**, pyrroline derivatives, 1890, A., 263.
- Paal, Carl**, and **Max Busch**, synthesis of quinazoline derivatives, 1890, A., 71.
- Paal, Carl**, and **Carl Hermann**, propargylamine and derivatives of allylamine, 1890, A., 228.
- Paal, Carl**, and **Albert Heupel**, unsaturated fatty amines, 1892, A., 30.
- Paal, Carl**, and **August Hoermann**, ethyl diphenylacetacetate, 1890, A., 258.
- Paal, Carl**, and **Theodor Hoffmann**,  $\gamma$ -ketonic acids, 1890, A., 1099.
- Paal, Carl**, and **Friedrich Krecke**, dihydroquinazolines, 1890, A., 1443.
- methylphenyldihydroquinazoline and its derivatives, 1892, A., 80.
- Paal, Carl**, and **Gerald Otten**, derivatives of aromatic amines, 1890, A., 1415.
- Paal, Carl**, and **Anton Püschel**, 1:3-methylphenylthiophen and 1:2-thioxen, 1887, A., 1101.
- Paal, Carl**, and **Carl Werner Thielmann Schneider**, *o*-dimethylpyrrylphenol and *m*-dimethylpyrrylbenzoic acid, 1886, A., 559.
- synthesis of pyrroline derivatives, 1887, A., 273.
- Paal, Carl**, and **Carl Strasser**, synthesis of pyridine and piperidine derivatives, 1888, A., 62.
- Paal, Carl**, and **Julius Tafel**, thiophen from erythritol, 1885, A., 763.
- thiophen from mucic acid, 1885, A., 764.
- Paal, Carl**. See also **Franz Dietrich**, **Alfred Dittrich**, **Siegfried Kapf**, **Werner Kues**, **Leonard Lederer**, **Carl Theodor Liebermann**.
- Pabst, Jean Albert**, indophenol, 1883, A., 69.
- raspberry juice, 1886, A., 387.
- Pabst, Jean Albert**. See also **Adam Charles Girard**.
- Pabst, Theodor**, fruit of *Capsicum annuum*, 1892, A., 1263.
- Packard, R. L.** See **George Perkins Merrill**.
- Padberg, Carl**. See **Georg Vortmann**.
- Padé, Léon**, analysis of coffees, 1887, A., 1002.
- detection and estimation of sodium hydrogen carbonate in milk, 1889, A., 1244.
- Padé, Léon**. See also **Albert Arnaud**, **Ch. Dubois**.
- Päpcke, K.**, substitution in benzoïn and in analogues of desoxybenzoïn and benzyl cyanide, 1888, A., 701.
- Paetow, Ulrich**. See **Carl Arnold August Michaelis**.
- Paganini, Robert**, action of phosphorus pentachloride on oxyazo-derivatives, 1891, A., 556.
- Paganini, Robert**. See also **Karl Heumann**.
- Page, Alfred G.**, preparation of chloral, 1884, A., 1117.
- action of chlorine on organic compounds in presence of inorganic chlorides, 1885, A., 36.
- Page, Charles Curtis**, Amazon stone from Amelia Co., Virginia, 1885, A., 130.
- Page, David**, obituary notice of, 1890, T., 453.
- Page, M.**, estimations of the alkalis in an Indian lepidolite, 1884, A., 27.
- Page, W. T.**, metallic iron accompanying native gold in Montgomery Co., Virginia, 1883, A., 29.
- new sulphide received as tetrahydrite from Great Eastern Mine, Colorado, 1883, A., 161.
- Pages, Calixte**. See **Maurice Arthus**.
- Pagliani, Stefano**, determination of the density of solids and liquids, 1881, A., 213.
- physical properties of petroleum, 1881, A., 277.
- crystallisation of salts during the electrolysis of their solutions, 1888, A., 892.
- deductions from van't Hoff's theory, 1890, A., 845, 1205.
- new method of measuring electromotive force and electrical resistances, 1892, A., 105.
- Pagliani, Stefano**, and **Angelo Emo**, absorption of ammonia-gas by alcohols, 1884, A., 278.
- Pagnoul, A.**, composition of beet-root, 1884, A., 356.
- salt and herring offal as manure, 1884, A., 866.
- composition of residues obtained in the beet sugar manufacture, 1884, A., 699.
- relations between the density, richness in sugar, and purity of the juice of the sugar-beet, 1886, A., 915.
- manurial experiments with sugar-beets, 1887, A., 748.
- richness and density of wheat, 1888, A., 1128.
- loss and gain of nitrogen by soil, 1890, A., 1023.

- Pagnoul, A.**, cultivation of wheat in sterile siliceous soils, 1891, A., 101; 1892, A., 909.
- nitric and ammoniacal nitrogen as manures, 1891, A., 1545.
- Pagnoul, A.**, and **Grenet**, butter analysis, 1889, A., 192.
- Pahl, Adolf**, constitution of amidoisobutylbenzene, 1884, A., 1009.
- Pajkull, Hanner**. See **Helge Bäckström**.
- Pajkull, Lincoln**, mucin of bile, 1888, A., 169.
- Pailhade**. See **Rey-Pailhade**.
- Paillard, C. A.**, non-magnetisable alloys of palladium, 1889, A., 573.
- Painter, Harry M.** See **Russell H. Chittenden**.
- Palla, Edward**, recent formation of marcasite at Maricubad, 1887, A., 901.
- Palladin, Vladimir**, rôle of oxygen in plant life, 1888, A., 1125.
- formation of organic acids in growing plants, 1888, A., 1126.
- products of decomposition of proteids in plants, 1889, A., 642.
- carbohydrates as oxidation products of vegetable albumin, 1889, A., 1235.
- amount of proteids in green and in etiolated leaves: acquisition of green colour and growth of etiolated leaves, 1892, A., 520.
- Palm, J.**, extraction of colouring matters by a solution of borax, 1884, A., 83.
- reagents for vegetable alkaloids, 1884, A., 120.
- chemical properties of the violet colouring matter in ergot and its detection in flour, 1884, A., 376.
- separation and estimation of digitatin, digitalein, and digitin, 1881, A., 507.
- separation of picrotoxin from its solutions, 1886, A., 284.
- detection and estimation of lactic acid, 1887, A., 307.
- detection of traces of albumin, 1887, A., 407.
- estimation of milk constituents, 1887, A., 1003.
- detection of picrotoxin in beer, etc., 1888, A., 877.
- chemical nature of the peptones, 1888, A., 972.
- Palmaer, Wilhelm**, action of sulphuric acid on  $\alpha$ -nitronaphthalene, 1889, A., 153.
- triiodoammonium compounds, 1889, A., 352; 1891, A., 102, 1165.
- Palmer, Albert Gallatin**. See **Emilio Nölting, Ira Remsen**.
- Palmer, Arthur William**, pentamidotoluene, 1889, A., 390.
- reduction of  $s$ -tiamidonitrobenzene, 1892, A., 1198.
- Palmer, Arthur William**, and **Charles Loring Jackson**, pentamidobenzene, 1888, A., 825; 1890, A., 217.
- Palmer, Arthur William**. See also **Henry Barker Hill**.
- Palmer, Chase S.**, constitution of allyl cyanide, 1889, A., 686.
- Palmer, Chase S.** See also **Ira Remsen**.
- Palmer, George H.** See **Charles Frederic Mabery**.
- Palmer, George M.** See **Leonard P. Kinnicutt, Arthur Michael**.
- Palmer, T. C.**, testing logwood extracts, 1889, A., 1091.
- Palmieri, Luigi**, production of electricity by the condensation of aqueous vapour, 1888, A., 99.
- Palmieri, Paride**, and **Eugenio Casoria**, tests for archil, cochineal, and magenta in wine, 1889, A., 655.
- Palmquist, (Miss) Augusta**. See **Otto Pettersson**.
- Pampe, F.**, contribution to the problem of lathy fermentation, 1883, A., 892.
- Pampel, Oskar**, and **Georg Schmidt**, aromatic ketones, 1887, A., 252.
- Panajotow, Georg**, 1:3-dimethylquin-aldine, 1887, A., 381.
- 1:3-dimethylquinoline- $\alpha$ -aldehyde, 1890, A., 1158.
- detection of Turkish geranium essence in attar of roses, 1891, A., 1555.
- Panaotović, W.**, synthesis of anthraquinone, 1884, A., 1039.
- $p$ -methylisatoic acid, 1885, A., 666; 1886, A., 361.
- Panoff, M.**, nitrogen in sputum, 1889, A., 1076.
- Papasogli, Giorgio**, spontaneous oxidation of essential oils, 1889, A., 616.
- detection of artificial coloration in wine, 1891, A., 1563.
- cotton and its products, 1892, A., 584.
- Papasogli, Giorgio**. See also **Adolfo Bartoli**.
- Pape, Carl**. See **Adolf von Baeyer**.
- Papendieck, August**. See **Edward Buchner**.
- Pappel, Alfred**, and **Henry Droop Richmond**, milk of the gamoose, 1890, T., 754; P., 114.
- Parous, Eugen**, detection of invert sugar in the presence of cane-sugar, 1889, A., 318.

- Parcus, Eugen**, and **Bernhard Tollens**, multi-rotation of sugars, 1890, A., 1084.
- Parcus, Eugen**. See also **K. Beythien**.
- Parenti, Cesare**, coloration of organic substances by thiocyanic acid, 1890, A., 726.
- ethylene dithiocyanate, 1891, A., 29.
- Parenti, Cesare**. See also **Hugo Schiff**.
- Parker, Gordon**. See **Rudolph Fittig**.
- Parker, H. U.**, di-*p*-tolylene sulphoxide, 1890, A., 1136.
- Parlato, Emilio**. See **Richard Anschütz**.
- Parmentier, F.**, a hydrate of molybdic acid, 1883, A., 158.
- particular case of solution, 1857, A., 547.
- presence of sodium sulphate in the atmosphere, 1889, A., 826.
- estimation of small quantities of boric acid, 1891, A., 1551.
- lead chlorosulphide and bromosulphide, 1892, A., 685.
- flameless incandescence produced by coal gas, 1892, A., 768.
- abnormal dissolution; saturated solutions, 1892, A., 1047.
- preservation of mineral waters, 1892, A., 1162.
- aluminium in mineral waters, 1892, A., 1287.
- chalybeate mineral waters, 1892, A., 1289.
- Parmentier, F.**, and **L. Amat**, dimorphism of sodium thiosulphate, 1884, A., 819.
- Parmentier, F.** See also **Gustave Chancel**.
- Parnell, Edward William**, and **James Simpson**, utilisation of alkali waste, 1886, A., 288.
- Parr, Samuel Wilson**, proteids of cows' milk, 1886, A., 272.
- Parr, Samuel Wilson**. See also **George Chapman Caldwell**.
- Parry, John**, spectroscopic examination of vapours evolved on heating iron, etc., at atmospheric pressure, 1884, A., 801; 1885, A., 318.
- Parsons, Charles A.**, effect of high temperature and pressure on carbon, 1889, A., 212.
- Parsons, Charles L.**, analysis of fruits from the Southern States, 1889, A., 434.
- volumetric estimation of fat in milk, 1890, A., 92.
- Partheil, Alfred**, allyltrimethylammonium compounds, 1890, A., 356.
- volumetric estimation of iron in *ferrum reductum*, 1890, A., 827.
- cyttisine, 1891, A., 231, 750.
- Partheil, Alfred**. See also **Ernst Albert Schmidt**.
- Partridge, Edward J.**, atomic weight of cadmium, 1891, A., 399.
- Paschen, Ernst**, derivatives of *o*-homosalicylaldehyde and of *o*-homophydroxybenzaldehyde, 1892, A., 320.
- Paschen, Friedr.**, relation between potential difference and striking distance in various gases at different pressures, 1889, A., 806.
- surface-tension of polarised mercury in different electrolytes, 1890, A., 552, 1036.
- contact difference of potential of metals, 1891, A., 139.
- development of E.M.F. between mercury and an electrolyte, 1891, A., 374.
- Paschkis, Heinrich**, detection of mercury in animal tissues, 1883, A., 1169.
- occurrence of phytosterol, 1885, A., 291.
- fluorescent constituent of *Atropa Belladonna*, 1886, A., 156, 577.
- Paschkis, Heinrich**, and **Fritz Obermayer**, pharmacological investigations of ketones and acetoximes, 1892, A., 1506.
- Paschkis, Heinrich**, and **Arthur Smita**, lobeline, 1890, A., 1169.
- Paschkowetzky, Salomon**, aromatic secondary chlorocarbamides and tetra-substituted carbamides, 1892, A., 164.
- thiophenylcarbamides, 1892, A., 321.
- Paschkowetzky, Salomon**. See also **Joh. Friedrich Carl Schall**.
- Pashkoff, V.** See **Paul D. Chrustschoff**.
- Passerini, Napoleone**, composition of the fruit of tomatoes (*Solanum lycopersicum*), 1891, A., 956.
- Passmore, Francis W.** See **Wyntham Rowland Dunstan, Emil Fischer**.
- Passon, Max**, alkylation of secondary and primary bases by potassium alkyl sulphates, 1891, A., 1118.
- Pasteur, Louis**, various cattle diseases, 1885, A., 73.
- Pasteur, Louis** (and others), researches on the diseases of animals, 1884, A., 623.
- Pastrovich, Peter**, Reichenbach's picamar, 1883, A., 1004.
- cerulignol; Reichenbach's oxidising principle, 1883, A., 1005.
- detection of artificial colouring matters in wine, 1884, A., 502.
- Patein, Gustave**, cyanogen compounds of sulphines, 1888, A., 661.

- Patein, Gustave**, sulphines, 1889, A., 234; 1890, A., 880.  
 — error in the detection of albumin, 1889, A., 1252.  
 — analysis of pathological liquids, 1891, A., 851.  
 — action of boron fluoride on nitriles, 1891, A., 1441.  
 — transformation of albumin, 1892, A., 362.  
 — detection of normal carbonate in hydrogen alkali carbonates, 1892, A., 1130.
- Paternò, Emanuele**, lapachic acid, 1883, A., 210.  
 — cymenesulphonic acids, 1883, A., 999; 1884, A., 321.  
 — cymene from homocymic acid, 1884, A., 426.  
 — molecular lowering of the freezing point of benzene by phenols, 1889, A., 101, 933.  
 — molecular depression of the freezing point of benzene by iodoform, 1889, A., 566.  
 — constitution of filicic acid, 1889, A., 615.  
 — behaviour of colloid substances with respect to Raoult's law, 1890, A., 105.  
 — hot mineral spring at Solafani, 1892, A., 25.
- Paternò, Emanuele**, and **Luigi Caberti**, derivatives of lapachic acid, 1891, A., 1494.
- Paternò, Emanuele**, and **Giustino Minunni**, derivatives of lapachic acid, 1890, A., 1310.
- Paternò, Emanuele**, and **Raffaele Nasini**, freezing points and molecular weights of organic substances in solution, 1886, A., 970.  
 — molecular weight of sulphur, phosphorus, bromine, and iodine in solutions, 1888, A., 1027.  
 — molecular weight of citraconic, itaconic, mesaconic, fumaric, and maleic acids, 1888, A., 1059.  
 — determination of molecular weights by Raoult's method, 1890, A., 725.
- Paternò, Emanuele**, and **Vincenzo Oliveri**, fluobenzene and fluotoluene, 1884, A., 426.
- Paternò, Emanuele**, and **Alberto Peratoner**, attempts to prepare titanium ethyl, 1889, A., 591.  
 — the two diiodides of acetylene, 1890, A., 1219.  
 — supposed isomeride of acetylene diiodide, 1891, A., 654.
- Pathe, Karl**. See **Werner Kelbe**.
- Patrick, G. H.**, volumetric estimation of fat in milk, 1889, A., 1250.
- Patrouillard, Ch.**, use of oxalic acid as a test for arsenates in alkaline salts, 1888, A., 213.
- Patterson, George W.** See **Leonard P. Kinnicutt**.
- Patterson, Harry Jacob**, estimation of fat in feeding stuffs, 1890, A., 980.
- Patterson, L. G.**, fibrous bisilicate from Nelson Co., Virginia, 1886, A., 131.
- Patterson, Thomas Linn**, estimation of colouring matters by means of their absorption spectra, 1890, A., 1476.
- Pattinson, Hugh Salvin**. See **Wilhelm Michler**.
- Pattinson, John**, rate at which bleaching powder loses its available chlorine when kept at different temperatures, 1888, A., 552.  
 — testing lard for cotton-seed oil and beef stearin, 1890, A., 428.
- Pattinson, John**, and **Hugh Salvin**, estimation of manganese in its ores and alloys, 1892, A., 536.
- Patrel, G.**, estimation of humus in soil by Raulin's process, 1891, A., 627.
- Pauchon, E.**, maximum solubility of sodium sulphate, 1884, A., 556.
- Paucksch, H.**, derivatives of amidoethylbenzenes, 1884, A., 1142; 1885, A., 255.
- Paul, Benjamin H.**, liquid extract of cinchona, 1883, A., 693.  
 — cinchona bark grown in Jamaica, 1883, A., 1165.  
 — cocaine and its salts, 1886, A., 84; 1888, A., 1118.  
 — cocaine benzoate, 1886, A., 633.  
 — estimation of caffeine, 1891, A., 1403.
- Paul, Benjamin H.**, and **Alfred John Cownley**, new alkaloids of Cupressa bark, 1885, A., 563.  
 — cupreine and homoquinine, 1885, A., 997.  
 — amount of caffeine in various kinds of coffee, 1887, A., 394.  
 — coffee, 1887, A., 1002.  
 — estimation of theine in tea, 1888, A., 529; 1891, A., 358.  
 — alkaloid from tea, 1889, A., 416.  
 — cinnamylcocaine in coca leaves, 1890, A., 310.
- Paul, G. A.**, feeding calves with skim milk, 1883, A., 675.
- Paul, Lewis (Turlon)**, identity of certain mixed ethereal oxalates, 1886, P., 168.

- Paul, Theodor**, apparatus for hot filtration, 1892, A., 1150.
- Paul, Theodor**. See also *Ernst Otto Beckmann*.
- Pauli, Friedrich Robert**. See *Walther Nernst*.
- Pauly, Conrad**, detection of potassium by means of sodium bismuth thio-sulphate, 1887, A., 1188.
- Pavel, O.**, nitrososulphides and nitroso-cyanides, 1883, A., 297.
- Pavloffski, V.**, transferring photographs to porcelain or wood, 1885, A., 612.
- Pavy, Frederick William**, physiology of carbohydrates in the animal system, 1883, A., 1160.
- Pawlewski, Bronisław**, critical temperatures of ethereal salts, 1883, A., 276; 1884, A., 252.
- stability of trimethylcarbinol, 1883, A., 565.
- determination of vapour density, 1883, A., 951.
- ethyl phenylcarbonate, 1884, A., 1005.
- action of aluminium chloride on a mixture of alcohols of the paraffin series with ethyl chlorocarbonate, 1884, A., 1279.
- *p*-xylene in Galician petroleum, 1885, A., 1126.
- action of phosphorus pentachloride on santonin, 1886, A., 157.
- action of chloroacetone on diphenylthiocarbamide, 1888, A., 473.
- thiophen, 1888, A., 1068.
- action of chlorosulphonic acid on phenylthiocarbamide, 1889, A., 1165.
- *o*-tolyl- $\beta$ -imidobutyric acid, 1889, A., 1171.
- paraffin, 1890, A., 463.
- influence of pressure on dissociation, 1891, A., 331.
- ethyl chlorocarbonate, 1892, A., 963.
- Pawlewski, Bronisław**, and *Jak. Filemonowicz*, solubility and estimation of paraffin, 1889, A., 82.
- Pawlinoff, Alexander I.**, and *Georg Wagner*, constitution of fufuraldehyde, 1884, A., 1304.
- Pawloff, Dmitri P.**, physiological action of hyosine hydrochloride, 1890, A., 1019.
- Pawloff, Wladimir**, tetric acid, 1883, A., 730.
- tetric acid and its homologues, 1884, A., 41.
- Pawolleck, B.**, estimation of chromic oxide by titration, 1884, A., 640.
- Paysan, W.**, *o*-amidotoluene-*p*-sulphonamide, 1884, A., 72.
- *o*-amidotoluene-*p*-thiosulphonic acid, 1884, A., 453.
- Peacock, Josiah Conegys**, volatile oil from *Aristolochia reticulata*, 1892, A., 70.
- Peake, William Henry Aston**, obituary notice of, 1884, T., 617.
- Péan de Saint-Gilles, L.** See *Paul Hautefeuille*.
- Pearce, George A. C.**, obituary notice of, 1883, T., 254.
- Pearce, Richard**, goslarite from Montana, 1887, A., 346.
- supposed new mineral from Montana, 1890, A., 710.
- Pearson, Karl**, a certain atomic hypothesis, 1888, A., 902.
- Pebal, Leopold von**, mechanical separation of minerals, 1883, A., 158.
- remarks on Popper's researches on the decomposition of chlorine water by sunlight, 1886, A., 302.
- nickel carbide, 1886, A., 851.
- sodium ferrocyanide, 1886, A., 860.
- conjectured thermochemical law respecting non-reversible electrolytic actions, 1887, A., 1072.
- Pebal, Leopold von**, and *Hans Jahn*, specific heat of antimony and its compounds, 1886, A., 655.
- Péchar, E.**, *m*-tungstic acid, 1889, A., 832.
- oxalomolybdic acid and its salts, 1889, A., 858.
- phosphotungstic acid, 1889, A., 1121.
- phosphotri-*m*-tungstic acid and its salts, 1890, A., 704.
- new oxygen compound of molybdenum, 1891, A., 988.
- new oxygen compound of tungsten, 1891, A., 988.
- interaction of chromic acid and barium hydroxide in presence of oxygen, 1891, A., 1431.
- estimation of molybdenum, 1892, A., 917.
- permolybdates, 1892, A., 1160.
- permolybdic acid, 1892, A., 1283.
- heat of formation of permolybdic acid, 1892, A., 1383.
- Péchar, E.** See also *Henri Baubigny, Jules Henri Debray*.
- Pechmann, Hans (Freiherr) von**, synthesis of dihydrouaphthoic acid, 1883, A., 808.
- a condensation product of malic acid, 1884, A., 1124.

- Pechmann, Hans (Freiherr) von**, formation of coumarins; synthesis of daphnetin, 1884, A., 1173.
- acetonedicarboxylic acid, 1885, A., 138; 1891, A., 670.
- synthesis of pyridine derivatives: coumalinic acid, 1885, A., 175.
- constitution of pyridine derivatives derived from coumalinic acid, 1885, A., 558.
- isonitroso-derivatives, 1887, A., 1103.
- constitution of glutazine, 1888, A., 67.
- decomposition of isonitroso-compounds, 1888, A., 146.
- decomposition of nitrosoketones, 1888, A., 248.
- diacetyl and its homologues, 1888, A., 248.
- $\alpha$ -diketones, 1888, A., 811.
- osazones, 1888, A., 1287.
- condensation products of quinone and ethyl acetoacetate, 1889, A., 42.
- diphenyl triketone, 1889, A., 712.
- reduction of diacetyl, 1889, A., 1137.
- oxidation of  $\delta$ -methyl ethylethylene glycol, 1890, A., 1222.
- action of nitrous acid on ethyl acetonedicarboxylate, 1891, A., 738.
- formation, properties, and constitution of osotriazoles, 1891, A., 1110.
- decomposition products of  $\alpha$ -hydroxy-acids; coumalin and coumalinic acid, 1891, A., 1457.
- preparation of dehydracetic acid, 1892, A., 296.
- preparation of fatty 1:2-diketones, 1892, A., 425.
- ethyl acetonedicarboxylate, 1892, A., 431.
- introduction of acid radicals into ethyl acetoacetate, 1892, A., 696.
- constitution of ethyl acetoacetate and of the so-called ethyl formylacetate, 1892, A., 816.
- Pechmann, Hans (Freiherr) von**, and **Otto Baltzer**,  $\alpha$ -pyridone, 1892, A., 208.
- Pechmann, Hans (Freiherr) von**, and **Julius Berend Cohen**, compounds of phenols with ethyl acetoacetate, 1884, A., 1331; 1885, A., 56.
- Pechmann, Hans (Freiherr) von**, and **Franz Dahl**, reduction products of 1:2-diketones, 1890, A., 1234.
- Pechmann, Hans (Freiherr) von**, and **Carl Duisberg**, substituted coumarins, 1884, A., 66.
- Pechmann, Hans (Freiherr) von**, and **Carl Jenisch**, reduction of acetonedicarboxylic acid, 1892, A., 147.
- alkylacetonedicarboxylic acids, 1892, A., 148.
- action of diazobenzene on acetonedicarboxylic acid, 1892, A., 161.
- action of phenylhydrazine on acetonedicarboxylic acid, 1892, A., 162.
- Pechmann, Hans (Freiherr) von**, and **Hermann Müller**, aromatic diketones, 1888, A., 1087.
- Pechmann, Hans (Freiherr) von**, and **Rudolf Otte**, homologues of diacetyl, 1888, A., 1052.
- Pechmann, Hans (Freiherr) von**, and **Henry N. Stokes**, action of ammonia on ethyl acetonedicarboxylate, 1885, A., 1202.
- Pechmann, Hans (Freiherr) von**, and **Karl Wehsarg**, diisonitrosoacetone, 1887, A., 28.
- dinitrosoacetone, 1889, A., 31.
- hydrazoximes, 1889, A., 47.
- Pechmann, Hans (Freiherr) von**, and **William Welsh**, some new coumarins, 1884, A., 1346.
- pyridine derivatives from malic acid, 1885, T., 145; P., 5; A., 174.
- Pechmann, Hans (Freiherr) von**. See also **Otto Baltzer**, **Beverley S. Burton**, **Hans Cornelius**, **Max Dünshmann**, **August Jonas**, **Hermann Müller**, **Rudolf de Neufville**, **Alexander Nieme**, **Rudolf Otte**, **Henry N. Stokes**.
- Peckham, Stephen Farnum**, origin of bitumens, 1885, A., 488.
- Peckolt, Theodore**, "maté," or Paraguay tea, 1884, A., 479.
- Pedler, Alexander**, action of light on phosphorus: properties of amorphous phosphorus, 1890, T., 599.
- action of chlorine on water in the light: action of light on certain chlorine acids, 1890, T., 618; P., 65.
- explosion of hydrogen sulphide and of the vapour of carbon bisulphide with air and oxygen, 1890, T., 625; P., 66.
- Pehkschen, Carl**, alkaloids of *Veratrum album*, 1891, A., 87.
- Peile, Henry**, analysis of Shotley Bridge Spa water, 1888, A., 569.
- Peine, Georg**, derivatives of cinnamaldehyde, 1884, A., 1344.
- Peirce, Benjamin Osgood**, and **Robert Wheeler Willson**, measurement of the internal resistance of batteries, 1890, A., 315.

- Pekatoros, George.** See *Euthyme Klimenko*.
- Pekelharig, Cornelis Adrianus,** coagulation of the blood, 1892, A., 87.
- fibrin ferment, 1892, A., 1112.
- Pekrun, Hans.** See *Eugen Lellmann*.
- Pelliot, Eugène Melchior,** carbon bisulphide in aqueous solution as a remedy for phylloxera, 1885, A., 77.
- water from Uriage, Isère, 1886, A., 37.
- Pellacani, Paolo, and Giacomo Bertoni,** physiological action of ethyl lactate, 1888, A., 309.
- Pellat, Henri,** absolute electrodynamicometer, 1887, A., 200.
- contact potential of a metal and its salts, 1889, A., 661.
- electrical behaviour of metals in salt solutions, 1892, A., 393.
- Pellatt-Rickmann.** See *Rickmann*.
- Pellet, Henri,** animal charcoal in sugar refining, 1885, A., 205.
- sugar-beet seed as fodder for cattle, 1885, A., 425.
- direct estimation of sugar in beet, 1885, A., 842, 1163.
- estimation of sugars in beet by digestion with water, 1889, A., 314.
- Pellet, Henri, and L. Biard,** composition and properties of raffinose, 1886, A., 220.
- Pellet, Henri, and A. Dubaele,** manufacture of sugar without bone-charcoal or sulphurous anhydride, 1883, A., 835.
- Pellet, Henri.** See also *G. Dureau, Ed. Robinet*.
- Pellizzari, Guido,** benzylic ethers of the dihydroxybenzenes, 1884, A., 437.
- amidobenzoic acid derivatives of succinic, sebacic, and phthalic acids, 1885, A., 533.
- combinations of ammonia with ammonium salts, 1885, A., 723.
- reduction of nitrobenzyl chloride, 1885, A., 770.
- derivatives of amidobenzoic acid, 1886, A., 548.
- phenylhydrazine derivatives, 1886, A., 1025.
- oxidising action of alloxan, 1887, A., 1100.
- isomeric phthalophenylhydrazines, 1888, A., 54.
- compounds of alloxan with aromatic amines, 1888, A., 142, 681.
- alloxan hydrogen sulphites of organic bases, 1889, A., 239.
- cholamide and hippuramide, 1889, A., 286.
- Pellizzari, Guido,** compounds of alloxan with pyrazolic bases, 1889, A., 517; 1890, A., 645.
- anilguanidine, 1891, A., 1471.
- amidobenzoic derivatives of ethyl acetoacetate, 1891, A., 1484.
- phenylguanazole, 1892, A., 356.
- nitroguanidine, 1892, A., 579.
- Pellizzari, Guido, and Vittorio Matteucci,** amidosulphonic acids, 1888, A., 1302.
- Pellizzari, Guido, and Deodato Tivoli,** action of cyanogen chloride on phenylhydrazine, 1892, A., 1323.
- Pellizzari, Guido.** See also *Donato Tommasi*.
- Pelz, Anton, and Eugen Hussak,** the trachyte region of the Rhodope, 1884, A., 414.
- Pemberton, Henry, junior,** potash alum from felspar, 1888, A., 424.
- working of sulphuric acid chambers, 1883, A., 887.
- manufacture of sulphuric acid, 1884, A., 126.
- chromite, 1891, A., 992.
- Pembrey, Marcus Seymour.** See *John Scott Haldane*.
- Pendlebury, William Henry, and Miss Margaret Seward (Mrs. McKillop),** gradual chemical change, 1889, A., 462.
- Pendleton, John Hunter,** antimony pentiodide, 1884, A., 19.
- Pendleton, John Hunter.** See also *Arthur Michael*.
- Pendrié, A.,** cyanogen and its compounds in the products of coal distillation, 1889, A., 653.
- Penfield, Samuel Lewis,** occurrence and composition of some American varieties of monazite, 1883, A., 162.
- phenylhomoparaconic acids, 1883, A., 473.
- descloizite from Mexico, 1884, A., 24.
- analyses of lithiophilite, 1884, A., 26.
- occurrence of alkalis in beryl, 1885, A., 490.
- crystallised tiemannite and meta-cinnabarite, 1886, A., 314.
- analcime from Lake Superior, 1886, A., 318.
- brookite from Magnet Cove, Arkansas, 1886, A., 989.
- vanadinite from Arizona and New Mexico, 1887, A., 347.
- phenacite from Colorado, 1887, A., 452.
- hertrandite from Mt. Ontario, Colorado, 1889, A., 24.

- Penfield, Samuel Lewis**, spangolite, 1890, A., 1073.  
 — connellite from Cornwall, 1891, A., 157.  
 — crystals of copper pyrites, 1891, A., 273.  
 — anthophyllite from Franklin, North Carolina, 1891, A., 529.  
 — beryllium minerals from Colorado, 1891, A., 530.  
 — aurichalcite, 1891, A., 886.
- Penfield, Samuel Lewis, and David Neil Harper**, heiderite and beryl, 1886, A., 989.  
 — chemical composition of ralsstonite, 1887, A., 345.
- Penfield, Samuel Lewis, and Erwin Starr Sperry**, howlite, 1888, A., 116.  
 — mineralogical notes, 1889, A., 356.
- Penfield, Samuel Lewis, and Francis Lewis Sperry**, pseudomorphs of garnet, 1887, A., 117.  
 — triclinic feldspars, 1888, A., 350.
- Penfield, Samuel Lewis**. See also *George Jarvis Brush, Edward Salisbury Dana, Frederick Augustus Genth, William Earl Hidden, Joseph Paxson Iddings, Horace Lemuel Wells*.
- Penrose, Richard Alexander Fullerton**, limonite in Texas, 1892, A., 1405.
- Penzoldt, Franz, and Emil Fischer**, new test for aldehydes, 1883, A., 829.
- Penzoldt, Franz, and Richard Fleischer**, influence of respiration on elimination, 1884, A., 91.
- Penzoldt, Franz**. See also *Emil Fischer*.
- Peratoner, Alberto**, oxidation of the methyl ethers of mono- and di-bromo-*o*-isopropylphenols, 1887, A., 472.  
 — substituted mono- and di-bromosalicylic acids, 1887, A., 486.  
 — constitution of dibromosalicylic acid, 1887, A., 487.  
 — sparteine, 1892, A., 1362.
- Peratoner, Alberto, and Balassari Strazzeri**, synthesis of pyrone, 1891, A., 1333.
- Peratoner, Alberto**. See also *Vincenzo Oliveri, Emanuele Paternò*.
- Percival, John**,  $\beta$ -methoxynaphthalene-sulphonic acids, 1889, P., 73.
- Perdrix, Léon**, a bacterium which ferments starch and produces amyl alcohol, 1892, A., 90.
- Perger, Hugo (Ritter) von**, estimation of morphine in opium, 1884, A., 1217.  
 — action of ethyl acetoacetate and acetonedicarboxylate on hydrazo-compounds, 1886, A., 898, 1046.
- Périer, Léon**, solubility of sugar in water, 1889, A., 816.
- Perkin, Arthur George**, on some derivatives of diphenyleneketone, 1883, T., 187.  
 — action of nitric acid on anthracene, 1889, P., 13; 1891, T., 634.  
 — action of nitric acid on oxanilide and similarly constituted substances, 1892, T., 458; P., 56.
- Perkin, Arthur George, and John Edwin Mackenzie**, action of nitric acid on anthracene, 1892, T., 865; P., 144.
- Perkin, Arthur George, and William Henry Perkin, junior**, derivatives of anthraquinone, 1885, T., 679; P., 97; 1888, T., 831; P., 87.  
 — kamala, 1887, A., 272.
- Perkin, Frederick M.**, derivatives of piperonyl, 1891, T., 150; P., 27.
- Perkin, William Henry, senior**, note on the preparation of diphenylene ketone oxide, 1883, T., 35.  
 — preliminary notes on some diazo-derivatives of nitrobenzyl cyanide, 1883, T., 111.  
 — presidential addresses, 1884, T., 209; 1885, T., 300; P., 43.  
 — on the magnetic rotary polarisation of compounds in relation to their chemical constitution; with observations on the preparation and relative densities of the bodies examined, 1884, T., 421.  
 — constitution of undecylenic acid as indicated by its magnetic rotation; magnetic rotation of mono- and diallylacetic acids and of ethyl diallylmalonate, 1886, T., 205; P., 153.  
 — formation of acids from aldehydes by the action of anhydrides and salts, and formation of ketones from the compounds resulting from the union of anhydrides and salts, 1886, T., 817; P., 165.  
 — magnetic rotation of mixtures of water with fatty acids, alcohol, and sulphuric acid, 1886, T., 777.  
 — tartaric and racemic acids and the magnetic rotation of their ethereal salts, 1887, T., 362; P., 29.  
 — magnetic rotation and densities of chloral, chloral hydrate, and hydrated aldehydes, 1887, T., 808; P., 82.  
 — magnetic rotatory power of the ethyl salts of maleic and citraconic acids and their isomerides, 1887, P., 98.  
 — on the magnetic rotatory power of some of the saturated and unsaturated bibasic acids and their derivatives: also of mesityl oxide, 1888, T., 561.

- Perkin, William Henry, senior**, apparatus for maintaining a constant pressure when distilling under reduced pressure, 1888, T., 689; P., 71.
- chlorofumaric and chloromaleic acids and the magnetic rotatory power of some of their derivatives, 1888, T., 695; P., 75.
- action of the chlorides of propionyl and butyryl on phenol, 1889, T., 546.
- melting points of some salicylic and anisic compounds, 1889, T., 549; P., 105.
- magnetic rotatory power of nitrogen compounds, of hydrochloric, hydrobromic, and hydriodic acids, and of some of the salts of ammonia and the compound ammonias, 1889, T., 680; P., 83, 130; discussions, P., 86, 131.
- the magnetic rotation of saline solutions, 1890, P., 141; discussion, P., 145.
- magnetic rotatory power of solutions of ammonium and sodium salts of some of the fatty acids, 1891, T., 981; P., 125.
- the refractive power of certain organic compounds at different temperatures, 1891, P., 115; discussion, P., 116; 1892, T., 287.
- the magnetic rotation of compounds supposed to contain acetyl, or to be of ketonic origin, 1892, T., 800; P., 100; discussion, P., 101.
- the magnetic rotation of sulphuric and nitric acids and of their aqueous solutions; also of solutions of sodium sulphate and lithium nitrate, 1892, P., 161.
- Perkin, William Henry, senior.** See also *John Hall Gladstone*.
- Perkin, William Henry, junior**, on the condensation-products of cenanthaldehyde, Part I., 1883, T., 45, 67.
- on the condensation-products of isobutaldehyde obtained by means of alcoholic potash, 1883, T., 90.
- action of trimethylene bromide on ethyl acetoacetate, benzoylacetate, and malonate, 1883, A., 1083.
- benzoylactic acid and some of its derivatives, 1884, T., 170; 1885, T., 240; P., 17, 31.
- action of ethylene bromide on ethyl acetoacetate and benzoylacetate, 1884, A., 64.
- action of ethylene bromide on ethyl malonate, 1884, A., 832.
- existence of the trimethylene ring, 1884, A., 992.
- Perkin, William Henry, junior**, trimethylene derivatives, 1884, A., 1154.
- action of ethyl dibromosuccinate on ethyl malonate, 1884, A., 1300.
- synthetical formation of closed carbon chains. Part I. On some derivatives of trimethylene, 1885, T., 801.
- trimethylene iodide, 1885, A., 495.
- dehydracetic acid, 1885, A., 515; 1887, T., 484; P., 35.
- action of aniline on methyl dehydracetate, 1885, A., 761.
- trimethylenedicarboxylic acid, 1885, A., 1049; 1886, A., 688; 1887, T., 849.
- pentamethylenedicarboxylic acid, 1886, A., 225.
- *o*-phenylenediacrylic acid, 1886, A., 469.
- action of trimethylene bromide on ethyl sodacetoacetate, 1886, A., 689.
- condensation of formaldehyde with ethyl malonate, 1886, A., 691.
- tetramethylenedicarboxylic acid, 1886, A., 934.
- synthetical formation of closed carbon chains. Part II. On some derivatives of tetramethylene, 1887, T., 1.
- synthetical formation of closed carbon chains. Part III. Some derivatives of pentamethylene, 1887, T., 240; P., 12, 96; discussion, P., 13, 97.
- synthetical formation of closed carbon chains. Part II. (cont.). Action of trimethylene bromide on the sodium compounds of ethylic acetoacetate, benzoylacetate, *p*-nitrobenzoylacetate, and acetonedicarboxylate, 1887, T., 702; P., 55.
- synthetical formation of closed carbon chains. Part I. (cont.). Trimethylenedicarboxylic acid, 1887, T., 849.
- action of trimethylene bromide on ethyl acetoacetate, benzoylacetate, and acetonedicarboxylate, 1887, A., 32.
- synthetical formation of closed carbon chains in the aromatic series. Part I. Derivatives of hydrindonaphthene and tetrahydronaphthalene, 1887, P., 92; 1888, T., 1.
- berberine derivatives, 1888, P., 111; 1889, T., 63; 1890, T., 992; P., 117.
- ethyl  $\alpha$ -diacetyladipate, 1889, P., 141; 1890, T., 204.
- preparation of pyrocatechol, 1890, T., 587; P., 90.
- acetylcarbinol, 1891 T. 786; P., 40.

- Perkin, William Henry, junior**, action of methylene iodide on the disodium compound of ethyl pentanetetracarboxylate: synthesis of hexamethylene derivatives, 1891, T., 798.  
 — formation of anthraquinone from *o*-benzoylbenzoic acid, 1891, T., 1012.  
 — note on a new acid from camphoric acid, 1892, P., 55, 68.
- Perkin, William Henry, junior**, and **Gustav Bellenot**, *p*-nitrobenzoylactic acid, 1884, A., 1023; 1885, A., 794.  
 — *p*-nitrobenzoylactic acid and some of its derivatives, 1886, T., 440; P., 193.
- Perkin, William Henry, junior**, and **Carl Bernhart**, dehydracetic acid, 1884, A., 1121.
- Perkin, William Henry, junior**, and **Albert Calman**, benzoylactic acid and its derivatives, 1886, T., 154; P., 139.
- Perkin, William Henry, junior**, and **Paul C. Freer**, ethyl acetotrimethylencarboxylate, 1887, A., 33.
- Perkin, William Henry, junior**, and **Maryann Obremsky**,  $\alpha$ -diacetyladipic acid, 1886, A., 936.
- Perkin, William Henry, junior**, and **Bertram Prentice**, synthesis of homologues of pentanetetracarboxylic acid and of pinelic acid, 1891, T., 818; P., 124.  
 — new synthesis of the hexamethylenedicarboxylic acids, 1891, T., 990; P., 43.
- Perkin, William Henry, junior**, and **Augustus Schloesser**, diphenylfuran, 1890, T., 944; P., 162.
- Perkin, William Henry, junior**, and **W. Sinclair**, synthetical formation of closed carbon-chains. Part II. (cont.). Derivatives of tetramethylene, 1891, P., 191; 1892, T., 37.
- Perkin, William Henry, junior**, and **James Stenhouse**, benzoylactic acid and some of its derivatives, 1891, T., 996; P., 42.  
 — synthetical formation of closed carbon chains. Part I. (cont.). Action of propylene bromide on the sodium compounds of ethyl acetoacetate and benzoylacetate, 1891, P., 190; 1892, T., 67.
- Perkin, William Henry, junior**, and **John Bishop Tingle**, acetylcarbinol (acetol), 1889, P., 156.
- Perkin, William Henry, junior**. See also **Adolf von Baeyer**, **Arthur Wright Bishop**, **D. Rainy Brown**, **Harold Everett Colman**, **Paul C. Freer**, **Frederick Stanley Kipping**, **John Edwin Mac-**
- kenzie**, **T. Rhymor Marshall**, **Arthur George Perkin**.
- Perl, Jaques**, thiosulphonic acids and sulphinic acids of toluene, 1885, A., 391.
- Perman, Edgar Philip**, boiling-points of sodium and potassium, 1889, T., 326; P., 78.  
 — experiments on vapour density, 1891, A., 253.
- Pernou, M.** See **Friedrich Krüger**.
- Perret, Michel**, estimation of tannin in vegetable products, 1884, A., 696.
- Perrey, A.** See **Paul Hautefeuille**.
- Perrey, Ad.**, use of copper sulphate to destroy mildew, 1885, A., 77.
- Perrier, G.**, *m*-phenyltoluene, 1892, A., 851.
- Perrier, G.** See also **Emile Louise**.
- Perron**, adulteration of milk, 1890, A., 428.  
 — estimation of lead in tin, 1890, A., 665.
- Perry, George H.** See **Thomas Edward Thorpe**.
- Perry, John.** See **William Edward Ayrton**.
- Perry, Nelson W.**, fusion, casting, dephosphorising, and plating of iridium, 1885, A., 462.
- Personne, J.**, an alcohol from birdlime, 1884, A., 1365.
- Pesci, Leone**, *Phellandrium aquaticum*, 1884, A., 331.  
 — phellandrene, 1886, A., 1038.  
 — action of potassium nitrite on ferric chloride, 1888, A., 1252.  
 — *d*-terebenthene, 1889, A., 157.  
 — new ammoniacal mercury compounds and a new reaction for mercur-ammonium compounds, 1890, A., 1211.  
 — so-called ammoniacal mercury compounds, 1891, A., 268; 1892, A., 685.  
 — action of phthalic anhydride on amidoterebenthene, 1891, A., 1086.  
 — mercurioanilido-compounds, 1892, A., 1448.
- Pesci, Leone**, and **Ciro Bettelli**, terebenthene derivatives, 1887, A., 272.
- Peter**, action of oils on polarised light, 1888, A., 760.
- Peter, Arnold**, condensation products of thiophen with aldehydes, 1884, A., 1000.  
 — acetothionone and some of its derivatives, 1885, A., 141.  
 —  $\beta$ -acetothionone and its derivatives, 1885, A., 764.  
 — isomeric thiophenic acids, 1885, A., 765.
- Peter, H. von.** See **Max Schrödt**.

- Peter, J.**, estimation of non-volatile residue in wine, 1885, A., 692.  
 — estimation of sulphur in steel and iron, 1885, A., 1161.
- Peter, J., and Olivier & Hector de Rochefontaine**, crystallised anhydrous zinc acetate, 1885, A., 371.
- Petermann, Arthur**, composition of fodders, 1883, A., 111.  
 — manurial value of "dissolved wool," 1883, A., 500.  
 — analysis of materials used in the preparation of composts, 1883, A., 504.  
 — dialysis of arable land 1884, A., 113.  
 — analysis of heather, bracken and broom, 1884, A., 207.  
 — manurial value of nitrogenous refuse: dried blood, 1884, A., 211.  
 — composition of chicory, 1884, A., 648.  
 — beet culture with artificial manures, 1884, A., 1420.  
 — estimation of reverted phosphonic acid, 1885, A., 837.  
 — waste products as manures, 1888, A., 749.  
 — organic nitrogenous manures, 1888, A., 990.  
 — estimation of sugar in beet, 1888, A., 994.  
 — application of potassium chloride to sugar-beet on heavy soil, 1888, A., 1128.  
 — bats' guano from Cuba, 1889, A., 436.  
 — assimilation of the phosphoric acid in basic slag, 1889, A., 647.  
 — manuring with fish guano, 1889, A., 647.  
 — the nitrogen question, 1890, A., 816.
- Peters, Karl**, linoleic acid, 1887, A., 126.
- Peters, Karl**. See also *Carl Wilhelm Will, Karl Zulkowski*.
- Peters, Theodor**, action of ammonia on alkylated acetoacetates, and of alcohols on the carboxyl group in acetoacetates, 1888, A., 253.  
 — action of alcohols on ethyl acetoacetate, 1890, A., 1096.  
 — behaviour of ethereal salts of alkyl substituted acetoacetic acids with ammonia, 1890, A., 1097.
- Peters, Theodor**. See *Oscar Gustav Doeber*.
- Peters, W.**, adulteration of vegetable fatty oils, 1889, A., 316.
- Petersen, nutritive value of hay grown on marsh lands**, 1885, A., 929.
- Petersen, Andreas S. F.**, ethereal oil of *Isorium europaeum*, 1888, A., 680.
- Petersen, Emil**, fluorine derivatives of vanadium and its analogues, 1889, A., 107, 1123; 1890, A., 15; 1891, A., 881.  
 — heat of neutralisation of fluorides, 1890, A., 1.  
 — neutralisation phenomena of aluminium and beryllium, 1890, A., 680.  
 — allotropic state of some elements, 1892, A., 405.
- Petersen, Friedrich Carl**, pyrolidine, 1888, A., 498.
- Petersen, Friedrich Carl**. See also *Albert Ladenburg*.
- Petersen, Johannes August**, enstatite and labradorite from the Cheviots, 1886, A., 211.
- Peterson, H.**, estimation of iron and chromium in alloys, 1885, A., 194.
- Petersson, Walfr.**, gadolinite and holmite, 1891, A., 1168.  
 — gadolinite, 1892, A., 1410.
- Petit, Auguste**, assay of cinchona bark, 1885, A., 447.  
 — titration of organic matter in water, 1885, A., 841.
- Petit, Paul**, heat of formation of aniline, 1888, A., 773.  
 — thermochemistry of nitrogen derivatives of benzene, 1888, A., 1013.  
 — heats of formation of toluidines, benzylamine, and methylaniline, 1888, A., 1239.  
 — decomposition of benzidine hydrochlorides by water, 1889, A., 260.  
 — production of dextrin, 1892, A., 577.  
 — product of the oxidation of starch, 1892, A., 1171.  
 — distribution and condition of iron in barley, 1892, A., 1509.
- Petit, Paul**. See also *Marcellin Berthelot*.
- Petracek, J.**, aldorimes, 1883, A., 569.
- Petrenko-Kritschenko, Pavel Iv.**, derivatives of deoxybenzoin, 1892, A., 1227.
- Petrenko-Kritschenko, Pavel Iv.**. See also *Petr G. Melikoff*.
- Petri, Richard Julius**, behaviour of aldehyde, glucose, peptone, albuminous substances, and acetone towards diazobenzenesulphonic acid, 1884, A., 1322.  
 — reduction of nitrates by the cholera bacteria, 1890, A., 76.
- Petri, Richard Julius, and Th. Lehmann**, estimation of the total nitrogen in urine, 1884, A., 1410.
- Petricou, Ion**, method of chlorinating aromatic compounds, 1890, A., 882.

- Petricu, Ion.** See also *Constantin I. Istrati*.
- Petrieff, Basil M.**, isomerides of fumaric and maleic acids, 1884, A., 1301.  
— new aniline colours, 1884, A., 1322.
- Petroff.** See *Tichomiroff*.
- Petrowitsch, M.**, does every wine contain tartar? 1886, A., 652.  
— lime in tanning materials, 1890, A., 312.
- Petschow, Georg.** See *Oscar Gustav Doeberner*.
- Pettenkofer, Max Josef von, Adolf von Baeyer and Julius Ludwig Clemens Zimmermann**, the Liebig memorial statue at Munich, 1884, A., 880.
- Pettersson, Otto**, physical properties of sea-water and ice, 1884, A., 889.  
— apparatus for gas analysis, 1887, A., 179.  
— air analysis on a new principle, 1887, A., 180.  
— volumetric estimation of gases dissolved in water, 1889, A., 1034.  
— estimation of carbonic anhydride, 1890, A., 1188.
- Pettersson, Otto**, and *A. Höglund*, analysis of the atmosphere, 1890, A., 412.
- Pettersson, Otto**, and *(Miss) Auguste Palmquist*, portable apparatus for the estimation of carbonic anhydride in the atmosphere, 1887, A., 999.
- Pettersson, Otto**, and *A. Smitt*, estimation of free and combined carbon in iron and steel, 1890, A., 1027.
- Pettersson, Otto**, and *Klas Söndén*, absorptive power of water for atmospheric gases, 1889, A., 935.
- Pettersson, Otto.** See also *Lars Fredrik Nilson*.
- Pettigrew, Harlan P.**, oil of birch, 1884, A., 459.  
— oil of gaultheria, 1885, A., 528.
- Peyrou, Jean Pierre**, variations in the composition of the gases in leaves, 1886, A., 273.  
— variations of the internal atmosphere of plants, 1889, A., 641.
- Peyrou, Jean Pierre.** See also *Nestor Gréhan*.
- Pezzolato, A.**, estimation of nicotine in presence of ammonia, 1891, A., 771.
- Pfaff, Franz** (Zürich), reduction of substituted phenols, 1883, A., 802.  
— a new homologue of resorcinol, 1883, A., 918.
- Pfaff, Franz** (Strassburg), poisonous constituents of "Timbo," 1891, A., 938.
- Pfaff, Friedrich**, absolute hardness of minerals, 1886, A., 20.
- Pfannenstill, Erik**, xylenedisulphonic acids, 1892, A., 1340.
- Pfaundler, Leopold**, explosion of a tube containing liquid carbonic anhydride, 1883, A., 422.  
— explosion of a zinc gasometer containing oxygen, 1883, A., 524.  
— action of compressed carbonic anhydride on glass, 1885, A., 868.
- Pfeffer, Wilhelm**, intramolecular respiration, 1886, A., 170.  
— absorption of aniline colours by living cells, 1887, A., 747.  
— oxidation in the living cell, 1889, A., 1028.  
— reduction of silver nitrate in the living cell, 1889, A., 1028.
- Pfeiffer, Emil** (Jena), occurrence of hydrogen sulphide and sulphur in the Stassfurt salt deposits, 1890, A., 336.
- Pfeiffer, Emil** (Wiesbaden), milk analysis, 1883, A., 521.  
— influence of salts on certain digestive processes, 1885, A., 827.
- Pfeiffer, Emanuel W. R.**, electrical conductivity of solutions of carbonic anhydride, 1885, A., 212.  
— electrical conductivity of aqueous alcohol, 1885, A., 1029.  
— electrical conductivity of alcohol, 1886, A., 4.  
— electrical conductivity of mixtures of ethylalcohol and ether, 1886, A., 115.  
— conductivity of pure water and its temperature coefficients, 1888, A., 11.  
— change in freshly prepared solutions, 1890, A., 204.  
— action of water on glass, 1892, A., 120.
- Pfeiffer, George**, preparation of halogen derivatives of pyridine bases from the pyridinecarboxylic acids, 1887, A., 844.
- Pfeiffer, George.** See also *Arthur Rudolf Hantzsch*.
- Pfeiffer, Gustav.** See *Werner Kelbe*.
- Pfeiffer, Hermann**, partially miscible solutions, 1892, A., 1046.
- Pfeiffer, Ludwig.** See *Josef Brandl*.
- Pfeiffer, Otto.** See *Adolph Claus*.
- Pfeiffer, Theodor**, artificial and natural digestion of nitrogenous matter, 1883, A., 227.  
— estimation of urea by titration, 1885, A., 450; 1888, A., 539.  
— estimation of products of metabolism in faeces, 1886, A., 571.  
— estimation of the nitrogen of products of metabolism, 1886, A., 1053.  
— natural and artificial digestion, 1887, A., 167.

- Pfeiffer, Theodor**, and **Franz Lehmann**, Kjeldahl's method of estimating nitrogen, 1886, A., 179.
- digestibility of fresh and dried beet residues, 1886, A., 1054.
- addition of sugar to cattle-foods, 1887, A., 511.
- fat equivalent of starch, 1888, A., 973.
- Pfeiffer, Theodor** (and others), formula of starch, 1883, A., 307.
- Pfeiffer, Theodor**. See also **Ernst Kern**.
- Pfitzinger, Wilh.**, trimethylquinoline, 1885, A., 1246.
- quinoline derivatives from isatinic acid, 1886, A., 370; 1889, A., 412.
- *α*-dimethyl-*p*-tolquinoline, 1888, A., 1207.
- Pfitzinger, Wilh.**, and **Carl Duisberg**, constitution of  $\beta$ -naphthol- $\alpha$ -sulphonic acid and  $\beta$ -naphthol- $\alpha$ -disulphonic acid, 1889, A., 515.
- Pfitzinger, Wilh.**, and **Ludwig Gattermann**, constitution of primulin, 1889, A., 867.
- Pfäfer, Eduard Friedrich Wilhelm**, titration of urea with mercuric nitrate, 1888, A., 201.
- synthetical processes in the animal organism, 1889, A., 174.
- Pfäfer, Eduard Friedrich Wilhelm**, and **Leopold Bleibtren**, estimation of urea, 1890, A., 308.
- Pfäfer, Eduard Friedrich Wilhelm**, and **Karl Bohland**, simple method of estimating nitrogen in urine, 1885, A., 608.
- Hüfner's method of estimating urea, 1887, A., 90.
- estimation of urea in human urine with sodium hypobromite, 1887, A., 90.
- Pfäfer, Eduard Friedrich Wilhelm**, and **Friedrich Schenck**, titration of urea by hypobromite after Hamburger's method, 1886, A., 396.
- Pfug, Constantia**, ignatifeffite, a new variety of aluminite, 1887, A., 1085.
- Pfug, Ludwig**, *p*-xyldine, 1890, A., 606.
- Pfug, Ludwig**. See also **Theodor Curtius**.
- Pfordten, Otto (Freiherr) von der**, estimation of phosphoric acid, 1883, A., 121.
- reduction of molybdenum compounds, 1883, A., 122.
- reduction of tungsten compounds, 1883, A., 554, 785.
- reduction of molybdenum and tungsten compounds, 1884, A., 559.
- Pfordten, Otto (Freiherr) von der**, reduction of molybdenum sulphide, 1884, A., 965.
- titanium, 1884, A., 1093; 1887, A., 14, 337.
- estimation of molybdenum and tungsten, 1884, A., 1429.
- purification of hydrogen sulphide from arsenic, 1885, A., 347.
- new reagent for the absorption of oxygen, 1885, A., 836.
- formation of red silver solutions by reduction, 1885, A., 955.
- condensation of hydrocyanic acid, 1885, A., 1120.
- lowest compounds of silver, 1887, A., 699.
- lowest oxide of silver, 1888, A., 221, 1029.
- mercurous oxide, 1888, A., 1037.
- Pfordten, Otto (Freiherr) von der**. See also **Wilhelm Bruns, Theodor Koenig**.
- Pfrenger, Max**, phenol of birchwood tar, 1891, A., 432.
- Pfuef, von**, cultivation of two varieties of sorghum, and preparation of sugar therefrom, 1885, A., 79.
- Pfuff, Aug.**, hydrazinebenzenesulphonic acids, 1887, A., 933.
- indoles, 1887, A., 956.
- Pfungst, A.**, reactions with nitromethane, 1885, A., 1197.
- action of nitromethane on some chlorhydrins, 1886, A., 862.
- Philip, Max**, action of *o*-toluidine on quinol and resorcinol, 1886, A., 941.
- Philip, Max**, and **Arthur Calm**, derivatives of *p*-hydroxydiphenylamine, 1885, A., 155.
- Philip, Max**. See also **Eugen Bamberger**.
- Philipp, Julius**, silver hypophosphate, 1883, A., 1052.
- basic potassium beryllium oxalate, 1883, A., 1085.
- Philipp, Otto**. See **Bernhard Fischer**.
- Philips, Alfred**. See **Martin Freund, Carl Graebe**.
- Philips, B. (and Co.)**, analysis of tartar and wine-lees, 1891, A., 372.
- Philips, Bernhard**, triphenylarsine, 1886, A., 618.
- asymmetrical secondary hydrazines, 1887, A., 1101.
- action of alkyl bromides and of benzyl chloride on phenylhydrazine: preparation of asymmetrical secondary phenylhydrazines, 1889, A., 1158.
- Philips, Bernhard**. See also **Carl Arnold August Michaelis**.

- Phillips, S. J.**, conversion of maltose into glucose, 1883, A., 38.
- Philipson, Otto.** See *Adolph Claus*.
- Phillips, Francis C.**, absorption of metallic oxides by plants, 1883, A., 231.
- Phillips, Harcourt**, valuation of calcium acetate, 1886, A., 747.
- Phillips, Henry Joshua**, estimation of caustic and carbonated alkalis in presence of each other, 1886, A., 920.
- estimation of sulphur in copper, 1891, A., 362.
- estimation of turpentine in paints and varnishes, 1891, A., 1302.
- Phillips, W. B.**, reversion of phosphoric acid by heat, 1885, A., 615.
- Phipson, Thomas Lamb**, colouring matter (ruberine) and alkaloid (agarythrine) in *Agaricus ruber*, 1883, A., 100.
- constant production of oxygen by *Protococcus pluvialis* in sunlight, 1884, A., 201.
- production of ether by the action of *Aspergillus glaucus* on lemon juice, 1884, A., 855.
- chemical phenomena of the respiration of plants, 1884, A., 1403; 1885, A., 420.
- identity of regianin and juglone, 1885, A., 1142.
- caffeic acid, etc., in Virginia creeper, 1885, A., 1255.
- estimation of phosphoric acid in contaminated waters, 1888, A., 533.
- rhinanthin, 1888, A., 1310.
- tin in sugar, 1889, A., 1036.
- vegetable hæmatin, 1891, A., 815.
- Phomina, E.**, compounds of the xanthone series, 1890, A., 389.
- $\alpha$ - and  $\beta$ -naphthylphenylene ketone oxide and methyldiphenylene ketone oxide, 1890, A., 901.
- Phookan, Rhaulikaram D.**, and *Friedrich Kraft*, derivatives of sebacic acid, 1892, A., 1180.
- Piccard, Jules**, cantharidin, 1886, A., 723.
- cantharene, 1892, A., 1480.
- Piccini, Augusto**, oxidation of titanous acid, 1883, A., 1055.
- double fluorides and oxyfluorides of titanium, 1884, A., 264.
- double titanium fluorides, 1886, A., 110.
- detection of nitric acid in presence of nitrous acid, 1886, A., 740.
- mineral associated with the columbite of Val Vigizzo, 1887, A., 1085.
- new oxide of thallium, 1888, A., 110.
- Piccini, Augusto**, titanium trioxide, 1888, A., 789.
- fluorine derivatives of petitanic acid, 1888, A., 1255.
- action of ammonia on solutions of normal ammonium titanofluoride, 1891, A., 271.
- new series of fluoroxy-compounds of molybdenum, 1892, A., 784.
- Piccini, Augusto**, and *Giovanni Giorgis*, new fluorine compounds of vanadium, 1889, A., 214; 1892, A., 785.
- Piccini, Augusto**, and *Francesco Marino-Zucco*, action of nitrites on ferrous salts, 1886, A., 418.
- Pichard, P.**, plastering of wines; rapid estimation of cream of tartar, 1883, A., 755.
- potassium tartrate in plastered wine and estimation of tartaric acid, 1884, A., 372.
- absorptive power of different kinds of soil for water, 1884, A., 633.
- comparative nitrifying action of certain salts, 1884, A., 924, 1417.
- removal of mildew in vines, 1885, A., 590.
- influence of calcium sulphate and of clay on the absorption of nitrogen by soils, 1889, A., 1239.
- nitrogen in the soil: nitrification and fixation of atmospheric nitrogen, 1890, A., 545.
- influence of iron and calcium sulphates on nitrification, 1891, A., 1543.
- influence of the proportion of clay and organic nitrogen in fallow soils on the absorption of atmospheric nitrogen, the retention of nitrogen, and nitrification, 1892, A., 656.
- comparative nitrification of humus and undecomposed organic matter, 1892, A., 906.
- Pichler, Adolf**, phyllites of the Tyrolean Alps, 1884, A., 274.
- Pick.** See *Ewer*.
- Pick, B.** See *Hugo Weidel*.
- Pick, Benedict.** See *Emilio Nölting*.
- Pick, H.**, relation of the red colouring matter of the phanerogams to the migration of starch, 1884, A., 1402.
- Pickel, Max**, phenylhydrazine compounds, 1886, A., 545.
- Pickering, Spencer Percival Umfreville**, on the constitution of molecular compounds; molecular weight of basic ferric sulphate, 1883, T., 182.
- note on a basic ammonio-copper sulphate, 1883, T., 336.
- testing for barium or sulphuric acid, 1883, A., 210.

- Pickering, Percival Spencer Unfreville**, supersaturation, 1883, A., 645.
- basic sulphate of copper, 1883, A., 853; 1885, A., 1113.
- modifications of sodium sulphate, 1884, T., 686.
- heat of hydration of salts, 1884, A., 803; 1886, P., 257; 1887, T., 75.
- heats of dissolution of potassium and lithium sulphates, 1885, T., 98.
- calorimetric estimations of magnesium sulphate, 1885, T., 100.
- modifications of double sulphates, 1885, P., 101; 1886, T., 1, 12.
- constitution of hydrated and double salts, 1885, P., 112; discussion, P., 113.
- atomic valency, 1885, P., 122.
- estimation of oil in cattle cake, 1885, A., 844.
- crystalline basic copper sulphate, 1885, A., 1113.
- influence of temperature on the heat of chemical combination, 1886, T., 260; P., 161.
- water of crystallisation, 1886, T., 411.
- decomposition of sodium carbonate by fusion, 1886, P., 257; 1887, T., 72.
- molecular weights of liquids and solids, 1886, A., 198.
- influence of temperature on the heat of dissolution of salts, 1887, T., 290; P., 20; discussion, P., 21.
- thermal phenomena of neutralisation and their bearing on the nature of solution, and the theory of residual affinity, 1887, T., 593; P., 77; discussion, P., 78.
- determination of the constitution of carbon compounds from thermochemical data, 1887, A., 423.
- heat of dissolution of substances in various liquids, 1888, T., 865; P., 92; discussion, P., 93.
- nature of solutions as elucidated by the heat evolved on their dilution: calcium chloride, 1888, P., 35; discussion, P., 37.
- thermochemical constants, 1888, P., 52.
- the principles of thermochemistry, 1888, P., 99; discussion, P., 100; 1889, T., 14.
- solution, 1888, A., 21.
- nature of solution, 1888, A., 22; 1889, A., 1101.
- constitution of basic salts, 1888, A., 111.
- Pickering, Percival Spencer Unfreville**, constancy in the heat produced by the reaction of certain salts on each other, 1888, A., 333.
- heat of neutralisation of sulphuric acid, 1889, T., 323; P., 79.
- the nature of solutions as elucidated by a study of the density, electric conductivity, heat capacity, heat of dissolution, and expansion by heat of sulphuric acid solutions, 1889, P., 86; 1890, T., 64; A., 845.
- the expansion of water and other liquids, 1889, P., 89; 1891, A., 8.
- the nature of solutions as elucidated by a study of their freezing temperatures, 1889, P., 106.
- isolation of a tetrahydrate of sulphuric acid existing in solution, 1889, P., 128.
- the law of the freezing points of solutions, 1889, P., 149; discussion, P., 154; 1890, P., 9.
- isolation of a new hydrate of sulphuric acid existing in solution, 1889, A., 941.
- nature of solutions as elucidated by the freezing points of sulphuric acid solutions, 1890, T., 331.
- theory of dissociation into ions and its consequences, 1890, P., 171; discussion, P., 172; 1891, A., 972.
- new form of mixing calorimeter, 1890, A., 440.
- gradual alteration in glass produced by altering its temperature a few degrees, 1890, A., 440.
- theory of osmotic pressure, 1890, A., 846.
- the supposed hydrates of alcohol, 1890, A., 557.
- a recent criticism by Lupton of the conclusions drawn from a study of various properties of sulphuric acid solutions, 1891, P., 105; discussion, P., 106; A., 973.
- the nature of solutions as elucidated by a study of the densities, heat of dissolution, and freezing points of solutions of calcium chloride, 1891, P., 105; A., 973.
- determinations of the heat capacity and heat of fusion of some substances to test the validity of Person's absolute law, 1891, A., 519.
- theory of solution, 1891, A., 786, 791.
- deductions from the gaseous theory of solution, 1891, A., 793.
- cryoscopy of dilute solution, 1891, A., 971; 1892, A., 678, 1045.

- Pickering, Percival Spencer Unfreville**, association *versus* dissociation in solutions, 1891, A., 972.
- note on the refractive indices and magnetic rotations of sulphuric acid solutions, 1892, P., 162; discussion, P., 163.
- the hydrate theory of solutions, 1892, P., 164; discussion, P., 164.
- the isolation of two predicted hydrates of nitric acid, 1892, P., 185.
- strong solutions and the dissociation hypothesis, 1892, A., 108.
- cryoscopy of cane-sugar solutions, 1892, A., 109.
- chemical action at a distance, 1892, A., 269.
- contraction on mixing sulphuric acid and water, 1892, A., 271.
- densities of sulphuric acid solutions, 1892, A., 271, 272.
- theory of residual chemical affinity; an explanation for the physical nature of solution, 1892, A., 559.
- hypothetical manganese tetrachloride, 1892, A., 687.
- recognition of changes of curvature by means of a flexible lathe, 1892, A., 767.
- heat of dissolution of gases in liquids, 1892, A., 1042.
- Pickering, Percival Spencer Unfreville**. See also (*Miss*) **Emily Aston**.
- Pickersgill, Nicolas**. See **Friedrich Kehrmann, Josef Messinger**.
- Pictet, Amé**,  $\alpha$ -phenylindole, 1886, A., 711.
- formation of secondary aromatic amines, 1888, A., 361.
- properties of several anilides, 1890, A., 758.
- action of acid chlorides on acid anilides, 1891, A., 57.
- Pictet, Amé**, and **Hendrik Jon Ankersmit**, phenanthridine, 1890, A., 390; 1891, A., 837; 1892, A., 196.
- Pictet, Amé**, and **Rudolph Bunzl**, action of zinc chloride on acetanilide, 1889, A., 971.
- Pictet, Amé**, and **Pierre Crépieux**, alkylformanilides, 1888, A., 688.
- Pictet, Amé**, and **Louis Duparc**, ethylindole, 1888, A., 370.
- Pictet, Amé**, and **Stanislas Erlich**, chrysidines, 1891, A., 216.
- methylphenanthridine and chrysidines, 1892, A., 197.
- Pictet, Amé**, and **Jean Fert**, action of zinc chloride on methylacetanilide, 1890, A., 1112.

- Pictet, Amé**, and **Gustave Krafft**, chlorides of organic bases, 1892, A., 1356.
- Pictet, Amé**, and **Stefan Popovici**, pyrogenic synthesis of isoquinoline, 1892, A., 730.
- Pictet, Amé**. See also **Carl Graebe**.
- Pictet, Liaoul**, determination of the specific weight and vapour pressure of mixtures of sulphurous and carbonic anhydrides, 1888, A., 1015.
- physical and chemical phenomena at very low temperatures, 1892, A., 1138.
- Pictou, Harold**, the physical constitution of some sulphide solutions, 1892, T., 137; P., 176.
- Pictou, Harold**, and **S. Ernest Linder**, solution and pseudo-solution, 1891, P., 177; discussion, P., 177; 1892, T., 148.
- Pictou, Harold**. See also **S. Ernest Linder**.
- Pieper, Richard**, four metameric benzanisethylhydroxylamines, 1883, A., 460.
- Pierson, A.**, and **Karl Henmann**, action of ethyldichloramine on aromatic amines and on hydrazobenzene, 1883, A., 915.
- Piesse, George William Septimus**, obituary notice of, 1883, T., 255.
- Piest, Karl**. See **Ferdinand Tiemann**.
- Pieszczyk, Ernst**, constituents of the bark of *Nerium Oleander*, 1890, A., 1316.
- detection of tin, antimony, and arsenic, 1892, A., 918.
- Pieszczyk, Ernst**. See **Adolph Claus**.
- Pigeon, Léon**, platinum tetrachloride, 1889, A., 834.
- heat of formation of platinum chloride, 1890, A., 439.
- thermochemistry of platinum chloride and its compounds, 1891, A., 966.
- compounds of platinum chloride with hydrogen chloride, 1891, A., 1325.
- heat of formation of platinum bromide and its principal compounds, 1892, A., 3.
- Piggot, Cameron**. See **Harmon Northrup Morse**.
- Pilate**. See **Albert Mairat**.
- Pillitz, Wilhelm**, argentous oxide, 1883, A., 283.
- Piloty, Oscar**. See **Emil Fischer**.
- Piltchikoff, N.**, initial phases of electrolysis, 1889, A., 663.
- electrolytic polarisation by metals, 1889, A., 663.

- inard, G.**, on a bed of coal discovered in Algiers, and on the layers of white sand accompanying the same, 1883, A., 160.
- inette, J.**, boiling-points and specific volumes of phenols and their ethers, 1888, A., 335.
- soap analysis, 1892, A., 550.
- estimation of fat in milk by Schmid's method, 1892, A., 1134.
- ingel, Carl**, methyl propiopropionate, 1888, A., 819.
- inkus, Georg**, action of trimethylene chlorobromide on some aromatic amines and amides, 1892, A., 1491.
- inners, Adolf**, action of hydrocyanic acid and ethylene cyanide on hydrochloric acid and alcohol, 1883, A., 731.
- conversion of nitriles into imides, 1883, A., 731, 1089.
- condensation of acetone, 1883, A., 1079.
- derivatives of ethyloximide and ethylsuccinimide, 1883, A., 1088.
- action of acetic anhydride on the amidines, 1883, A., 1099; 1884, A., 722.
- action of heat on amidine hydrochlorides, 1884, A., 723.
- action of hydroxylamine on the imido-ethers and amidines, 1884, A., 739.
- action of phenylhydrazine on the imido-ethers, 1884, A., 743, 1323.
- imido-ethers from acetone cyanhydriin and allyl cyanide, 1884, A., 1292.
- preparation of glyoxal derivatives from trichlorolactic acid, 1884, A., 1293.
- action of benzoic chloride on amidines, 1884, A., 1324.
- remarks on Lossen's paper on hydroxylamine derivatives, 1884, A., 1325.
- decomposition of benzonitrile by fuming sulphuric acid, 1885, A., 142.
- action of acetic anhydride on benzamidine, 1885, A., 158.
- action of ethyl acetoacetate on amidines, 1885, A., 158, 751; 1886, A., 45.
- *m*-diazines (pyrimidines), 1885, A., 158, 751; 1886, A., 45; 1887, A., 1053; 1889, A., 1004, 1006; 1890, A., 69; 1891, A., 60.
- preparation of tartaric acid, 1885, A., 759; 1886, A., 48.
- action of carbamide on phenylhydrazines, 1887, A., 1042.
- inners, Adolf**, action of carbamide on hydrazines, 1888, A., 687, 1084.
- hydantoins, 1888, A., 1102.
- benzaldehyde, 1889, A., 983.
- amidines and *m*-diazines (pyrimidines), 1889, A., 1004; 1891, A., 60.
- action of benzamidine on ethyl acetylmalonate, 1890, A., 496.
- action of secondary amines on imido-ethers, 1891, A., 37.
- conversion of nitriles into imido-ethers, 1891, A., 59.
- diphenyloxycyanidine, 1891, A., 59.
- amidines, 1891, A., 60.
- action of benzamidine on the ethereal salts of aromatic *o*-hydroxyacids, 1891, A., 60.
- imido-ethers, 1891, A., 61.
- imido-ethers and their derivatives, 1891, A., 468.
- mixed acid amides, 1892, A., 982.
- furfuran compounds, 1892, A., 1006.
- so-called dibenzimidine, 1892, A., 1110.
- nicotine, 1892, A., 1497.
- inners, Adolf**, and **Isaac Lifschütz**, action of carbamide on the chloralcyanhydrins, 1887, A., 1082.
- action of carbamide on cyanhydrins, 1887, A., 1054.
- inners, Adolf**, and **Adolf Spilker**, hydantoins, 1889, A., 704.
- inners, Adolf**, and **Richard Wolfenstein**, nicotine, 1891, A., 473, 945; 1892, A., 1010.
- innow, Johannes**, action of benzene-sulphonic chloride on amidoximes, 1892, A., 460.
- innow, Johannes**. See also **Carl Wilhelm Will**.
- Piolti, Giuseppe**, cossaites from the Upper Susa valley, 1890, A., 344.
- Pionchon, Joseph**, specific heats and changes of state at high temperatures, 1887, A., 201.
- specific heat and latent heat of fusion of aluminium, 1892, A., 1281.
- Piotrowski, Severin**, addition of chlorine and of halogen acids to oleic and elaidic acids, 1890, A., 1396.
- Pirani, Emilio**, galvanic polarisation, 1885, A., 623.
- Pirngruber, H.**, separation of platinum from rare metals, 1888, A., 656.
- Pirsson, Louis V.**, mordenite, 1891, A., 276.
- fowlerite variety of rhodonite from New Jersey, 1891, A., 530.
- gmelinites from Nova Scotia, 1892, A., 21.

- Pirsson, Louis T.** See also *Frederick Augustus Genth, Walter Harvey Weed.*
- Pisanello, Giuseppe,** hydrogenation of propionitrile, 1887, A., 457.
- sulphonic derivatives of salicylic acid, 1889, A., 1062.
- Pisani, Felix,** cuprodesloizite from Mexico, 1892, A., 1055.
- Pisani, Felix.** See also *Alfred Louis Olivier Legrand Des Cloizeaux.*
- Pisenti, Gustavo,** physiological action of thallin, 1888, A., 311.
- Pistone and de Regibus,** inulin, 1884, A., 284.
- Pistor, Carl,** mineral spring "Romerbrunnen" at Echzell, Wetterau, 1885, A., 362.
- Pistor, Carl.** See also *Alex. Naumann.*
- Pitcher, Fred. Byron,** absorption spectra of blue solutions, 1889, A., 325.
- Pitkin, Lucius,** action of concentrated sulphuric acid on lead and its alloys, 1885, A., 460.
- Pitsch, Otto,** are nitrates indispensable to the growth of field crops? 1888, A., 84.
- Pitschke, R.** See *Heinrich Cour. Klinger.*
- Pitteurs, de,** molecular modifications of silver bromide, 1885, A., 349.
- Piutti, Arnaldo,** phthalamidobenzoic acid, 1883, A., 999.
- action of phthalic anhydride on secondary monamines, 1884, A., 448.
- diphenylamine derivatives of succinic acid, 1885, A., 782.
- derivatives of diphenylamine-phthalein, 1885, A., 783.
- phthalylaspartic acid, 1885, A., 796; 1886, A., 621.
- $\alpha$ -naphthylphthalimide, 1886, A., 472.
- fumaric and succinic derivatives of monamines, 1886, A., 792.
- a new asparagine, 1886, A., 870, 1013.
- action of phthalic anhydride on amidophenols, 1886, A., 1026.
- synthesis of ethereal salts of trimelic acid, 1887, A., 491, 587.
- reciprocal transformation of the optically active asparagines, 1887, A., 802.
- synthesis of aspartic acid, 1888, A., 677.
- synthesis of the asparagines, 1889, A., 381; 1891, A., 175.
- constitution of the monethyl aspartates and the asparagines, 1889, A., 383.
- Piutti, Arnaldo,** ethyl fumainimide, 1889, A., 590.
- asparagines, 1889, A., 591.
- ethyl oximidosuccinates, 1890, A., 1239.
- monoximes of succinic acid, 1891, A., 1191.
- Pizzarello, Antonio,** decomposition of carbon compounds by the electric spark, 1886, A., 10.
- explosions of electrolytic gas and volatile carbon compounds, 1886, A., 762.
- Pizzi, Augusto,** composition of the leaves of *Maclura aurantiaca*, 1891, A., 490, 954.
- Plaats, J. D. van der,** atomic weights of carbon, phosphorus, tin, and zinc, 1885, A., 348.
- physical properties of bromine, 1886, A., 849.
- vapour tension of mercury at ordinary temperatures, 1886, A., 963.
- desiccation of gases, 1888, A., 409.
- Plancher, Giuseppe.** See *Nicola Mazzara.*
- Planchon, Victor,** estimation of glycerol by oxidation, 1888, A., 1345.
- detection of margarine in butter, 1889, A., 318.
- Planck, Max,** chemical equilibrium in dilute solutions, 1888, A., 780.
- molecular constitution of dilute solutions, 1888, A., 895.
- hypothesis of the dissociation of salts in very dilute solutions, 1888, A., 1144.
- vapour tension of dilute solutions of volatile substances, 1888, A., 1146.
- development of electricity and heat in electrolytes, 1890, A., 677.
- difference of potential between two dilute solutions of binary electrolytes, 1890, A., 1355.
- osmotic pressure, 1891, A., 14.
- recent developments of the mechanical theory of heat, 1892, A., 395.
- theory of diffusion and electrolysis, 1892, A., 935.
- theories of osmotic pressure and of electrolytic dissociation, 1892, A., 1143.
- Planta, Adolf von,** chemical composition of hazel pollen, 1885, A., 182.
- composition of the pollen of the common pine, 1886, A., 91.
- nectar, 1886, A., 575.
- food of larval bees, 1888, A., 733; 1889, A., 1022.
- nitrogenous constituents of the tubercles of *Stachys tuberculata*, 1890, A., 1183.

- Planta, Adolf von**, and **Ernst Schulze**, new crystalline carbohydrate, stachyose, 1890, A., 1088; 1891, A., 1446.
- Planta, Adolf von**. See also **Ernst Schulze**.
- Plateau, Felix**, influence of fresh water on marine animals, and *vice versa*, 1884, A., 621.
- Plath, Gottfried**,  $\beta$ -ethyl- $\alpha$ -stilbazole and its derivatives, 1889, A., 163, 901.
- Plath, H.**, nitrification of ammonia and its salts, 1888, A., 521.
- Platts, John Charles**. See **John Frederick Cleaves**.
- Platz, B.**, estimation of sulphur in iron, 1887, A., 1141.
- estimation of zinc in iron ores, 1890, A., 1192.
- Plauchud, E.**, reduction of sulphates by "sulfuraires" and formation of natural mineral sulphides, 1883, A., 610.
- Pleissner, Max**, oil of polei, 1891, A., 936.
- Plenge, Henry Charles**, aloin, 1885, A., 808.
- Plessner, Paul**, influence of temperature on the magnetism of salts of metals of the iron group, 1890, A., 678.
- Pletzer, Ad.**, action of cold and warm baths on the temperature of the animal body, 1884, A., 621.
- Plimpton, Richard Tayler**, metallic derivatives of acetylene, 1892, P., 109.
- Plimpton, Richard Tayler**, and **E. Ernest Graves**, on a new method of estimating the halogens in volatile organic compounds, 1888, T., 119.
- Plöchl, Josef**, constitution of the halogen cinnamic acids, 1883, A., 194.
- phenylglycidic acid, 1884, A., 604; 1887, A., 254.
- derivatives of benzoylimidocinnamic acids, 1884, A., 1348.
- *o*-nitroglucosines and their reduction products, 1886, A., 351.
- quinoxalines, 1886, A., 722.
- synthesis of pyridine bases, 1887, A., 598.
- reaction of formaldehyde, 1888, A., 1051.
- Plöchl, Josef**, and **Friedr. Blümlein**, constitution of benzoylcarbinol, 1883, A., 983.
- Plöchl, Josef**, and **W. Loë**, nitro- and sulpho-derivatives of phenylamidoacetic acid, 1885, A., 899.
- Plöchl, Josef**, and **L. Wolfrum**, condensation of salicylaldehyde with hippuric acid, 1885, A., 898.
- Plöchl, Josef**. See also **Wilhelm von Miller**.
- Plösz, Paul**, new crystalline colouring matter in urine, 1883, A., 814.
- a urinary pigment, 1884, A., 1059.
- Plugge, Pieter Cornelis**, behaviour of strychnine in the animal organism: product of the action of potassium permanganate on strychnine, 1884, A., 188.
- opium alkaloids, 1887, A., 280, 851; 1888, A., 378.
- volumetric estimation of acids in salts of the alkaloids, 1887, A., 621.
- composition of papaverine, 1887, A., 852.
- test for narceine, 1887, A., 870.
- andromedotoxins in the Ericaceae, 1889, A., 644.
- mercury nitrate as a test for certain aromatic compounds, 1890, A., 669.
- reaction for cerous oxide, 1892, A., 239.
- Plunkett, William**, obituary notice of, 1884, T., 618.
- Podwyssozki, Wladimir V.**, method of preparing extracts of pepsin, 1887, A., 65.
- Pöehl, Alexander**, formation of peptone and its conversion into proteid substances, 1883, A., 603.
- peptone, 1883, A., 926.
- putrefaction alkaloids, 1883, A., 1157.
- biological and chemical properties of micro-organisms, 1886, A., 731.
- spermine, 1891, A., 538.
- Pöhlmann, Robert**, mica-diorites and kersanlites of Southern Thuringia and the Frankenwald, 1884, A., 1273.
- Poetsch, Wilhelm**, action of carbonic oxide on a mixture of sodium acetate and sodium isopentylate, 1883, A., 729.
- recovering the waste acids from nitroglycerol works, 1885, A., 619.
- Pohl, Julius**, estimation of globulin, 1888, A., 878.
- artificially prepared nucleins, 1889, A., 424.
- precipitation of colloid carbohydrates by salts, 1890, A., 122.
- aristolochin, 1892, A., 874.
- Pohl, Osokar**, action of acid chlorides on arsenic trioxide, 1889, A., 767.
- etherification by uranium salts, 1890, A., 727.
- Pohl, Osokar**. See also **Bohuslav Rayman**.
- Poincaré, Emile Léon**, respiration of air charged with petroleum vapour, 1884, A., 1057.

- Poincaré, Lucien**, electrical conductivity of fused salts, 1889, A., 457.  
 — batteries with fused electrolytes and the thermoelectric forces at the surface of contact of metal and salt, 1890, A., 551.  
 — polarisation of electrodes, 1890, A., 933.  
**Poincaré, Lucien**. See also *Edmond Bouty*.  
**Pointet, Gaston**, preparation of crystalline monocalcium phosphate, 1891, A., 1421.  
**Poleck, Theodor**, analysis of a mineral spring at Salzbrunn, 1883, A., 563.  
 — asarone, 1884, A., 1191.  
 — constitution of safrole, 1884, A., 1339; 1886, A., 697; 1890, A., 136.  
 — mineral waters of Warmbrunn in Silesia, 1886, A., 997.  
 — oxysulphides of mercury, 1890, A., 109.  
 — German and Turkish rose oil, 1891, A., 323.  
**Poleck, Theodor**, and *Carl Goercki*, chlorosulphides of mercury, 1888, A., 1166.  
**Poleck, Theodor**, and *Siegfried Lustig*, derivatives of carvacrol, 1885, A., 659.  
**Poleck, Theodor**, and *Isaak Samelson*, jalapin, 1885, A., 669.  
**Poleck, Theodor**, and *Carl Thümmel*, new silver compounds, 1884, A., 156.  
 — vinyl alcohol a constant constituent of ethyl ether, 1890, A., 118.  
**Polenske, Eduard**, rapid method of estimating arsenic, 1890, A., 83.  
**Poletéeff, Gregorius**, boiling-points of secondary alcohols containing secondary radicles: diisopropylcarbinol, 1889, A., 477.  
 — boiling-point of diisopropylcarbinol, 1891, A., 889.  
**Poliakoff, Robert**. See *Carl Hell*.  
**Polikier, Heinrich**, tartranilide, 1892, A., 54.  
 — synthesis of indole from tartaric acid and aniline, 1892, A., 66.  
**Polikier, Heinrich**. See also *Joseph Berlinerblau*.  
**Polis, Alfred**, aromatic silicon compounds, 1885, A., 973; 1886, A., 618.  
 — estimation of silicon in organic compounds, 1886, A., 649.  
 — aromatic lead compounds, 1887, A., 572; 1888, A., 283; 1889, A., 400.  
 — tin tetraphenyl, 1890, A., 166.  
**Polis, Alfred**. See also *Carl Arnold August Michaelis*.  
**Politis, Georgius**, relation of phosphoric acid to nitrogen in urine during feeding with brain, 1883, A., 233.  
**Politis, Jean E.**, rapid estimation of saccharine compounds, 1889, A., 1088.  
**Politis, Johannes**. See *Rudolph Fittig*.  
**Polko, Georg**, butenyltricarboxylic and ethylsuccinic acids, 1888, A., 134.  
**Pollacci, Egidio**, testing for free sulphuric acid in wines and vinegar, 1884, A., 215.  
 — spontaneous oxidation of sulphur, 1885, A., 347.  
 — peroxides as oxidising agents, 1886, A., 507.  
 — methods for detecting vinoline, 1888, A., 877.  
**Pollak, Alfred**. See *Heinrich Goldschmidt*.  
**Pollak, E.**, absence of nitric acid in wine-must, 1889, A., 541.  
**Pollard, William**. See *Karl Friedrich Otto Seubert*.  
**Pollatschek, Arnold**, estimation of small quantities of sugar in urine, 1888, A., 995.  
**Pollini, Bernhard**. See *Rudolf Nietzsche*.  
**Pollitz, Gustav**. See *Adolph Claus*.  
**Pollitzer, S.**, nutritive value of some digestion products of albumin, 1886, A., 377.  
**Pollitzer, S.**, and *Nathan Zuntz*, nutritive value of albumin and flesh peptone, 1886, A., 901.  
**Polonowska, Natalie**, so-called ethyl carbacetate, 1886, A., 1011.  
 — oximes of benzil, 1888, A., 485.  
**Polonowska, Natalie**. See also *Heinrich Goldschmidt*.  
**Polonowsky, Max**, action of phenylhydrazine on dioximes, 1888, A., 366.  
 — condensation of glyoxal with ethyl malonate and acetoacetate, 1888, A., 1067.  
 — condensation of glyoxal with ethyl acetoacetate, 1888, A., 1175.  
**Polonowsky, Max**. See also *Wilhelm Herzberg*.  
**Polstorff, Karl**, oxydimorphine, 1886, A., 900.  
 — conessine (wrightine), 1886, A., 901.  
**Polstorff, Karl**, and *Carl Bülow*, separation of mercuric sulphide from sulphides of the arsenic and copper groups, 1891, A., 1292.  
**Polstorff, Karl**, and *Justus Mensching*, Mitscherlich's test for phosphorus, 1886, A., 919.  
**Polstorff, Karl**, and *Paul Schirmer*, conessine (wrightine), 1886, A., 372.

- Poltzer, August.** See *Heinrich Goldschmidt*.
- Pomeranz, Caesar,** cubebin, 1888, A., 162, 1100.
- methysticin, 1889, A., 278; 1890, A., 257.
- phenol contained in *Sassafras* oil, 1890, A., 1111.
- bergaptene, the stearoptene of bergamot oil, 1892, A., 71.
- Pomeroy, Charles T.,** estimation of chlorine, sulphuric acid, and chromium in presence of organic matter, 1884, A., 109.
- Pomey, Etienne Marie,** compound of propyl alcohol and phosphoplatinous chloride, 1887, A., 458.
- compound of *o*-toluidine with cupric chloride, 1887, A., 472.
- compound of *p*-toluidine with cupric chloride, 1887, A., 472.
- Poney, C. de,** separation and estimation of methyl alcohol in presence of ethyl alcohol, 1885, A., 298.
- Pond, G. G.** See *Victor Meyer*.
- Ponder, A. C.** See *Ludwig Glaisen*.
- Ponomareff, Ivan,** ethereal salts of cyanuric acid, 1884, A., 1278.
- synthesis of allantoxanic acid from parabanic acid, 1885, A., 760.
- constitution of cyanuric acid, 1886, A., 216.
- Pons, Enrico.** See *Hugo Schiff, Luigi Vanni*.
- Pool, F. V.,** new dropping flask, 1885, A., 930.
- Pope, William Jackson,** the crystalline forms of the sodium salts of the substituted anilic acids, 1892, T., 581; P., 106.
- Pope, William Jackson.** See also *Henry Edward Armstrong*.
- Popoff, M.,** influence of cooking on the digestion of beef and fish, 1890, A., 1450.
- mechanism of the production of urea in the animal organism, 1892, A., 89.
- Popoff, Nadine,** formation of serum albumin in the alimentary canal, 1889, A., 632.
- Popoff, S. A.,** some new diuretics, 1886, A., 485.
- Popovici, Maximilian,** quantitative estimation of nicotine, 1889, A., 802.
- Popovici, Stefan.** See *Amé Pictet*.
- Popp, Georg,** thiazoles from amidothiazoles, 1889, A., 724.
- Popp, Georg.** See also *Arthur Rudolf Hantzsch*.
- Poppe, Oscar,** *m*-xylylnalonic acid, 1890, A., 498.
- formation of dibenzyl derivatives, 1890, A., 504.
- Popper, Alfred,** decomposition of aqueous solutions of hypochlorous acid and of chlorine in sunlight, 1885, A., 631; 1886, A., 301.
- atomic weight of antimony, 1886, A., 856.
- Popper, Alfred.** See also *Karl (Edler) von Garzarolli-Thurnlackh*.
- Porro, Benedetto,** Italian petroleum, 1883, A., 1180.
- Portele, Carl,** reduction of extractive matter by clearing of wine, 1881, A., 938.
- so-called sour-rot of grapes, 1885, A., 1153.
- composition of maize, 1886, A., 274.
- Portele, Carl.** See also *E. Mach*.
- Porteret, Eugène.** See *Raphael Lépine*.
- Posewitz, Tivadar,** occurrence of diamonds in Borneo, 1886, A., 674.
- Posner, Carl,** albumin in normal urine, 1887, A., 390.
- detection of albumin, propeptone, and peptone, 1888, A., 1140.
- Pospechhoff, Wladimir Dmitri,** azocumene, 1886, A., 458.
- azo- $\psi$ -cumene, 1888, A., 140.
- derivatives of *o*-azotoluene, 1888, A., 825; 1889, A., 501.
- Posselt, Moritz.** See *Adolph Claus*.
- Possetto, Giovanni.** See *Girolamo Mazzara*.
- Possoz, Antoine Louis.** See *Victor L. Ch. Dair*.
- Post, Julius,** retrograde phosphoric acid, 1884, A., 774.
- Potier, Alfred,** electrochemical measurement of currents, 1889, A., 557.
- Potilizin, Alexei L.,** analysis of waters accompanying petroleum, and of those ejected by mud-volcanoes, 1883, A., 171.
- displacement of chlorine by bromine, 1884, A., 955.
- hydrates of cobaltous chloride, 1884, A., 967.
- relation between the heat of formation and initial rate of formation of salts, 1886, A., 116.
- products and rate of decomposition of the salts of halogen oxy-acids by heat, 1888, A., 219; 1889, A., 338.
- mutual substitution of the halogens in their compounds with oxygen, 1888, A., 220.

- Potilizin**, *Alcei L.*, influence of temperature on the direction of chemical change, 1889, A., 335.
- supersaturated solutions, 1890, A., 327.
- properties of sodium perchlorate: supersaturated solutions, 1890, A., 333.
- strontium chlorate and its decomposition by heat, 1890, A., 696.
- hydrates of cobalt chloride and their alterations in colour, 1892, A., 571.
- lithium bromate, 1892, A., 1275.
- rate of decomposition of calcium chlorate by heat, 1892, A., 1275.
- Pott**, *Emil*, manuring of hops, 1884, A., 1422.
- Pott**, *Robert*, Fokker-Salkowski method of estimating uric acid in normal and pathological urines, 1890, A., 301.
- Potts**, *Charles S.* See **John Marshall**.
- Pouchet**, *A. Gabriel*, sugar from the lungs of phthisical patients, 1883, A., 929.
- ptomaines and analogous compounds, 1884, A., 617.
- changes in the composition of certain secretions during cholera, 1885, A., 576.
- alkalioid in Koch's cultivating fluids, 1885, A., 1250.
- compounds of phenoxides with cuprous and mercurous chlorides, 1888, A., 586.
- Pouchet**, *G.*, artificial melanin, 1891, A., 1123.
- Poulenc**, *Camille*, phosphorus tri-fluorodichloride, 1891, A., 1417.
- nickel potassium and cobalt potassium fluorides, 1892, A., 781.
- nickel and cobalt fluorides, 1892, A., 1159.
- Poulson**, *E.*, poisonous constituent of the ethereal extract of ferns, 1892, A., 380.
- Poulton**, *Edward Baynall*, essential nature of the colouring of phytophagous larvæ, etc., 1885, A., 1253.
- Poutokin**, allyldimethylcarbinol, 1884, A., 1283.
- Power**, *Frederick B.*, hydrastine, 1885, A., 675.
- fluorescent principle of *Hydrastis canadensis*, 1886, A., 1041.
- Power**, *John Byrne*, excretion of nitrogen from the skin, 1883, A., 227.
- Praël**, *Edmund*, examination of commercial copaiba balsam, 1886, A., 281.
- Prafulla Chandra Ray**, mixed double sulphates of the copper-magnesium group, 1889, A., 346.
- Prager**, *Albert*, derivatives of naphthalene, 1885, A., 1233.
- Prager**, *Bernh.*, aromatic substituted  $\psi$ -thiocarbamides, 1890, A., 159.
- Prange**, *A. J. A.*, allotropic silver, 1891, A., 266.
- Pratesi**, *Leonardo*, diethyl methylene ether, 1884, A., 171.
- hexamethylenamine, 1884, A., 287.
- trioxymethylene, 1885, A., 240.
- formation of oxymethylene from ethyl nitrate, 1885, A., 504.
- action of formaldehyde on aniline, 1885, A., 782.
- action of nitric acid on phenylglycollic acid, 1892, A., 607.
- supersaturated aqueous solution of carbonic anhydride, 1892, A., 1274.
- *o-p*-dinitrophenylglycollic acid, 1892, A., 1333.
- Pratt**, *John Waller*, rapid estimation of fixed ammonia, 1885, A., 190.
- Pratt**, *Julius Howard*, experiments with Lippmann's capillary electrometer, 1888, A., 639.
- Prausnitz**, *Gotthold*,  $\beta$ -lactone of *m*-nitrophenyllactic acid, 1884, A., 1174.
- methylethylpyridylalkine, 1890, A., 1436.
- derivatives of 2-methyl-5-ethylpyridylalkine, 1892, A., 1358.
- Prausnitz**, *Gotthold*. See also **Alfred Einhorn**.
- Prausnitz**, *Wilhelm*, digestion of beans in the human alimentary canal, 1889, A., 1226.
- formation and fate of glycogen, 1890, A., 810.
- Prausnitz**, *Wilhelm*. See also **Fritz Moritz**.
- Prazmowski**, *Adam*, root nodules of the pea, 1891, A., 607.
- Precht**, *H.* See **F. Röttger**, **B. Wittjen**.
- Preese**, *William Henry*, effects of temperature on the electromotive force and resistance of batteries, 1883, A., 840; 1884, A., 243.
- new standard of illumination, 1885, A., 321.
- charging secondary batteries, 1885, A., 1175.
- Preis**, *Karl*, arsenic compounds, 1888, A., 914; 1890, A., 1053.
- potassium silicofluoride, 1890, A., 694.
- estimation of phosphoric acid in the presence of silica, 1890, A., 825.
- Preis**, *Karl*, and **Bohuslav Rayman**, compounds of tin with bromine, 1883, A., 424.

- Preis, Karl, and Bohuslav Rayman**, decomposition of sodium thioarsenate by silver nitrate, 1887, A., 444, 889.
- Preis, Karl.** See also *Bohuslav Rayman*.
- Prelinger, O.** picric acid as a test for guanidine, 1892, A., 950.
- Prendel, Romul A.** wiluite, 1890, A., 220.
- tourmaline from Siberia, 1892, A., 573.
- Prentice, Bertram.** See *William Henry Perkin, junior*.
- Presch, Wilhelm**, behaviour of sulphur in the organism: detection of thio-sulphuric acid in the urine, 1890, A., 812.
- Prescott, Albert B.** See *Erwin E. Ewell*.
- Prescott, Charles Oliver.** See *Lewis Mills Norton*.
- Pressler, Heinrich.** See *Ernst Albert Schmidt*.
- Preusser, Joseph**, estimation of tungsten in its alloys, 1889, A., 798.
- substitute for the calcium chloride tube in elementary analysis, 1889, A., 925.
- Preusser, Joseph.** See also *Rudolf Nietzki*.
- Preussner, Ludwig**, remarkable bed of sulphur, 1889, A., 215.
- Prevost, Edward William**, injury to plants by kiln smoke, 1888, A., 744.
- Prevost, Edward William, and Russell Swanwick**, experiments on potatoes with different manures, 1884, A., 101.
- Přibram, Richard**, specific rotation of optically active substances in very dilute solution, 1887, A., 755.
- beryl from the Ifinger, 1888, A., 482.
- influence of inactive substances on the polaristrobometric estimation of grape-sugar, 1888, A., 1133.
- influence of inactive substances on the specific rotatory power of tartaric acid, 1888, A., 1229.
- change in the rotatory power of tartaric acid in mixed solutions, 1889, A., 378.
- Přibram, Richard.** See also *Alois Handl*.
- Price, R. C.** tscheffkinite, 1888, A., 661.
- Pribs, Bernhard**, action of benzaldehyde on the mononitro-derivatives of the paraffins, 1884, A., 313.
- action of benzaldehyde on nitro-methane and nitroethane, 1885, A., 160.
- Pribs, Bernhard**, nitro-derivatives of furfuran, 1885, A., 971.
- Prieto, Raoul.** See *de Landero*.
- Prillieux, E.** use of sulphate of copper and lime as a preventive of mildew, 1886, A., 737.
- Primica, Georg**, mineralogical notes from Transylvania, 1885, A., 733.
- Pringle, Alexander**, some probable new elements, 1887, A., 107.
- Pringsheim, Ernst**, chemical action of light on a mixture of chlorine and hydrogen, 1888, A., 205.
- unstable equilibrium of atoms, 1889, A., 672.
- Pringsheim, Nathanael**, emission of oxygen by plants, 1886, A., 612; 1888, A., 741.
- decomposition of carbonic anhydride by chlorophyll, 1887, A., 685.
- dependence of assimilation of green cells on their respiration of oxygen, 1888, A., 186.
- Prinz, Hugo**, experiments to combine sulphur with sulphur, 1884, A., 1255.
- constitution of disulphur dichloride, 1884, A., 1255.
- Prinz, William Alfred Joseph**, inclusions in sapphire, ruby, and spinel, 1883, A., 1062.
- Prior, Eugen**, estimation of the acidity of malt, 1887, A., 87.
- Prior, George Thurmond.** See *Henry Alexander Miers*.
- Přivozník, E.**, formation of sulphuric acid by burning illuminating gas, 1892, A., 1151.
- formation of sulphuric acid and ammonium sulphate by burning coal gas, 1892, A., 1389.
- Probert, Isaac**, galvanic batteries for the electric light, 1884, A., 1240.
- Probert, Isaac, and Alfred Walter Soward**, effect of absorbed gases on the electrical conductivity of carbon, 1883, A., 769.
- Probst, O.** derivatives of thiocarbamide and carbamide, 1892, A., 966.
- Procter, Henry Richardson**, gravimetric estimation of tannin, 1888, A., 96.
- Gantzen's method of estimating tannin, 1890, A., 1477.
- analysis of gambier, 1892, A., 928.
- Fröpper, Max**, action of nitric acid on ethyl acetate and chloracetate, 1883, A., 573.
- Prollius, Fritz**, valuation of gelatin, 1884, A., 647.
- Proromant, Pierre Marie.** See *Adolphe Carnot*.

- Proskauer, Bernard.** See *Bernhard Fischer*.
- Proskowitz, Em. von,** manuring sugar-beets with basic slag, 1888, A., 319.
- Prost, Eugène,** chloritoid containing manganese, 1886, A., 129.
- platinum salts, 1886, A., 987.
- action of zinc on benzyl chloride, 1886, A., 1034.
- colloidal cadmium sulphide, 1888, A., 653.
- extraction of lead from residues obtained in the manufacture of zinc, 1888, A., 915.
- Prost, Eugène.** See also *Walther Spring*.
- Provins, O.** See *Boury*.
- Prud'homme, Maurice,** action of bisulphites on chlorates, 1885, A., 207.
- nitroprussides, 1890, A., 1387.
- reactions of potassium ferricyanide, 1891, A., 410.
- mordants and the periodic law, 1891, A., 523.
- bleaching of cotton by hydrogen peroxide, 1891, A., 1447.
- cuprammonium oxide, 1892, A., 18.
- Prud'homme, Maurice, and Felix Binder,** chromic acid and chromates, 1883, A., 22.
- Prud'homme, Maurice, and Ch. Rabaut,** conversion of aromatic amines into the chlorine derivatives of the hydrocarbons, 1892, A., 705.
- Prunier, Henri,** volumetric estimation of calcium oxide and carbonate, 1885, A., 296.
- volumetric estimation of alumina in lime and cement, 1885, A., 441.
- detection of albumin, 1886, A., 748.
- Prunier, Léon,** butylic glycerol triacetin, 1884, A., 1284.
- simultaneous estimation of sulphur and carbon, 1890, A., 290.
- action of sulphides on chloral and chloroform, 1890, A., 291.
- assay of quinine sulphate by the ammonia process, 1891, A., 772.
- fractional crystallisation of quinine sulphate, 1891, A., 963.
- Przybytek, Stanislas A.,** second anhydride of erythritol, 1884, A., 979.
- salts of mesotartaric acid, 1884, A., 1124.
- diallyl dioxide, 1885, A., 741.
- formation of furfuran and thiophen from the dioxide  $C_4H_6O_2$ , 1886, A., 419.
- action of hypochlorous acid on the hydrocarbon  $C_8H_{18}$ , 1888, A., 123.
- diisobutenyl oxide, 1888, A., 241.
- Przybytek, Stanislas A.,** erythrene dioxide, 1888, A., 245.
- diisocetyl and its derivatives, 1889, A., 362.
- Przybytek, Stanislas A.** See also *A. Famintzin*.
- Puchot, Ed.,** butylene and its derivatives, 1884, A., 166.
- aldehyde resin, 1887, A., 1090.
- Pückert, Maxim,** conversion of crotonylene hydrobromide into bromo- $\psi$ -butylene, 1889, A., 576.
- bromine additive products of angelic and tiglic acids, 1889, A., 587.
- Püschel, Anton.** See *Carl Paal*.
- Püttner, E. von,** preparation of magnesium, 1885, A., 1112.
- Pufahl, O.,** arsenomolybdic acid, 1884, A., 715.
- Pukall, Wilhelm,** resorcinol derivatives, 1887, A., 661.
- Pukall, Wilhelm.** See also *Carl Wilhelm Will*.
- Pulfrich, Carl,** refraction of light by ice and by water cooled below zero, 1888, A., 881.
- Puliti, Julius.** See *Robert Schiff*.
- Pullinger, Frank,** action of zinc on dilute sulphuric acid, 1890, T., 815; P., 136.
- Pullinger, Frank, and John Adleyman Gardner,** vapour density of ammonium chloride, 1891, P., 2.
- Pullinger, William,** volatile platinum compounds, 1891, T., 598; P., 111; discussion, P., 111.
- platinum tetrachloride, 1892, T., 422; P., 54.
- Pulvermacher, Georg,** homo-*o*-phthalimide, 1887, A., 1111.
- reaction of trithioformaldehyde and formaldehyde, 1892, A., 579.
- mandelamide, 1892, A., 1203.
- condensations with formaldehyde, 1892, A., 1450.
- Pulvermacher, Georg, and Walther Löb,** carbazole, 1892, A., 1466.
- Pum, Gustav,** unsaturated acids, 1888, A., 1058.
- benzoyl derivatives of glucosamine, 1892, A., 134.
- action of hydriodic acid on cinchonine, 1892, A., 514.
- Purdie, Thomas,** action of sodium alkyl oxides on ethereal fumarates, 1885, T., 855.
- composition of the milk of the porpoise, 1885, A., 1253.
- action of metallic alkyl oxides on mixtures of ethereal salts with alcohols, 1887, T., 627; P., 78; discussion, P., 79.

**Purdie, Thomas**, and **William Marshall**, action of alcohols on ethereal salts in presence of small quantities of sodium alkyl oxides, 1888, T., 391; P., 25.

— addition of the elements of alcohol to the ethereal salts of unsaturated acids, 1891, T., 468; P., 82.

— resolution of methoxysuccinic acid into its optically active components, 1892, P., 217.

**Purdie, Thomas**, and **J. Wallace Walker**, resolution of lactic acid into its optically active components, 1892, T., 754; P., 132.

— optically active ethoxysuccinic acid, 1892, P., 217.

**Purfürst, Carl**. See **Alexander Ehrenberg**.

**Purgotti, Attilio**, tribromophenol, 1887, A., 573.

— organic sulphuretted compounds, 1890, A., 1419.

—  $\alpha$ -toluamide and its derivatives, 1891, A., 59.

— nitro- and amido-derivatives of phenylacetamide, 1891, A., 562.

— new thiosulphates, 1892, A., 1418.

**Pusch, Theodor**, test for the presence of tartaric acid in citric acid, 1885, A., 445.

**Puscher, C.**, process for rendering cement and lime less subject to atmospheric influences, 1883, A., 398, 530.

— argentine, 1883, A., 405.

— production of a gold-coloured or green surface on brass, 1884, A., 128.

**Puschl, C.**, relations of gases to the laws of Mariotte and Gay Lussac, 1888, A., 16.

— highest boiling-point of liquids, 1888, A., 17.

— relation of hydrogen to Mariotte's law, 1888, A., 18.

— relation of gases to Mariotte's law at high temperatures, 1888, A., 547.

— expansion of water by heat, 1892, A., 1382.

**Putensen, H.**, weeds in soils, 1884, A., 211.

**Putensen, Otto**. See **Adolph Claus**.

**Puydt, J. de**, Dubrunfaut's lime osmose process, 1884, A., 941.

## Q.

**Quantin, Henri Emile**, some reactions of chromyl dichloride, 1885, A., 23.

— soil of Tunis, 1885, A., 686; 1887, A., 860.

**Quantin, Henri Emile**, estimation of soluble potash in soils, 1885, A., 1262.

— reduction of calcium sulphate by anaerobic ferments, 1886, A., 573.

— reduction of copper sulphate during alcoholic fermentation, 1887, A., 171.

— volumetric estimation of sulphates, 1887, A., 181; 1889, A., 1089.

— action of carbon tetrachloride on chromyl dichloride and ferric phosphate, 1887, A., 330.

— action of carbon tetrachloride on inorganic chlorides, 1888, A., 785.

— true rôle of soda-lime in the estimation of nitrogen, 1889, A., 306.

**Quenda, Enrico**, methylresorcinolphthaloylic acid, 1891, A., 70.

—  $\gamma$ -substituted hydantoins, 1892, A., 828.

— action of ethyl cyanacetate on aniline, 1892, A., 1072.

**Quenot, Jules**. See **Emile Aubin**.

**Quessaud, Jean Marie**, estimation of silver and copper in the same liquid, 1885, A., 441.

**Quincke, Friedrich**, derivatives of acenaphthene, 1887, A., 592.

— nitro-derivatives of acenaphthene, 1888, A., 843.

— electrolysis of copper chloride, 1889, A., 458.

— aluminium methide, 1889, A., 605.

**Quincke, Friedrich**. See also **Ludwig Mond**.

**Quincke, Georg Hermann**, electrical researches, 1883, A., 945.

— behaviour of dielectric fluids under strong electric charges, 1886, A., 959.

— relations between compressibility and indices of refraction of liquids, 1892, A., 669.

**Quincke, Julius**, gasometric alkalimetry and the employment of potassium ferriocyanide in gasometry, 1892, A., 526.

**Quinquaud, Ch. Eugène**. See **Nator Gréhan**.

## R.

**Raabe, F. F.**, assay of commercial toluidine, 1892, A., 925.

**Raabe, Frederik William**, direct determination of the heat of combination of certain gases, 1883, A., 274.

**Rabaut, Ch.**, action of benzyl chloride on *o*-toluidine, 1892, A., 48.

— action of benzyl chloride on *o*- and *p*-toluidines, 1892, A., 313.

**Rabaut, Ch.** See also **Maurice Prud'homme**.

- Rabe, H.**, turbine for laboratory purposes, 1888, A., 617.  
 — action of phosphoric chloride on  $\beta$ -hydroxy-naphthoic acid, 1889, A., 514.
- Rabinerson, Ignac.** See *Carl Arnold August Michaelis*.
- Rabinowitsch, Simon.** See *Ernst Carl Theodor Zincke*.
- Rabot, Eugène**, poisoning by nicotine, 1886, A., 416.
- Rabourdin, H.**, adulteration of pepper, 1886, A., 303.
- Raby, L.**, new reactions for codeine and aesculine, 1885, A., 302.
- Rach, Carl**, action of hydrocyanic acid on ethyl acetosuccinate, 1886, A., 1012.
- Rach, Carl.** See also *Carl Adam Bischoff*.
- Rachford, Benj. Know**, influence of bile on the fat-splitting properties of pancreatic juice, 1891, A., 918.
- Racine, carbonic oxide detector**, 1890, A., 191.
- Racine, S.**, phthalaldehydic acid, 1886, A., 549; 1887, A., 951.  
 — derivatives of *p*-toluic acid, 1887, A., 945.  
 — derivatives of *o*-phthalaldehydic acid, 1888, A., 693.
- Rack, G.** See *F. Wilkens*.
- Rackowski, de.** See *Auguste Trillat*.
- Radau, Carl**, salts of vanadic acid, 1889, A., 351.
- Rademaker, C. J.**, polygonic acid, 1886, A., 949.
- Radenhausen, Rudolf.** See *Theodor Curtius*.
- Radiguet.** See *Donato Tommasi*.
- Radziszewski, Bronislaw**, glyoxaline and its homologues, 1883, A., 308.  
 — synthesis of oxaline bases, 1883, A., 728.  
 — theory of phosphorescence, 1883, A., 763.  
 — new glyoxalines, 1883, A., 1086.  
 — oxidation of oxalines and glyoxalines, 1884, A., 986.  
 — oxidations by hydrogen peroxide, 1885, A., 496.
- Radziszewski, Bronislaw, and Julien Schramm**, synthesis of a terpene, 1884, A., 1190.
- Radziszewski, Bronislaw, and L. Szul**, glyoxalisoamyline and its derivatives, 1884, A., 985.
- Radziszewski, Bronislaw, and Paul Wispek**, derivatives of the xylenes, 1885, A., 889.
- Radziwillowicz, cystin**, 1889, A., 430.
- Raffelt, R.**, mineralogends of gold and Bohemia, 1886, A., 315.
- Rahnenführer, Carl.** See acid with *Clemens Lossen*, 189, 635.
- Raich, S.**, decomposition of ammonium salts by bromine water, 1888, A., 10...
- Raikow, P.**,  $\alpha$ -methylcinnamic acid, 1888, A., 369.
- Raimann, Emil**, the fat of cochineal, 1886, A., 441.
- Raimond, E.**, volumetric estimation of manganese, 1885, A., 810.
- Rake, Beaven**, cultivation of *Bacillus lepra*, 1888, A., 1124.
- Ramage, Hugh.** See *Walter Noel Hartley*.
- Ramann, Emil**, result of removing debris from the surface of sandy soil, 1885, A., 81.
- Rammelsberg, Carl Friedrich**, double chloride of potassium and thallium, 1883, A., 424.  
 — thallium and lithium phosphates, 1883, A., 424.  
 — potassium sesquicarbonate, 1883, A., 646.  
 — vanadates and phosphates of the alkali metals, 1881, A., 395.  
 — isomorphous minerals which are not chemically analogous, 1884, A., 1096.  
 — natural borates, 1885, A., 28.  
 — double uranium acetates, 1885, A., 648.  
 — analysis of uranium compounds, 1885, A., 690.  
 — cupro-desclowitz, 1885, A., 731.  
 — isomorphous silicates, 1886, A., 30.  
 — the Branchville mica, 1886, A., 129.  
 — the scapolite, chabazite, and phillipsite groups, 1886, A., 318.  
 — crystalline silico-carbonate from soda liquors, 1887, A., 12.  
 — occasional products in the soda manufacture, 1887, A., 331.  
 — atomic weight of yttrium metals in their natural compounds, 1888, A., 112.  
 — manganese and uranium oxides, 1888, A., 232.  
 — eudialyte, 1888, A., 234.  
 — composition of idocrase, 1888, A., 431.  
 — gadolinite, 1889, A., 219.  
 — ammoniacal mercury compounds, 1889, A., 347.  
 — ferricyanides, 1889, A., 950.  
 — new case of isomorphism of uranium and thorium, 1890, A., 15.  
 — sigterite, a new feldspar, 1891, A., 22.

- Carl Friedrich*, chemical animaline, 1891, A., 21.  
phosphates, 1892, A., 103.
- de Luna*, cholera, 1881, A., 319.
- Ramsay, Wilhelm*, nepheline-syenite of the Kola Peninsula, 1891, A., 531.
- Ramsay, Wilhelm**, and *Hugo Berghell*, rocks of the Jiwaara in Finland, 1892, A., 1058.
- Ramsay, William**, presence of a reducing agent, probably hydrogen peroxide, in natural water, 1886, P., 225.
- molecular weights of nitrogen trioxide and nitrogen peroxide, 1888, T., 621; P., 59; discussion, P., 60.
- molecular weights of the metals, 1889, T., 521; P., 39.
- nitrogen trioxide and peroxide, 1890, T., 590; P., 7; discussion, P., 8.
- dissociation of selenium chloride, 1891, A., 11.
- theory of solution, 1891, A., 788.
- solution, 1891, A., 793.
- pedectic motion in relation to colloidal solutions, 1892, P., 17; discussion, P., 19.
- Ramsay, William**, and *James Tudor Cundall*, oxides of nitrogen, 1885, T., 187; P., 22; discussion, P., 23.
- non-existence of gaseous nitrous anhydride, 1885, T., 672; P., 90.
- Ramsay, William**, and *Sydney Young*, the decomposition of ammonia by heat, 1884, T., 88.
- influence of pressure on the temperature of volatilisation of solids, 1884, A., 252.
- determination of the vapour pressures of solids and liquids, 1885, T., 42.
- method for obtaining constant temperatures, 1885, T., 640.
- the vapour pressures of mercury, 1885, P., 115; 1886, T., 37.
- influence of change from the liquid to the solid state on vapour pressures, 1885, A., 629; 1887, A., 430.
- thermal properties of ethyl alcohol, 1885, A., 1178.
- vapour pressures of bromine and iodine, and iodine monochloride, 1886, T., 453; P., 181; discussion, P., 182.
- note on the vapour densities of chloral ethyl alcoholate, 1886, T., 685; P., 226.
- evaporation and dissociation; acetic acid, 1886, T., 790; P., 225.
- Ramsay, William**, and *Sydney Young*, determination of boiling-points, 1886, P., 181; discussion, P., 181.
- nature of liquids as shown by a study of the thermal properties of stable and dissociable bodies, 1886, P., 226; 1887, A., 430.
- so-called specific remission, 1886, A., 5.
- do the statical and dynamical methods of measuring vapour pressures give identical results? 1886, A., 410.
- the statical and dynamical methods of estimating vapour pressures, 1886, A., 965.
- thermal properties of a mixture of ethyl alcohol and ethyl oxide, 1887, T., 755; P., 91; discussion, P., 92.
- nature of liquids, 1887, A., 100.
- thermal properties of ether, 1887, A., 320.
- continuous transition from the liquid to the gaseous state at all temperatures, 1887, A., 763.
- the mixture of propyl alcohol and water, 1888, P., 101; discussion, P., 102.
- evaporation and dissociation; continuous changes from the gaseous to the liquid state at all temperatures, 1888, A., 18.
- Ramsay, William**. See also (*Miss*) *Emily Aston*, *Franklin P. Evans*, (*Colonel*) *Henry Charles Reynolds*, (*Miss*) *Katherine J. Williams*.
- Randall, W. Wyatt**, *o*-sulpho-*p*-toluic acid and its derivatives, 1891, A., 1228.
- Ransom, Francis**, detection of strontium, 1883, A., 509.
- estimation of ipecacuanha, 1887, A., 1147.
- constituents of henbane seed, 1892, A., 231.
- Ransom, Francis**. See also *Wyndham Rowland Dunstan*.
- Ransom, William Bramwell**, diabetes and glycerol, 1887, A., 985.
- Ranvier, Louis Antoine**, per-ruthenic acid in histology, 1887, A., 1060.
- Raoult, François Marie**, law of freezing of aqueous solutions of carbon compounds, 1883, A., 7, 952.
- law of freezing of solvents, 1883, A., 278; 1884, A., 952.
- freezing points of alkaline solutions, 1884, A., 254.
- freezing points of solutions of salts of the alkali metals, 1884, A., 701.

- Raoult, François Marie**, freezing points of solutions of salts of bivalent metals, 1881, A., 808.  
 — general law of freezing of solvents and deductions therefrom, 1881, A., 952.  
 — freezing points of saline solutions, 1884, A., 1248.  
 — action of water on double salts, 1885, A., 122.  
 — influence of dilution on the reduction of the freezing point of aqueous solutions, 1885, A., 558.  
 — cryoscopy as a means of determining molecular weights, 1886, A., 197.  
 — extension of the law of solidification, 1886, A., 763.  
 — vapour tensions of ethereal solutions, 1887, A., 207; 1888, A., 1145.  
 — influence of concentration on the vapour tension of ethereal solutions, 1887, A., 631.  
 — cryoscopic studies on racemic acid and racemates, 1888, A., 361.  
 — freezing points of dilute aqueous solutions, 1888, A., 1242.  
 — vapour tensions of alcoholic solutions, 1889, A., 7.  
 — vapour pressures of solutions, 1891, A., 386.  
 — freezing points of dilute solutions of cane sugar, 1892, A., 678.  
 — determination of the freezing points of very dilute solutions, 1892, A., 935.  
**Raoult, François Marie**, and **Albert Recoura**, vapour pressures of solutions in acetic acid, 1890, A., 554.  
**Rapp, Martin**, nitration of the phenyl and cresyl ethers of phosphoric acid, 1884, A., 1337.  
**Raps, Georg**. See **Adolph Claus**.  
**Rasch, Hermann**. See **Rudolph Fittig**.  
**Raschen, Julius**, indoles from tolylhydrazine, 1887, A., 956.  
**Raschen, Julius**. See also **Francis Robert Japp**.  
**Raschig, Fritz**, action of copper chlorides on metallic sulphides, 1884, A., 962.  
 — action of bromine on dimethylamine, 1885, A., 1195.  
 — iodide of nitrogen, 1886, A., 16.  
 — action of hydrogen peroxide on antimony sulphide, 1886, A., 20.  
 — organic iodides of nitrogen, 1886, A., 44.  
 — reduction of chloropicrin and dinitrochloromethane, 1886, A., 323.  
 — Berthollet's explosive silver, 1886, A., 850.  
**Raschig, Fritz**, compounds of gold and nitrogen, 1887, A., 112.  
 — reaction of nitrous acid with sulphurous acid, 1887, A., 549, 635.  
 — compound of iodine with ammonia, 1888, A., 26.  
 — preparation of the alkali salts of hydroxylaminedisulphonic acid and of hydroxylamine, 1888, A., 913.  
 — theory of the lead chamber process, 1889, A., 103.  
**Rasinski, Augustin**, biuret dicyanamide, 1883, A., 658.  
 — fractional distillation of mineral oils in a current of steam, 1884, A., 936; 1885, A., 950.  
**Rassow, Berthold**. See **Alfred Einhorn**.  
**Rath, Gerhard von**, iron glance and augite from Ascension, 1883, A., 436.  
 — colemanite, 1885, A., 224.  
 — quartz from Burke Co., North Carolina, 1886, A., 27.  
 — meteorites in the public collections of Mexico, 1886, A., 133.  
 — cristobalite from Mexico, 1887, A., 559.  
**Rath, Gerhard von**. See also **Charles Bodewig**, **Frederick Augustus Genth**.  
**Rathgen, Friedrich**, estimation of sugar in liquours, confectionery, and chocolate, 1888, A., 1345.  
**Rathgen, Friedrich**. See also **Ernst Carl Theodor Zincke**.  
**Rathke, Bernhard**, derivatives of thiocarbamide, 1884, A., 1017.  
 — nature of selenium sulphide and of alloys, 1885, A., 964.  
 — constitution of dicyanodiamide and melamine, 1886, A., 217.  
 — compounds of perchloromethyl mercaptan with aromatic amines, 1886, A., 458.  
 — preparation of methyl-violet, 1886, A., 460.  
 — thiammeline, 1887, A., 650.  
 — melamines, 1887, A., 650; 1890, A., 1082.  
 — triphenylthiammeline and a third triphenylammeline, 1887, A., 662.  
 — cyanuric derivatives of taurine, 1888, A., 582.  
 — phenylisocyanuric acid: a fourth triphenylmelamine, 1888, A., 591.  
 — methyl chlorothioformate; polymeric thiocarbonyl chloride, 1888, A., 1169.  
 — the carbon of spiegeleisen, 1891, A., 646.  
 — crystalline ferromanganese, 1891, A., 646.

- Rathke, Bernhard**, and **Rudolf Oppenheim**, triphenylguanythiocarbamide and dicyanodiamide, 1890, A., 1125.
- Ratimoff, Wasilij A.**, anti-septics, 1885, A., 612.
- Rattner, Carl**, negative nature of organic radicles, 1888, A., 704.
- Ran, Henry M.**, indigo testing, 1885, A., 934.
- Raudnitz, R. W.**, digestibility of boiled milk, 1889, A., 1225; 1890, A., 650.
- Raulin, J.**, estimation of nitrogen in organic substances, 1887, A., 862.
- agricultural experiments, 1888, A., 85.
- action of micro-organisms on certain colouring matters, 1889, A., 67.
- phosphates and cereals, 1889, A., 425, 1242.
- estimation of potassium and humus in soils, 1890, A., 668.
- influence of the nature of the soil on vegetation, 1892, A., 1121.
- Raumer, Ernst von**, lime and magnesia in plants, 1884, A., 917.
- an unfermentable dextrorotatory constituent of honey, 1890, A., 356.
- Raumer, Ernst von**. See also *Richard Hornberger*.
- Raupenstrauch, G. Adolf**, solubility of salts in water at various temperatures, 1885, A., 1181.
- condensation of *n*-butaldehyde, 1887, A., 794.
- solubility of gypsum, 1889, A., 16.
- Rauter, Gustav**, silicon tetrachloride, 1892, A., 1273.
- Rauter, Gustav**. See also *Karl Friedrich Otto Seubert*.
- Rautenberg, Ferdinand**. See *Theodor Curtius*.
- Raveill, J. W.**, *p*-bromo-*m*-nitrobenzoic acid, 1884, A., 600.
- Rawson, Christopher**, valuation of indigos, 1885, A., 697; 1888, A., 761.
- indigo testing, 1885, A., 1015.
- detection and estimation of magenta in orchil and eudbear, 1888, A., 877.
- Rawson, Sidney George**, estimation of cuprous chloride in copper liquors, 1884, A., 872.
- the atomic weight of chromium, 1889, T., 213; P., 31.
- preparation of boron and silicon, 1889, A., 211.
- tests for tannic and gallic acids, 1889, A., 447.
- oxyhaloid derivatives of chromium, 1889, A., 678.
- Ray, Frederick O.**, leaves of *Eschulus Hippocastanum* and of *Acer dasycarpum*, 1886, A., 1065.
- Raydt, W.**, liquid carbonic anhydride as a fire extinguisher, 1883, A., 408.
- Rayleigh, John William Strutt (Lord)**, the constant of electromagnetic rotation of light in carbon bisulphide, 1885, A., 325.
- densities of hydrogen and oxygen, 1888, A., 643.
- composition of water, 1890, A., 330.
- Rayleigh, John William Strutt (Lord)**, and (*Mrs.*) *Eleanor Medvet Sidgwick*, electrochemical equivalent of silver, 1885, A., 409.
- Rayman, Bohuslav**, isodulcitol, 1887, A., 906.
- cholesterol, 1887, A., 926.
- action of arsenious sulphide on acid chlorides, 1887, A., 950.
- rhamnose (isodulcitol), 1888, A., 1049.
- constitution of the glucoses, 1889, A., 32.
- Rayman, Bohuslav**, and *Karel Chodounský*, rhammodiazine, 1889, A., 485.
- Rayman, Bohuslav**, and *Josef Kruis*, isodulcitol, 1888, A., 667.
- Rayman, Bohuslav**, and *Oskar Pohl*, rhammodiazine, 1890, A., 355.
- Rayman, Bohuslav**, and *Karl Preis*, bromine compounds of tin, 1881, A., 1265.
- reaction of iodine with carbon compounds at high temperatures, 1881, A., 1311.
- Rayman, Bohuslav**. See also *Karl Preis*.
- Raynaud, Hipp.** See *H. Suilliot*.
- Readman, James B.**, chemical composition of the cobalt and nickel ores of New Caledonia, 1886, A., 320.
- Beale, Nicola**, compounds extracted from *Anagallis fetida*, 1888, A., 188.
- Reber, C.**, fixing artificial dyes by ferro- and ferri-cyanides, 1885, A., 946.
- Reboul, Edmond**, action of triethylamine on *s*-trichlorohydrin and on the two dichloropropylenes, 1883, A., 307.
- oxallyldiethylamine, 1884, A., 577.
- hydroxyallyldiamines, 1884, A., 578.
- butyl ethers, 1889, A., 366, 477.
- bromobutylenes, 1892, A., 127.
- Reboux, Emile**, manufacture of sugar without bye-products, 1885, A., 464.

- Rebs, Heinrich**, sulphur compounds, 1883, A., 1155.
- Rebuffat, Orasio**, phenylethnamylacrylic acid and diphenyldiethylene, 1885, A., 1137.
- condensation of hippuric acid with aldehydes, 1886, A., 547.
- phenylamidoacetic acid derivatives, 1887, A., 1108.
- reactions of chloral, 1888, A., 127.
- amido-acids, 1890, A., 621.
- action of aniline on chloroacetic acid, 1891, A., 50.
- Perkin's reaction, 1891, A., 69.
- diphenyldiethylene derivatives, 1891, A., 76.
- Rechberg, Johann**. See *Rudolf Nietzki*.
- Rechenberg, Otto von**. See *Heinrich Lämprecht*.
- Recknagel, H.**, a physical property of milk, 1884, A., 911.
- Recoura, Albert**, hydrochloride of chromous chloride, 1885, A., 875.
- heat of transformation of chromous chloride into chromic chloride, 1885, A., 1102.
- isomeric modifications of chromic chloride, 1886, A., 508.
- chromic chlorides: molecular state of chromic oxide, 1886, A., 597.
- conversion of chromous into chromic chloride, 1886, A., 669.
- preparation of hydrobromic acid, 1890, A., 687.
- isomeric forms of chromic bromide, 1890, A., 1063.
- action of heat on solutions of chromic salts: greensalts of chromium, 1891, A., 1430.
- green chromic sulphate, 1892, A., 411.
- isomeric forms of chromic sulphate, 1892, A., 411.
- chromosulphuric acid and metallic chromosulphates, 1892, A., 783.
- Recoura, Albert**. See also *Marcellin Berthelot*, and *François Marie Raoult*.
- Reder, P.**, experiments on the nitrogen of peat, 1885, A., 188.
- Redwood, Doberton**. See *(Sir) Frederick Augustus Abel*.
- Redzko, V.**, derivatives of stilbene and *iso*-stilbene, 1890, A., 783.
- Rée, Alfred**,  $\beta$ -sulphophthalic acid, 1885, A., 1062; 1886, T., 510.
- constitution of monochlorophthalic acid, 1886, A., 353.
- Rée, Alfred**. See also *Carl Graebe*.
- Reed, J. Hastings**, dimethylnaphthamquinoline, 1886, A., 370.
- $\beta$ -naphthacridine, 1886, A., 1037.
- Reed, J. Hastings**, methylnaphthamquinolines and  $\beta$ -naphthacridine, 1887, A., 681.
- Reed, Lester**, estimation of gluten in flour, 1884, A., 122.
- action of boric acid on calcium carbonate, 1885, A., 484.
- Reese, August**. See *Carl Arnold August Michaelis*.
- Reese, Chas. L.**, analysis of pinite from Madison Co., W. Carolina, 1885, A., 130.
- comparative oxidation of solutions of sulphurous acid and sodium sulphite, 1885, A., 217.
- estimation of sulphurous anhydride, 1885, A., 296.
- Reese, Ludwig**, action of phthalic anhydride on amido-acids, 1888, A., 148, 369.
- ash determination, 1888, A., 758.
- Reese, Ludwig**. See also *Emil Fischer*.
- Reformatsky, Alexander N.**, synthesis of diethylmethylecarbinol, 1888, A., 244.
- Reformatsky, Alexander N.** See also *Woldemar Diéff*.
- Reformatsky, Sergius N.**, the hydrocarbon  $C_{10}H_{18}$ , prepared from allyldi-propylcarbinol, 1883, A., 1073.
- the hydrocarbon  $C_8H_{14}$ , prepared from allyldiethylcarbinol, 1885, A., 232.
- preparation of polyhydric alcohols, 1885, A., 882.
- synthesis of diatomic monobasic acids, 1887, A., 717.
- new synthesis of dihydric monobasic acids from ketones, 1888, A., 819.
- synthesis of some glycerols by means of hypochlorous acid, 1890, A., 120.
- first oxide of the pentahydric alcohol from diallylcarbinol, 1890, A., 353.
- first oxide of a tetrahydric alcohol from diallylcarbinol, 1890, A., 354.
- linoleic acid, 1890, A., 362.
- action of bromine on trimethylacetic acid, 1890, A., 1096.
- action of zinc and ethyl chloracetate on ketones and aldehydes, 1891, A., 169.
- velocity of reaction in gelatin, 1891, A., 639.
- action of zinc and ethyl monochloracetate on the aldehydes, 1892, A., 1300.
- Regéczy, Em. N. von**, diffusion of albumin solutions, 1885, A., 405.

- Regel, Carl von**, oxidation of  $\alpha$ - and  $\beta$ -hydroxypiperic acids, 1887, A., 488.
- Regelsberger, Friedrich Ferd.**, ammoniacal compounds of manyl chloride, 1885, A., 638.
- assay of aluminium and its alloys, 1892, A., 102, 535.
- estimation of silicic acid in fluorides, 1892, A., 1128.
- Regibus, de.** See **Pistone**.
- Regnard, Paul Marie Léon**, action of chlorophyll on carbonic anhydride, 1886, A., 254.
- influence of the age of yeast on the alcoholic fermentation, 1888, A., 184.
- measurement of the quantity of light that enters water, 1891, A., 2.
- Regnaud, Jules**, and **E. Villejean**, composition of a pathological liquid, 1884, A., 1060.
- purification of methyl alcohol, 1884, A., 1279.
- physiological action of dichloromethane compared with that of chloroform, 1885, A., 285.
- oleaginous seeds of the *Symphonia fasciculata*, 1885, A., 290.
- inhalation of methane and monochloromethane, 1885, A., 926.
- inhalation of dichloromethane and tetrachloromethane, 1885, A., 926.
- Rego.** See **Holterman do Rego**.
- Reh, August.** See **Adolph Claus**.
- Reher, L.**,  $\alpha$ - and  $\gamma$ -ethylquinolines, 1887, A., 279; 1888, A., 66.
- Reibenschuh, Anton Franz**, methylbiguanide and its compounds, 1883, A., 974.
- Reich, F.**, and **Th. Richter**, estimation of arsenic, 1886, A., 1073.
- Reich, Karl**, solubility of sodium carbonate and sodium hydrogen carbonate in solutions of sodium chloride, 1892, A., 116.
- Reichardt, Eduard**, volumetric analysis, 1884, A., 213.
- detection of arsenic, 1884, A., 368.
- amount of fatty acids in butter, 1884, A., 1219.
- drinking water supplies, 1885, A., 612.
- action of potable waters on lead pipes, 1888, A., 344, 554.
- mineral water of the Ottili Spring, Suhl, 1889, A., 1054.
- elementary analysis of volatile liquids, 1889, A., 1088.
- Reichardt, Eduard**, and **Upmeyer**, estimation of iodine, 1889, A., 1086.
- Reicher, Ludewyk Theodorus**, the temperature of allotropic transformation of sulphur, 1885, A., 346.
- rate of formation of maleic anhydride, 1885, A., 757.
- velocity of saponification, 1885, A., 1034; 1886, A., 416; 1887, A., 787.
- temperature of conversion of copper calcium acetate, 1888, A., 360.
- Reicher, Ludewyk Theodorus**, and **Charles Marius van Deventer**, thermal behaviour of cupric chloride solutions, 1890, A., 1206.
- Reicher, Ludewyk Theodorus.** See also **Charles Marius van Deventer**, **Jacobus Henrius van't Hoff**.
- Reicher, Mar.** See **Stanislaus von Kostanecki**.
- Reichert, E.**, quantitative estimation by measurement of electrical conductivity, 1889, A., 545.
- Reichert, Edward T.** See **Oliver Holcott Gibbs**.
- Reichl, C.**, test for glycerol and woody fibre, 1884, A., 118.
- new reaction for albuminoids, 1889, A., 1092; 1890, A., 1350.
- Reichold, Albert**, phenyl-*p*-tolylamine, 1890, A., 609.
- Reichwald, Rudolph**, fumarine, 1890, A., 272.
- Reid, Alex. F.**, improvements in batteries, 1892, A., 1027.
- Reid, Edward Waymouth**, osmosis with living and dead membranes, 1890, A., 277, 1176.
- absorption without osmosis, 1892, A., 646.
- Reidemeister, C.**, sodium calcium carbonate, 1887, A., 12.
- Reimann, K.** See **J. F. Janovsky**.
- Reimarus, Carl**, action of alkyl iodides on dibenzylthiocarbamide, 1887, A., 43.
- Reimer.** See **Haarmann**.
- Reimer, Carl Ludwig**, and **Carl Wilhelm Will**, fat of the fruit of *Mysticaria surinamensis*, 1885, A., 1197.
- erucic and brassic acids, 1887, A., 233.
- constituents of rape-seed oil, 1887, A., 1030.
- Reimer, Carl Ludwig.** See also **Emil Jacobsen**.
- Reinders, Herrt**, manuring experiments in Holland, 1883, A., 617.
- Reinglass, Paul**, *m*-cyanobenzal chloride and *m*-cyanobenzaldehyde, 1891, A., 1844.
- Reinhardt, Carl**, modified Kipp's hydrogen sulphide apparatus, 1885, A., 1261.

- Reinhardt, Carl**, permanent potassium iodide and starch solution, 1886, A., 486.
- melting points of fats, 1886, A., 495.
- titanium nitrocyamide, 1888, A., 1047.
- estimation of small quantities of manganese in iron rich in silicon, 1888, A., 1132.
- estimation of chromium and copper in iron and steel, 1890, A., 85.
- filter holder for drying and weighing, 1890, A., 193.
- estimation of iron by means of potassium permanganate in hydrochloric acid solutions, 1890, A., 296.
- volumetric estimation of chromium in chrome iron ore, 1890, A., 298.
- rapid gravimetric estimation of sulphur in iron and steel, 1890, A., 1464.
- estimation of phosphorus in pig-iron by means of Braun's centrifugal apparatus, 1892, A., 912.
- Reinhardt, Gustav**. See **Otto Wallach**.
- Reinhardt, H.** See **Johannes Wislicenus**.
- Reinhardt, Heinrich**, and **Wilhelm Staedel**, methylation and ethylation of aniline and toluidine, 1883, A., 578.
- Reinhart, J. H.**, drying of exhausted beet residues, 1884, A., 1411.
- Reinitzer, Benj.**, behaviour of chromium, iron, and aluminium acetates, 1884, A., 39.
- Reinitzer, Friedrich**, hydrocarotene, and carotene, 1887, A., 265.
- cholesterol, 1888, A., 1076.
- physiology of the tannins, 1890, A., 186.
- estimation of lupulin in hops, 1890, A., 431.
- nature of gum ferment, 1890, A., 998.
- Reinitzer, Friedrich**. See also **Wilhelm Friedrich Gintl**.
- Reinke, Johann**, autoxidation in plant cells, 1883, A., 819.
- easily oxidisable constituents of plants, 1883, A., 830.
- effects of light on the respiration of oxygen by plants, 1884, A., 916, 1066.
- chlorophyll in the living cell and assimilation of carbon, 1885, A., 182.
- destruction of chlorophyll solution by light, 1885, A., 991.
- oxidation in the plant, 1888, A., 741.
- Reinke, O.**, estimation of starch, 1891, A., 127.
- Reinsch, Paul Frederick**, chemical composition of coal, 1885, A., 576.
- Reis, Moritz Adolf von**, behaviour of basic slag with water charged with carbonic anhydride, 1886, A., 663; 1888, A., 222.
- simplification of the molybdate method for estimating phosphorus, 1886, A., 835.
- estimation of phosphoric acid in basic slag, 1889, A., 439.
- estimation of phosphorus and sulphur in iron, 1889, A., 648.
- estimation of arsenic in iron, 1890, A., 194.
- estimation of manganese by the chlorate method, 1892, A., 1132.
- Reis, Moritz Adolf von**, and **F. Wiggert**, volumetric estimation of cobalt, 1891, A., 620.
- estimation of sulphur in iron, 1891, A., 1549.
- Reisenegger, Hermann**, compounds of the hydrazines with the ketones, 1883, A., 798.
- hydrazine compounds of phenol and anisole, 1884, A., 440.
- Reiset, Jules**, exhalation of nitrogen gas during the respiration of animals, 1883, A., 675.
- blue milk, 1883, A., 742.
- putrefaction: formation of manures, 1889, A., 739.
- Reiss, Rud.**, seminose, 1889, A., 687.
- nature of reserve cellulose and its mode of solution during germination of seed, 1891, A., 356.
- Reisse, Eugen**, decomposition products of the sodium salts of the chlorolactic acids, 1890, A., 1097.
- Reissert, Arnold**, action of phenylhydrazine on cyanhydrins, 1884, A., 1152.
- action of aniline on dibromosuccinic acid, 1886, A., 791.
- condensation products from  $\beta$ -anilido-acids, 1888, A., 276, 694.
- constitution of pyranilpyroic acid, pyranilpyroinlactone, and anilsuccinic acid, 1888, A., 954.
- pyranilpyroic acid, 1889, A., 142.
- pyranilpyroic acid and mesaconilic acid, 1889, A., 1174.
- pyridine and pyrroline derivatives from anilidopyrotartaric acid, 1890, A., 642.
- citraconanil and pyranilpyroinlactone, 1890, A., 1102.
- melting points of organic compounds, 1890, A., 1204.
- condensation products of anilido-glutaric acid, 1891, A., 567.

- Reissert, Arnold**, juloles, 1891, A., 736; 1892, A., 396.  
 — dyes obtained from ketomethyl-juloline and methyllepidone, 1892, A., 498.  
 —  $\alpha$ -phenylhydrazidopropionic acid, 1892, A., 1456.  
**Reissert, Arnold**, and **Alfred Junghahn**, 3'-methyl- $\alpha$ -naphthindole, 1892, A., 1479.  
**Reissert, Arnold**, and **Walter Kayser**, action of phenylhydrazine on the hydroxy-acids and their ethyl salts, 1890, A., 155; 1891, A., 438.  
 —  $\alpha$ -phenylhydrazidoacetic acid, 1891, A., 1054.  
**Reissert, Arnold**, and **Ferdinand Tiemann**, condensation products from  $\beta$ -anilido-acids, 1886, A., 551.  
**Reissert, Arnold**. See also **Walter Kayser**.  
**Reissmann, A.**, bumping during distillation, 1888, A., 547.  
**Reitmair, Otto**, "citrate" method of phosphoric acid estimation, 1890, A., 416; 1891, A., 243.  
 — estimation of calcium in presence of phosphoric acid, iron, aluminium, and manganese, 1890, A., 417.  
 — alterability of some food fats, 1891, A., 770.  
**Reitmair, Otto**. See also **Albert Stutzer**.  
**Remmler, W.**, separation of bismuth and lead, 1892, A., 385.  
**Rémont, Albert**, rapid method of estimating salicylic acid in wines, 1883, A., 245.  
 — estimation of salicylic acid in milk and butter, 1883, A., 522.  
 — estimation of the wool, silk, and cotton in tissues, 1885, A., 96.  
**Rémont, Albert**. See also **Alfred Riche**.  
**Rempel, R.**, apparatus for the estimation of starch, 1885, A., 813.  
**Rempel, Rudolf**. See **Curt Hell**.  
**Remse, Paul**, condensation products of  $p$ -nitrobenzyl cyanide, 1891, A., 208.  
**Remse, Paul**. See also **Martin Freund**.  
**Remsen, Ira**, action of alcohol on diazo-compounds, 1885, A., 525.  
 — new class of compounds analogous to the phthaleins, 1885, A., 539.  
 —  $o$ -sulphobenzoic acid and its derivatives, 1889, A., 881.  
 — double halogen salts, 1889, A., 931; 1892, A., 779.  
**Remsen, Ira**, and **William Shirley Bayley**,  $p$ -bromobenzoic sulphinide, 1887, A., 145.  
**Remsen, Ira**, and **William Merriam Burton**, action of acids on benzoic sulphinide and analysis of "sac-chain," 1890, A., 91.  
**Remsen, Ira**, and **Robert Dorsey Coale**, sinapine, 1884, A., 1387.  
**Remsen, Ira**, and **William James Comstock**, oxidation of substitution products of aromatic hydrocarbons, 1881, A., 319.  
**Remsen, Ira**, and **William Cathcart Day**, oxidation of  $\beta$ -cymenesulphonamide, 1884, A., 456.  
**Remsen, Ira**, and **Alfred Robert Louis Dohme**,  $o$ -sulphobenzoic acid and its derivatives, 1889, A., 992.  
**Remsen, Ira**, and **William Henry Emerson**, oxidation by means of potassium permanganate, 1887, A., 146.  
**Remsen, Ira**, and **Robert Orlando Graham**, decomposition of diazo-compounds, 1889, A., 975.  
**Remsen, Ira**, and **Charles Willard Hayes**, sulphonefluorescein, 1888, A., 153.  
**Remsen, Ira**, and **Homer Winthrop Hillyer**, methods for determining the relative stability of alkyl bromides, 1887, A., 122.  
**Remsen, Ira**, and **Edward Harrison Keiser**, behaviour of air and moist phosphorus towards carbonic oxide, 1884, A., 149, 711.  
 — white phosphorus, 1884, A., 154.  
 — oxidation of  $p$ -dipropylsulphonamide, 1884, A., 457.  
 — estimation of carbon in ordinary phosphorus, 1885, A., 482.  
**Remsen, Ira**, and **Alvin Frank Linn**, sulphonephthaleins, 1889, A., 710.  
**Remsen, Ira**, and **William Ridgely Orndorff**, decomposition of diazo-compounds, 1888, A., 268.  
**Remsen, Ira**, and **Albert Gallatin Palmer**, decomposition of diazo-compounds by alcohol:  $p$ -diazotoluene- $o$ -sulphonic acid, 1887, A., 136.  
 — benzoic sulphinide, 1887, A., 144.  
 —  $p$ -ethoxybenzoic sulphinide, 1887, A., 144.  
**Remsen, Ira**, and **Chase S. Palmer**, benzoyltoluenesulphonamide, 1887, A., 145.  
**Remy, Albert**. See **Eugen Lellmann**.  
**Renard, Adolphe**, products of the distillation of colophony, 1883, A., 599; 1884, A., 83.  
 — an isomeride of laurene, 1884, A., 173.

- Renard, Adolphe**, resin oils and essences, 1881, A., 843.  
 — dyeing cotton yarn with aniline-black in the cold, 1884, A., 912.  
 — electrolysis of salts, 1886, A., 115, 407.  
 — propionic acid, 1886, A., 1007.  
 — action of heat on heptene, 1887, A., 565.  
 — metallic propionates, 1887, A., 651.  
 — estimation of indigo in textile fabrics, 1887, A., 871; 1890, A., 931.  
 — diterobenthyl, 1888, A., 161, 721.  
 — hydrocarbons in resin oils, 1888, A., 846.  
 — phenylthiophen, 1890, A., 124.  
 — phenyldithienyl, 1890, A., 1120.  
 — trithienyl, 1891, A., 427.
- Renard, (Rev.) Alphonse François**, monazite and zircon from the quarries of Nil St. Vincent, 1883, A., 561.  
 — garnet and amphibole rocks of the Bastogne region, 1883, A., 958.
- Renard, (Rev.) Alphonse François**, and **Constantin Klement**, crocydolite and fibrous quartz from the Alps, 1886, A., 603.
- Renard, (Rev.) Alphonse François**. See also **Ernst Ludwig**.
- Rennie, Edward Henry**, *p*-benzylphenol and its derivatives: an isomeric benzylphenol, 1886, T., 406; P., 184; discussion, P., 184.  
 — glycyphyllin, the sweet principle of *Smilax glycyphylla*, 1886, T., 857; P., 239.  
 — colouring matter of *Drosera Whitakeri*, 1887, T., 371; P., 36.  
 — phlorizin, 1887, T., 631; P., 86.
- Rennie, Edward Henry**, and **George Arthur Goyder**, the resins of *Ficus rubiginosa* and *F. uterophylla*, 1892, T., 916; P., 116.
- Renouard, Alfred**, cotton cake, 1883, A., 111.
- Renouf, Edward**, derivatives of triphenylmethane, 1883, A., 981.
- Renouf, Edward**. See also **Otto Fischer**.
- Retgers, Jan Willem**, minerals from the Krakatoa ashes, 1886, A., 602.  
 — determination of the specific gravity of salts which are soluble in water, 1889, A., 812, 1101.  
 — specific gravity of isomorphous mixtures, 1889, A., 931.  
 — isomorphism, 1890, A., 328, 1208; 1891, A., 116, 1151; 1892, A., 1018.  
 — decomposition of potassium manganate by ammonium salts, 1891, A., 1159.
- Retgers, Jan Willem**, influence of foreign substances on the form, purity, and size of crystals separating from a solution, 1892, A., 937.
- Reuland, Jos.**, derivatives of diphenylinc, 1890, A., 166.
- Reusch, Hans H.**, volcanic ashes from the last eruption of Krakatoa, 1884, A., 415.  
 — the Tysnes meteorite, 1886, A., 927.
- Reusch, Hermann**. See **Eugen Lellmann**.
- Reuss, Karl**, density of solutions of pure and commercial aluminium sulphate, 1885, A., 458.
- Reuter, Aug.**, action of zinc chloride on camphor, 1883, A., 810.  
 — estimation of the three xylenes in coal-tar, 1881, A., 1431.
- Reuter, Ferdinand**. See **Richard Anschütz**.
- Reuter, Ludwig**, constituents of *Urtica urens*, *U. dioica*, and *U. pilulifera*, 1890, A., 545.  
 — synthesis of cymene, 1892, A., 1310.
- Reuter, Ludwig**. See also **Julius Wilhelm Brühl, Friedrich Krafft**.
- Revelli, C. A.** See **F. Ballario**.
- Reverdin, Frédéric**, and **Ch. De la Harpe**, estimation of *p*-nitrotoluene, 1889, A., 84.  
 — estimation of aniline and methylaniline, 1889, A., 1038.  
 — analysis of methylanilines, 1890, A., 480.  
 — amidonaphtholsulphonicacids, 1892, A., 996.
- Reverdin, Frédéric**. See also **Ch. De la Harpe**.
- Rey, Hermann**, burette float for opaque liquids, 1891, A., 1288.
- Rey, Hermann**. See also **Karl Heumann, Georg Lunge**.
- Reychler, Albert**, silver nitrate and ammonia, 1883, A., 902; 1884, A., 261.  
 — silver nitrite and ammonia, 1881, A., 157.  
 — argentammonium compounds, 1884, A., 721, 1261; 1885, A., 18.  
 — estimation of pressure in closed tubes, 1887, A., 1014.  
 — preparation of phenylhydrazine, 1887, A., 1042.  
 — artificial diastase, 1889, A., 621.  
 — conversion of crucic acid into behenic acid, 1889, A., 1110.  
 — preparation of carvacrol, 1892, A., 1311.  
 — some derivatives of carvacrol, 1892, A., 1312.  
 — constitution of carvone, 1892, A., 1350.

**Reychler, Albert.** See also *P. de Wilde*.  
**Reyer, E.**, on solidification, 1885, A., 1180.

**Reymond.** See *Du Bois Reymond*.

**Reynier, Emile**, observations on Trouvé's paper on the bichromate battery, 1883, A., 700.

— measurement of electromotive force, 1884, A., 246.

— variation of electromotive force in accumulators, 1884, A., 881.

**Reynolds, (Colonel) Henry Charles**, and **William Ramsay**, equivalent of zinc, 1887, T., 854; P., 81.

**Reynolds, James Emerson**, comparative effect of two metameric bodies on the growth of *Nicotiana longiflora*, 1883, A., 495.

— on the synthesis of galena by means of thiocarbamide, and the deposition of lead sulphide as a specular film, 1884, T., 162.

— atomic weight of beryllium, 1884, A., 261.

— action of silicon tetrabromide on thiocarbamide, 1887, T., 202; P., 1; discussion, P., 2.

— new chlorobromide of silicon, 1887, T., 590; P., 72.

— composition of Prussian blue and Turnbull's blue, 1887, T., 644; P., 86.

— action of bromine on potassium ferricyanide, 1888, T., 767; P., 87.

— action of silicon tetrabromide on allyl- and phenyl-thiocarbamides; action of ethyl alcohol on the compound  $(H_4N_2CS)_2SiBr_2$ , 1888, T., 853; P., 88.

— silicotetraphenylamides and  $\alpha$ - and  $\beta$ -silicotetranaphthylamides, 1880, T., 474; P., 98.

— silico-organic compound of a new type, 1889, A., 504.

— additive compounds of "thiocarbamide" which afford evidence of its constitution, 1891, T., 383; P., 78; discussion, P., 79.

— some silver compounds of thiourea, 1892, T., 249; P., 14.

— silicon compounds and their derivatives; action of silicon tetrachloride on substituted phenylamines, 1892, T., 453; P., 73.

**Rey-Pailhade, Joseph de**, organic compound which hydrogenises sulphur, 1888, A., 1101.

— philothion, 1888, A., 1101.

— attraction of animal tissues for sulphur, 1889, A., 633.

— alcoholic extract of yeast, 1890, A., 905.

**Rhoussoopoulos, Otto**, quinoline derivatives, 1883, A., 96.

— action of chloroform and iodoform on quinoline, 1883, A., 600.

— methylenediquinoid hydrochloride, 1883, A., 1150.

— ethyl ethylenedicarbamate, 1891, A., 1195.

— methanetriquinoid or triquinylmethane, 1891, A., 1261.

**Ribalkin, M.**, chemical equilibrium between hydrogen chloride and hydrogen in conjunction with metals, 1890, A., 685.

**Riban, Joseph**, conversion of tricalcium phosphate into chlorine compounds of phosphorus, 1883, A., 287.

— estimation and separation of zinc, 1888, A., 1343.

— estimation of zinc in presence of iron and manganese, 1890, A., 1193.

— colorimetric estimation of iron, A., 1132.

— basic zinc nitrate, 1892, A., 1156.

— alteration of chalybeate mineral waters, 1892, A., 1288.

— chalybeate mineral waters, 1892, A., 1289.

**Ricciardi, Leonardo**, composition of various layers of a lava current from Etna, 1883, A., 36.

— composition of the banana at different stages of maturity, 1883, A., 231.

— diffusion of vanadium in the mineral and vegetable kingdoms, 1884, A., 159.

— supposed recombination of oxygen-hydrogen mixture in the dark, 1884, A., 1092.

— products of the eruption of Mount Etna, 1886, A., 857.

— volcanic rocks of Assah, 1886, A., 993.

— origin of hydrogen chloride, sulphurous anhydride, and iodine in the gases of volcanoes, 1887, A., 643.

— composition of volcanic rocks, 1887, A., 1023.

— composition of rocks and minerals from Vulture-Melli, 1887, A., 1087.

— examination of the rocks of the Vulsinian volcanoes, 1889, A., 224.

— diffusion of alumina in plants, 1890, A., 818.

**Richard**, action of cocaine on the Invertebrata, 1885, A., 1002.

**Richard, Adolphe.** See *Adolphe Carnot*.

**Richard, Bernhard**, constitution of  $\beta$ -quinaldinesulphonic acid, 1891, A., 329.

- Richard, L.**, estimation of starch in gluten bread, 1885, A., 299.
- Richards, Jos. W.**, specific heat of aluminium, 1892, A., 673.
- Richards, Theodore William**, heat produced by the reaction of silver nitrate with solutions of metallic chlorides, 1888, A., 400.
- relation of the atomic weights of silver and copper, 1888, A., 916.
- atomic weight of copper, 1888, A., 917; 1891, A., 805.
- vapour density determinations, 1889, A., 460.
- cuprammonium compounds, 1891, A., 399.
- cuprammonium acetobromide, 1892, A., 953.
- Richards, Theodore William**. See also *Joshua Parsons Cooke, Paul Ehrhardt Jannasch*.
- Richardson, Albert Ernest**, specific gravity of a liquid, a function of its boiling point and molecular weight, 1891, A., 780.
- Richardson, Arthur**, vapour pressures of alcohols and organic acids, 1886, T., 761.
- action of heat on nitrogen peroxide, 1887, T., 397; P., 39.
- action of light on the hydrides of the halogens in presence of oxygen, 1887, T., 801.
- action of light on moist oxygen, 1889, P., 134; discussion, P., 134.
- action of light on pure ether in presence of moist oxygen, 1890, P., 146; discussion, P., 147; 1891, T., 51.
- sealing tubes under pressure, 1890, A., 941.
- decomposition of silver chloride by light, 1891, T., 536; P., 81.
- measurement of light intensity by the expansion of chlorine, 1892, A., 253.
- Richardson, Benjamin Ward**, action of oxygen on animals, 1887, A., 855.
- Richardson, Clifford**, composition of American wheat, 1884, A., 1404.
- chemical alterations in green fodder during ensilage, 1885, T., 80.
- chemical composition of wheat and maize as influenced by environment, 1885, A., 585.
- chemical composition of the products of roller-milling, 1885, A., 1021.
- variations in the chemical composition and physical properties of American oats, 1887, A., 293.
- American barley, 1887, A., 616.
- Richardson, Clifford**, and **Charles Albert Crampton**, composition of the wheat germ, 1886, A., 734.
- Richardson, Geo. M.**, double halogen salts of tin, 1892, A., 784.
- Richardson, Herbert Appleton**. See *Lenis Mills Norton*.
- Richardson, W. H.**, new phenylhydrazine salts, 1888, A., 1286.
- probable *o*-quinone derived from anthraquinone, 1888, A., 1308.
- Richarz, Franz**, products of the electrolysis of dilute sulphuric acid, 1885, A., 624.
- formation of hydrogen peroxide at the anode during the electrolysis of dilute sulphuric acid, 1888, A., 12.
- electrolytic formation of persulphuric acid and hydrogen peroxide at the anode, 1888, A., 769.
- constitution of peroxides, 1888, A., 769.
- electrical behaviour of platinum in persulphuric acid and the galvanic polarisation in the formation of the latter, 1889, A., 1041.
- polarisation of platinum electrodes in dilute sulphuric acid, 1890, A., 551.
- galvanic polarisation of platinum electrodes in dilute sulphuric acid with high current density, 1890, A., 676.
- Riche, Alfred**, and **Albert Rémont**, maseate pea, 1884, A., 1068.
- Riche, Alfred**. See also *J. B. Vincent Laborde*.
- Richet, Charles**, comparative poisonous action of metals on bacteria, 1884, A., 351.
- physiological action of rubidium salts, 1886, A., 88.
- physiological action of lithium, potassium, and rubidium salts, 1886, A., 88.
- toxic action of alkali salts, 1886, A., 385.
- Richet, Charles**. See also *Alexandre Léon Etard, Eugène Gley, Maurice Hanriot, Jules Héricourt*.
- Richmond, Henry Druop**, extraction of fat from milk solids, 1890, A., 91.
- estimation of soluble and insoluble fatty acids in butter, 1890, A., 93.
- estimation of iodoform, 1892, A., 1528.
- Richmond, Henry Druop**, and **Hussain Off**, indications of a possible new element in an Egyptian mineral, 1892, T., 491; P., 87.
- Richmond, Henry Druop**. See also *Alfred Pappel, Edward Cos Seaton*.

- Richmond, W. T.**, a convenient temperature regulator, 1881, A., 656.
- Richter, August Karl**, thymol derivatives, 1883, A., 1112.
- Richter, Carl**. See **Adolph Claus**.
- Richter, Eduard**, reactions of carbonic oxide blood, 1890, A., 1200.
- Richter, Ernst**,  $\alpha$ - and  $\beta$ -naphthylamidoximes, 1887, A., 374.  
— derivatives of the two isomeric naphthylamidoximes, 1890, A., 62.  
—  $\beta$ -trichloro- $\alpha$ -hydroxypropenylamidoxime, 1892, A., 321.
- Richter, Ernst Ludwig**, two *p*-toluidine-disulphonic acids, 1886, A., 151.  
— oil of *Laillemantia iberica*, 1888, A., 83.
- Richter, Paul**, increased output of nitrogen in cerebral hyperthermia, fever, and artificial overheating, 1891, A., 600.  
— physiological action of antipyretics, 1891, A., 602.
- Richter, R.**, carbonyldiphenyl oxide and hydroxyphenylene ketone, 1884, A., 324.  
— a new form of hot filtering funnel and an apparatus for obtaining sublimates, 1884, A., 364.
- Richter, Th.** See **F. Reich**.
- Richter, Victor von**, cinnoline derivatives, 1883, A., 1105.  
— so-called critical pressure of solid substances, 1886, A., 656.  
— action of chromyl chloride on nitrotoluene, 1886, A., 694.  
— chromogenic carbons: constitution of rosaniline salt, 1888, A., 1185.  
— new chromogenic groups, 1888, A., 1189.
- Richter, Victor von**, and **Hugo Münzer**, benzeneazoketone, 1884, A., 1342.
- Richter, Victor von**, and **Georg Schüchner**, action of chromyl chloride on cymene, 1884, A., 1342.
- Richter, Victor von**. See also **E. Courant**, **A. Gallinek**.
- Ricketts, Pierre de P.**, franklinite ores from New Jersey, 1884, A., 27.
- Rickmann, James Pellatt**. See **Jacob Baynes Thompson**.
- Rideal, Samuel**, delicate tests for antimony, arsenic, and tin, 1885, A., 1013.  
— action of ammonia on chromyl chloride, 1886, T., 367; P., 175.  
— isodimorphism, 1886, A., 503.  
— blue colouring matter of decaying wood, 1886, A., 810.  
— action of ammonia on tungsten compounds, 1888, P., 113; discussion, P., 113; 1889, T., 41.
- Rideal, Samuel**, organic boron compounds, 1889, A., 769.  
— colorimetric estimation of nitrates in potable waters, 1890, A., 831.
- Rideal, Samuel**. See also **Arthur George Green**.
- Ridsdale, Charles Henry**, simplified chromometer, 1888, A., 625.  
— estimation of vanadium, 1888, A., 628.
- Ridsdale, Charles Henry**. See also **John Edward Stead**.
- Rieche, Friedrich**, the four isomeric nitro-*m*-methoxybenzaldehydes, 1889, A., 1169.
- Riechelmann, Rudolf**. See **Rudolph Fittig**.
- Riecke, Eduard**, measurement of the quantity of electricity produced by a Zamboni's pile, 1884, A., 138.  
— continued dissociation and the vapour density of sulphur, 1891, A., 381.  
— thermal potential for dilute solutions, 1891, A., 786.
- Riecke, Eduard**. See also **Victor Meyer**.
- Riedel, C.**, quinoline- and pyridine-carboxylic acids, 1883, A., 1152.
- Riedel, Heinrich**. See **Adolph Claus**.
- Riedel, Hermann**, nitrogen in faeces, 1885, A., 414.
- Rieger, Joseph**, glyoxalbutyline and glyoxalisoobutyline, 1889, A., 119.
- Riehm, Paul**, condensation products of acetone and acetophenone with aniline and ammonia, 1887, A., 599.
- Riehm, Paul**. See also **Carl Engler**, **Ignaz Lew**.
- Riemann, Paul**. See **Adolph Claus**.
- Riemerschmied, Carl**,  $\beta$ -hydroxyquinoline, 1883, A., 1147.
- Riemerschmied, Carl**. See also **Otto Fischer**.
- Riesenfeld, Joseph**. See **Carl Bernhard Kühn**.
- Riess, Carl**, derivatives of cyanethine, 1885, A., 235.
- Riess, Carl**, and **Ernst Sigismund Christian von Meyer**, cyanmethethine, 1885, A., 616.
- Riess, Petrus Theophilus**, electric shadows, 1883, A., 416.
- Rietsch, Maximilien**, biliary acids, 1885, A., 577.
- Rietsch, Maximilien**. See also **William Nicati**.
- Riffard, E.**, artificial manning of sugar-canes, 1883, A., 506.
- Riggs, Rob. B.**, the Grand Rapids meteorite, 1886, A., 321.  
— an iron of doubtful origin, 1888, A., 121.

- Riggs, Rob. B.**, new meteoric iron, 1888, A., 121.  
 — so-called indicolite from Haarlem, 1888, A., 351.  
 — composition of tourmaline, 1888, A., 659.  
 — separation of iron, manganese, and calcium, 1892, A., 916.
- Righi, Augusto**, conductivity of bismuth for heat in a magnetic field, 1887, A., 1009; 1888, A., 102.  
 — rotation of isothermic lines of bismuth placed in a magnetic field, 1888, A., 102.  
 — electromotive force of selenium, 1889, A., 555.
- Rigollot, H.**, absorption spectrum of iodine solutions, 1891, A., 374.
- Rigollot, H.** See also *A. Gouy*.
- Rilliet, Albert A.** See *J. Louis Soret*.
- Rimbach, Eberhard**, correction of thermometric readings for the column outside the heating medium, 1890, A., 205.  
 — behaviour of optically active substances in mixtures of two solvents, 1892, A., 1137.
- Rimpan, IF.** (and others), sugar-beet culture, 1883, A., 114.  
 — basic slag and other phosphates as manure for moorlands, 1887, A., 294.
- Rindell, Arthur, and Ferdinand Hansen**, nitrogen estimation by Kjeldahl's method, 1886, A., 648.
- Ringer, Sydney**, influence of inorganic salts on development, 1890, A., 393.  
 — action of lime on casein and on milk, 1891, A., 340.  
 — caseinogen, 1891, A., 951.  
 — calcium salts and coagulation, 1892, A., 1112.
- Ringer, Sydney, and Harrington Sainsbury**, influence of salts on clotting, 1890, A., 1176.  
 — action of salts on heat coagulation, 1891, A., 954.
- Rinicker**, hailstorms and their origin, 1883, A., 234.
- Rinman, Ludvig**, composition of fir-wood charcoal, 1883, A., 533.
- Rinne, Friedrich**, rutile from Imfeld, 1885, A., 1186.  
 — millarite, 1885, A., 1187.  
 — the Dachberg, a volcano of the Rhone, 1889, A., 110.  
 — relations between minerals of the heulandite and desmine groups, 1892, A., 417.  
 — gismondine from Westphalia, 1892, A., 1056.
- Ris, Christoph**, phenyl- $\beta$ -naphthacridine, 1881, A., 1357.  
 — behaviour of  $\beta$ -dinaphthylamine, 1886, A., 917.  
 — phenazine, 1886, A., 1021.  
 — thio- $\beta$ -dinaphthylamine, 1886, A., 1036.  
 — derivatives of di- $\beta$ -naphthylamine, 1888, A., 57.  
 — action of catechol on alkylene diamines, 1888, A., 468.
- Ris, Christoph, and Adolf Weber**, derivatives of  $\beta$ -dinaphthylamine, 1884, A., 752.
- Ris, Christoph.** See also *Victor Merz*.
- Rischbieth, Paul**, preparation of levulinic acid, 1887, A., 799.  
 — isonitrosogalactose, 1888, A., 40.  
 — isonitrosovaleric acid and  $\gamma$ -valer-oximidolactone, 1888, A., 44.
- Rischbieth, Paul, and Bernhard Tollens**, raffinose or melitose from molasses, cotton-seeds, and eucalyptus manna, 1886, A., 138.
- Rising, William Bradley.** See *Joseph Le Conte*.
- Risler, Eugène**, influence of temperature on the development of wheat, 1885, A., 422.
- Rist, E.**, 2-methylquinaldine, 1891, A., 329.
- Ritschke, A.** See *Ludwig Gattermann*.
- Ritsert, Eduard**, testing acetanilide, 1890, A., 1349.
- Ritter, Adolf.** See *Carl Hell*.
- Ritter, Aemil**, improvement of sheep manure by kainite, 1885, A., 834.
- Ritthausen, Carl Heinrich Leopold**, skim milk as food, 1883, A., 102.  
 — behaviour of conglutin from lupines towards saline solutions, 1883, A., 360.  
 — proteids in peach-kernels and sesame-cake, 1883, A., 360.  
 — legumin, 1883, A., 675.  
 — melitose from cotton-seeds, 1884, A., 1286.  
 — occurrence of citric acid in the seeds of Leguminosæ, 1884, A., 1304.  
 — solubility of vegetable protein compounds in water containing hydrochloric acid, 1884, A., 1390.  
 — occurrence of vicin in broad beans (*Vicia faba*), 1884, A., 1405.
- Ritthausen, Carl Heinrich Leopold, and Felix Weger**, betaine in cotton-seed, 1885, A., 50.
- Ritzfeld, Carl.** See *Adolph Claus*.
- Riva-Rocci, Scipione**, estimation of peptones in stomach contents, 1892, A., 1136.

- Rivière, Charles**, law of cooling, 1883, A., 144.
- Rivière, Charles**. See also **James Chapuis**.
- Rizza, Benvenuto**, camphor from the ethereal oil of *Ledum palustre*, 1888, A., 845.
- Rizza, Benvenuto**, and **Alexander M. Butleroff**, asarone, 1884, A., 1042; 1888, A., 458.
- Rizza, Benvenuto**. See also **Alexander M. Butleroff**.
- Rjasantzeff**, action of zinc ethide on succinic chloride, and of zinc ethide and zinc methide on phthalic chloride; pyrotartaric chloride, 1889, A., 1059.
- Robb, William L.**, position of amalgams of zinc and cadmium in electro-potential series, 1884, A., 382.
- Robert, William**. See **Heinrich Brunner**.
- Roberts, galvanic elements**, 1888, A., 639.
- Roberts, Isaac Phillips**, and **Henry Hiram Wing**, depreciation of manure by exposure to wet and fermentation, 1891, A., 1395.
- Roberts, W.**, manurial experiments with various phosphates, 1887, A., 1137.
- Roberts, (Sir) William**, Pfeiffer's test for latent gout, 1890, A., 401.
- uric acid, 1890, A., 540.
- Roberts-Austen, William Chandler**, assay of nickel coins, 1886, A., 101.
- mechanical properties of metals in relation to the periodic law, 1889, A., 105.
- certain properties of metals considered in relation to the periodic law, 1891, A., 1161.
- Roberts-Austen, William Chandler**, and **Thomas Wrightson**, density of metals in the liquid state, 1884, A., 708.
- Robertson, George Borwick**, obituary notice of, 1884, T., 618.
- Robertson, George Henry**. See **Alexander Wynter Blyth**.
- Robertson, James D.**, new variety of zinc sulphide, 1891, A., 154.
- Robertson, Robt.**, blue quartz from Nelson Co., Virginia, 1885, A., 129.
- albite from Amelia Co., Virginia, 1885, A., 130.
- analysis of chrysocolla from Gila Co., Arizona, 1885, A., 130.
- Robin, Albert**, estimation of potassium hydrogen tartrate in urine, 1890, A., 187.
- Robin, Maurice**, ferric peptonate, 1885, A., 1147.
- Robineau, Fernand**. See **Lucien Soret**.
- Robinet, Ed.**, and **Henri Pellet**, antiseptic action of salicylic acid, 1883, A., 128.
- Robinet, Gabriel**, derivatives of mesitylene, 1883, A., 577.
- Robinet, Gabriel**, and **Albert Colson**, mesitylene, 1883, A., 1095.
- Robinson, Franklin C.**, blue clay from Farmington, Maine, 1888, A., 352.
- so-called Northport meteorite, 1888, A., 662.
- Robinson, Franklin C.** See also **Charles Frederic Mabery**.
- Robinson, Henry**, atomic weight of cerium, 1885, A., 217.
- Robinson, Henry Halliburton**. See **Thomas Edward Thorpe**.
- Robinson, W. C.**, spessartine, 1889, A., 473.
- Robinson, William Sanford**. See **Charles Loring Jackson**.
- Rocci**. See **Riva-Rocci**.
- Rochefontaine**. See **Hector de Rochefontaine**.
- Rocholl, H.**, estimation of sulphur in pig-iron, 1883, A., 512.
- Rockenbach, Theodor**. See **Carl Hell**.
- Rockwood, Elbert William**. See **Wieland Olin Atwater**.
- Rocques, Xavier**, detection of impurities in alcohols, 1888, A., 993.
- composition of natural brandies and the way of distinguishing them, 1889, A., 84.
- Rocques, Xavier**. See also **Adrien Charles Girard**.
- Rodatz, P.**, constitution of some azobenzenedisulphonic acids, 1883, A., 477.
- brominated azobenzenedisulphonic acids, 1883, A., 478.
- Rodatz, Paul**. See **Friedrich Carl Adolf Stohmann**.
- Roder, Anton**, indoles from *m*-hydrazinobenzoic acid, 1887, A., 149.
- Rodewald, Hermann**, relation between chemical metamorphosis and transformation of forces during the germination of seeds, 1884, A., 1207.
- estimation of the heat and of the carbonic anhydride given out by parts of plants, 1888, A., 979.
- transformations of force and of material in plant respiration, 1889, A., 540.
- detection of margarine in butter, 1892, A., 1034.
- Rodger, James Wyllie**. See **Thomas Edward Thorpe**.
- Rodiczy, E. von**, cultivation of Peruvian rice in Austria, 1884, A., 769.

- Rodzianko, (Madame) Alexandre N.**, mono- and di-nitro-*p*-azobenzole acids, 1889, A., 111.  
 — some properties of humin and humic acid, 1892, A., 1373.  
**Roeder, Friedrich**, vinaconic acid, 1885, A., 653.  
**Roeder, Friedrich**. See also *Rudolph Fittig*.  
**Röders, Paul**. See *Rudolph Fittig*.  
**Röhmman, Franz**, observations on a dog with biliary fistula, 1883, A., 818.  
 — importance of ammonia for the formation of glycogen, 1887, A., 68.  
**Röhmman, Franz**, and *Jelmur Mühsam*, amount of dry residue and fat in arterial and venous blood, 1891, A., 347.  
**Röhmman, Franz**, and *Wilhelm Spitzer*, determination of the affinity of organic acids by means of lacmoid, 1892, A., 37.  
**Röhrig, Armin**, sulphites, 1888, A., 649.  
**Römer, Adolf**, influence of mass on the chlorination of combustible gases, 1886, A., 845.  
**Roemer, Hermann** (Berlin), new nitro- and amido-anthraquinones, 1883, A., 71.  
 — dinitroanthraquinone and di-amidoanthraquinone: a new method of preparing anthrarufin, 1883, A., 737.  
 — reduction in the anthracene series, 1883, A., 1187.  
 — amidoalizarin, 1885, A., 1068.  
**Roemer, Hermann** (Berlin), and *Walther Link*, amidomethylanthranol, 1883, A., 1137.  
 — nitro-, amido-, and hydroxymethylanthraquinones, 1883, A., 1138.  
**Roemer, Hermann** (Halle). See *Ernst Albert Schmidt*.  
**Römer, Melchior**, nitration of  $\alpha$ -thiophonic acid, 1887, A., 362.  
**Römer, Melchior**. See also *Ludwig Gattermann, Carl Theodor Liebermann*.  
**Römer, Peter**, process for preparing dichromates, 1884, A., 783.  
**Röntgen, Wilhelm Conrad**, absorption of heat by water vapour, 1885, A., 5.  
 — electromagnetic action of dielectric polarization, 1885, A., 1030.  
**Röntgen, Wilhelm Conrad**, and *J. Schneider*, compressibility of dilute salt solutions and of solid sodium chloride, 1888, A., 22.  
 — compressibility of water, 1888, A., 548.  
**Röntgen, Wilhelm Conrad**, and *J. Schneider*, compressibility of sylvite, rock-salt, and aqueous solutions of potassium chloride, 1889, A., 1010.  
**Röse, Bruno**, detection of fusel oil in spirituous liquors, 1885, A., 600.  
 — detection of salicylic acid in beer and wine, 1886, A., 924.  
 — analysis of fats, 1887, A., 621.  
 — estimation of alcohol, 1888, A., 1133.  
 — estimation of fat in milk, 1888, A., 1135.  
**Röse, Bruno**, and *Ernst Schulze*, some constituents of Emmenthaler cheese, 1885, A., 207.  
**Rösel, Robert**. See *Rudolf Nietzki*.  
**Roesser, liquids** from hydatid cysts, 1891, A., 97.  
**Rösing, Ernst**, oxidation of albumin in presence of sulphur, 1892, A., 741.  
**Rössing, Adelbert**, condensation products of the derivatives of salicylaldehyde, 1885, A., 388.  
 — inner condensations, 1886, A., 65.  
 — *s*-diphenyl glyceryl ether, 1886, A., 345.  
 — analogy of ketonic acids to sulphocarboxylic acids, 1890, A., 781.  
**Rössing, Adelbert**. See also *Robert Otto*.  
**Roessler, C.**, lead assaying in the wet way, 1885, A., 596.  
**Rössler, Heinrich**, method for the separation of gold, silver, lead, and copper from sulphides by air-blast, 1883, A., 400.  
 — occurrence of oxide of cobalt, 1888, A., 658.  
 — estimation of silver in alloys of silver and copper, 1888, A., 755.  
**Rössler, Oscar**, detection of small amounts of carbonic anhydride and other gases, 1888, A., 88.  
**Röttger, F.**, and *H. Precht*, estimation of sodium chloride in presence of potassium chloride, 1885, A., 1263.  
**Röttger, Hermann**, examination of wax, 1890, A., 429.  
 — assay of bees-wax for vegetable wax, 1892, A., 551.  
 — detection of resin in bees-wax, 1892, A., 923.  
**Roger, G. H.**, substances which favour infection, 1891, A., 100.  
**Rohart, F.**, new properties of ferric sulphate, 1883, A., 1178.  
**Rohde, Georg**, action of aniline on a mixture of acetaldehyde and propionaldehyde, 1887, A., 974.  
 — 2:3'-dimethylquinoline, 1889, A., 523.

- Rohde, Georg.** See also *Wilhelm von Miller*.
- Rohrbach, Carl Ernst Martin,** application of a solution of barium mercury iodide to petrological purposes, 1883, A., 1060.
- new liquid of high specific gravity, refraction equivalent, etc., 1881, A., 145.
- minerals from the eruptive rocks of the Cretaceous formation of Silesia and Moravia, 1886, A., 928.
- chiasolite, 1889, A., 25.
- Roland, Léon.** See *Walthère Spring*.
- Rolfe, George William.** See *Charles Loring Jackson*.
- Roll, Georg, and Otto Hölz,** benzyl ethers of brominated nitrophenols, 1885, A., 1209.
- Rolland, Ch.,** comparative manurial value of Chili saltpetre and ammonium sulphate, 1889, A., 1085.
- Rolleston, Humphry Davy,** temperature in nerves, 1890, A., 536.
- Roloff (and others),** observations on diseases of animals, 1884, A., 95, 914.
- Romanese, Riccardo.** See *Manfredo Bellati*.
- Romanis, Robert,** water of Rangoon, 1883, A., 128.
- analysis of tobacco ash, 1883, A., 372.
- specific volume of some soluble chlorides, 1884, A., 956.
- gold from Burmah, 1887, T., 221.
- certain products from teak, 1887, T., 888; P., 114.
- tectoquinone, 1888, P., 116.
- Burmese petroleum, 1889, A., 949.
- obituary notice of, 1890, T., 455.
- Romburgh, Pieter van,** action of benzoic anhydride on epichlorhydrin, 1883, A., 62.
- action of benzoic anhydride on monochloracetone, and on pyruvyl benzoate, 1883, A., 63.
- conversion of organic chlorides into iodides by means of calcium iodide, 1883, A., 303.
- isomeric monochlorallyl iodides, 1883, A., 449.
- non-existence of pentanitrodimethylaniline, 1885, A., 660.
- reaction of primary and secondary amines, 1886, A., 455.
- nitro-derivatives of substituted benzamides, 1886, A., 546.
- *d*-hexyl alcohol, 1887, A., 228.
- decomposition of the nitrates of amines by heat, 1887, A., 230.
- Romburgh, Pieter van,** methylisopropyl-acetic acid, 1887, A., 232.
- isodinitrodimethylaniline, 1887, A., 245.
- water from the wells of Zemzem, 1887, A., 455.
- *ββ*-methyl ethyl propionic acid, 1888, A., 446.
- nitramines derived from alkyl aromatic diamines, 1888, A., 1079.
- trinitro-*m*-phenylenedimethyldinitramine, 1888, A., 1185.
- nitramine derived from tetramethyldiamidobenzophenone, 1888, A., 1196.
- nitro-derivatives of tetramethyldiamidodiphenylmethane, 1889, A., 146.
- trinitrophenylmethyl nitramine, 1889, A., 971.
- action of chromic anhydride on alkylanilines, 1889, A., 971.
- tetranitrophenylmethyl nitramine and its conversion into *m*-phenylenediamine derivatives, 1889, A., 1154.
- action of nitric acid on dimethylo-anisidine, 1892, A., 159.
- action of nitric acid on alkyl phenylcarbamates, 1892, A., 711.
- Romegialli, Abelardo,** acetous fermentation, 1886, A., 732.
- Romig, Eugen.** See *Richard Anschütz*.
- Romm, G.,** euonymin, 1886, A., 72.
- Rommier, Alph.,** cultivated wine yeast, 1884, A., 1399; 1885, A., 205.
- wine and brandy from raspberries and strawberries, 1887, A., 292.
- influence of yeast on the bouquet of wines, 1890, A., 281.
- effect of copper salts on elliptical yeast, 1890, A., 814.
- preparation of wine yeasts, 1890, A., 1179.
- Ronalds, Edmund,** obituary notice of, 1890, T., 456.
- Rondeau, P.** See *Eugène Gley*.
- Rood, Rudolf de,** combustion with lead chromate, 1890, A., 926.
- derivatives of benzoic sulphinide, 1891, A., 1226.
- Roos, Alfred.** See *Friedrich Krafft*.
- Roos, Ernst,** carbohydrates in the urine, 1891, A., 1392.
- diamines in disease, 1892, A., 518.
- Roos, J.,** thio-derivatives of quinoline, 1888, A., 500.
- Roos, L., and E. Thomas,** method of distinguishing between plastered wines and wines mixed with sulphuric acid, 1891, A., 123.

- Roos, L.**, and **E. Thomas**, vegetation of the vine, 1892, A., 908.
- Roos, L., Cusson, and Giraud**, volumetric estimation of tannins in wines, 1890, A., 481.
- Roosen, Oscar**. See **Robert Behrend**.
- Roosen, Peter Adolf**. See **Ludwig Claisen**.
- Roozeboom, Hendrik Willem Bakhuis**, dissociation of the hydrates of sulphurous anhydride, chlorine, and bromine, 1886, A., 117.
- dissociation of the hydrate of hydrogen bromide, 1886, A., 117, 414.
- solubility of hydrogen bromide at different temperatures and pressures, 1886, A., 119.
- dissociation of liquids, 1886, A., 499.
- dissociation of the compound of hydrogen bromide with ammonia, 1886, A., 500.
- solubility of chlorine in chromium oxychloride, 1886, A., 500.
- solubility of vitric oxide in bromine, 1886, A., 501.
- thermal study of hydrobromic acid solutions and hydrate, 1887, A., 628.
- conditions of equilibrium of two substances in the solid, liquid, and gaseous states, 1887, A., 629.
- the hydrate  $\text{HBr} \cdot 2\text{H}_2\text{O}$ , 1887, A., 630.
- new hydrate of hydrobromic acid  $\text{HBr} \cdot \text{H}_2\text{O}$ , 1887, A., 631.
- combinations of ammonium bromide with ammonia, 1887, A., 631.
- hydrates of gases, 1888, A., 897.
- the different forms of heterogeneous chemical equilibrium, 1888, A., 1147.
- triple and multiple points regarded as transition points, 1888, A., 1151.
- astrakanite and hydrated double salts, 1888, A., 1164.
- conditions of equilibrium between solid and liquid compounds of water with salts, 1889, A., 752.
- sudden changes in the solubility of salts caused by the formation of two layers in the liquid, 1890, A., 4.
- combination of alkali metals with ammonia, 1890, A., 450.
- solution equilibrium of thorium sulphate and its hydrates, 1890, A., 686.
- solubility of mixed crystals, especially of two isomorphous substances, 1892, A., 265.
- solubility of mixed crystals of potassium and thallium chlorates, 1892, A., 266.
- Roozeboom, Hendrik Willem Bakhuis**, waters of the North Sea, 1892, A., 419.
- solubility curves of pairs of salts, 1892, A., 1884.
- Roque, Germain**. See **Joseph Teissier**.
- Rosa, Alfonso**, ferrous ammonium sulphate as a reagent for nitric acid, 1886, A., 99.
- Rosa, Edward B.**, specific inductive capacity of electrolytes, 1891, A., 778.
- Roscoe, (Sir) Henry Enfield**, spontaneous polymerisation of volatile hydrocarbons, 1885, T., 669.
- diamond-bearing rocks of South Africa, 1885, A., 131.
- Roscoe, (Sir) Henry Enfield, and Joseph Lunt**, Schutzenberger's process for the estimation of dissolved oxygen in water, 1889, T., 552; P., 124.
- Roscoe, (Sir) Henry Enfield, and Frank Scudder**, note on the action of water-gas on iron, 1891, P., 126; discussion, P., 128.
- Rose**, maize ensilage for cows, 1885, A., 1149.
- Rose, H. J.**, liquid extract of senega, 1884, A., 540.
- Rosell, Yngve**. See **Heinrich Goldschmidt**.
- Rosemann, Hans**. See **Rudolf Nietzki**.
- Rosen, Hermann von**. See **Georg Dragendorff**.
- Rosenbach, Ottomar**, occurrence and detection of indigo-red in urine, 1890, A., 1032.
- Rosenberg, Albert**. See **Martin Freund**.
- Rosenberg, Alexander**, comparative experiments with alkali albuminate, acid albumin, and albumin, 1885, A., 405.
- Rosenberg, Benjamin**, diastatic ferment in urine, 1891, A., 760.
- Rosenberg, Josef**, tribromothiophen and compounds of dinitrothiophen, 1885, A., 1061.
- derivatives of brominated thiophens, 1886, A., 228.
- trichlorothiophen and its derivatives, 1886, A., 534.
- anhydrides of aromatic sulphonic acids, 1886, A., 551.
- Rosenberg, Yngve**. See **Georg Lunge**.
- Rosenbladt, Th.**, action of potassium thiocarbonate on nickel and cobalt salts, 1886, A., 492.
- double nitrites of caesium and rubidium, 1887, A., 12.
- solubility of some gold compounds, 1887, A., 16.

- Rosenblatt, Th.**, estimation of boric acid, 1887, A., 299.  
 — separation of mercury and palladium, 1887, A., 302.  
**Rosenbusch, Karl Harry Ferdinand**, sagvandite, 1884, A., 564.  
**Rosenbusch, Karl Harry Ferdinand**. See also *M. Hunter*.  
**Rosenfeld, Max.**, demonstration of the increase of the weight of bodies on combustion, 1884, A., 258.  
 — lecture experiments. 1884, A., 258; 1886, A., 848; 1887, A., 633.  
 — new apparatus for electrolysis, 1885, A., 715.  
 — lecture experiment—electrolysis of hydrochloric acid, 1887, A., 633.  
 — reduction of oxygen compounds with sodium, 1891, A., 150.  
 — estimation of nitric and nitrous acids in potable waters. 1891, A., 496.  
 — sodium, 1891, A., 982.  
**Rosenheim, Arthur**, vanadotungstic acid, 1889, A., 762.  
 — estimation of vanadic acid in vanadotungstates, 1891, A., 247.  
 — action of platonic hydroxide on tungstates, 1891, A., 1323.  
**Rosenheim, Theodor**, amount of acid in the stomach on an amylaceous diet, 1888, A., 617.  
 — acids in healthy and disordered stomachs during a carbohydrate diet, 1888, A., 972.  
 — influence of proteid on the digestion of foods free from nitrogen, 1891, A., 341.  
**Rosenhek, Josef**. See *Emil Erlenmeyer*, *Eugen R. Ostermayer*, *Conrad Schmitt*.  
**Rosenstein, Albrecht**. See *Inmanuel Munk*.  
**Rosenstein, Vladimir**. See *Martin Freund*.  
**Rosenstiehl, Auguste**, influence of nuclear methyl on the properties of *o*-toluidine, 1892, A., 1319.  
**Rosenstiehl, Auguste**, and *Marimilien Gerber*, possible number of homologous isomeric rosanilines, 1884, A., 739.  
**Rosenthal, Carl**, detection of hæmoglobin in urine, 1886, A., 956.  
**Rosenthal, Emil**, homoterephthalenediamidoxime and its derivatives, 1890, A., 147.  
**Rosenthal, H.**, preparation of alumina, 1886, A., 108.  
**Rosenthal, Josef**, calorimetric investigations on foods, 1890, A., 182.  
 — electrical conductivity of solid electrolytes, 1891, A., 1307.  
**Rosenthal, Th.**,  $\beta$ -sulphopropionic acid, 1886, A., 866.  
**Roser, Wilhelm**, xeronic and pyrocinchonic acids, 1883, A., 93.  
 — isopropylsuccinic or pimelic acid, 1884, A., 423.  
 — terebic acid, 1884, A., 459.  
 — diquinoline from benzidine, 1881, A., 1371; 1886, A., 275.  
 — so-called phthalylacetamide, 1885, A., 159.  
 — conversion of ketonic acids into lactones, 1885, A., 165.  
 — phthalyl derivatives, 1885, A., 165, 267, 797; 1886, A., 243.  
 — the camphor group, 1886, A., 249.  
 — synthesis of indonaphthene derivatives, 1887, A., 729, 836.  
 — preparation of *p*-dinitrotribenzyl, 1887, A., 836.  
 — narcotine, 1888, A., 1115, 1316; 1889, A., 417; 1890, A., 528.  
 — action of strong sulphuric acid on diphenylsuccinic acid, 1888, A., 1301.  
 — indene derivatives, 1888, A., 1303.  
 — methylindene-carboxylic acid, 1888, A., 1303.  
**Roser, Wilhelm**, and *Emil Haseloff*, isomerism in the cinnamic acid series, 1887, A., 830.  
 — dibromindone derivatives, 1888, A., 1304.  
**Roser, Wilhelm**. See also *Wm. C. Howard*.  
**Rosin, Heinrich**, indigo-red (indirubin) in urine, 1891, A., 850.  
**Rosini, Emilio**. See *Agostino Ogliaro-Todaro*.  
**Rospendowski, Ludomir**, isomeric naphthyl phenyl ketones, 1886, A., 625.  
**Rossi, Enrico**. See *Pietro Maissen*.  
**Rossin, Otto**, *m*-hemipinic acid, 1892, A., 180.  
**Rossiter, Edmund Charles**. See *Henry Edward Armstrong*.  
**Rossmässler, F. A.**, manufacture of lubricating oils from Baku naphtha, 1885, A., 620.  
**Rossol, Alexander**, contribution to the histochemistry of plants, 1884, A., 847.  
**Rosolymo, Alexander**, substitution of the methylene-hydrogen atoms in benzyl cyanide, 1889, A., 861.  
**Rosolymo, Alexander**. See also *Ludwig Gattermann*.  
**Rosumoff, Peter**. See *Carl Engler*.  
**Roszkowski, Jan von**, influence of temperature on the limits of the explosion of gaseous mixtures, 1891, A., 975.

- Roth, Carl Franz**, methyltropidine, 1884, A., 761.  
 — pyridine condensation, 1886, A., 477.  
 — apparatus for determining melting points, 1886, A., 1070.  
**Roth, Carl Franz**, and **Otto Lange**, 2:6-dimethylpyridine and the corresponding carboxylic acid, 1886, A., 558.  
**Roth, Carl Franz**. See also **Albert Ladenburg**.  
**Roth, J.**, zobtenite, 1888, A., 661.  
**Roth, L.**, process for solidifying mineral oils, 1885, A., 309.  
**Roth, Samuel**, trachytes of the Eperies-Tokay mountains, 1886, A., 131.  
**Rothberg, Matthaus**. See **Carl Hell**.  
**Rothe, Fritz**. See **Carl Arnold August Michaelis**.  
**Rotheit, J.**, preparation of carbostyryl, 1884, A., 1183.  
**Rothenbach, Fritz**, double salts of tungstic and vanadic acids, 1891, A., 18.  
**Rother, Oskar**, the cohesion of saline solutions and of their admixtures, 1884, A., 1251.  
**Rother, R.**, ferrous citrate and its double and secondary salts, 1883, A., 453.  
 — bismuth and pepsin, 1885, A., 712.  
**Rothschild, Fred. W.**, carbanide derivatives of amidocinnamic acid, 1890, A., 1123; 1891, A., 198.  
**Rotondi, Ermenegildo**, electrolysis of pyrogallol, 1884, A., 175.  
 — electrolysis of sodium chloride and its industrial applications, 1884, A., 248.  
 — saponification of fats by electricity, 1885, A., 1274.  
**Rotschy, A.** See **Marcellus Nencki**.  
**Rougemont, Wilhelm**. See **Heinrich Beckurts**.  
**Rousseau, Gustave**, an aromatic glycol, 1884, A., 180.  
 — manganites of the alkaline earths, 1885, A., 1114; 1886, A., 425.  
 — formation and dissociation of barium and strontium manganites, 1886, A., 507.  
 — sodium manganite, 1886, A., 982.  
 — formation of manganites from permanganates, 1887, A., 552.  
 — potassium manganites, 1887, A., 892.  
 — barium cobaltite, 1889, A., 1115.  
 — platinites of the alkalis and alkaline earths, 1889, A., 1125.  
**Rousseau, Gustave**, formation of crystallised metallic oxychlorides: copper oxychlorides, 1890, A., 1058.  
 — crystallised ferric oxychloride, 1890, A., 1063; 1892, A., 119.  
 — crystallised basic cupric nitrate, 1890, A., 1376.  
 — hydrated sodium manganites, 1891, A., 645.  
 — formation of saline hydrates at high temperatures, 1892, A., 119.  
 — hydrated potassium manganites, 1892, A., 569.  
**Rousseau, Gustave**, and **Jules Bernheim**, formation of crystalline ferric hydroxides in the dry way, 1888, A., 917.  
 — decomposition of barium ferrate at high temperatures, 1888, A., 1034.  
 — crystallised hydrated potassium ferrite, 1888, A., 1252.  
**Rousseau, Gustave**, and **Brise Bruneau**, new method for preparing barium permanganate, 1884, A., 891.  
**Rousseau, Gustave**, and **André Saglier**, crystallised barium manganite, 1884, A., 1261.  
**Rousseau, Gustave**, and **Georges Tite**, action of water on basic copper salts, 1891, A., 1423.  
 — silver nitrosilicate: existence of a nitrosilicic acid, 1892, A., 684.  
 — cadmium hydrosilicate, 1892, A., 1157.  
 — basic nitrates, 1892, A., 1157.  
 — decomposition of basic nitrates by water, 1892, A., 1272.  
**Rousseau, L.**, flesh meal, 1885, A., 620.  
**Rouvier, Guston**, iodide of starch, 1892, A., 578, 801, 1171.  
**Rouville, Paul de**, and **Auguste Delage**, porphyrites at Gabian, 1889, A., 110.  
**Roux**, volumetric estimation of peptones in urine, 1892, A., 1264.  
**Roux, Gabriel**. See **Georges Linossier**.  
**Roux, J.**, estimation of casein in milk, 1891, A., 1404.  
**Roux, Léon**, preparation of propyl- and amyl-naphthalenes, 1884, A., 1357.  
 — action of aluminium chloride on  $\alpha$ -naphthalene compounds, 1886, A., 806.  
 — application of the aluminium chloride method to the naphthalene series, 1888, A., 1305.  
**Roux, Léon**, and **Emile Louise**, vapour density of aluminium chloride, 1888, A., 453.  
 — molecular weights of aluminium compounds, 1889, A., 757.

- Roux, Leon.** See also *Philippe Barbier, Charles Friedel, Emile Louise, Camille Vincent.*
- Roux, Paul.** See *Raphael Dubois.*
- Rovighi, Albert,** ethereal hydrogen sulphates in the urine, and the disinfection of the alimentary canal, 1892, A., 226.
- Bowan, G. H.,** apatite from Amelia Co., Virginia, 1885, A., 126.
- kaslinite from Calhoun Co., Alabama, 1885, A., 228.
- Rowell, William Augustus,** preparation of chromic acid, 1886, A., 108.
- Rowell, William Augustus.** See also *D. Urquhart.*
- Bowland, Henry A.,** water battery, 1887, A., 412.
- Bowland, Henry A., and Louis Bell,** action of a magnet on chemical action, 1889, A., 9.
- Roy, Le.** See *Le Roy.*
- Roy, P. C.,** conjugated sulphates and isomorphous mixtures of the copper-magnesium group, 1887, P., 53; discussion, P., 53.
- Royer, Le.** See *Le Royer.*
- Rozański, Br.,** isomeric dinitro-*p*-toluic acids, 1890, A., 52.
- Rozański, Br.** See also *Stefan Niemcewicz.*
- Rubens, Heinrich.** See *H. E. J. G. Du Bois.*
- Rubleff, T.,** trimethylthiazole, methyl-ethylthiazole, and thiazolecarboxylic acids, 1891, A., 223.
- Rubner, Max,** substitute values of the chief organic alimentary principles in the animal body, 1884, A., 189.
- value of bran for human food, 1884, A., 622.
- influence of stature on the interchange of matter and energy, 1884, A., 1893.
- thermal equivalent of a solution of urea, 1885, A., 323.
- influence of meat extract on the temperature of the body, 1885, A., 409.
- action of lead acetate on glucose and lactose, 1885, A., 444.
- calorimetric investigations, 1885, A., 949, 1252.
- formation of fat from carbohydrates in carnivorous animals, 1886, A., 482.
- detection of carbonic oxide in blood, 1891, A., 496.
- Rubricius, H.,** estimation of manganese in iron and steel, 1892, A., 1030, 1521.
- Rubzoff, Peter P.,** action of ammonia on succinimide, 1886, A., 141.
- Ruddiman, Edsel A.,** estimation of quinine by Keimer's method, 1889, A., 323.
- Rudelius, Carl,** platinum compounds of propyl and isopropyl sulphides, 1889, A., 367.
- Rudenko, "neutral sulphur" and metabolism, 1891, A., 1523.**
- Rudinskaja, (Miss),** action of ammonia on parabanic acid, 1886, A., 141.
- Rudolph, Otto,** phenylhydrazones, 1889, A., 251.
- Rübencamp, Robert,** aldehyde and ethylidene derivatives, 1885, A., 136.
- Rückel, J.** See *Hugo Eckenroth.*
- Rücker, Arthur William,** the range of molecular forces, 1888, T., 222; P., 7.
- density and composition of dilute sulphuric acid, 1892, A., 271.
- Rucker, Arthur William.** See also *Thomas Edward Thorpe.*
- Rüdel, Carl,** alkaloids of *Berberis Aquifolium* and *B. vulgaris*, 1892, A., 641.
- Rüdorff, Friedrich,** solubility of mixtures of salts, 1885, A., 865.
- lecture experiment—displacement of one salt from solution by another, 1885, A., 869.
- compounds of arsenious oxide, 1885, A., 955.
- compound of arsenious oxide with halogen salts, 1887, A., 107.
- constitution of solutions, 1888, A., 342, 899; 1889, A., 98; 1890, A., 1044.
- calcium copper acetate, 1888, A., 446.
- compounds of arsenious acid with sodium iodide, 1889, A., 103.
- electrolytic estimation of copper, 1889, A., 188.
- weighing dried filters, 1891, A., 613.
- Rueff, L.,**  $\beta$ -dinaphthyl-*p*-phenylenediamine, 1889, A., 894.
- Rüfen, Alfred,** first grass and aftermath, 1885, A., 586.
- Rugheimer, Leopold,** derivatives of malonic acid, 1884, A., 729.
- method for the synthesis of quinoline derivatives, 1884, A., 1050; 1886, A., 161.
- action of phosphorus pentachloride on hippuric acid, 1886, A., 702.
- practical thermo-regulator, 1887, A., 693.
- derivatives of tetrene and synthesis of tribenzamidophloroglucinol, 1889, A., 249.
- hippuroflavin, 1889, A., 252.
- dibenzamidodihydroxytetrene, 1889, A., 391.

- Rügheimer, Leopold**, compounds obtained by the action of sodium ethoxide on ethyl hippurate, 1889, A., 1210.
- introduction of bivalent radicles into piperidine, 1891, A., 1246.
- the compound  $C_{28}H_{23}N_4O_8$  obtained by the action of sodium ethoxide on ethyl hippurate, 1892, A., 1002.
- condensation of aldehydes with benzoylpiperidine, 1892, A., 1364.
- Rügheimer, Leopold, and Richard Hoffmann**, ethyl malonanilidate, malon-*p*-toluidic acid, and methyltrichloroquinoline, 1884, A., 1023.
- isomeric malonotoluidic acids, 1886, A., 147.
- toluquinolines substituted in the pyridine ring, 1886, A., 159.
- Rügheimer, Leopold, and Ernst Mischel**, diamidoacetone, 1892, A., 952.
- Rügheimer, Leopold, and Carl G. Schramm**, quinoline derivatives, 1887, A., 738.
- action of phosphorus pentachloride on aniline ethylmalonate and *o*-toluidine ethylmalonate, 1888, A., 502.
- Rühlmann, Moritz**. See **Rudolph Fittig**.
- Ruer, Rudolf**. See **Rudolph Fittig**.
- Rurup, L.**, estimation of manganese in iron and steel, 1892, A., 916.
- Ruffle, John**, moisture and free acid in superphosphates and similar fertilisers, 1888, A., 87.
- correct analysis of superphosphates, 1888, A., 387.
- modified "Orsat" apparatus, 1890, A., 411.
- Ruf, Hans**, *n*-propylthiophen derivatives: glyoxylic acids of the thiophen series, 1887, A., 804.
- Ruf, Hans**. See also **Stanislaus Bondzynski**.
- Ruhemann, Arnold**, *p*-xylalpthalide, 1892, A., 473.
- Ruhemann, Siegfried**, formation of pyridine derivatives from citric acid: constitution of pyridine, 1887, T., 403; P., 44.
- action of ammonia on alkyl salts of fatty acids, 1888, A., 255.
- anide of dihydroxyisonicotinic acid, 1888, A., 728.
- action of chloroform and alcoholic potash on hydrazines, 1889, T., 242; P., 37, 168; 1890, T., 50.
- contributions to the knowledge of mucic acid. Part III. Hydromucic acid, 1890, T., 937; P., 139.
- constitution of citrazinamide, 1890, A., 736.
- Ruhemann, Siegfried**, the isomeric  $\alpha$ -bromocinnamic acids, 1892, T., 278; P., 28.
- formation of benzylidihydroxypyridine from benzylglutaconic acid, 1892, P., 218.
- Ruhemann, Siegfried, and Frederic Frost Blackman**, benzophenylhydrazine, 1889, T., 612; P., 127.
- mucic acid. Part I. Hydromucic acid, 1890, T., 370; P., 38.
- Ruhemann, Siegfried, and Douglas John Carnegie**, action of acetone on ammonium salts of fatty acids in presence of dehydrating agents, 1888, T., 424; P., 39.
- Ruhemann, Siegfried, and Samuel Felix Dufton**, mucic acid. Part IV. Action of phosphorus pentachloride on mucic acid, 1890, P., 151; 1891, T., 26.
- mucic acid. Part V. Mucic acid, 1891, T., 750; P., 123.
- Ruhemann, Siegfried, and Walter John Elliott**, isomeric phenylhydrazine, 1888, T., 850; P., 88.
- mucic acid. Part II. Action of phosphoric chloride on mucic acid, 1890, T., 931; P., 139.
- Ruhemann, Siegfried, and Robert Selby Morrell**, action of ammonia on ethereal salts of organic acids, 1891, T., 743; P., 123.
- dicarboxyglutaconic acid, 1892, T., 791; P., 143.
- Ruhemann, Siegfried, and Sidney Skinner**, anacardic acid, 1887, T., 663; P., 102.
- Ruhemann, Siegfried**. See also **Sidney Skinner**.
- Ruhl, Jules**, thiophenylhydrazine, 1891, A., 301.
- *p*-thiophenylhydrazine and thionylthioaniline, 1892, A., 1326.
- Ruhl, Jules**. See also **Carl Arnold August Michaelis**.
- Rumpf, Johann**, analysis of miargyrite from Příbram, 1883, A., 428.
- Rumpf, Theodor**, estimation of phenols in human urine, 1892, A., 544.
- Runeberg, Johan Wilhelm**, filtration of albumin solutions through animal membranes, 1883, A., 1160; 1885, A., 587.
- Rung, F., and M. Behrend**, glyoxaline, 1892, A., 1493.
- Runge, Carl**. See **Heinrich Kayser**.
- Runschke, Georg**. See **Adolph Claus**.
- Runyon, Edward Herbert**, manufacture of phosphoric acid, 1884, A., 260.

- Rupe, Hans.** See *Adolf von Baeyer*.  
**Ruppel, Wilhelm.** See *Adolph Claus*.  
**Ruppert, F.** See *Th. Wilhelm Fresenius*.  
**Ruppert, Friedrich.** See *Adolf Nietzki*.  
**Rupprecht, H.** rocks and minerals from Corsica, 1891, A., 1440.  
**Rusag, K.** analysis of commercial scheelite, 1889, A., 311.  
**Russanoff, Andrei A.** condensation products of benzaldehyde with phenol and thymol, 1889, A., 1188.  
 — condensation of benzaldehyde with phenols, 1891, A., 1234.  
 — phenylglyoximes, 1892, A., 321.  
 — action of silver nitrite on methylene iodide, 1892, A., 1415.  
**Russell, William James,** spectroscopic observations on dissolved cobaltous chloride, 1885, P., 67; discussion, P., 68.  
 — presidential addresses, 1890, T., 426; P., 41; 1891, T., 434; P., 53.  
**Russell, William James, and William James Orsman,** relation of cobalt to iron as indicated by absorption spectra, 1889, P., 14; discussion, P., 15.  
**Rusmann, Arthur,** separation of barium, strontium, and calcium, 1888, A., 629; 1891, A., 111.  
**Russo, M.** See *Hugo Weidel*.  
**Rutgers, J.** nutritive value of vegetable proteids compared with animal proteids, 1888, A., 515.  
**Rutishauser, Rudolf.** See *Stanislaus von Kostanecki*.  
**Ruttan, Robert Fulford,** trimethyldiethylamidobenzene, 1886, T., 818.  
**Ruys, J. Mar,** allotropic transformation of sulphur at very low temperatures, 1885, A., 346.  
**Rydberg, Johannes Robert,** structure of the line spectra of the elements, 1890, A., 674.  
**Ryder, John P.** See *Arthur Michael*.

## S.

- Saare, O.** change in the composition of potatoes by ripening, 1884, A., 1400.  
 — starch-refuse as fodder, 1885, A., 1155.  
 — acidity of potato starch, 1891, A., 358.  
**Saare, O. (and others),** preparation and investigation of starch, 1885, A., 618.  
**Sabanéeff, Alexander P.,** diallyl, 1885, A., 495.  
 — action of sulphuric acid on oleic acid, 1886, A., 442.  
**Sabanéeff, Alexander P.,** hexabromotetramethylene, 1889, A., 1128.  
 — cryoscopic investigation of colloidal substances, 1890, A., 1215; 1891, A., 145.  
**Sabanéeff, Alexander P., and Eugene D. Kislakowsky,** colorimetric estimation of minimal quantities of iron, 1888, A., 757.  
**Sabatier, Paul,** compounds of silicon with sulphur, 1883, A., 15.  
 — mineral water of Salies-du-Salat, 1885, A., 231.  
 — composition of hydrogen persulphide: a nacreous variety of sulphur, 1885, A., 952.  
 — hydrogen persulphide, 1885, A., 1037.  
 — absorption spectra of chromic acid and alkaline chromates, 1886, A., 838.  
 — thermochemistry of the chromates, 1886, A., 962.  
 — division of a base between two acids, 1886, A., 973.  
 — hydrochloride of ferric chloride, 1887, A., 894.  
 — rate of transformation of metaphosphoric acid, 1888, A., 404; 1889, A., 671.  
 — hydrochloride of cupric chloride, 1888, A., 1036, 1037.  
 — hydrochloride of cobalt chloride, 1888, A., 1041.  
 — heats of dissolution and formation of hydrated metallic chlorides, 1889, A., 1043.  
 — hydrated metallic chlorides, 1889, A., 1049.  
 — boron hydride, 1891, A., 979.  
 — boron sulphide, 1891, A., 981.  
 — boron selenide, 1891, A., 981.  
 — silicon selenide, 1891, A., 1419.  
**Sabatier, Paul, and J. B. Senderens,** action of nitric oxide on metals and metallic oxides, 1892, A., 1151, 1271.  
 — action of nitric peroxide on metals and metallic oxides; nitrometals, 1892, A., 1390.  
**Sabine, Wallace Clement.** See *John Trowbridge*.  
**Saëe, Frédéric,** potatoes and sweet potatoes, 1884, A., 208.  
 — deposit of saltpetre at Cochabamba, Bolivia, 1884, A., 1271.  
 — a saltpetre deposit near Anané, Bolivia, 1885, A., 359.  
 — composition of the seeds of the cotton tree, 1885, A., 425.  
**Sachs, Ferdinand (and) Julius von,** correlative growths in the vegetable kingdom, 1884, A., 626.

- Sachs, Ferdinand (Gustav Julius von)**, activity of assimilation by leaves, 1885, A., 289.  
 ——— metastasis in leaves, 1885, A., 831.  
 ——— chlorosis in plants, 1887, A., 76.  
**Sachs, François, and Riccardo de Barbieri**, influence of the lead precipitate on polarisation, 1885, A., 694.  
**Sachs, H.**, thiophenchlorophosphine and its derivatives, 1892, A., 966.  
**Sachs, Joseph.** See **Emil Warburg**.  
**Sachs, Otto**, compounds from diazophenols and  $\beta$ -naphthylamine, 1886, A., 235.  
**Sachse, Hermann**, additive-derivatives of dianthranyl, 1888, A., 718.  
 ——— configuration of the benzene molecule, 1888, A., 1181.  
 ——— derivatives of dianthranyl, 1888, A., 1201; 1890, A., 638.  
 ——— geometrical isomerides of the hexamethylene derivatives, 1890, A., 1336.  
**Sachse, Hermann.** See also **Carl Theodor Liebermann**.  
**Sachsse, Robert**, chlorophyll, 1885, A., 670.  
 ——— a new colouring matter from chlorophyll, 1885, A., 670.  
**Sachsse, Robert, and Arthur Becker**, kaolin in arable soil, 1892, A., 1026.  
**Sachtleben, Rudolf.** See **Wilhelm Fleischmann**.  
**Sack, Erwin**, apparatus for the indirect estimation of carbonic anhydride, 1889, A., 1032.  
**Sack, P.**, determination of the maximum conductivity of very dilute copper sulphate solutions, 1891, A., 965.  
**Sadler, Benj.**, minerals from Fritz Island, Pennsylvania, 1883, A., 441.  
**Sadler, Benj.** See also **W. P. Headden**.  
**Sadomsky, Joseph.** See **Carl Hell**.  
**Saeger, Oscar.** See **Carl Darnhard Kühn**.  
**Sänger, Alfred**, formation of hypophosphoric acid and its ethereal salts, 1886, A., 419.  
**Saglier, André**, new cuprammonium iodide, 1886, A., 851; 1887, A., 772.  
 ——— combinations of aniline with copper salts, 1888, A., 941.  
**Saglier, André.** See also **Gustave Roussseau**.  
**Sagnier, Henry**, straw, peat, and sawdust as litter, 1885, A., 429.  
**Sainsbury, Harrington.** See **Sydney Ringer**.  
**Saint, W. Johnston.** See **Henry Forster Morley**.  
**Saint-André.** See **Boursier**.  
**Sainte-Claire Deville, Elieanc Henri, and Jules Henri Debray**, explosive alloys of zinc with certain platinum metals, 1883, A., 19.  
**Saint-Edme, Ernest**, passivity of iron and nickel, 1888, A., 788.  
 ——— passivity of cobalt, 1889, A., 1114.  
**Saint-Gilles.** See **Péan de Saint-Gilles**.  
**Saint-Loup, Remy**, pigments of the *Aplysia*, 1891, A., 96.  
**Saint-Martin, Louis de**, special form of gasometer, 1883, A., 847.  
 ——— respiration in a super-oxygenated atmosphere, 1884, A., 911.  
 ——— influence of sleep on the activity of respiratory combustion, 1888, A., 305.  
 ——— decomposition of chloroform by alcoholic potash, 1888, A., 570.  
 ——— estimation of carbonic oxide, 1892, A., 1128.  
**Saint-Pierre, Octave.** See **Maurice Hanriot**.  
**Sakano, H.** See **Oscar Kellner**.  
**Sakurai, Jiji**, methylene chloriodide, 1885, T. 198; P., 20.  
 ——— molecular volumes of aromatic compounds, 1890, A., 683.  
 ——— determination of the temperature of steam arising from boiling salt solutions, 1892, T., 495; P., 92.  
 ——— modification of Beckmann's boiling-point method of determining molecular weights of substances in solution, 1892, T., 989; P., 151.  
 ——— note on an observation of Gerlach of the boiling-point of a solution of Glauber's salt, 1892, P., 94.  
**Salet, Georges**, blue flame produced by common salt in a coal fire, 1890, A., 560.  
**Salfeld, A.**, comparative manuring experiments, 1883, A., 116.  
**Salfeld, A.** See also **J. Fittbogen**.  
**Salfeld, E.**, permanence of carbonic oxide hemoglobin, 1884, A., 318.  
**Salis, Emmanuel von.** See **Emilio Nöling**.  
**Salkowski, Ernst Leopold**, formation of carbamide from sarcosine, 1884, A., 1394.  
 ——— phenaceturic acid in the urine of the horse, 1885, A., 413.  
 ——— behaviour of scatolecarboxylic acid in the organism, 1885, A., 575.  
 ——— composition of horses' urine, 1885, A., 924.  
 ——— decomposition of proteids by fermentation, 1885, A., 998.  
 ——— separation of phenylacetic and phenylpropionic acids, 1886, A., 351.

- Salkowski, Ernst Leopold**, new methods of detecting oxalic acid in urine, 1886, A., 395.
- Hüfner's method of estimating urea, 1886, A., 396.
- Neubauer's method of estimating creatinine in urine, 1886, A., 397.
- poison of *Mytilus edulis*, 1886, A., 568.
- aromatic substances in the animal organism, 1886, A., 730.
- estimation of sulphuric acid and ethereal hydrogen sulphates in urine, 1886, A., 739.
- isethionic acid in the body, and thiosulphuric acid in the urine, 1887, A., 68.
- peculiar modification of urobilin, 1888, A., 73.
- examination of cod-liver oil and vegetable oil, 1888, A., 201.
- has creatinine basic properties? 1888, A., 505.
- colour reactions of proteids, 1888, A., 508.
- spontaneous decomposition of bilirubin, 1888, A., 520.
- Hoppe-Seyler's soda-test for carbonic-oxide hæmoglobin, 1888, A., 540.
- behaviour of benzoic anhydride in the organism, 1888, A., 864.
- ferment from putrefactive bacteria which dissolves fibrin, 1888, A., 1326.
- formation of volatile fatty acids in the ammoniacal fermentation of urine, 1889, A., 431.
- evolution of hydrogen sulphide in urine, and the behaviour of sulphur in the organism, 1889, A., 432.
- formation of sugar and other substances in yeast, 1889, A., 1027.
- estimation of uric acid in urine, 1889, A., 1250.
- hæmatoporphyrin in urine, 1891, A., 601, 1130.
- peptotoxin, 1891, A., 1267.
- influence of amido-acids on gastric digestion, 1892, A., 742.
- Salkowski, Ernst Leopold**, and **A. Kotoff**, influence of phenylacetic acid on proteid metabolism, 1888, A., 513.
- Salkowski, Ernst Leopold**, and **Munco Kumagawa**, hydrochloric acid in gastric juice, 1891, A., 593.
- Salkowski, Ernst Leopold**, and **Heinrich Hermann Salkowski**, putrefaction alkaloids, 1888, A., 923, 1159.
- putrefaction of albumin and formation of scatole and indole, 1885, A., 567.
- Salkowski, Ernst Leopold**, and **Heinrich Hermann Salkowski**, scatolecarb-oxylic acid, 1885, A., 569.
- Salkowski, Ernst Leopold**, and **Ken Taniguti**, acetone in urine, 1891, A., 624.
- Salkowski, Heinrich Hermann**, hydroxy-phenylacetic acid, 1884, A., 1175.
- melting-points and separation of mixtures of phenylacetic and hydroxycinnamic acids, 1885, A., 602.
- derivatives of *p*-hydroxyphenyl-acetic acid: ethereal oil of white mustard, 1889, A., 1173.
- thiocarbamides, 1891, A., 1474.
- Salkowski, Heinrich Hermann**. See also **Ernst Leopold Salkowski**.
- Salmon, Edgar Henry Rider**. See **Raphael Meldola**.
- Salomon, F.**, estimation of rice-starch, 1883, A., 124.
- starch and its transformation under the influence of acids, 1884, A., 36.
- Salomon, Georg Anton**, paraxanthine, a new constituent of human urine, 1883, A., 601; 1885, A., 403; 1886, A., 266; 1889, A., 293; 1891, A., 1120.
- chemical composition of pigs' urine, 1885, A., 413.
- paraxanthine and heteroxanthine, 1886, A., 266.
- xanthine derivatives in urine, 1887, A., 739; 1891, A., 1528.
- lactic acid in the blood, 1889, A., 64.
- physiological action of paraxanthine, 1889, A., 293.
- Salomon, Otto L.**,  $\psi$ -meconine, 1887, A., 585.
- Salomon, Wilhelm**, distribution of ammonium salts and formation of urea, 1885, A., 921.
- Salomonowitsch, Salomon**. See **Georg Dragendorff**.
- Salomonson, H. W.**, nitrophenylparacetic acid, 1885, A., 1224; 1888, A., 480.
- Perkin's reaction, 1888, A., 476.
- Salvatori, S.**, derivatives of ethyl acetothienoneoxalate, 1892, A., 303.
- Salvatori, Silvio**, examination of butter, 1890, A., 305.
- Salzeberger, Georg**, alkaloids of the rhizome of *Veratrum album*, 1891, A., 230.
- Salzer, Leopold**, purification of alcohol prepared from molasses or beet-root, 1883, A., 630.
- Salzer, Theodor**, water of crystallisation of normal and acid potassium succinates, 1884, A., 584.

- Salzer, Theodor**, water of crystallisation of salts, 1884, A., 806; 1892, A., 581.  
 — hypophosphoric acid, 1886, A., 420.  
 — method for preparing pentathionic acid, 1886, A., 850.  
 — ammonium calcium ferrocyanide, 1886, A., 860.  
 — detection of thiosulphate in sodium hydrogen carbonate, 1887, A., 79.  
 — volumetric estimation of iodine, 1887, A., 862.  
 — behaviour of some acids towards chromic acid and permanganate, 1888, A., 996.  
 — detection of hypochlorous acid in chlorine water, 1891, A., 242.  
 — alkali citrates, 1892, A., 149.  
 — iodometry, 1892, A., 1514.
- Salzmann, Heinrich**. See *Heinrich Conrad Christoph Willgerodt*.
- Salzmann, S.**, anilic acids, 1887, A., 926.
- Samanoff, N.**, azo-xylene, 1883, A., 180.
- Sambuc, Théophile**, milk adulteration, 1885, A., 299.  
 — iron in wine, 1888, A., 384.
- Samek, J.**, manuring of clover, 1888, A., 1223.
- Samelson, Isaak**, estimation of glycerol in wine, 1887, A., 86.  
 — detection of artificial colouring in red wine, 1887, A., 187.  
 — estimation of fatty acids in soap, 1889, A., 194.
- Samelson, Isaak**. See also *Theodor Poleck*.
- Sanarelli, Giuseppe**, absence of uric acid and of alkaline reaction in the urine of Carnivora, 1888, A., 178.
- Sanborn, Jeremiah Wilson**, animal nutrition, 1887, A., 856.
- Sandberger, Karl Ludwig Fridolin von**, rutile in phlogopite, 1883, A., 34.  
 — identity of spathiopyrite and safflorite, 1884, A., 405.  
 — basalt from Naurod, near Wiesbaden, 1884, A., 414.  
 — amalgam from the Friedrichsseggen mine, near Oberlahnstein, 1884, A., 563.  
 — fairfieldite from Rabenstein, 1885, A., 640.  
 — manganese in apatite, 1885, A., 640.  
 — boric acid in mica, 1885, A., 643.  
 — zircon in stratified rocks, 1886, A., 24.  
 — minerals from Chili and Bolivia, 1886, A., 431.  
 — manganese apatite from Saxony, 1886, A., 432.
- Sandberger, Karl Ludwig Fridolin von**, occurrence of iodine in phosphorites, and of lithium in psilomelane, 1887, A., 222.  
 — mineral veins, 1887, A., 221; 1888, A., 237.  
 — graphite from Ceylon, 1887, A., 901.  
 — percyllite, caracolite, and phosgenite from Chili, 1887, A., 902.  
 — new mineral in the St. Bernard lode at Hausach, 1888, A., 561.  
 — modifications of zinc blende, 1889, A., 836.  
 — new meteorite from Chili, 1890, A., 347.  
 — arsenical pyrites, 1890, A., 454.  
 — lithionite-granites, 1891, A., 652.  
 — falkenhaynite from Joachimsthal, 1891, A., 1167.  
 — minerals from the Fichtelgebirge, 1892, A., 1406.
- Sanderson**. See *Burdon-Sanderson*.
- Sandmeyer, Traugott**, displacement of amido-groups in aromatic derivatives by chlorine, 1884, A., 1311.  
 — substitution of the amido-group in aromatic derivatives by chlorine, bromine, and cyanogen, 1885, A., 149.  
 — conversion of the three nitranilines into nitrobenzoic acids, 1885, A., 981.  
 — conversion of the three nitrobenzoic acids into phthalic acids, 1885, A., 981.  
 — ethyl hypochlorite, 1885, A., 1045.  
 — ethyl and methyl hypochlorites, 1886, A., 607.  
 — derivatives of carbonic anhydride, 1886, A., 611.  
 — action of ethyl imidocarbonate on aromatic ortho-compounds, 1887, A., 135.  
 — action of nitrous acid on acetone, 1887, A., 568.  
 — substitution of the amido- by the nitro-group in aromatic compounds, 1887, A., 720.  
 — diazobenzene, a correction, 1890, A., 1115.
- Sandmeyer, Traugott**. See also *Victor Meyer*.
- Sanger, Charles Robert**, estimation of arsenic in wall paper, 1892, A., 382.
- Sanger, Charles Robert**. See also *Henry Barker Hill*.
- Sankey, Matthew Henry Phineas Riall**, resistance of electrolytic cells, 1890, A., 317.
- Sannino, Antonio**. See *Livio Sostegni*.
- Sans**. See *Hertin-Sans*.

- Sanson, André**, irritant properties of oats, 1884, A., 914.  
 — digestion in mules, 1889, A., 533.  
**Sanson, J.** See *Adrien Fauconnier, Arthur Henninger*.  
**Sansoni, Francesco**, crystal forms of the Andreasberg calcite, 1886, A., 209.  
**Santini, Saverio**, colouration of the hydrogen flame, 1885, A., 209, 465.  
**Sapozhnikoff, W.**, formation and migration of carbohydrates in leaves, 1891, A., 763.  
**Sarasin, Edmond.** See *Charles Friedel*.  
**Sarasin, Edouard**, refractive indices of fluor spar, 1886, A., 22.  
**Sarasin, Edouard.** See also *J. Louis Soret*.  
**Sardo, Salvatore**, synthesis of phenyl-mellitic acid, 1884, A., 176.  
 — catalpic acid, 1885, A., 272.  
**Sarrau, Emile**, critical point of oxygen, 1884, A., 149.  
 — characteristic equation of carbonic anhydride, 1886, A., 203.  
**Sarrau, Emile**, and *Paul Vieille*, chemical equilibrium of homogeneous gaseous systems, 1888, A., 339.  
**Sartig, Johannes**, *o*-amido-*m*-xylene-sulphonic acid, 1886, A., 153.  
**Sartori, Giuseppe**, chemistry of sheep's milk cheese, 1891, A., 951.  
**Sato, D.** See *Oscar Kellner*.  
**Sattig**, dried beer grains as horse fodder, 1886, A., 1066.  
**Sattler, Wilhelm.** See *Wilhelm Wislicenus*.  
**Sauer, Adolf**, analysis of labradorite from Krakatoa ashes, 1886, A., 211.  
 — minerals from Oberwiesenthal, 1886, A., 601.  
 — amorphous carbon (graphitoid) in the Saxony Erzgebirge, 1887, A., 341.  
 — minerals in granulite, 1888, A., 34.  
 — riebeckite and the new formation of albite in granite-orthoclase, 1889, A., 109.  
**Sauer, Ewald**, new drying apparatus for elementary analysis, 1892, A., 657.  
**Sauer, Ewald.** See also *Friedrich Rudolph Weber*.  
**Sauer, Henry Edward.** See *John Harper Long*.  
**Saul, J. E.**, test for tannic acid, 1887, A., 406.  
**Saunders, Charles Edward**, diazobenzene perbromide, 1892, A., 316.  
 — double halogen salts of manganese, 1892, A., 780.  
 — double halogen salts of antimony, 1892, A., 788.  
**Saunpe, Max**, estimation of the fatty acids in soap, 1890, A., 1475.  
**Santermeister, Otto**, testing metallic iron for arsenic, 1892, A., 1030.  
**Savary, W.**, atipic acid, 1885, A., 653.  
**Savery, Thomas James**, uranium nitrate and acetate from residues, 1884, A., 397.  
**Savin, M.**, alkaline and acid albumin derivatives, 1888, A., 858.  
**Sawano, J.** See *Oscar Kellner*.  
**Saytzeff, Alexander M.**, synthesis of tertiary alcohols from ketones, 1885, A., 881.  
 — oxidation of oleic acid, 1885, A., 1019.  
 — oxidation of oleic and elaidic acids, 1886, A., 140.  
 — stereoisomerism of oleic and elaidic acids, 1892, A., 812.  
**Saytzeff, Alexander M.** See also *Sergius Barataeff, Arsenius Gortaloff, Woldemar Nikolsky, Alexander Tschebotareff, Dmitrius Ustinoff*.  
**Saytzeff, Alexius**, minerals from the Central Ural, 1889, A., 837.  
**Saytzeff, Michael M., Constantine M. Saytzeff, and Alexander M. Saytzeff**, hydroxystearic acids of different series, 1887, A., 30.  
 — — — — — isooleic acid, 1888, A., 815.  
**Scacchi, Arcangelo**, new sublimates from the crater of Vesuvius, 1883, A., 1064.  
 — crystalline forms of potassium and ammonium hydrogen tartrates, 1886, A., 612.  
**Scacchi, Eugenio**, crystallography of phenylcoumarin and coumarin, 1885, A., 901.  
 — minerals from Vesuvius, 1886, A., 600; 1887, A., 17; 1891, A., 22.  
 — altered cordierite from Tuscany, 1887, A., 1086.  
**Scala, Alberto**, propylxanthic acid, 1887, A., 800.  
 — estimation of formic acid in presence of acetic and butyric acids, 1891, A., 248.  
 — estimation of the impurities in alcohol by Ruse's method, 1891, A., 1555.  
**Scala, Alberto.** See also *Raffaele Nasini*.  
**Schaal, Eugen**, injurious action of a cupriferos oil used in Turkey-red dyeing, 1893, A., 256.  
 — preparation of acids from hydrocarbons, 1886, A., 290.  
**Schaap, (Miss) J.**, separation of salicylic acid from benzoic acid, 1892, A., 1532.  
**Schacherl, Gustav**, synthesis of a new tetrabasic acid and an isomide of aconitic acid, 1885, A., 1125.

- Schacherl, Gustav.** See also *Karl (Edler) von Garzarolli-Thurnlackh*.
- Schacht, Carl Julius Adolf,** estimation of potassium chlorate in organic mixtures, 1886, A., 179.
- estimation of iron, 1888, A., 631.
- Schachtebeck, Ferdinand.** See *Karl von Buchka*.
- Schade, O.,** animal and vegetable pepsin, 1886, A., 271.
- Schäfer, Adolph,** oximes of asymmetrical ketones, 1891, A., 1235.
- Schäfer, Edward Albert,** is free hæmoglobin present in the blood plasma of the splenic vein? 1890, A., 1016.
- Schäfer, Louis,** estimation of cinchonidine in quinine sulphate, 1887, A., 623; 1888, A., 636.
- testing neutral quinine salts, 1888, A., 636.
- Schaeffer, Charles A.,** a new tantalite locality, 1885, A., 359.
- Schaeppi, Henry,** recovery of sulphur by Mond's process, 1883, A., 129.
- Schär, Eduard,** action of hydrocyanic acid on seeds, 1886, A., 575.
- cubebin, 1887, A., 970.
- Schärger, C.** See *Max Carl Traub*.
- Schärtler, L.,** diastase, 1887, A., 1117.
- Schafarzik, Ferencz,** native mercury, cinabar, and chromium ores from Servia, 1885, A., 730.
- Schalféeff, Michael I.,** preparation of hæmin, 1885, A., 566.
- specific volumes of chlorine, bromine, and iodine in carbon compounds, 1885, A., 717.
- action of ammonia on hæmin, 1886, A., 165.
- Schall, Joh. Friederich Carl,** action of iodine on sodium phenoxide, 1883, A., 1109.
- diiodophenol, 1883, A., 1109.
- relation between molecular weight and velocity of evaporation, 1884, A., 551, 950; 1885, A., 112.
- attraction of homogeneous molecules, 1885, A., 111.
- relation of expansion of substances in gaseous, vaporous, and liquid states to absolute temperature, 1885, A., 1179.
- modification of Pettersson and Ekstrand's method of vapour density determinations, 1885, A., 1179.
- relation between specific gravity, capillarity, and cohesion, 1885, A., 1180.
- relation between capillarity and specific gravity of members of homologous series, 1885, A., 1180.
- Schall, Joh. Friederich Carl,** relation of diameters of molecules, 1885, A., 1182.
- lecture experiment: specific heat of zinc, 1887, A., 634.
- determination of vapour densities, 1887, A., 695, 882; 1888, A., 335; 1890, A., 681, 1042; 1892, A., 934.
- demonstration of Avogadro's hypothesis, 1887, A., 698.
- determination of the vapour density of high boiling substances under reduced pressure, 1887, A., 882.
- solid *o*-iodophenol, 1888, A., 262.
- determination of vapour densities under diminished pressure, 1889, A., 331; 1892, A., 553.
- *m*-amido-*p*-tolyl methyl ether, 1889, A., 698.
- composition of ant oil, 1892, A., 948.
- sodium phenyl sulphide, 1892, A., 970.
- Schall, Joh. Friederich Carl, and Christian Dralle,** action of chlorine, bromine, and iodine on sodium *p*-cresolate, 1885, A., 145.
- new brazilin derivatives, 1888, A., 295; 1889, A., 55, 1004; 1890, A., 996.
- oxidation of brazilin: new derivatives of resorcinol, 1892, A., 502.
- Schall, Joh. Friederich Carl, and Ludwig Kossakowsky,** study of evaporation, 1891, A., 1316.
- Schall, Joh. Friederich Carl, and Salomon Paschkowetzky,** stereoisomerism of carbodiphenylimide and carbodi-*p*-tolylimide, 1892, A., 1452.
- Schall, Joh. Friederich Carl, and Johannes Uhl,** action of iodoform on the additive product obtained from sulphurous anhydride and sodium phenoxide, 1892, A., 1076.
- Schapiroff, B. M.,** physiological action of tertiary alcohols, 1887, A., 857.
- Schardinger, Franz,** a new optically active modification of lactic acid, obtained by the bacterial decomposition of cane sugar, 1891, A., 666.
- Scharf, Paul,** gas battery, 1891, A., 374.
- Scharfenberg, Oswald,** action of *p*-toluidine, phenylhydrazine, and  $\alpha$ -naphthalene on itaconic acid, 1890, A., 368.
- Scharfenberg, Oswald.** See also *Theodor Zincke*.
- Scharizer, Rudolf,** idrialite, 1883, A., 427.
- constitution of the amphiboles containing alumina, 1885, A., 32.
- micas of the pegmatite-granite of Schüttenhofen, 1888, A., 432.

- Scharizer, Rudolf**, tourmaline of Schüttenhofen, 1889, A., 761.
- Schatz, F.**, oiling and the operations connected therewith in Turkey-red dyeing, 1883, A., 635.
- Schatzki, Eugen**, action of allyl and isobutyl iodides on zinc and acetone, 1885, A., 237.
- diallyloxalic acid, 1885, A., 511; 1887, A., 361.
- preparation of ethyl oxalate, 1885, A., 512.
- preparation of ethyl acetate, 1887, A., 360.
- Schatzmann, Paul**, attempts to prepare hydrothiazole derivatives, 1891, A., 744.
- Schaub, C.**, manufacture of starch, 1884, A., 1234.
- Schaumann, H.**, estimation of albumin in urine, 1889, A., 88.
- Scheel, Carl**, expansion of water, 1892, A., 7.
- Scheerer**, analysis of the Mansfeld copper slate, 1883, A., 1069.
- Scheffer, Emil**, estimation of nicotine, 1885, A., 604.
- Scheffer, Joh. Daniel Reinier**, diffusion of some organic and inorganic compounds, 1883, A., 1047; 1888, A., 1144.
- Scheibe, Anton**, origin of citric acid in milk, 1891, A., 1276.
- Scheibe, Anton**. See also *Eugen Wildt*.
- Scheibe, Edmund**, separation of morphia in chemico-legal investigations, 1883, A., 1036; 1884, A., 373.
- Scheibler, Carl Bernhard Wilhelm**, recovery of sugar from molasses by means of strontium hydroxide, 1883, A., 252, 536; 1884, A., 133.
- saccharin, 1884, A., 171.
- action of sodium amalgam on glucose and saccharin, 1884, A., 574.
- utilisation of phosphatic slags, 1884, A., 783.
- non-identity of arabinose and lactose, 1884, A., 1287.
- glutamic acid, 1884, A., 1308.
- nomenclature of sugars, 1885, A., 744.
- separation of raffinose from the molasses of beet-root sugar, 1885, A., 962.
- raffinose, 1885, A., 1046.
- production of rich phosphate of lime in connection with an improvement of the Thomas' process, 1886, A., 928.
- behaviour of the alkaline earths and their hydroxides towards dry carbonic anhydride, 1886, A., 927.
- Scheibler, Carl Bernhard Wilhelm**, estimation of water in the hydrates of strontium oxide, 1887, A., 217.
- separation and estimation of melitose in cane sugar, 1887, A., 306.
- determination of the specific gravity of viscous substances, 1891, A., 520.
- solubility of sugar in mixtures of alcohol and water, 1891, A., 536.
- Scheibler, Carl Bernhard Wilhelm**, and *Hans Mittelmeier*, melitose (raffinose), 1889, A., 953.
- — melitriose and melibiose, 1890, A., 226, 1035.
- — starch, 1891, A., 33, 284.
- — gallisin, 1891, A., 536.
- — so-called isorabonic acid, 1892, A., 1180.
- Scheibler, Carl Bernhard Wilhelm** (and others), strontia process for separating sugar from molasses or syrup, 1884, A., 527.
- Scheibler, Carl Bernhard Wilhelm**. See also *Heinrich Kiliani, Carl Theodor Liebermann*.
- Scheid, Bernhard**, quinone, 1884, A., 429.
- Scheidel, August**, preparation of vanillin from the gum of the olive tree, 1886, A., 238.
- preparation of quinoxalines, 1886, A., 1046.
- Scheidig, Fr.**, estimation of nitric nitrogen as nitric oxide, 1891, A., 107.
- analysis of dynamite, 1891, A., 623.
- Scheidt, Max**. See *Gaetano Magnanini, Wilhelm Wislicenus*.
- Schelle, Robert**. See *Alexander Classen*.
- Schenck, Friedrich**, relation of dextrose to the proteids of the blood, 1891, A., 350.
- estimation of sugar in the blood, 1891, A., 504.
- Schenck, Friedrich**. See also *Edward Friedrich Wilhelm Pfüger*.
- Schencke, Vincent**. See *Paul Jacobson*.
- Schenek, Stefan**, and *Stefan Farbaký*, electric accumulators, 1886, A., 106.
- Schenk, Adolf**, and *Carl Arnold August Michaelis*, derivatives of dimethylaniline containing phosphorus; and mercury dimethylaniline, 1888, A., 834.
- Schenk, Adolf**. See also *Carl Arnold August Michaelis*.
- Schepper, H. Yessel de**, and *Adolf C. Geitel*, examination of fat, 1883, A., 125.
- Scherbel, Ludwig**. See *Adolph Claus*.
- Scherks, Emil**, hydroxymaleic acid, 1884, A., 993.

- Scherks, Emil.** hydroxymaleic and hydroxycitraconic acid, 1885, A., 513.  
 — hydriodonaphthencarboxylic acid, 1885, A., 533.  
**Scherler, Otto,** action of chlorine and of nitric acid on methylnaphthalenes, 1892, A., 493.  
**Scherpenberg, P. A. von,** behaviour of bismuth with sulphur and selenium, 1890, A., 216.  
**Schertel, Arnulf,** volume-weight of sulphuric acid, 1883, A., 288.  
**Schertel, Arnulf.** See also *Alfred Wilhelm Stelzner.*  
**Scheschukoff, Maxim I.,** action of chlorine on isobutylene, 1884, A., 1276.  
 — separation of butylenes, 1885, A., 495.  
 — action of chlorine on butylenes, 1885, A., 615.  
 — action of hydriodic acid on isobutylene, 1886, A., 680.  
**Scheschukoff, Maxim I.** See also *Michael D. Lwoff.*  
**Schestakoff, Woldemar,** composition of a bye-product obtained in the preparation of diallylcarbinol, 1885, A., 237.  
**Schestopal, Constantin,** tetramethyldiquinolylone from benzidine, 1887, A., 1120.  
**Schestopal, Constantin.** See also *Carl Engler.*  
**Schettlik.** See *Sättlik.*  
**Scheufelen, Adolf,** iron compounds as carriers of bromine, 1885, A., 1182; 1886, A., 340.  
**Scheulen, Wilhelm.** See *Adolph Claus.*  
**Scheurer, Albert,** gaseous chlorine as a discharge in calico printing, 1884, A., 1234.  
 — history of alizarin-blue, 1885, A., 106.  
 — dyeing with alizarin on indigo, 1885, A., 711.  
 — fixation of alumina as a discharge on indigo-blue, 1885, A., 1276.  
**Scheurer-Kestner, Auguste,** formation of nitrous acid in the evaporation of water, 1883, A., 850.  
 — notes on the soda industry, 1883, A., 887; 1884, A., 643, 1442.  
 — heat of combustion of coal, 1884, A., 122.  
 — coking of coal with conversion of its nitrogen into ammonia, 1884, A., 126.  
 — consumption of fuel for heating boilers, 1884, A., 780.  
**Scheurer Kestner, Auguste,** reaction between ferric oxide and certain sulphates at high temperatures, 1885, A., 125.  
 — composition of the gas from pyrites burners, 1885, A., 199, 706.  
 — heat of combustion of the coal of Ronchamp, 1885, A., 848.  
 — composition and heat of combustion of coal from Ruhr, 1885, A., 1020.  
 — use of Korting's apparatus for forcing gases through sulphuric acid chambers, 1885, A., 1166.  
 — Thompson's calorimeter, 1888, A., 750.  
 — heat of combustion of coals from the North of France, 1888, A., 774.  
 — use of the calorimetric bomb for the determination of the heat of combustion of coal, 1891, A., 520.  
 — Turkey-red oil, 1891, A., 542, 665.  
 — polymerides of ricinoleic acid, 1891, A., 1454.  
 — action of carbon on sodium sulphate in presence of silica, 1892, A., 565.  
 — decomposition of sulphurous anhydride by carbon at high temperatures, 1892, A., 681.  
 — formulae for calculating the heating power of coal, 1892, A., 1143.  
**Scheurer-Kestner, Auguste,** and *Charles Meunier-Dollfus,* an English coal, 1888, A., 345.  
**Schiaparelli, Cesare,** saponin from *Sapunararia officinalis*, 1884, A., 332.  
**Schiaparelli, Cesare,** and *Modesto Abelli,* nitroresorcinols, 1884, A., 174.  
**Schidlowski, Franz I.,** estimation of carbonic anhydride in air, 1889, A., 651.  
**Schiffelin, William Jay.** See *Eugen Bamberger.*  
**Schierholz, C.,** separation of iodine, bromine, and chlorine, 1892, A., 1028.  
**Schiff, Felix,** derivatives of *o*-dibromobenzene, 1891, A., 44.  
**Schiff, Hugo,** methylarbutin, 1883, A., 60.  
 — protocatechutanuic acid and anhydrides of aromatic hydroxycarboxylic acids, 1883, A., 335.  
 — glucosides, 1883, A., 347.  
 — aldehydic nature of oxidation products of terebene, 1883, A., 1141.  
 — arbutin, 1884, A., 432.  
 — *m*-amidobenzamide, 1884, A., 455.  
 — oxalamido-acids, 1884, A., 906.  
 — alanine and ethyl oxalate, 1884, A., 995.

- Schiff, Hugo**, condensation product from salicylaldehyde, 1884, A., 1164.  
 — aspartic acid, 1885, A., 377.  
 — oxaldiamidopropionic acid, 1885, A., 760.  
 — phosphorsellinic acid, 1885, A., 795.  
 — lecture experiments on the occlusion of hydrogen by palladium, 1885, A., 1035.  
 — so-called isophloridzin, 1885, A., 1142.  
 — gas regulator, 1886, A., 15.  
 — oxalamidobenzoic acid, 1886, A., 549.  
 — colour bases from furfuraldehyde, 1886, A., 612, 1013.  
 — tartramido- and malamido-benzoic acids, 1886, A., 621.  
 — furfuraldehyde, 1887, A., 571.  
 — compounds of sugars with aldehydes and ketones, 1888, A., 572.  
 — isomerides of tannic acid, 1888, A., 840.  
 — aldehyde and ketone sulphites of organic bases, 1889, A., 234.  
 — phloroglucinotannic acid, 1889, A., 1063.  
 — constitution of filicic acid, 1890, A., 162.  
 — mercurobenzamide, 1890, A., 1123.  
 — preparation of pyromucic acid, 1891, A., 676.  
 — constitution of phenanthroline bases, 1891, A., 1258.  
 — amidotolylurethane, 1892, A., 1202.  
 — polymethylene bases from benzidine and tolidine, 1892, A., 1223.  
**Schiff, Hugo**, and **Cesare Parenti**, ethyleneamidobenzamic acid, 1885, A., 266.  
**Schiff, Hugo**, and **Enrico Pons**, an amide of gallic acid, 1885, A., 796.  
**Schiff, Hugo**, and **Riccardo Sestini**, compounds of arsenious anhydride with potassium bromide and iodide, 1885, A., 723.  
**Schiff, Hugo**, and **Angelo Vanni**, fluorescent derivatives of aromatic diamines, 1890, A., 138.  
 — tolyleneurethane and tolyleneoxamethane, 1890, A., 1124.  
 — benzidine, 1890, A., 1297.  
 — isomeric ethylamidotolylcarbamates, 1891, A., 702.  
 — amidotolylloxamic acid, 1891, A., 833.  
 — amidotolylloxamethane, 1891, A., 907.  
 — amidotolylloxamic and urethanotolylloxamic acids, 1892, A., 599, 1208.  
**Schiff, Hugo**. See also **Guido Bargioni**.  
**Schiff, Julius**, safrole, 1884, A., 1338.  
**Schiff, Robert**, constant of capillarity of liquids at their boiling-points, 1883, A., 549; 1884, A., 808; 1885, A., 717.  
 — molecular volume of liquid substances, 1883, A., 1044; 1884, A., 386.  
 — change in volume on melting, 1884, A., 1089.  
 — estimation of the specific gravity of liquids at higher temperatures, 1885, A., 950.  
 — physical properties of thiophen, 1885, A., 971.  
 — specific heats of homologous series of liquid organic compounds, 1887, A., 6; 1888, A., 14, 771.  
 — heat of evaporation of homologous carbon compounds, 1887, A., 9.  
 — demonstration of the coefficient of expansion as a lecture experiment, 1887, A., 1013.  
 — epichloramine, 1892, A., 29.  
 — chloralimide, 1892, A., 134.  
 — special case of isomerism, 1892, A., 1067.  
**Schiff, Robert**, and **Julius Puliti**, introduction of hydrocarbon radicles into the pyridine group, 1883, A., 1151.  
**Schiff, Robert**, and **N. Tarni**, oximes of chloral and butylchloral, 1892, A., 33.  
**Schiff, Sally**. See **Conrad Willgerodt**.  
**Schiffer, Christian**. See **Rudolph Fittig**.  
**Schiffer, Heinrich**, derivatives of gallic acid and of pyrogallol, 1892, A., 715.  
**Schiffer, Heinrich**. See also **Arthur Rudolf Hantzsch**.  
**Schilbach, Carl**, berberine salts, 1887, A., 604.  
**Schilbach, Carl**. See also **Ernst Albert Schmidt**.  
**Schiller-Wechsler, Max**, anilidopyrotartaric acid, 1885, A., 900.  
**Schilling, Emil**, caffeine methylhydroxide, 1885, A., 674.  
**Schilling, Emil**. See also **Ernst Albert Schmidt**.  
**Schillinger, A.**, and **Severin Wietzel**, anthroxanaldehyde and anthroxanic acid, 1884, A., 60.  
**Schimmel (and Co.)**, constitution of betel oil, 1892, A., 833.  
 — estimation of cinnamaldehyde, 1892, A., 924.  
 — essential oils, 1892, A., 1347.  
**Schimper, Andreas Franz Wilhelm**, chlorophyll, 1884, A., 1367.  
 — formation and migration of carbonates in leaves, 1886, A., 826.  
 — formation of calcium oxalate in leaves, 1888, A., 981.

- Schimper, Amleus Franz Wilhelm**, assimilation of mineral salts by green plants, 1891, A., 604.
- Schindler, Carl**, volumetric estimation of phosphoric acid, 1888, A., 753.  
— volumetric estimation of molybdenum and lead, 1888, A., 757.
- Schindler, Franz**, valuation of hay, 1885, A., 1154.
- Schindler, S.**, adenine and guanine, and their derivatives, 1889, A., 790.  
— separation and estimation of adenine and guanine and their derivatives, 1889, A., 802.
- Schindler, Titus**, crotonaldoxime, 1892, A., 82.  
— crotonaldoxime and allyl cyanide, 1892, A., 580.
- Schirmer, Paul**. See **Karl Polstorff**.
- Schischowski, J.**, composition of maize, 1885, A., 291.
- Schjerner, Niels Christian Henrik**, estimation of calcium and magnesium in gun-cotton, 1889, A., 1032; 1892, A., 1520.  
— manganese compounds, 1892, A., 1052.
- Schkatelloff, Wladimir V.**, chemical composition of the Russian white resin from *Pinus sylvestris*, 1889, A., 406.
- Schlaepfer, Rodolphe**, composition of mica and chlorite, 1891, A., 530.
- Schlagdenhauffen, Charles Frédéric**, presence of arsenic in the waters of Barèges, 1883, A., 302.  
— origin of arsenic and lithium in waters containing calcium sulphate, 1883, A., 302.  
— volumetric estimation of manganese, 1885, A., 442.  
— magnesia in sodium and hydrogen calcium phosphates, 1890, A., 664.
- Schlagdenhauffen, Charles Frédéric**, and **Léon Garnier**, arsenic in the soil of cemeteries, 1885, A., 1009.
- Schlagdenhauffen, Charles Frédéric**. See also **Edouard Heckel**.
- Schlarb, H. Ch.** See **Adolph Claus**.
- Schlaugk, M.** See **Ernst Dürkopf**.
- Schlegel, G.**, combustion of hydrocarbons and their derivatives with mixtures of oxygen and chlorine, 1885, A., 214.
- Schleh**, heaping potatoes, 1884, A., 772.
- Schleich, Carl**. See **Eugen Lellmann**.
- Schleicher, Bruno**,  $\alpha$ -bromisovaleric acid: pimelic acid: synthesis of tetracetic acid, 1892, A., 427.
- Schleicher, Erhart**, bromothiophen and ethylthiophen, 1886, A., 227.
- Schleicher, Erhart**, limited oxidation of ethylthiophen, 1886, A., 534.  
— isopropylthiophen, 1886, A., 534.  
— ketones of the thiophen group, 1886, A., 539.
- Schleiermacher, August**, heat conductivity of mercury vapour, 1889, A., 559.  
— boiling-point determinations with small amounts of material, 1891, A., 873.
- Schleif, William**, crystalline principle from the bark of *Diospyros virginiana*, 1891, A., 324.
- Schleselmann, James**. See **Thomas Carnelley**.
- Schlesinger, Adolf**, diastatic action of human saliva, 1891, A., 1522.
- Schlicht, A.**, estimation of oil of mustard, 1892, A., 1035.
- Schlick, Karl**, physiological action of strychnine, 1891, A., 486.
- Schlickum, Oskar**, estimation of morphine, 1887, A., 622.  
— testing quinine sulphate, 1887, A., 623.
- Schliemann, Johannes**. See **Eugen Lellmann**.
- Schlieper, Adolf**, indoles from the naphthylhydrazines, 1887, A., 153, 963.
- Schlieper, Adolph**, and **Baum**, fixing indigo on cotton, 1884, A., 136.
- Schlieper, F. W.**, reduction of *m*-bromonitrophenol, 1892, A., 704.
- Schlömann, Wilhelm**. See **Karl Schotten**.
- Schlossing, Jean Jacques Théophile**, magnesia industry, 1885, A., 1166.  
— estimation of ammonia in soils, 1886, A., 740, 831, 1075.  
— relation between atmospheric nitrogen and vegetable soils, 1888, A., 747, 870, 1330; 1889, A., 1237; 1890, A., 822.  
— slow combustion of organic substances, 1888, A., 979; 1889, A., 639.  
— estimation of carbon and nitrogen in vegetable soils, 1888, A., 1335.  
— loss of nitrogen in the decomposition of organic matter, 1889, A., 638.  
— nitrification of ammonia, 1889, A., 1239; 1890, A., 282.  
— fermentation of manure in absence of oxygen, 1890, A., 282.  
— absorption of ammonia from the air by vegetable soils, 1890, A., 821.  
— fermentation of farmyard manure, 1892, A., 1123.
- Schlossing, Th., junior**, the atmosphere in soils, 1890, A., 81.  
— fermentation of farmyard manure, 1892, A., 1123.

- Schloesing** *Th., junior*, and *Emile Laurent*, fixation of gaseous nitrogen by Leguminosæ, 1891, A., 353.  
 ——— fixation of free nitrogen by plants, 1892, A., 378, 523, 1021.  
**Schloesser**, *Augustus*, succinic acid and ethyl benzoylacetate, 1889, A., 594.  
**Schloesser**, *Augustus*. See also *William Henry Perkin, junior*, *Rudolph Fittig*.  
**Schluttig**, *E.*, imperfectly known silicates, 1887, A., 784.  
**Schmalzgaug**, *Hermann*. See *Carl Graebe*.  
**Schmeisser**, *Walter*. See *Adolph Claus*.  
**Schmelck**, *Ludwig*, investigation of petroleum lamps, 1885, A., 452.  
**Schmelck**, *Ludwig*. See also *Hercules Tornøe*.  
**Schmelz**, *Carl*, source of the glycogen of muscle, 1889, A., 429.  
**Schmid**, *Edmund*. See *Friedrich Nobbe*.  
**Schmid**, *Emil von*. See *Leopold Mayer*.  
**Schmid**, *Hans*. See *Heinrich Goldschmidt*.  
**Schmid**, *Heinrich*, use of Baeyer's artificial indigo, 1883, A., 257.  
 ——— researches by Witz on the oxidation of cellulose, 1884, A., 528.  
 ——— fixing perthiocyanogen in printing, 1884, A., 796.  
 ——— Turkey-red oil, 1885, A., 313.  
**Schmid**, *Jacob*, fisetin, the colouring matter of fustet wood or young fustic, 1886, A., 894.  
**Schmid**, *Jacob*. See also *Georg Lunge*.  
**Schmid**, *Werner*, estimation of fat in milk, cream, etc., 1888, A., 1347.  
**Schmidt**, *Adolf*, water vapour in gas generators, 1885, A., 705.  
**Schmidt**, *Albrecht*, and *Georg Wichmann*, piperazine, 1892, A., 210.  
**Schmidt**, *Albrecht*. See also *Rudolph Fittig*, *Wilhelm Majert*.  
**Schmidt**, *Alessandro*, pseudobrookite, 1883, A., 435.  
 ——— hematite from the Hargita-Gebirge, 1884, A., 405.  
 ——— isomorphism of jordanite and meneghinite, 1885, A., 639.  
 ——— arsenopyrite from Servia, 1889, A., 21.  
 ——— zircon, 1891, A., 1169.  
**Schmidt**, *Alfred*. See *Karl Friedrich Otto Senbert*.  
**Schmidt**, *Anton W.* See *Rudolf Nietzki*.  
**Schmidt**, *Carl* (Basel), minerals of the oolitic iron ore of the Windgallen, 1886, A., 780.  
**Schmidt**, *Carl* (Munich). See *Otto Fischer*.  
**Schmidt**, *Christoph*, action of potassium phthalimide on halogen compounds containing oxygen, 1890, A., 372.  
**Schmidt**, *Christoph*. See also *Otto Nikolaus Witt*.  
**Schmidt**, *Edmund*. See *Stanislaus von Kostanecki*.  
**Schmidt**, *Emil*. See *Adolph Claus*.  
**Schmidt**, *Ernst Albert*, action of hydrochloric acid on xanthine, 1883, A., 871.  
 ——— occurrence of caffeine in cacao, 1883, A., 873.  
 ——— action of hydrochloric acid on caffeine, 1883, A., 873.  
 ——— nonoic acids from different sources, 1884, A., 295.  
 ——— caffeine methhydroxide, 1884, A., 338.  
 ——— berberine, 1884, A., 339; 1892, A., 1498.  
 ——— picrotoxin, 1884, A., 815.  
 ——— zinc methylethylacetate, 1886, A., 867.  
 ——— angelic acid, 1886, A., 867; 1891, A., 891.  
 ——— jervic acid, 1886, A., 868.  
 ——— chelidoninic acid, 1886, A., 869.  
 ——— malic acid, 1886, A., 869.  
 ——— caffeine, 1886, A., 899.  
 ——— occurrence of vanillin in asafetida, 1886, A., 906.  
 ——— alkaloids of *Scopolia Hladnickiana* (*Hladnikiana*), 1888, A., 856.  
 ——— conversion of hyoscyamine into atropine, 1888, A., 970.  
 ——— alkaloids of the Papaveraceæ, 1889, A., 62.  
 ——— root constituents of *Scopolia atropoides*, 1891, A., 228.  
 ——— choline, 1892, A., 219, 905.  
 ——— preparation of pure trimethylamine from crude trimethylamine hydrochloride, 1892, A., 805.  
 ——— action of hydriodic acid and of hydrobromic acid on neurine and choline, 1892, A., 808.  
 ——— choline, neurine, and allied compounds, 1892, A., 905.  
 ——— hyoscyne (scopolamine), 1892, A., 1255, 1498.  
 ——— Berberis alkaloids: berberine and hydroberberine, 1892, A., 1498.  
**Schmidt**, *Ernst Albert*, and *Hermann Henschke*, alkaloids of *Scopolia japonica*, 1888, A., 856.  
**Schmidt**, *Ernst Albert*, and *Wilhelm Kerstein*, Berberis alkaloids, 1890, A., 648.  
**Schmidt**, *Ernst Albert*, and *Alfred Partheil*, derivatives of allyltrimethylammonium hydroxide, 1892, A., 950.

- Schmidt, Ernst Albert**, and **Heinrich Pressler**, theobromine, 1883, A., 872.
- Schmidt, Ernst Albert**, and **Hermann Roemer**, occurrence of the higher fatty acids in the free state in vegetable fats, 1884, A., 96.
- Schmidt, Ernst Albert**, and **Carl Schilbach**, action of potassium permanganate on berberine, 1887, A., 604.
- Schmidt, Ernst Albert**, and **Emil Schilling**, caffeine, 1885, A., 995.
- Schmidt, Ernst Albert**, and **Julius Weiss**, allyltrimethylammonium chloride and iodide, 1892, A., 949.
- Schmidt, Ernst Albert**, and **Max Wernecke**, caffeine, 1891, A., 331.
- Schmidt, Ernst Albert**, and **Friedrich Wilhelm**, Berberis alkaloids, 1888, A., 1212.
- Schmidt, Franz** (Aachen), and **Hänsch**, disturbing phenomena observed in polarising operations, 1885, A., 321.
- Schmidt, Franz** (Berlin). See **Carl Arnold August Michaelis**.
- Schmidt, Friedrich** (Marburg), alkylhydrastines and their derivatives, 1890, A., 1167.
- Schmidt, Friedrich** (Basel). See **Rudolf Nietzki**.
- Schmidt, F. W.** See **Gerhard Krüss**.
- Schmidt, Georg**, isatoic acid, 1888, A., 371.
- Schmidt, Georg**. See **Ludwig Gattermann**, **Oskar Pampel**.
- Schmidt, Gerhard Carl**, change of volume on dissolving salts in water, 1890, A., 844.
- vapour pressures of homologous compounds, 1891, A., 909; 1892, A., 396.
- critical temperatures of mixed liquids, 1892, A., 262.
- Schmidt, Hermann**, titration of acid tungstates, 1886, A., 597.
- Schmidt, Ludwig**. See **Rudolf Nietzki**.
- Schmidt, Max**, action of sulphurous anhydride on nitroso-compounds, 1890, A., 1305; 1892, A., 476.
- Schmidt, Max von**, and **F. Erban**, separation of resins, 1887, A., 406.
- Schmidt, Max von**. See also **Rudolf Benedikt**.
- Schmidt, Moritz**. See **Rudolf Leuckart**.
- Schmidt, Oskar**. See **Adolph Claus**.
- Schmidt, Otto**. See **Eugen Lellmann**.
- Schmidt, Robert Eduard**, composition of lac-dye, 1887, A., 734.
- alizarinsulphonic acids: conversion of anthraquinone- $\alpha$ - and - $\beta$ -disulphonic acids into flavopurpurin and anthropurpurin, 1891, A., 934.
- Schmidt, Robert Eduard**, new dyes of the anthraquinone series, 1891, A., 935.
- Schmidt, Robert Eduard**, and **Ludwig Gattermann**, hydroxy-derivatives of alizarin-blue, 1891, A., 1882.
- Schmidt, Robert Eduard**. See also **Georg Lunge**.
- Schmidt, R. H.**, absorption and digestion of fat oils by plants, 1892, A., 1118.
- Schmidt, Th.**, comparative sweetness of cane and starch sugars, 1887, A., 1026.
- Schmidt, Theodor**. See **Emil Fischer**.
- Schmidt, Theodore William**. See **Thomas Herbert Norton**.
- Schmidt-Mülheim, Adolf**, milk secretion, 1884, A., 93.
- Schmiedeberg, Oswald**, oxidations and syntheses in the animal organism, 1883, A., 361.
- decomposition and synthesis in the animal organism, 1883, A., 361.
- active principle of the root of *Apocynum cannabinum*, 1883, A., 1141.
- Schmieder, Joh.** See **Heinrich Kaiser**.
- Schmitt, Charles Ernest**, adulteration of butter, 1883, A., 521.
- artificial butter colourings, 1884, A., 236.
- orantins and carotins, 1884, A., 910.
- estimation of the volatile fatty acids in butter analysis, 1884, A., 1434.
- methods of butter analysis, 1885, A., 197.
- composition of butter from cows', goats', and ewes' milk, 1885, A., 309.
- Schmitt, Conrad**, detection of "saccharin," 1888, A., 996.
- Schmitt, Conrad**, and **Albert Cobenzl**, gallisin, the unfermentable part of commercial glucose, 1884, A., 981.
- constitution of fatty acids, 1884, A., 1125.
- Schmitt, Conrad**, and **Carl Hiepe**, estimation of fixed organic acids in wine, 1883, A., 384.
- Schmitt, Conrad**, and **Josef Rosenhek**, gallisin, 1885, A., 134.
- Schmitt, Marie Xavier Joseph**, physiological action of camphors and their combinations with chloral, 1892, A., 227.
- Schmitt, Rudolf Wilhelm**, preparation of salicylic acid, 1885, A., 709.
- Kolbe's synthesis of salicylic acid, 1885, A., 982.
- formation of zinc propionate by the action of carbonic anhydride on zinc ethyl, 1891, A., 288.

- Schmitt, Rudolf Wilhelm**, and **Julius Altschul**, *p*-hydroxyquinolinecarboxylic acid, 1888, A., 67.
- Schmitt, Rudolf Wilhelm**, and **Ernst Burkard**, naphtholcarboxylic acids, 1888, A., 59.
- Schmitt, Rudolf Wilhelm**, and **Friedrich Franz Engelmann**, *o*-hydroxyquinolinecarboxylic acid, 1887, A., 738; 1888, A., 66.
- Schmitt, Rudolf Wilhelm**, and **Friedrich Hermann Hähle**, catecholcarboxylic acids, 1891, A., 1366.
- Schmitt, Rudolf Wilhelm**, and **Curt Kretschmar**, *p*-diphenoldicarboxylic acid, 1888, A., 56.
- Schmitter, A. G.**, source of nitrogen of plants, 1890, A., 1023.
- new experiments on soil inoculation, 1892, A., 1512.
- Schmitz, Ludolf**. See **Heinrich Conr. Klinger**.
- Schmitz, S.**, modification of the calcium chloride drying tube used in elementary analysis, 1885, A., 687.
- estimation of nitrogen in coal and coke, 1886, A., 1071.
- Schmitz-Dumont, W.**, insoluble sulphur, 1892, A., 1389.
- Schmitz-Dumont, W.** See also **Otto Friedheim**.
- Schmoeger, Max**, Blumenthal's prepared rennet, 1884, A., 535.
- Soxhlet's areometric butter-fat estimations, 1885, A., 603.
- polarimetric estimation of sugar in milk, 1885, A., 693.
- milking of cows, 1885, A., 1000.
- experiments with the small Danish separator, 1886, A., 290.
- estimation of sugars by means of Ost's copper solution, 1892, A., 387.
- acetylated lactose and the optically different modifications of lactose, 1892, A., 948.
- Schmoeger, Max**, and **Oskar Neubert**, influence of distillers' waste on milk secretion, 1884, A., 194.
- Schmoeger, Max** (and others), notes on milk and butter, 1884, A., 236.
- blue milk, blue cheese, and rosy milk, 1884, A., 942.
- Schmunk, Ludwig**. See **Theodor Zincke**.
- Schnapauff, E.**, cumidic acids, 1887, A., 52.
- Schnapauff, E.** See also **Oscar Georg Jacobsen**.
- Schneegans, August**, Perkin's reaction in the paraffin series, 1885, A., 649.
- vanillin from *Rosa canina*, 1890, A., 1270.
- Schneegans, August**. See also **Rudolph Fittig**.
- Schneidemühl, Georg**. See **Carl Arnold**.
- Schneider, Alfred**, amides of tubasic fatty acids, 1888, A., 464.
- new manganese ore from Dillenberg, 1888, A., 1260; 1890, A., 459.
- inosite from Dillenberg, 1890, A., 345.
- damascenine from *Nigella damascena*, 1890, A., 1317.
- Schneider, C.**, artificial production of diastase, 1884, A., 1366.
- Schneider, C.** (Karlsruhe), basaltic hornblendes, 1891, A., 649.
- Schneider, Carl Werner Thielmann**. See **Carl Paal**.
- Schneider, Edward Adolph**, separation of the two isomeric toluidinesulphonic acids, 1887, A., 146.
- action of sulphuric acid on hydrazinetoluenesulphonic acids, 1887, A., 146.
- compound of manganese sesquioxide with copper oxide, 1887, A., 1081.
- treatment of natural silicates with hydrochloric acid as a means of ascertaining their structure, 1889, A., 23.
- analysis of a soil from Washington Territory, 1889, A., 435.
- relation of the hydrated sesquioxides to the salts of iron and aluminium, 1890, A., 946.
- relative basicity of the hydrated sesquioxides of iron and aluminium, 1890, A., 1062.
- colloidal sulphides of gold, 1891, A., 1162.
- colloidal silver, 1892, A., 117, 775, 941.
- organosols, 1892, A., 775.
- Schneider, Edward Adolph**, and **Frank Wigglesworth Clarke**, action of ammonium chloride at its dissociation temperature on silicates, 1892, A., 772.
- Schneider, Edward Adolph**. See also **Carl Barus**, **Frank Wigglesworth Clarke**.
- Schneider, Ernst Robert**, atomic weight of bismuth, 1885, A., 354; 1891, A., 271, 1324.
- precipitation of halogen salts of silver, 1885, A., 1010.
- action of silver cyanide on sulphur chloride, 1885, A., 1193.
- behaviour of iodine with realgar and arsenic iodosulphide, 1887, A., 213.

- Schneider, Ernst Robert**, action of arsenious sulphide on iodine, 1888, A., 414.  
 — action of cuprous chloride on potassium iron sulphide: artificial copper pyrites, 1889, A., 354.  
 — artificial copper-bismuth glance, 1890, A., 337.  
 — artificial silver-bismuth glance, 1890, A., 710.  
 — action of hydrogen on potassium thallium sulphide, 1891, A., 16.  
 — composition of commercial and of commercially pure bismuth, 1891, A., 1324.  
 — two new seleno-salts, 1892, A., 281.  
 — reduction of potassium platinum thioannate: potassium thioplatinate, 1892, A., 944.  
**Schneider, J.** See *Wilhelm Conrad Röntgen*.  
**Schneider, Leopold**, wolfram, 1885, A., 1187.  
 — estimation of phosphorus in iron and steel, 1887, A., 527.  
 — influence of phosphorus on iron, 1888, A., 421.  
 — new method for the estimation of manganese, 1888, A., 873.  
 — water of crystallization, 1890, A., 1209.  
**Schneider, Leopold**, and *F. Lipp*, analysis of tungsten steel, 1885, A., 840.  
**Schneider, Leopold**. See also *Max von Lill*.  
**Schneider, Max**, estimation of hydrogen potassium tartrate, free tartaric acid, malic acid, and mineral salts in wine, 1891, A., 371.  
 — estimation of malic acid in wine, 1891, A., 371.  
**Schneidewind, W.**, substitution in organic compounds containing negative radicals, 1888, A., 704.  
**Schnell, Anton**, nitromethylsalicylaldehyde and its derivatives, 1884, A., 1164.  
 — *m*-nitromethylsalicylaldehyde and its derivatives, 1887, A., 140.  
**Schnelle, Wilhelm**, and *Bernhard Tollens*, multirotation of rhamnose and of the saccharoses, 1892, A., 1420.  
 — polarisation phenomena of rhammonic acid and rhamnolactone, 1892, A., 1431.  
 — polarisation phenomena of galactonic acid and galactonolactone, 1892, A., 1432.  
 — polarisation phenomena of gluconic acid and glucolactone, 1892, A., 1432.  
**Schnelle, Wilhelm**. See also *Fred. C. Weld*.  
**Schniderschitsch, Hans**, constitution of the cinchona alkaloids: cinchonidine, 1889, A., 626.  
**Schniter, Karl**, isomeric chloro- and bromo-thymoquinones, 1887, A., 720.  
 — preparation of quinones; halogen derivatives of toluquinone, 1887, A., 1036.  
**Schniter, Karl**. See also *Arthur Rudolf Hantzsch*.  
**Schnitzer, Franz**, preserving ground coffee, 1884, A., 880.  
**Schober, J. B.**, examination of the ores from Amberg and of the accompanying phosphates, 1883, A., 432.  
**Schoch, Rudolf**. See *Georg Lunge*.  
**Schoder, Robert**. See *Adolf von Baeyer*.  
**Schöffel, Rudolf**, and *Edmund Donath*, volumetric method of estimating manganese especially in iron and steel, 1884, A., 116.  
 — volumetric estimation of manganese, 1887, A., 399.  
**Schoeller, August**, hystazarin, 1888, A., 1203; 1889, A., 719.  
**Schoelter, Richard**, river waters of La Plata, 1887, A., 786.  
**Schoen, G. A.**, estimation of *p*-toluidine, 1890, A., 839.  
**Schön, Ludwig**, occurrence of oleic acid in earth-nut oil, 1888, A., 578.  
**Schönbrodt, Reinhold**, derivatives of ethyl acetoacetate, 1890, A., 27.  
**Schöndorff, B.**, influence of drinking large quantities of water on the excretion of uric acid, 1891, A., 348.  
**Schöne, Emil Bogdanovich**, spectrum of ozone, 1885, A., 713.  
**Schöne, Hugo**, chlorocarbonylsulphamyl, 1885, A., 512.  
 — amyl thioclorocarbonate and its action on compounds containing nitrogen, 1886, A., 337.  
**Schönemark, H.** (and others), manual experiments with precipitated phosphates and basic slag, 1886, A., 1069.  
**Schönfeld, Franz**. See *Martin Freund*.  
**Schönfeld, Fritz**. See *Richard Anschütz*.  
**Schönflies, Arthur**, theories of the structure of crystals, 1892, A., 572.  
**Schönherr, Rudolf P.** See *Friedrich Krafft*.  
**Schöpf, Martin** *m*-nitrobenzenylamid-oxime, 1885, A., 896.  
 — derivatives of *m*-nitrobenzenylamidoxime, etc., 1885, A., 1217.  
 — diphenylamine derivatives, 1889, A., 772.

- Schöpf, Martin**, substitution of the anilido-group for halogen atoms in the benzene nucleus, 1890, A., 374; 1891, A., 304.
- *o*-nitrodiphenylamine and its derivatives, 1890, A., 1113.
- bromobenzonitriles, 1891, A., 295.
- displacement of halogen atoms in the benzene-ring, 1892, A., 335.
- Friedel-Crafts' synthesis, 1892, A., 387, 594.
- acridone derivatives, 1892, A., 1223.
- action of aniline on  $\beta$ -naphthol-carboxylic acid, 1892, A., 1476.
- Scholl, Roland**, conversion of ketoximes into  $\psi$ -nitroles, 1888, A., 443.
- constitution of fulminic acid, 1891, A., 282.
- action of hydroxylamine on *iso*-nitrosoketones, 1891, A., 287.
- action of nitrogen tetroxide on aromatic ketoximes and on glyoximes, 1891, A., 315.
- the simplest normal oxime and its polymerides, 1891, A., 663.
- Scholtz, Max**, action of ammonia on *o*-xylylene bromide, 1891, A., 1353.
- Scholvin, Louis**, mercury fulminate, 1885, A., 39.
- fulminic acid, 1886, A., 137.
- behaviour of ethyl ether with sulphuric acid: separation of ethyl ether from ethyl bromide, 1891, A., 410.
- Scholz, R.**, heats of dissolution of salts in water, 1892, A., 676.
- Scholz, Wilhelm**. See *Carl Theodor Liebermann*.
- Schoop, Paul**, manufacture of magenta, 1886, A., 290.
- preparation of dimethylaniline, 1887, A., 474.
- Schoop, Paul**. See also *Wilhelm Franz Loebisch, Hans Malfatti*.
- Schoor, W. K. J.**, action of certain substances on dextrin, 1885, A., 369.
- Schorlemmer, Carl**, thionyl chloride, 1885, P., 52.
- Schorlemmer, Carl**, and *Thomas Edward Thorpe*, normal paraffins, 1883, A., 651.
- Schorlemmer, Carl**. See also *Richard S. Dale*.
- Schott, E. A.** (and others), purification of sugar-beet juice, 1883, A., 136.
- Schotten, Karl**, conine, 1883, A., 220.
- oxidation of piperidine, 1883, A., 313; 1885, A., 176.
- source of hippuric acid in the urine, 1884, A., 1057.
- bile acids, 1886, A., 565; 1887, A., 606.
- Schotten, Karl**, conversion of piperidine into  $\delta$ -amidovaleric acid and into oxypiperidine, 1883, A., 1104.
- action of acid chlorides on bases in presence of alkalis, 1891, A., 295.
- oxidation of hydrated pyridine bases: conversion of tetrahydroquinoline into isatin, 1891, A., 722.
- isatin-blue, 1891, A., 928, 1491.
- bromisatin-blue: compounds of mono- and di-bromisatin with piperidine, 1891, A., 1491.
- Schotten, Karl**, and *Joseph Baum*, a new oxidation-product of conine, 1885, A., 176.
- Schotten, Karl**, and *Wilhelm Schlömann*, oxidation of piperidine and tetrahydroquinoline derivatives, 1892, A., 354.
- Schottländer, Paul**, gold compounds, 1883, A., 853.
- crystalline form of potassium aurobromide, 1887, A., 1079.
- metals of the cerium group, 1892, A., 686.
- Schrader, Ludwig**. See *Albert Ladenburg*.
- Schramm, Carl**, isonitrosoketones, 1883, A., 573.
- acetoximic acids, 1883, A., 590.
- organic hydroxylamine derivatives, 1884, A., 51.
- Schramm, Carl G.** See *Leopold Rüggerheimer*.
- Schramm, Julian**, position of thallium in the chemical system and its presence in sylvin, 1883, A., 954.
- action of bromine on aromatic hydrocarbons, 1883, A., 977.
- action of sodium on methyl ethyl ketone, 1883, A., 1079.
- diethyl ketone, 1883, A., 1080.
- formation of *p*-bromobenzyl bromide by the action of bromine on *p*-bromotoluene, 1885, A., 379.
- influence of sunlight on the bromination of aromatic compounds, 1885, A., 518, 888.
- influence of light on the action of halogens on aromatic compounds, 1885, A., 767; 1886, A., 451; 1887, A., 807; 1889, A., 240; 1891, A., 898.
- isomeric changes on synthesizing aromatic compounds by means of aluminium chloride, 1889, A., 127.
- Schramm, Julian**, and *Ignaz Zakrzewski*, spectrum researches on the energy of the action of bromine on aromatic compounds, 1888, A., 9.
- Schramm, Julian**. See also *Bronisław Radziszewski*.

- Schrauf, Albrecht**, the so-called liebigite from Joachimsthal, 1883, A., 955.  
 — kelyphite, 1884, A., 972.  
 — dispersion equivalent of the diamond, 1885, A., 14.  
 — dispersion equivalent of sulphur, 1886, A., 406.  
 — expansion coefficient of sulphur, 1886, A., 408.  
 — molecule of crystalline benzene, 1887, A., 922.
- Schrauf, Albrecht** (and others), danburite from Switzerland, 1883, A., 956.
- Schreber, Karl**, electromotive forces of thin layers of hydrated peroxide, 1889, A., 661.
- Schreder, Josef**, constitution of isuvitic acid, 1885, A., 798.
- Schreder, Josef**. See also *Ludwig (Ritter) Barth von Barthenau*.
- Schreib, H.**, estimation of fat in milk, 1883, A., 1135.
- Schreiber, E.**, phenoxyethylamine and *p*-cresoxyethylamine, 1891, A., 552.
- Schreinemakers, Frans Anton Hubert**, equilibrium of double salts of lead and potassium iodides with their aqueous solutions, 1892, A., 500.
- Schreiner**, peat as manure, 1885, A., 428.
- Schrewe**, manuring potatoes, 1886, A., 578.
- Schrobe, A.**, evaporation of alcohol from wooden vats, 1884, A., 526.
- Schrodt, Max**, annual report of the experimental dairy farm at Kiel, 1884, A., 1396.  
 — quality of butter made by different processes, 1885, A., 105.  
 — new conserving agent for milk and butter, 1885, A., 612.  
 — presence of nitrites and nitrates in milk as proof of adulteration, 1887, A., 87.  
 — feeding with earth-nut and palm cake, 1888, A., 174.
- Schrodt, Max**, and **H. Hansen**, influence of oat- and wheat-bran on the secretion of milk, 1884, A., 854.  
 — composition of the ash of cows' milk, 1884, A., 1397.  
 — feeding milch cows with ensiled sugar-beet sections, 1885, A., 833.  
 — influence of malt combs on the yield of milk, 1885, A., 929.
- Schrodt, Max**, and **Otto Henzold**, butter fat, 1891, A., 757.
- Schrodt, Max**, and **H. von Peter**, sun-flower-seed cake as fodder for milch cows, 1884, A., 483.
- Schrodt, Max** (and others), milk, 1883, A., 254.
- Schroeder (Gottingen)**, glycyrrhizin in *Myrrhis odorata*, 1886, A., 172.
- Schröder, Georg**, cobalt and nickel oxides, 1890, A., 1213.
- Schröder, H.**, constitution of liquid compounds, 1883, A., 422.  
 — dependence of molecular refraction of liquid carbon compounds on their chemical constitution, 1883, A., 538.  
 — boiling-points of the corresponding ketones, ethereal salts, and chloranhydrides, 1883, A., 990.
- Schröder, Ivan F.**, specific gravity of solutions of mercuric chloride, 1886, A., 412.
- Schroeder, Theodor Julius Reinhold von** (and another), influence of acid smoke on vegetation, 1885, A., 76.
- Schröder, M. J.**, detection of antifebrin in phenacetin, 1889, A., 660.
- Schroeder, Max**, action of carbonic oxide on mixtures of sodium alcoholate and sodium salts of organic acids, 1881, A., 38.
- Schroeder, Max**. See *Emil Hänisch*.
- Schroeder, V.**, derivatives of benzylidene-phenylhydrazine, 1884, A., 1323.
- Schroeder, Waldemar von**, formation of urea in the dog-fish, 1890, A., 1451.
- Schroeter, Georg**, *o*-cresolbenzein, 1890, A., 898.
- Schroeter, Hermann J. M.** See *Henry Trimble*.
- Schrötter, Hugo**, action of dilute mineral acids on saccharic acid, 1888, A., 1060.  
 — ethereal derivatives of proteids, 1889, A., 1224.
- Schrötter, Hugo**. See also *Eduard von Gerichten*.
- Schryver, S. B.**, the asymmetry of nitrogen in substituted ammonium compounds, 1891, P., 39.
- Schryver, S. B.** See also *John Norman Collie*.
- Schubart, Louis H.**, *p*-homobenzenylamidoxime, 1886, A., 797.  
 — *p*- and *o*-homobenzenylamidoximes and their derivatives, 1890, A., 47.  
 — action of carbon bisulphide on the potassium compound of *p*-homobenzenylamidoxime, 1890, A., 49.
- Schuberg, Friedrich**, stony concretions in animals, 1884, A., 348.
- Schubert, Arthur Louis**, and *Zdenko Hanns Skraup*, action of hydriodic acid on quinine and quinidine, 1892, A., 640.
- Schubert, B.**, occurrence of minerals at Jordansmühl in Silesia, 1883, A., 35.

- Schubert, Stanislaus**, diisobutylquinol, 1883, A., 60.  
 — action of heat on starch granules, 1885, A., 368.  
**Schubert, Stanislaus**. See also *Mar Hömig*.  
**Schucht, Ludwig**, electrolysis, 1884, A., 541.  
**Schudel, Berthold**, dipropyl propylidenic oxide, 1884, A., 1283.  
**Schübeler, Friedrich Christian**, action of long dayson vegetation, 1885, A., 419.  
**Schüchner, Georg**. See *Victor von Richter*.  
**Schüchtermann, H.**, working up basic slag, 1885, A., 940.  
**Schüle, Gotthilf**. See *Carl Hell*.  
**Schüler, Georg**, dihydroxyanthracene from  $\alpha$ -anthraquinonesulphonic acid (flavol), 1883, A., 74.  
**Schündelen, Benedikt**. See *Rudolf Nietzki*.  
**Schüpphaus, Rob.**, action of chlorine on boiling benzene, 1885, A., 52.  
**Schüpphaus, Rob.** See also *Hans Julius Anton Edward Hübner*.  
**Schürmann, Ernst**, affinity of the heavy metals for sulphur, 1889, A., 468.  
**Schürmann, Ernst**. See also *Karl Friedrich Otto Seubert*.  
**Schütt, Franz**, polaristrobometric analysis of a mixture of sodium and potassium chlorides, 1888, A., 1341.  
 — determination of the molecular refraction of solid compounds in their solutions, 1890, A., 1033; 1892, A., 929.  
**Schütt, Franz August Johann Friedrich**, reduction of brom-*o*-phenol, 1883, A., 1109.  
 — *p*-bromo-*o*-amidophenol, 1885, A., 1211.  
 — phycophæin, 1888, A., 496.  
 — phycoerythrin, 1889, A., 622.  
 — pigments of the *Peridinia*, 1890, A., 1172.  
**Schütte, IV.**, alkaloids of the *Solanaceæ*, 1892, A., 231.  
**Schütz, Emil**, quantitative relationship of pepsin to peptones, 1885, A., 1147.  
**Schütz, H.**, derivatives of *p*-diphenol, 1889, A., 402.  
**Schütze, M.**, colour and constitution of compounds, 1892, A., 561.  
**Schütze, R.**, waste water from starch factories, 1886, A., 1066.  
 — animal cellulose, 1890, A., 227.  
**Schützenberger, Léon**. See *Paul Schützenberger*.  
**Schützenberger, Paul**, a metallic radicle, 1884, A., 822.  
 — respiratory combustion, 1884, A., 857.  
**Schützenberger, Paul**, proteids, 1886, A., 270.  
 — gelatin, 1886, A., 818.  
 — synthetical studies on albuminoids and proteids, 1888, A., 971.  
 — condensation of carbonic oxide under the influence of the silent discharge, 1890, A., 691.  
 — condensation of carbonic oxide, 1890, A., 692.  
 — condensation of benzene and acetylene under the influence of the silent discharge, 1890, A., 961.  
 — effects of the silent discharge, 1890, A., 1358.  
 — platinum thiocarbide, 1891, A., 19.  
 — synthesis of proteids, 1891, A., 588.  
 — volatility of nickel in presence of hydrogen chloride, 1891, A., 1429.  
 — compounds of carbon and silicon, 1892, A., 1050.  
 — nickel, 1892, A., 1158.  
 — constitution of peptones, 1892, A., 1500.  
**Schützenberger, Paul**, and *Albert Colson*, silicon, 1883, A., 15.  
**Schützenberger, Paul**, and *Léon Schützenberger*, certain forms of carbon, 1891, A., 265.  
**Schuffan, Adolf**, *m*-nitro- $\alpha$ -stilbazole, its reduction products and anisylidene-pyridylalkine, 1890, A., 1437.  
**Schukowski, Stefan N.**, action of ethyl iodide and zinc on ethyl malonate, 1888, A., 1179; 1889, A., 958.  
**Schukowski, Stefan N.** See also *B. Martinoff*.  
**Schulhöfer, L.**, action of stannous chloride on nitrophenylindazolecarboxylic acid, 1891, A., 1231.  
**Schulhof, Leo**. See *Heinrich Goldschmidt*.  
**Schuller, Alois**, distillation in a vacuum, 1883, A., 545.  
**Schulte, Carl**, phenylarsine sulphides, 1883, A., 186.  
**Schulte, Carl**. See also *Carl Arnold August Michaelis*.  
**Schulte im Hofe, Josef August**. See *Adolph Claus*.  
**Schulten, August Benjamin (Baron)**, artificial production of a crystallised hydrated silicate, 1883, A., 33.  
 — artificial alcaime, 1883, A., 34.  
 — barium potassium phosphate and barium sodium phosphate, 1883, A., 711.  
 — crystallised aluminium orthophosphate, 1884, A., 1263.  
 — new crystallised magnesium phosphate and arsenate, 1885, A., 724.

- Schulten, August Benjamin (Baron) de**, artificial production of strengite, 1885, A., 1043.
- crystallised magnesium and cadmium hydroxides, 1885, A., 1183.
- silver potassium carbonate, 1888, A., 110.
- artificial pyrochroite, 1888, A., 345.
- action of calcium carbonate on cadmium chloride and bromide, 1888, A., 1036.
- crystallised cobalt and nickel hydroxides, 1889, A., 1114.
- preparation of crystalline normal lithium phosphate and arsenate, 1890, A., 10.
- cadmium phosphates and arsenates, 1890, A., 11.
- crystalline anhydrous zinc phosphate and zinc arsenate, 1890, A., 214.
- artificial formation of malachite, 1890, A., 454.
- preparation of artificial molybdenite, 1891, A., 20.
- synthesis of kainite and tachhydrite, 1891, A., 405.
- Schulthess, Oscar.** See *Carl Graebe, Arthur Michael*.
- Schulthess, Walter.** See *Heinrich Goldschmidt*.
- Schultz (and others)**, the Lupitz method of cultivation, 1884, A., 105.
- Schultz, B.**, oxidation products of solid dibromo-*p*-xylene, 1885, A., 1053.
- Schultz, Gustav Theodor August Otto**, preparation of quinaldine, 1884, A., 337.
- molecular changes of hydrazo-compounds, 1884, A., 902.
- azo-colours, 1884, A., 1036.
- formation of quinaldine, 1884, A., 1373.
- isomeric naphthylaminesulphonic acids, 1888, A., 290.
- $\alpha$ -naphthylamine- $\epsilon$ -sulphonic acid, 1890, A., 388.
- Schultz, Gustav Theodor August Otto.** See also *Richard Anschütz, Fritz Bender, Ernst Erdmann*.
- Schultz, John J.**, alkaloids of *Coptis trifolia*, 1885, A., 403.
- Schultz, Moritz**, 2:6-methylethylpyridine and 2:4-methylethylpyridine, 1888, A., 64.
- Schultze, B.**, precipitation of tin from acid solutions by metallic iron, 1890, A., 853.
- Schultze, Ernst**, nitrogenous constituents of human urine, 1890, A., 280.
- Schultze, Wilh. Hermann**, electrolytic behaviour of mica at high temperatures, 1889, A., 664.

- Schulz, Ernst (? Ernst Schulze)**, reserve materials, especially tannin, contained in evergreen leaves, 1889, A., 540.
- Schulz, Fr. (and others)**, cultivation of potatoes, 1883, A., 680.
- Schulz, Friedrich.** See *Conrad Willgerodt*.
- Schulz, Heinrich.** See *Theodor Curtius*.
- Schulz, Hermann**, apparatus for fractional distillation in a vacuum, 1891, A., 259.
- Schulz, Oscar**, action of acetic, propionic, and butyric acids, etc. on benzenylamidoxime, 1885, A., 897.
- action of anhydrides of bibasic acids on benzenylamidoxime, 1885, A., 1219.
- molecular weight of the acids of the oleic series, 1889, A., 1140.
- apparatus for the estimation of carbonic anhydride in air, 1892, A., 533.
- action of quinone and its derivatives, 1892, A., 1115.
- Schulz, Paul Friedrich Hugo**, antiseptic action of nickelous chloride, 1884, A., 1440.
- yeast poisons, 1889, A., 181.
- Schulze, Bernhard**, estimation of sulphuric acid in presence of alkaline chlorides, 1883, A., 240.
- chemistry of asparagine, 1884, A., 42.
- influence of potassium bromide on nutrition, 1884, A., 850.
- estimation of fatty acids in soap, 1887, A., 307.
- silage of maize, 1887, A., 521.
- silage of vegetable matter, 1887, A., 521.
- Schulze, Bernhard, and F. Flechsig**, formation of amides during the germination of seeds in the dark, 1886, A., 90.
- Schulze, Bernhard.** See also *Hugo Weiske*.
- Schulze, Carl, and Bernhard Tollens**, simple apparatus for evaporating under reduced pressure, 1892, A., 1386.
- disappearance of the multirotation of sugars in ammoniacal solution, 1892, A., 1419.
- xylose and its optical properties, 1892, A., 1420.
- the pentosans of woody fibre, 1892, A., 1420.
- Schulze, C. Richard**, amount of water of crystallisation contained in some salts, 1887, A., 766.
- rate of dissociation of hydrated salts, 1888, A., 104.

- Schulze, Ernst** (Zurich), extraction of asparagine from liquids, 1883, A., 315.
- cholesterol, 1883, A., 586.
- detection of asparagine and glutamine in vegetable juices and extracts, 1884, A., 373.
- estimation of ammonia in vegetable extracts, 1884, A., 493.
- estimation of amides in vegetable extracts, 1884, A., 1438.
- acid amides from the decomposition of albumin, 1885, A., 581.
- amido-acids formed from albumin, 1885, A., 916.
- estimation of asparagine and glutamine, 1885, A., 935.
- formation of sulphates in germination, 1885, A., 1153.
- nitrogenous constituents of pumpkin sprouts, 1886, A., 173.
- quantitative estimation of nitrogen in plants, 1886, A., 955.
- presence of choline in germinating plants, 1887, A., 747.
- are nitrates formed in the organisms of higher plants? 1887, A., 859.
- detection of saccharose in vegetable substances, 1888, A., 621.
- some nitrogenous constituents of the seedlings of *Soja hispida*, 1888, A., 868.
- changes which the nitrogenous matter in silage undergoes, 1888, A., 1329.
- reserve substances in evergreen leaves, 1889, A., 540.
- chemical composition of the membrane of plant cells, 1889, A., 916; 1890, A., 1456; 1891, A., 238, 1178; 1892, A., 907.
- presence of betaine and choline in the seeds of *Vicia sativa*, 1889, A., 1029.
- effect of feeding on the secretion of amidic substances, 1890, A., 278.
- formation of cane sugar in etiolated plant shoots, 1890, A., 282.
- cholesterol in plants, 1890, A., 1457.
- isocholesterol, 1890, A., 1474.
- nitrogenous bases in seeds, 1891, A., 490.
- formation of nitrogenous organic bases by the decomposition of proteids in the vegetable organism, 1891, A., 856.
- occurrence of guanidine in plants, 1892, A., 808.
- test for guanidine, 1892, A., 926.
- $\beta$ -galactan, 1892, A., 1171.
- Schulze, Ernst** (Zurich), and **Johann Barbieri**, formation of phenylamidopropionic acid by the action of stannous chloride on proteids, 1883, A., 1122.
- phenylamidopropionic and phenylamidovaleric acids from lupine shoots, 1883, A., 1122.
- Schulze, Ernst** (Zurich), and **Emil Bosshard**, glutamine, 1883, A., 638.
- optical behaviour of certain amido-acids, 1881, A., 1306; 1885, A., 759.
- occurrence of glutamine in the sugar-beet, 1885, A., 759; 1886, A., 105.
- allantoin, asparagine, hypoxanthine, and guanine as plant constituents, 1885, A., 1007.
- a new nitrogenous constituent of plants, 1886, A., 157.
- amido-acids resulting from the decomposition of proteids, 1886, A., 373.
- Schulze, Ernst** (Zurich), and **Elia Kisser**, decomposition of proteids in green plants kept in the dark, 1889, A., 642.
- Schulze, Ernst** (Zürich), and **Arthur Likiernik**, preparation of lecithin from plant seeds, 1891, A., 413.
- constitution of leucine, 1891, A., 681.
- formation of carbamide by the decomposition of arginine, 1891, A., 1521.
- Schulze, Ernst** (Zurich), and **Ernst Nägeli**, phenylamidopropionic acid obtained from the decomposition of proteids, 1887, A., 369.
- Schulze, Ernst** (Zurich), and **Adolf von Planta**, pollen of *Corylus Avellana* and *Pinus sylvestris*, 1886, A., 736.
- Schulze, Ernst** (Zurich), and **Theodor T. Seliwanoff**, presence of saccharose in unripe potatoes, 1888, A., 623.
- Schulze, Ernst** (Zurich), and **Eduard Steiger**, new alkaloid from lupines, 1886, A., 725.
- $p$ -galactin, 1887, A., 460.
- occurrence of an insoluble carbohydrate in red clover and lucerne, 1889, A., 643.
- lecithin in the seeds of plants, 1889, A., 645.
- non-nitrogenous reserve substances of the seeds of *Lupinus luteus*, 1890, A., 284.
- Schulze, Ernst** (Zurich), **Eduard Steiger**, and **Walter Maxwell**, vegetable cell membranes, 1890, A., 283.

- Schulze, Ernst** (Zurich), *Eduard Steiger*, and *Walter Maxwell*, chemical composition of some leguminous seeds, 1891, A., 1541.
- Schulze, Ernst** (Zurich). See also *Georg Lunge*, *Victor Meyer*, *Adolf von Planta*, *Bruno Röse*, *Eduard Steiger*.
- Schulze, Ernst** (Bonn). See *Otto Wallach*.
- Schulze, Hans Oscar**, arsenious sulphide in aqueous solution, 1883, A., 295.
- antimonious sulphide in aqueous solution, 1883, A., 784.
- phosphorus subsulphide, 1883, A., 1049.
- pyrosulphates, 1885, A., 216.
- action of sulphurous acid on selenious acid, 1886, A., 302.
- minerals from Tarapaca, 1891, A., 1436.
- Schulze, Julius**, preparation of ammonium thiocyanate, 1883, A., 1074.
- preparation of acetamide and other amides of the acetic series, 1883, A., 1088.
- Schulze, Julius**. See *Hermann Alt*.
- Schulze, K. E.**, occurrence of diphenyl in coal-tar oil, 1884, A., 1030.
- $\alpha$ - and  $\beta$ -methylnaphthalene, 1884, A., 1183, 1184.
- a simple method of estimating halogens in the side chains of aromatic compounds, 1884, A., 1422.
- a simple method of obtaining thiotolene and thioxylene, 1885, A., 251.
- phenols of high boiling point contained in coal-tar, 1885, A., 667.
- method of obtaining thiophene and its homologues, 1885, A., 763.
- occurrence of benzoic acid in coal-tar oils, 1885, A., 792.
- 1:2:4:5-durene, 1886, A., 232.
- $\beta$ -hydroxanthranole, 1886, A., 247.
- anthrapinacone, 1886, A., 248.
- constituents of coal-tar, 1887, A., 471.
- titration of pyridine bases, 1888, A., 539.
- Schulze, Ludwig**, elementary composition of wheat-starch, 1884, A., 281.
- Schulze, W.**, derivatives of *m*-amido-benzamide, 1889, A., 778.
- Schumann, Arno**, action of titanium chloride on phenol, 1888, A., 679.
- Schumann, J.**, amalgams, 1891, A., 986.
- Schumann, Max**, compressibility of aqueous chloride solutions, 1887, A., 696.
- Schumann, Otto**, boiling-point and pressure, 1885, A., 1176.
- Schumoff, G.**, nitrocymene and azocymene, 1888, A., 469.
- Schunck, Edward**, constitution of chlorophyll, 1884, A., 666; 1885, A., 1241; 1887, A., 972; 1889, A., 279.
- supposed identity of rutin and quercitrin, 1888, T., 262; P., 12.
- Schuppe, Nicolai Carl**, chemical composition of woody tissues, 1884, A., 285.
- Schurz, Heinrich**. See *Karl Bohland*.
- Schuster, Arthur**, atmospheric dust, 1884, A., 225.
- electric discharge through gases, 1888, A., 396.
- Schuster, Fr.**, action of benzaldehyde on 2:6-lutidine, 1892, A., 1860.
- Schuster, Maximilian Josef**, braunite from Jakobsberg, 1888, A., 428.
- albite of the Kásbek, 1888, A., 432.
- beryl from the Ifinger, 1888, A., 432.
- Schuster, Maximilian Josef**, and (*Baron*) *Heinrich von Foulon*, andesine from Bodenmais, 1890, A., 344.
- Schwabe, Paul**, constituents of the bark of *Rhamnus Frangula*, 1889, A., 68.
- Schwackhöfer, Franz**, calorimetric estimation of fuels, 1885, A., 691.
- Schwaderer, Richard**. See *Eugen Tellmann*.
- Schwalb, Carl Friedrich Hermann**, non-acid constituents of beeswax, 1885, A., 962; 1887, A., 124.
- Schwartz, August**, reciprocal action between hæmoglobin and protoplasm, 1889, A., 629.
- Schwartz, Charles**. See *Emilio Nölting*.
- Schwartz, Frank**, morphological and chemical composition of protoplasm, 1888, A., 983.
- Schwartz, York**, estimation of lead in tin alloys, 1888, A., 992.
- hexamethylenamine, 1891, A., 818.
- Schwartz, York**. See also *Karl Krant*.
- Schwarz, Alois**, nature of hop mildew and means of counteracting it, 1884, A., 629.
- Schwarz, Anton**, Pasteurising beer, 1881, A., 527.
- Schwarz, C.**, estimation of potassium chlorate in organic mixtures, 1886, A., 179.
- detection of iodine in urine, 1888, A., 626.
- detection of sugar in urine, 1889, A., 85.
- detection of chloral or chloroform in liquids, 1889, A., 85.
- Schwarz, Carl**, Roman alunite, 1885, A., 807.
- Schwarz, Carl Leonhard Heinrich**,  $\alpha$ -,  $\beta$ -, and  $\gamma$ -pyrocresols, 1883, A., 204.

- Schwarz, Carl Leonhard Heinrich**, lecture experiment illustrating the combination of zinc with sulphur, 1883, A., 292.  
 — modification of V. Meyer's vapour density apparatus, 1883, A., 899.  
 — so-called pyroceresol, 1884, A., 79.  
 — preparation of hydrogen and carbonic oxide, 1886, A., 660.  
**Schwarz, Paul**,  $\beta$ -picoline, 1891, A., 1092.  
**Schwarz, Paul W.** See *Walter M. Stein*.  
**Schwarze, Reinhold**, polymerisation of nitriles: cyanalkines, 1890, A., 1158.  
**Schwarzenbach, and Leo Kritchewsky**, palladium-hydrogen as a reagent, 1886, A., 1071.  
**Schwebel, Paul Heinrich**, specific rotatory power of salts of nicotine, 1883, A., 354.  
**Schwechten, Eduard**, isomeric dichlorobenzaldehydes and naphthols derived therefrom, 1890, A., 619.  
**Schwechten, Eduard**. See also *Hugo Erdmann*.  
**Schweinitz, Emile Alexander von**, octylthiophen, 1886, A., 535.  
 — octylbenzene, 1886, A., 540.  
 — ptomanes formed in the cultivation of swine fever bacillus, 1891, A., 476.  
**Schweissinger, Otto**, detection of atropine, 1885, A., 448.  
 — iodised tannic acid as a reagent, 1885, A., 691.  
**Schweitzer, Hugo**. See *August Bernthsen, Adolph Claus*.  
**Schweitzer, Rudolf**, acetylation of aromatic substitution products, 1891, A., 684.  
 — naphthylglycollic acid and  $\beta$ -naphthyl methyl ketone, 1891, A., 729.  
 — acetyliodobenzene and iodomandelic acid, 1891, A., 830.  
 — boiling-points of some compounds of high molecular weight, 1891, A., 1240.  
**Schweitzer, Wilh.**, ethyl- $\mu$ -phenylenediamine, 1886, A., 347.  
 — safranin, 1886, A., 348.  
 — derivatives of hydroxyquinol, 1889, A., 389.  
**Schweizer, Albert**, arachidic acid and nondecylic acid, 1885, A., 508.  
**Schwenk, O.** See *L. Böhm*.  
**Schwerin-Lowitz, (Graf) von**, manuring experiments, 1884, A., 686.  
**Schwicker, Alfred**, sulphites and thio-sulphates, 1889, A., 942.  
**Schwicker, Alfred**, use of iodic and bromic acids in quantitative analysis, 1892, A., 1027.  
 — new reagent for acetone, 1892, A., 1032.  
**Schydowski**. See *Schidlowski*.  
**Seichilone, Salvatore**, allyloxybenzoic acids, 1883, A., 335.  
**Seichilone, Salvatore, and Antonio Denaro**, mannitine, a new alkaloid from mannitol, 1883, A., 50.  
**Seichilone, Salvatore, and Oriste Magnani**, distillation of strychnine with zinc dust, 1883, A., 99.  
**Sclavo, A., and B. Gosio**, new fermentation of starch, 1891, A., 1284.  
**Scofield, Harold**. See *John Deery Hayeraft*.  
**Scott, Alexander**, composition of water by volume, 1883, A., 411.  
**Scott, Alexander**. See also *James Dewar*.  
**Scott, (Major-General) Henry Young Darracott**, obituary notice of, 1884, T., 619.  
**Scovell, Melvell Amasa**, estimation of nitrates by Kjeldahl's method, 1889, A., 308.  
**Scovell, Melvell Amasa, and Albert Edward Menke**, composition of potatoes, 1887, A., 747.  
**Souder, Frank**. See *(Sir) Henry Enfield Roscoe*.  
**Scully, John**, effect of bismuth on the ductility of silver, 1888, A., 108.  
**Sourati-Manzoni, Giuseppe**, action of aluminium sulphite on manganic hydroxide, 1884, A., 700.  
**Seamon, William H.**, fergusonite from Brindletown, Burke Co., N. Carolina, 1883, A., 32.  
 — analysis of a niobate which has been improperly called euxonite, from Mitchell Co., N. Carolina, 1883, A., 32.  
 — supposed meteorite found in Augusta Co., Virginia, 1883, A., 37.  
 — native palladium-gold from Taguail, Brazil, 1883, A., 160.  
 — alloys of gold, silver, etc., found in grains along with the native platinum of Columbia, 1883, A., 160.  
 — analysis of a mineral allied to orthite, 1883, A., 164.  
 — zinciferous clays of south-west Missouri, 1890, A., 573.  
**Seaton, Edward Cox, and Henry Droop Richmond**, estimation of quinine, 1891, A., 134.  
**Sebelien, John**, proteids of cows' milk, 1885, A., 1000.

- Sebelien, John**, influence of the concentration of the cream in butter making, 1889, A., 300.  
 — estimation of proteids with special reference to milk, 1889, A., 450; 1891, A., 951.  
 — peptone and similar substances, 1890, A., 182.
- Sedlitzky, N. Ludwig**, solubility of salts of isovaleric, methylethylacetic, and isobutyric acids, 1888, A., 250.
- Sée, Germain**, sparteine sulphate, 1886, A., 273.
- Sée, Germain, and Bochefontaine**, physiological action of cinchonamine, 1885, A., 571, 682.
- Seeburger, Ludwig**. See **Eugen Bamberger**.
- Seegen, Josef**, peptone the source of sugar in the liver, 1883, A., 818.  
 — sugar in blood: its source and significance, 1885, A., 411.  
 — conversion of peptone by the liver, 1886, A., 382.  
 — sugar in the blood with reference to nutrition, 1886, A., 382; 1887, A., 66.  
 — non-fermentable reducing substance in blood, 1886, A., 383.  
 — presence of sugar in urine on a diet of cane sugar, 1886, A., 383.  
 — power of the liver to form sugar from fat, 1887, A., 67.  
 — changes in carbohydrates in the alimentary canal, 1888, A., 171.  
 — from what material does the liver form sugar? 1888, A., 172.  
 — estimation of sugar in blood, 1891, A., 248; 1892, A., 743.
- Seelig, Eduard**, trichlorotoluenes, 1885, A., 769.  
 — chlorination of toluene, 1887, A., 362.  
 — action of chlorine and bromine on benzyl acetate, 1889, A., 598.  
 — displacement of halogens by the amido-group, 1891, A., 36.  
 — derivatives of glycerol, 1892, A., 288.
- Seeling, Ludwig**, feeding cattle with lupines, 1884, A., 1211.
- Seemann, B.**, preparation of soaps from oil seeds, 1885, A., 1023.
- Seger, H.**, analysis of clay from Löthain, 1883, A., 627.  
 — influence of titanio acid on the fusibility of refractory earths, 1884, A., 784.
- Seibert, Richard**. See **Adolph Claus**.
- Seidel, Max**, oxidation of mercury diphenyl with potassium permanganate, 1884, A., 1135.
- Seidel, Max**, action of ethyl chloro-carbonate on phenyl- and diphenylthiocarbamide, 1886, A., 357.
- Seidel, Paul**, formation of triphenodioxazine by the oxidation of *o*-amidophenol, 1890, A., 490.  
 — derivatives of carbonyl-*o*-amidophenol and of thiocarbonyl-*o*-amidophenol, 1891, A., 53.  
 — fulminuric acid, 1892, A., 690.  
 — sulphonic acid obtained from 1:4-aminonaphthol, 1892, A., 721.  
 — fulminuric and deoxyfulminuric acids, 1892, A., 1417.
- Seidler, Paul**. See **Carl Theodor Liebermann**.
- Seidmann, S.** See **Stanislaus von Kostanecki**.
- Seifert, Rich.**, diiodoquinone and diiodoquinone-chlorimide, 1884, A., 431.  
 — formation of amines from the amides of the fatty series, 1885, A., 963.  
 — action of carbonic anhydride on sodium acetanilide: new synthesis of dicarboxylic acids, 1885, A., 983.  
 — action of sodium mercaptide on phenyl salts, 1885, A., 1057.  
 — behaviour of aniline with substituted hydroxybenzoic acids at a high temperature, 1890, A., 490.
- Seissl, Josef**, ketonic acids, 1889, A., 489.
- Seitz, Fr.**,  $\beta$ -naphthaquinaldine, 1889, A., 525.
- Seitz, Otto**, halogenated amines of the fatty series, 1891, A., 1472.
- Selden, Charles C.** See **Richard Anschütz**.
- Seligmann, Gustav**, minerals from Switzerland, 1886, A., 126.
- Selitreney, Leon**, decomposition of gelatin by anaërobic ferments, 1890, A., 513.
- Seliwanoff, Theodor T.**, reaction for fruit sugar, 1887, A., 459.  
 — composition of etiolated potato sprouts, 1888, A., 624.  
 — formation of cane sugar from starch, 1889, A., 1132.
- Seliwanoff, Theodor T.** See also **Ernst Schulze**.
- Sell, Eugen**, amyl alcohol in brandy from different parts of the German Empire, 1890, A., 1388.
- Sell, William James**, series of salts containing chromium and urea, 1883, A., 178.  
 — volumetric estimation of chromium, 1887, A., 303.  
 — base containing chromium and carbamide, 1889, A., 695.

- Sell, *William James*. See also *Thomas Hill Easterfield*.
- Sella, *Alfonso*, sellaites, 1888, A., 657.
- native nickel in river sand, 1891, A., 526.
- Selle, *Friedrich*, alkaloids of the root of *Stylophorum diphyllum*, 1890, A., 649.
- alkaloids of *Chelidonium majus*, 1891, A., 229.
- Sellin, *A. W.*, Paraguay tea, 1884, A., 354.
- Selmons, *F.*, action of sulphurous acid on periodic acid, 1888, A., 338.
- Sembritzki, *Ferdinand*, succinylamidoxime and its derivatives, 1888, A., 935.
- succinenediamidoxime, 1890, A., 125.
- Semenoff, *Basil M.*, fumaric and maleic acids, 1889, A., 1146.
- Semmler, *Friedrich Wilhelm*, ethereal oil of *Allium ursinum*, 1887, A., 1089.
- Indian geranium oil, 1890, A., 951; 1891, A., 30, 323.
- nutmeg oil and mace oil, 1890, A., 1150.
- Indian geranium oil: oxidation of geraniol, 1891, A., 30.
- ethereal oils contained in asafoetida, 1891, A., 322, 464.
- Indian geranium oil: geranialdehyde: geranic acid, 1891, A., 323.
- olefinic constituents of ethereal oils, 1891, A., 539.
- anhydrogeraniol, olefinic terpenes, and the formation of closed carbon chains, 1891, A., 655.
- myristicin and its derivatives, 1892, A., 311.
- Semmler, *Friedrich Wilhelm*, and *Ferdinand Tiemann*, oxygen compounds of ethereal oils, 1892, A., 868.
- Semmola, *Eugenie*, new experiments in electrolysis, 1883, A., 540.
- secondary electrolysis, 1886, A., 654.
- Semmons, *William*, enargite from Montana, 1887, A., 707.
- Semper, *August*. See *August Bernthsen*.
- Sempotowski, *Leo*, isomeric derivatives of ethylbenzene, 1890, A., 54.
- Senator, *Hermann*, action of heat on the animal system, 1884, A., 1393.
- Senderens, *J. B.*, action of sulphur on ammonia and metallic bases in presence of water, 1887, A., 327.
- action of non-metals on solutions of silver and copper nitrates, 1887, A., 331.
- action of metals on dilute solutions of silver nitrate, 1887, A., 550.
- new hydrate of potassium hydrogen sulphate, 1890, A., 450.
- Senderens, *J. B.*, action of sulphur on metallic solutions, 1892, A., 770.
- Senderens, *J. B.* See also *Edouard Filhol*, *Paul Sabatier*.
- Senf, *Adolf*, cyananiline and some of its derivatives, 1885, A., 1060.
- cyananiline, cyanphenylhydrazine, etc., 1887, A., 928.
- Senff, *Max Gustav*, dry distillation of wood, 1885, A., 619.
- Senff, *Paul*, *m*-benzyltoluene, *m*-tolyl phenyl ketone, and *m*-benzoylbenzoic acid, 1884, A., 427.
- Senger, *Oscar*, absinthin from *Artemisia Absinthium*, 1892, A., 1240.
- Senhofer, *Carl*, seicite from the quartz-phyllite of Wiltau, 1885, A., 736.
- Senier, *Alfred*, formyl and thioformyl compounds obtained from aniline, etc., 1885, T., 762.
- contributions to the history of cyanuric chloride and cyanuric acid, 1886, T., 311; P., 136.
- action of hexabromacetone on urea, 1886, T., 693, 743.
- Senier, *Harold*, vesicating principle of croton-oil, 1884, A., 909.
- purgative principle of croton-oil, 1884, A., 947.
- Seńkowski, *Michael*, derivatives of *m*-methylphenylacetic acid, 1889, A., 255.
- trimethylphenylmethane, 1890, A., 1296.
- isomeric change in the synthesis of aromatic amines and phenols, 1892, A., 44.
- Serda, *R.*, and *J. Wiedemann*, succinamic acid, 1891, A., 175.
- Serno, nitric acid in plants, 1890, A., 1021.
- Serrant, *E.*, *o*-hydroxybenzenesulphonic acid, 1885, A., 1016; 1886, A., 707.
- aseptol, 1885, A., 1166.
- rosolene, 1886, A., 185.
- Sestini, *Fausto*, preparation of thio-carbonates for the destruction of phylloxera, 1883, A., 405.
- relations between atomic weight and physiological function, 1885, A., 1150.
- composition of stable manure, 1888, A., 1332.
- properties of some beryllium salts and of the corresponding aluminium compounds, 1891, A., 151.
- Sestini, *Fausto*, and *Raffaello Campani*, detection of quinine and phenacetin in urine, 1892, A., 665.
- Sestini, *Fausto*, and *Amos Diococo*, maize heads as fodder, 1885, A., 1087.

- Sestini, Fausto**, and **Angiolo Funaro**, the sum of mean temperatures in relation to the cultivation of corn and maize, 1884, A., 672.
- Sestini, Fausto**, and **Leone Sestini**, ammoniacal fermentation of uric acid, 1890, A., 1399.
- Sestini, Riccardo**. See **Hugo Schiff**.
- Šetlík, Brětislav**, preparation of nitrogen tetroxide, 1888, A., 913.
- technical analysis of commercial sodium sulphide, 1890, A., 84.
- estimation of sulphuric acid in fuming sulphuric acid, 1890, A., 414.
- analysis of wolframite and scheelite, 1890, A., 420.
- Setschenoff, Ivan M.**, constitution of salt solutions inferred from their behaviour to carbonic anhydride, 1889, A., 1044.
- analogies between solutions of a gas and of a salt, 1892, A., 397.
- Seubert, Karl Friedrich Otto**, analysis of gaseous halogenated hydrocarbons, 1886, A., 181.
- action of potassium chlorate on chloral hydrate, 1886, A., 331.
- decomposition of trichloroacetic acid, etc. by water, 1886, A., 332.
- chlorostannic acid, 1887, A., 554.
- manganese benzoate, 1887, A., 582.
- benzyl chloracetates, 1888, A., 456.
- atomic weight of osmium, 1888, A., 921; 1891, A., 884.
- atomic weight of platinum, 1888, A., 1043; 1891, A., 885.
- physical constants of halogen substitution products of benzene and toluene, 1890, A., 2.
- atomic weights of the platinum metals, 1891, A., 885.
- basic zinc sulphite, 1891, A., 1157.
- Seubert, Karl Friedrich Otto**, and **Karl Kobbé**, double salts of rhodium, 1890, A., 1383.
- atomic weight of rhodium, 1891, A., 646.
- Seubert, Karl Friedrich Otto**, and **William Pollard**, vapour density and melting point of cyanogen iodide, 1890, A., 949.
- melting point and crystalline form of aluminium chloride, 1891, A., 1426.
- Seubert, Karl Friedrich Otto**, and **Gustav Bauter**, copper oxalate and cuprammonium oxalate, 1892, A., 1431.
- Seubert, Karl Friedrich Otto**, and **Alfred Schmidt**, action of magnesium on chlorides, 1892, A., 776.
- Seubert, Karl Friedrich Otto**, and **Ernst Schürmann**, bromostannic acid, 1887, A., 554.
- Seubert, Karl Friedrich Otto**. See also **Julius Lothar Meyer**.
- Seucker, P.** See **J. Moritz**.
- Seutter, Erhard von**, additive product of papaverine with *o*-nitrobenzyl chloride, 1889, A., 281.
- additive compound of papaverine with phenacyl, 1889, A., 418.
- Sewall, Henry**, preventive inoculation of rattlesnake venom, 1888, A., 1326.
- Seward, (Miss) Margaret (Mrs. McKillop)**. See **William Henry Penderbury**.
- Seyberlich, Alfred**, and **Alexander Trampedach**, saccharification of starch by nitric acid, 1887, A., 792.
- Seyda, Anton**, sulphonic acids of quinol, 1883, A., 1115.
- detection and estimation of organic and inorganic poisons in corpses, 1891, A., 117.
- Seyewitz, Alphonse**, *m*-phenylenediamine from resorcinol, 1890, A., 245.
- dihydroxydiphenylamine, 1890, A., 369.
- action of phenylhydrazine on phenols, 1892, A., 49.
- Seyewitz, Alphonse**. See also **Carl Theodor Liebermann**.
- Seyfert, Friedrich**, composition of iodide of starch, 1888, A., 1050.
- estimation of starch by baryta, 1888, A., 1134.
- estimation of phosphoric acid in the presence of ammonium citrate, 1889, A., 548.
- Seyfferth, Eugen**, derivatives of picolinic and nicotinic acids, 1887, A., 157.
- Seyfriedsberger, Gerard Joseph**, mercury sulphates from a furnace at Idria, 1890, A., 710.
- Seyler**. See **Hoppe-Seyler**.
- Shamel, C. H.**, eupatorin, 1892, A., 1103.
- Shand, Alexander**, electrolysis of copper and zinc, 1887, A., 1000.
- Sharpless, Fred Fraley**. See **Alfred Church Lane**.
- Shaw, Saville**, on the preparation of the pentathionates, 1883, T., 351.
- Shaw, William Napier**, atomic weights of silver and copper, 1887, A., 444.
- theory of solution, 1891, A., 791.
- Shawcross, Henry Joseph**, new photographic copying paper, 1886, A., 106.
- Shearer, A.** See **Wm. B. Giles**.
- Shogog, Thomas Alexander**. See **Walter Ernest Adeney**.

- Sheldon, Samuel**, alternate currents and electrolytes, 1888, A., 769.
- Shenstone, William Ashwell**, the alkaloïds of *Nux vomica*. No. II. On brucine, 1883, T., 101; 1885, A., 276.
- a modified Liebig's condenser, 1883, T., 123.
- Jafferabad aloes, 1883, A., 480.
- strychnine, 1885, T., 139; P., 5.
- crystalline tricupric sulphate, 1885, T., 375; P., 51.
- modified Bunsen burner, 1885, T., 378; P., 51.
- safety taps, 1887, P., 108; discussion, P., 108.
- improved vacuum joints and taps, 1890, T., 958; P., 140.
- adhesion of mercury to glass in the presence of halogens, 1892, T., 452; P., 70.
- Shenstone, William Ashwell**, and **Charles Ridgeway Beek**, platinous chloride and its use as a source of chlorine, 1892, T., 445; P., 70.
- Shenstone, William Ashwell**, and **James Tudor Cundall**, ozone from pure oxygen: its production and its action on mercury with a note on the silent discharge of electricity, 1887, T., 610; P., 75.
- volumetric relations of ozone and oxygen, 1887, T., 625; P., 76; discussion, P., 76.
- the influence of temperature on the composition and solubility of hydrated calcium sulphate and of calcium hydroxide, 1888, T., 544; P., 51.
- Shenstone, William Ashwell**. See also **William Augustus Tilden**.
- Shepard, Charles Upham, senior**, two new minerals, monetite and monite, with a notice of pyroclastic, 1883, A., 1063.
- corundum gems in India, 1884, A., 23.
- meteoric iron from Georgia, 1884, A., 30.
- Shepard, Charles Upham, junior**, meteoric iron from Trinity Co., California, 1886, A., 320.
- meteorite of Fomatlán, Jalisco, Mexico, 1886, A., 321.
- Shepherd, William Frederick John**. See **Wyndham Rowland Dunstan**.
- Shepherd, Harcourt H. B.**, estimation of nitrogen in mixtures containing nitrogenous organic matter, ammoniacal salts, and nitrates, 1883, A., 635.
- use of ammonium citrate in the analysis of precipitated phosphate, 1886, A., 579.
- Shepherd, Harcourt H. B.**, alcohol method for estimating iron and aluminium oxides in phosphate, 1891, A., 1138.
- Sher, S.**, relation between the total sulphuric acid of the urine and that existing as ethereal sulphates, in rest and work, 1889, A., 430.
- Sherrington, Charles Scott**. See **Sydney Monckton Copemann**.
- Shields, John**, preparation and properties of ethyl hydrogen fumarate and ethyl hydrogen maleate, 1891, T., 736; P., 123.
- conductivity of lead dioxide, 1892, A., 672.
- occlusion of hydrogen by lead, 1892, A., 942.
- Shimer, Porter W.**, titanium carbide in pig-iron, 1887, A., 703.
- estimation of phosphorus in iron and steel, 1889, A., 76.
- Shimidzu, Tetsukichi**. See **Edward Divers**.
- Shimosé, Masachika**. See **Edward Divers**.
- Shimoyama, Junichirô**, estimation of the quinine alkaloids, 1885, A., 845.
- estimation of quinine, 1885, A., 935.
- glutinous rice, 1888, A., 1127.
- chemistry of buchu leaves, 1888, A., 1205.
- Shinjo, S.** See **Oscar Kellner**.
- Shore, Lewis Erle**, fate of peptone, 1891, A., 479.
- effect of peptone on the clotting of blood and lymph, 1891, A., 481.
- Short, Fred Garland**, analysis of milk, 1887, A., 751.
- estimation of fat in milk, 1889, A., 1037.
- Short, Fred Garland**. See also **Henry P. Armsby**.
- Short, Frederick William**. See **Wyndham Rowland Dunstan**.
- Shutt, Frank Thomas**, asbestos method of milk analysis, 1891, A., 1299.
- Babcock's method for estimating fat in milk, 1891, A., 1559.
- analyses of apple-tree leaves, 1892, A., 1372.
- Siboni, Giuseppe**, condensation products of nitrobenzaldehydes with hydroxy-benzenes, 1892, A., 621.
- Sickenberger, E.**, natural cement from Cairo, 1891, A., 26.
- Sidersky, D.**, separation of strontium and calcium, 1883, A., 508; 1884, A., 497.
- apparatus for estimating carbonic anhydride in carbonates, 1887, A., 999.

- Sidersky, D.**, volumetric estimation of sulphates, 1889, A., 306.  
 — indirect analysis of the sugar-beet, 1889, A., 314.  
 — apparatus for drying substances in a partial vacuum, 1890, A., 1185.  
**Sidgwick, (Mrs.) Eleanor Mildred.** See (Lord) Rayleigh.  
**Sieben, J.**, composition of starch syrup, and of honey, 1885, A., 693.  
**Sieber, Josef**, diethylenediamine, 1890, A., 476.  
**Sieber, Josef.** See also **Albert Ladenburg**.  
**Sieber, (Frau) Nadina, and A. Smirnow**, behaviour of the three isomeric nitrobenzaldehydes in the animal organism, 1887, A., 684.  
**Sieber, (Frau) Nadina.** See also **Marcellus Nencki**.  
**Siebert, Carl**, constituents of *Scopolia atropoides*, 1890, A., 658.  
 — constituents of *Anisodus luridus*, 1890, A., 658.  
 — lupanine, the alkaloid of the blue lupine, 1892, A., 223.  
**Siebert, Hermann.** See **Carl Adam Bischoff**.  
**Siebold, Louis**, estimation of hydrocyanic acid, 1885, A., 600.  
**Siedel, Joh.**, amount of fat and dry matter in the milk of some hill-breed cows, 1891, A., 1275.  
**Sieder, Ludwig.** See **Otto Fischer**.  
**Siegfied, Moritz**, action of aniline on benzil, 1892, A., 1470.  
**Siegfied, Moritz.** See also **Karl Auwers**.  
**Siegfried, Max**, oxidation of phenol by nitrobenzene, 1885, A., 1060.  
 — ethylenelactic acid, 1890, A., 128.  
 — decomposition products of proteids, 1891, A., 590.  
 — hæmoglobin, 1891, A., 845.  
**Siegfried, Max.** See also **Johannes Wislicenus**.  
**Sieker, F. A., and Edward Kremers**, menthene, 1892, A., 1479.  
**Siemaschko, Josef von**, meteorite of Ochansk, 1891, A., 532.  
**Siemens, (Sir) Charles William**, obituary notice of, 1884, T., 624.  
**Siemens, Ernst Werner von**, luminosity of flame, 1883, A., 539.  
 — a unit for the measurement of light, 1885, A., 1.  
**Siemiradzki, Josef von**, anorthite rocks from St. Thomas, 1886, A., 993.  
**Sienecki, Anton.** See **Carl Adam Bischoff**.  
**Sievers, W.**, crystallised salts of mercury, 1888, A., 419.  
**Siewert, Max. W.**, oxalic acid in potatoes and in malt, 1883, A., 232.  
 — influence of cotton-seed cake on the secretion of milk, 1884, A., 669.  
 — creaming by centrifugals on various systems, 1885, A., 1022.  
 — manuring rye with basic slag, etc., 1887, A., 294.  
 — influence exerted by sodium chloride on the digestion of albumin in fodder, 1888, A., 859.  
**Sigalas, Clément.** See **Félix Jolyet**.  
**Sighicelli, C.**, physiological action of cocaine, 1888, A., 312.  
**Sigmund, Wilhelm**, fat decomposing ferments in plants, 1890, A., 1453; 1892, A., 1261.  
**Silber, Paul G.** See **Giacomo Luigi Ciamician**.  
**Silberstein, Heinrich**, diazo-derivatives of *s*-tribromaniline, 1883, A., 660.  
 — betaines, 1885, A., 160.  
**Silberstein, Heinrich.** See also **Valerius von Hemilian**.  
**Silliman, Benjamin, junior**, martite of the Cerro de Mercado, or Iron Mountain of Durango, Mexico, and iron ores of Sinaloa, 1883, A., 162.  
 — turquoise of New Mexico, 1883, A., 431.  
**Silow, P.**, alloys, 1889, A., 933.  
**Silva.** See **Ferreira da Silva**.  
**Silva, Roberto Duarte da**, synthesis of diphenylethane from ethylidene chloride, 1884, A., 1356.  
 — formation of *n*-propylbenzene, 1885, A., 972.  
 — aromatic hydrocarbons, 1885, A., 1054.  
**Simand, Ferdinand**, estimation of tannin, 1883, A., 391.  
 — examination of tannin extracts, 1884, A., 931.  
**Simand, Ferd., and B. Weiss**, investigation of tannin extracts, 1886, A., 1084.  
**Simand, Ferd.** See also **B. Kohnstein**.  
**Simonini, Angelo**, action of iodine on the silver salts of fatty acids, 1892, A., 1801.  
**Simon-Legrand**, old sugar-beet seeds as cattle-food, 1884, A., 631.  
**Simon-Thomas, J. C. A.**, preparation and nitration of dibenzylmalonic acid, 1888, A., 479.  
 — propylnitramine and isopropylnitramine, 1891, A., 167.  
 — attempted synthesis of nitramine of the quinoline group, 1892, A., 725.  
**Simpson, James.** See **Edward William Parnell**.

- Sinclair, W.** See *William Henry Perkin, junior.*
- Sindall, R. W.,**  $\beta$ -bromonaphthalene-sulphonic acid, 1889, P., 118.
- Sinibaldi, J.,** estimation of oxygen, carbonic anhydride, and carbonic oxide, 1888, A., 322.
- Sipőcz, Lúthwig,** analyses of scapolite, 1883, A., 440.
- rare minerals from Hungary, 1886, A., 312.
- Sisley, Paul.** See *Léo Vignon.*
- Sivén, Walter Osswald.** See *Edvard Immanuel Hjelt.*
- Siwoloboff, Alexander W.,** new anhydride of mannitol, 1885, A., 367.
- determination of the boiling-points of small quantities of liquids, 1886, A., 497.
- mannitol dichlorhydrin, 1886, A., 681.
- Sjögren, Anton,** ganomalite, 1884, A., 972.
- tephroite, 1884, A., 972.
- katapleite, 1886, A., 34.
- place of spodiosite in the mineral system, 1887, A., 346.
- sarkinite, a new manganese arsenate, 1887, A., 346.
- periclase from Nordmarken, 1889, A., 216.
- allacite from Långban, 1889, A., 217.
- Sjögren, Anton,** and *Carl Herman Lundström,* barysite, a new lead silicate, 1890, A., 456.
- Sjögren, Sten Anders Hjalmar,** composition of minerals of the chondrodite group, 1883, A., 436.
- occurrence of gedrite as an essential constituent of certain rocks, 1884, A., 274.
- manganese arsenates from Nordmarken in Wermland, 1885, A., 959.
- galena with octahedral cleavage from Wermland, 1886, A., 21.
- opal from Nagasaki, Japan, 1886, A., 27.
- physical properties of graphite, 1886, A., 774.
- the Transcasian naphtha district, 1890, A., 115.
- Sjöquist, John,** new method of estimating free hydrochloric acid in the stomach contents, 1889, A., 302.
- Sjöquist, John.** See also (*Graf*) *Karl Axel Hampus Mörner.*
- Sjöström, A.,** Marchand's method for estimating fat in milk, 1891, A., 508.
- Skalweit, Johan Alfred,** estimation of glycerol in wine and beer, 1887, A., 306.
- Skalweit, Johan Alfred,** butter testing, 1887, A., 308.
- Skinner, Sidney,** phosphonium chloride, 1887, A., 882.
- the physical properties of solutions of some metallic chlorides, 1892, T., 339; P., 27.
- Skinner, Sidney,** and *Siegfried Ruhemann,* action of phenylhydrazine on urea and some of its derivatives, 1888, T., 550; P., 54; A., 274.
- citric and aconitic acids, 1889, T., 235; P., 54.
- Skinner, Sidney.** See also *Siegfried Ruhemann.*
- Skraup, Zdenko Hanns,** syntheses in the quinoline series, 1883, A., 92.
- constitution of quinine and quinidine, 1884, A., 86; 1889, A., 626.
- new method of preparing phenanthroline, 1885, A., 393.
- benzoylcegonine and its conversion into cocaine, 1885, A., 1249.
- *p*-quinanisol, 1886, A., 79.
- colour reactions for determining the constitution of the pyridine-, quinoline-, and allied-carboxylic acids, 1886, A., 898.
- constitution of cinchonine, 1887, A., 164.
- constitution of the cinchona alkaloids, 1889, A., 281, 626.
- constitution of quinine, 1889, A., 626.
- constitution of glucose, 1889, A., 1130.
- benzoyl compounds of alcohols, phenols, and sugars, 1889, A., 1152.
- phloroglucinol, 1890, A., 136.
- kynurine, 1890, A., 174.
- conversion of maleic acid into fumaric acid, 1890, A., 1397; 1891, A., 1338.
- theory of double linkage, 1891, A., 1320.
- compounds of the cinchona alkaloids with hydriodic acid, 1892, A., 83.
- Skraup, Zdenko Hanns,** and *Philipp Brunner,* constitution of quinoline derivatives, 1886, A., 810.
- *m*-quinolinecarboxylic acid, 1887, A., 160.
- Skraup, Zdenko Hanns,** and *Albert Cobenzl,*  $\alpha$ - and  $\beta$ -naphthaquinolines, 1883, A., 1010.
- Skraup, Zdenko Hanns,** and *Otto W. Fischer,* methylphenanthroline, 1885, A., 392.
- Skraup, Zdenko Hanns,** and *Georg Vortmann,* dipyridyl derivatives, 1883, A., 85.

- Skraup, Zdenko Hanns, and Dietrich Wiegmann**, morphine, 1889, A., 1018.  
 ——— codeine methiodide, 1890, A., 179.
- Skraup, Zdenko Hanns, and Julius Würstl**, constitution of the cinchona alkaloids, 1889, A., 1073.
- Skraup, Zdenko Hanns**. See also *Arthur Louis Schubert*.
- Skubich**, change of volume of solutions of salts, 1892, A., 766.
- Skvortzow, Nicholas**, physiological action of iron, 1888, A., 1325.
- Sleenbuch, Christian**, constant gas generator, 1887, A., 634.
- Slocum, Frank L.**, phenylangelic, phenylmethacrylic, and ethylphenyl-lactic acids, 1885, A., 662.
- Slyke, Lucius L. van**, analyses of the milk of ripe and unripe cocoanuts, 1891, A., 764.
- Smetham, Alfred**, composition of silage, 1884, A., 770.
- Smirnow, A.** See (*Franc*) *Nadina Sieber*.
- Smita, Arthur**. See *Heinrich Paschkis*.
- Smith, A.**, preparation of carbons for electric lamps, 1885, A., 1267.
- Smith, Albert W.**, influence of substituting radicles on the configuration of aromatic ketoximes, 1892, A., 487.
- Smith, Albert W.** See also *Charles Frederic Mabery*.
- Smith, Alexander**, desylacetophenone, 1890, T., 643; P., 105.
- Smith, Arthur Percy**, violet flame produced by common salt in a coal fire, 1890, A., 1202.
- Smith, Clement Grubb**. See *Frank Austin Gooch*.
- Smith, E. D.**, improved method of estimating caffeine in coffee, 1888, A., 539.
- Smith, Edgar Francis**, *p-m*-dibrom-o-nitrobenzoic acid, 1884, A., 601.  
 ——— minerals from Lehigh Co., 1884, A., 661.  
 ——— mineralogical notes, 1885, A., 960.  
 ——— the electrolytic method as applied to iron, 1888, A., 1344.  
 ——— oxidation with the galvanic current, 1889, A., 926.  
 ——— vanadium in potassium hydroxide, 1890, A., 706.  
 ——— electrolysis of metallic phosphates, 1890, A., 1028; 1891, A., 1140.  
 ——— oxidation of sulphides by the electric current, 1890, A., 1342.  
 ——— decomposition of chrome iron ore by means of the electric current, 1891, A., 1294, 1398.
- Smith, Edgar Francis, and Robert Hart Bradbury**, estimation of molybdc and tungstic acids, 1892, A., 241.
- Smith, Edgar Francis, and Lee K. Frankel**, the electrolytic method applied to the separation of mercury from copper, 1889, A., 797.  
 ——— electrolytic separation of cadmium from zinc, 1889, A., 1033.  
 ——— electrolytic separations, 1890, A., 664, 1029.
- Smith, Edgar Francis, and Winfield Scott Hoskinson**, electrolysis of molybdenum solutions, 1886, A., 102.
- Smith, Edgar Francis, and Harry Frederick Keller**, electrolytic estimation of palladium, 1890, A., 881.  
 ——— action of hydrogen sulphide on certain metallamines, 1891, A., 272.
- Smith, Edgar Francis, and Ellsworth B. Knerr**, substitution products of salicylic acid, 1886, A., 704.  
 ——— electrolytic estimations, 1886, A., 923.
- Smith, Edgar Francis, and Arthur W. MacCauley**, electrolytic separation of mercury from copper, 1892, A., 239.
- Smith, Edgar Francis, and Frank Muhr**, electrolytic estimations, 1891, A., 1296, 1396.  
 ——— electrolytic separation of iron, 1892, A., 917.
- Smith, Edgar Francis, and Daniel L. Wallace**, oxidation of copper glance by the electric current, 1892, A., 239.  
 ——— electrolytic separations, 1892, A., 920.
- Smith, Edgar Francis**. See also *Daniel B. Brunner, N. Wiley Thomas*.
- Smith, Erasmus G.**, chrysotile from Ship-ton, Canada, 1885, A., 361.  
 ——— action of bromine on propenyl-phenylaminodiamine, 1885, A., 524.  
 ——— pseudomorphs of limonite after iron pyrites, 1886, A., 992.
- Smith, Ernest E.** See *Russell H. Chittenden*.
- Smith, Frank Warren**. See *Arthur Messinger Comey*.
- Smith, Franklin S.**, ozokerite, 1885, A., 356.
- Smith, Franklin S.** See also *Peter Townsend Austen*.
- Smith, Frederick**, respiration in the horse during rest and work, 1890, A., 392.  
 ——— chemistry of the urine of the horse, 1890, A., 914.  
 ——— sweat of the horse, 1891, A., 349.
- Smith, Frederick John**, a high pressure electric accumulator, 1884, A., 246.

- Smith, Harry Wood.** See *Harold Bailey Dixon*.
- Smith, Henry John Stephen,** obituary notice of, 1883, T., 255.
- Smith, Herbert E.,** do bones contain keratin? 1884, A., 1398.
- Smith, Herbert E.** See also *Russell H. Chittenden*.
- Smith, J. Denham.** See *E. F. Teschemacher*.
- Smith, James Hill,** obituary notice of, 1884, T., 627.
- Smith, James Lorrain.** See *John Scott Haldane*.
- Smith, John Henry,** detection and estimation of organic substances, 1888, A., 90.
- new method for estimating organic nitrogen, 1889, A., 307; 1892, A., 527.
- Smith, John Lawrence,** hiddenite, an emerald-green variety of spodumene and triphane, 1883, A., 440.
- methods of analysing columbates by means of hydrofluoric acid, 1884, A., 111.
- peculiar concretions in iron meteorites, 1884, A., 976.
- columbates containing earthy oxides, 1885, A., 1012.
- Smith, Miles H.** See *John Williams*.
- Smith, Robert Angus,** examination of waters, 1885, A., 86.
- Smith, Robert Watson.** See *George Gerald Henderson*.
- Smith, S. Henry,** estimation of urea, 1891, A., 512.
- Smith, Walter B.,** crystal beds of Topaz Butte, 1887, A., 452.
- Smith, Walter George,** composition of the precipitate obtained on heating urine, 1885, A., 681.
- Smith, Watson,** note on pentathionic acid in connection with Shaw's paper on "the preparation of the pentathionates," 1883, T., 355.
- note on the behaviour of the nitrogen of coal during destructive distillation, and a comparison of the amounts of nitrogen left in cokes of various origin, 1884, T., 144.
- methods for coking coal, 1884, A., 224.
- note on  $\beta$ -phenylnaphthalene, 1889, P., 70; discussion, P., 71.
- Smith, Watson,** and *William Beaumont Hart,* sodium carbonate, 1887, A., 330.
- Smith, Watson, Francis James Henderson Coutts,** and *Horace Edward Brothers,* the phenol constituents of blast furnace tar, 1885, P., 104; 1886, T., 17.
- Smith, Watson.** See also *Alexandrie Claparède, Adolf Staub*.
- Smith, William J.,** substance containing sulphur formed in cruciferous plants, 1888, A., 869.
- physiological action of sulphonal, 1892, A., 1507.
- Smith, William J.** See also *Thomas Edward Thorpe*.
- Smithells, Arthur,** on some fluo-line compounds of uranium, 1883, T., 125.
- note on the structure of luminous flames, 1891, P., 164; 1892, T., 217.
- the origin of flame coloration, 1892, P., 8.
- Smithells, Arthur,** and *Harry Ingle,* the structure and chemistry of flames, 1891, P., 159; discussion, P., 163; 1892, T., 204.
- Smitt, A.** See *Otto Pettersson*.
- Smolka, Alois,** isobutylbiguanide, 1884, A., 287.
- basic nitrates of lead, 1885, A., 725.
- mannitol lead nitrate, 1885, A., 743.
- new picrates, 1886, A., 453.
- action of potassium permanganate on dextrose in neutral solution, 1887, A., 566.
- action of bromine on carbamide, 1887, A., 636.
- allyldiguanidine and its derivatives, 1888, A., 42.
- picramates, 1888, A., 52.
- constitution of the derivatives of cyanamide, 1890, A., 1222.
- Smolka, Alois,** and *A. Friedreich,* new method for the preparation of biguanides: derivatives of phenylbiguanide, 1888, A., 830.
- ammeline, 1889, A., 111; 1890, A., 856.
- derivatives of cyanamide, 1889, A., 951.
- phenylammeline and phenylisocyanic acid, 1890, A., 618.
- Smolka, Alois.** See also *Wilhelm Kalmann*.
- Smyth, Charles Henry,** peidotite in central New York, 1892, A., 1057.
- Snape, Henry Lloyd,** action of phenyl cyanate on alcohols and phenols, 1885, T., 770.
- aromatic cyanates and carbamates, 1886, T., 254; P., 158.
- Snijders, Aarnout Johannes Cornelis,** influence of filters on water, 1888, A., 860.
- detection of salicylic acid in beer, 1889, A., 195.

- Snodgrass, William.** See *John Gray McKendrick*.
- Snow, Herbert Waldemar,** testing oil of peppermint for adulterations, 1890, A., 199.
- iodine absorption as a test for essential oils, 1890, A., 307.
- Soave, Marco.** See *Piero Giacosa*.
- Sobernheim,** hematomporphyrinuria, 1892, A., 1118.
- Sobieczky, J., and Victor Hölbling,** improved wash bottle, 1888, A., 900.
- Socin, C. A.,** in what form is iron absorbed? 1891, A., 478.
- Sodeau, William Horace,** silver sulphite, 1892, A., 684.
- Soden, Hugo von.** See *Carl Arnold August Michaelis*.
- Söderbaum, Henrik Gustav,** platoso-oxalic acid, 1886, A., 532.
- *o*-amidobenzyl alcohol, 1890, A., 1254.
- dioximidosuccinic acids, 1891, A., 825.
- configuration of *ω*-isomnitrosoacetophenone (benzoylformoxime), 1891, A., 1043.
- cyanisonitrosoacetic acid, 1891, A., 1184.
- action of hydroxylamine on dibromopyruvic acid, 1892, A., 815.
- Söderbaum, Henrik Gustav, and Oskar Widman,** preparation and oxidation products of nitrocymene, 1888, A., 1076.
- derivatives of *o*-amidobenzyl alcohol, 1889, A., 972; 1890, A., 178.
- phenyl-*o*-benzylenediamine and *p*-tolyl-*o*-benzylenediamine, 1890, A., 1258.
- Söderbaum, Henrik Gustav.** See also *Per Wilhelm Abenius*.
- Söldner, Friedr.,** the salts of milk and their relation to the behaviour of casein, 1889, A., 634.
- Sohncke, Leonhard,** electrification of ice by water friction, 1886, A., 960.
- production of the current in the galvanic circuit, 1889, A., 556.
- Sohnke, J.,** behaviour of micro-organisms in artificial mineral water, 1887, A., 393.
- Sohst, Otto, and Bernhard Tollens,** crystallised saccharic acid, 1888, A., 820.
- Sokoloff, Eugen,** action of zinc isomyl and zinc isobutyl on aldehyde, 1888, A., 125.
- the hydrocarbons  $C_8H_{18}$  and  $C_9H_{18}$  obtained from methylpropylcarbinol, and ethylpropylcarbinol, 1888, A., 1168.
- Sokoloff, Eugen,** action of methyl iodide and zinc on ethyl propyl ketone, 1888, A., 1170.
- action of ethyl iodide and zinc on ethyl propyl ketone, 1888, A., 1170.
- Sokoloff, Nicolai B.,** action of feeble bases on nitroethane, 1888, A., 797.
- action of alkalis on the nitro-compounds of alkyl radicles, 1889, A., 365.
- action of alkyl iodides on sodium nitroethane, 1889, A., 365.
- Soldaini, Arturo,** ptomanes, 1884, A., 342.
- alkaloids of *Lupinus albus*, 1892, A., 892.
- Soldaini, E.,** copper solution for the estimation of glucose, 1890, A., 198.
- Solereeder, Hans.** See *Gerhard Krüss*.
- Sollas, William Johnson,** artificial deposition of calcite crystals on the spicules of a sponge, 1888, A., 115.
- Solley, Fred P.** See *Russell H. Chittenden*.
- Solly, Richard Harrison,** crystallographic examination of the crystals of antimonio-potassic chlorobromide, 1883, T., 293.
- Solonina, Basil M.,** action of feeble mineral acids on allyl alcohol, 1886, A., 741; 1888, A., 806.
- Solowieff, Alexander,** application of dialysis to the study of the gelatinous state of proteid substances, 1888, A., 856.
- Solthien,** separation of silver from alloys, 1883, A., 243.
- Soltmann, Rudolf,** melanite from the Kaiserstuhl, 1891, A., 651.
- Soltsien, Paul,** essential oils, 1887, A., 375.
- titration of chromates, barium salts, and sulphates, 1891, A., 115.
- Solvay, Ernst,** obtaining hydrochloric acid from calcium chloride, 1885, A., 705.
- Sommer, Ad.,** preparation of hydrobromic acid, 1884, A., 1091.
- Sommerlad, Hermann,** basalt rocks containing hornblende, 1883, A., 169.
- nepheline rocks from the Vogelsberg, 1884, A., 275.
- leucite- and nepheline-basalt from the Vogelsberg, 1885, A., 33.
- Sondén, Klas,** analysis of petalite from Uto, 1883, A., 440.
- modification of Scheibler's azotometer, 1883, A., 508.
- hygienic air analysis, 1888, A., 192.
- the liquescope: an instrument for comparing the refractive indices of liquids, 1891, A., 959.

- Sondén, Klas.** See also *Otto Pettersson*.  
**Sonnenschein, Adolf,** behaviour of tannin with Fehling's solution, 1885, A., 1163.  
 — drying fats, 1886, A., 1083.  
 — estimation of acetic acid in acetates by direct titration, 1887, A., 869.  
**Sonnenenthal, S.,** dissociation in dilute solutions of tartrates, 1892, A., 588, 1144.  
**Sonnerat, E.,** hydrogen peroxide in medicine, 1884, A., 1082.  
**Sorabji, (Khan Bahadur) Bomanji,** on some new paraffins, 1885, T., 37.  
**Sorauer, Paul Carl Moritz,** studies on evaporation, 1884, A., 627.  
 — failure of oat crops, 1889, A., 742.  
**Soret, A.,** occlusion of gases by electrolytic copper, 1889, A., 105, 946.  
**Soret, Charles,** refractive indices of alums, 1885, A., 108, 1097.  
 — monosymmetrical sodium alum, 1886, A., 595.  
 — crystallographical notices, 1886, A., 619.  
**Soret, J. Louis,** ultra-violet absorption spectra of proteids, 1884, A., 242.  
 — absorption spectrum of blood in the violet and ultra-violet, 1884, A., 381.  
**Soret, J. Louis, and Albert A. Rilliet,** absorption of ultra-violet rays by derivatives of the paraffins, 1890, A., 434.  
**Soret, J. Louis, and Edouard Sarasin,** circular polarisation of quartz, 1883, A., 140.  
 — absorption spectrum of water, 1884, A., 701.  
**Soret, Lucien, and Fernand Robineau,** nickeloxylamine nitrite, 1890, A., 216.  
**Sorge, Kurt,** natural gas of Pennsylvania, 1888, A., 30.  
**Sorger, C.** See *Wilhelm La Coste*.  
**Sorokin, Basilus I.,** lactic acid from levulose, 1886, A., 141.  
 — anilides of glucoses, 1886, A. 526.  
 — anilides of galactose and levulose, 1886, A., 633.  
 — relation between the constitution and specific rotatory power of organic compounds, 1888, A., 768.  
 — anilides of glucoses and some of their transformations, 1888, A., 807.  
 — action of aniline on isosaccharin, 1888, A., 819.  
**Sostegni, Livio,** examination of humus from peat, 1885, A., 1082.  
 — constituents of rice starch, 1886, A., 221; 1888, A., 126.  
**Sostegni, Livio,** detection of foreign colouring matters in wine, 1889, A., 1091.  
**Sostegni, Livio, and Antonio Sannino,** formation of hydrogen sulphide during the alcoholic fermentation, 1890, A., 1454.  
**Sostmann, E.** See *Karl Stammer*.  
**Soubeiran, Jean Léon,** wood oil from Cochin China, 1885, A., 394.  
**Soubeiran, Jean Léon, and Gustave Massol,** water from the Red Spring of Lacanne (Tarn, France), 1885, A., 232.  
**Source.** See *Magnier de la Source*.  
**Soward, Alfred Walter.** See *Isaac Probert*.  
**Sowinski, W. von,** hydrogenation of the naphthoic acids, 1891, A., 1380.  
**Soxhlet, Franz,** citric acid in cows' milk, 1889, A., 178.  
 — sterilisation of milk, 1892, A., 518.  
**Soxhlet, Franz, and Arno Behr,** manufacture of starch sugar, 1883, A., 39.  
**Soxhlet, V. H.,** preparation of flavin, 1892, A., 503.  
 — indigo-green, 1892, A., 991.  
**Spady, Joh.,** quinoline derivatives from isovaleraldehyde, 1886, A., 263.  
**Spady, Joh.** See also *Vladimir D. Markownikoff, Wilhelm von Miller*.  
**Spallanzani, Pennegrino,** volatile fatty acids of butter, 1890, A., 186.  
**Spalteholz, Walter,** colouring matter from coal-tar quinoline, 1883, A., 1150; 1885, A., 400.  
**Spampani, Giuseppe,** substitution of manganese for iron in plant nutrition, 1891, A., 1394.  
**Spehr, K.,** ephedrine from *Ephedra monostachya*, 1892, A., 893.  
**Spence, J. Napier,** estimation of starch, 1888, A., 632.  
**Spence, Peter,** obituary notice of, 1884, T., 622.  
**Spencer, Guilford Lawson,** method of estimating phosphoric acid in manures, 1885, A., 436.  
 — estimation of theine in tea, 1891, A., 134, 963.  
**Speranski,** influence of glass surfaces on velocity of reaction, 1890, A., 1208.  
**Sperry, Erwin Starr.** See *Samuel Lewis Penfield*.  
**Sperry, Francis Lewis.** See *Samuel Lewis Penfield*.  
**Speyers, Clarence Livingston,** electromotive force of metallic salts, 1890, A., 843; 1892, A., 255.

- Spezia, Giorgio**, beryl from Craveggia, Piedmont, 1883, A., 958.
- the gneiss of Beura, 1883, A., 960.
- melanophlogite, 1884, A., 1104.
- flexibility of itacolumite, 1887, A., 21.
- Spica** (sometimes **Spica-Marcataio**), **Giovanni**, psoromic acid, an acid extracted from *Psoroma crassum*, 1883, A., 80.
- Spica, Giovanni**, and **Giuseppe Biscaro**, *Arum italicum*, 1886, A., 94.
- Spica, Giovanni**, and **Oreste Magnanini**, hydroxybromotoluquinone, 1884, A., 175.
- Spica, Giovanni**. See also **Francesco Canzoneri**.
- Spica, Matteo**, action of thiobenzamide on chloral, 1886, A., 1026.
- naphthoxyacetic acids, 1887, A., 495.
- derivatives of isopropylformamide, 1887, A., 1028.
- chemical nature of *Aristolochia Serpentaria*, 1888, A., 82.
- behaviour of strontium tartrate with plastered wines, 1892, A., 93.
- volumetric estimation of phosphoric acid, 1892, A., 912.
- Spica, Matteo**, and **Gregorio Halagian**, water supply of Odessa, 1888, A., 35.
- Spica, Matteo**, and **Giovanni de Varda**, derivatives of isopropyl chlorocarbonate, 1887, A., 1028.
- Spica, Matteo**. See also **Vincenzo Oliveri**.
- Spica, Pietro**, camphor-cymene and the so-called second sulphonic acid of p-cymene, 1883, A., 320.
- m-cymene and a new isomeride of thymol, 1883, A., 459.
- *Barosma crenata*, 1885, A., 1142.
- examination of oils and wines, 1888, A., 95.
- diosmin, 1888, A., 1310.
- mineral water of Monte di Malo, 1892, A., 1287.
- Spica, Pietro**, and **Giacomo Carrara**, thiazole compounds, 1892, A., 215.
- Spica, Pietro**. See also **Francesco Giotto**.
- Spiegel, Adolf**, euxanthic acid, 1883, A., 219.
- vulpic acid, 1884, A., 841.
- new class of aromatic sulphonic acids, 1885, A., 987.
- Spiegel, Leopold**, estimation of nitrates in well waters, 1887, A., 691.
- estimation of nitrates in mineral waters, 1889, A., 438.
- constitution of fichtelite, 1890, A., 385.
- Spiegel, Leopold**, estimation of nitric acid, 1890, A., 1025.
- action of phenylhydrazine on canthaidin, 1892, A., 999.
- Spiegel, Leopold**. See also **Carl Theodor Liebermann**.
- Spiegler, Edward**, acetoximes of the fatty series, 1884, A., 1115.
- diphenylacetoxime, 1884, A., 1155.
- the euxanthone group, 1884, A., 1182.
- sensitive reaction for albumin in urine, 1892, A., 928.
- Spiehoff, Heinrich**, chemistry of urine, 1885, A., 703.
- Spilker, Adolf**, nitrogen compounds of salicylic acid, 1890, A., 141.
- Spilker, Adolf**. See also **Gustav Kraemer**, **Adolf Pinner**.
- Spiller, John**, ancient mortar from a Roman wall in London, 1889, A., 16.
- Spindler, Heinrich**, action of inorganic iodides on organic chlorides and bromides, 1886, A., 484.
- Spindler, Paul**, nitration of benzene derivatives, 1883, A., 975; 1884, A., 1310.
- Spiridonoff, N.**, dihydroxystearic acid obtained by the oxidation of oleic acid, 1889, A., 123.
- Spiro, Karl**. See **Wilhelm Wislicenus**.
- Spitz, Gustav**, mixed ethers of resorcinol, 1885, A., 381.
- Spitzer, Alfons**, methyl derivatives of phloroglucinol, 1890, A., 1110.
- tetramethylphloroglucinol, 1890, A., 1407.
- Spitzer, Fr. V.** See **J. Kachler**.
- Spitzer, Jacob**, estimation of undissolved starch in sweet mash, 1886, A., 746.
- Spitzer, Wilhelm**, action of opium and morphine on the intestine, 1891, A., 852.
- Spitzer, Wilhelm**. See also **Franz Röhmann**.
- Spohn, H.** See **Georg Dragendorff**.
- Spohr, Ivan**, action of neutral salts and of temperature on the inversion of cane sugar, 1885, A., 1181; 1886, A., 502.
- modification of Siemens' pyrometer, 1886, A., 112.
- influence of neutral salts in chemical reactions, 1888, A., 1025.
- Spong, Harry**. See **De Burgh Birch**.
- Sponnagel, Friedrich** (**Georg**), enamelling casks, 1885, A., 316.
- Spottiswoode, William**, and **John Fletcher Moulton**, movement of gas in vacuum discharges, 1883, A., 5.

- Spottiswoode, William**, obituary notice of, 1884, T., 628.
- Sprague, Charles T.**, ethyl thiocetate, 1891, T., 329; P., 59.
- Sprague, Charles T.** See also *Karl von Buchka*.
- Sprengel, Hermann Johann Philipp**, specimens and photographs illustrating effects of explosives, 1886, P., 198, 215.
- Spring, Walther**, expansion of isomorphous salts, 1883, A., 146.
- formation of arsenides by pressure, 1883, A., 650.
- formation of sulphides by pressure, 1883, A., 904.
- colloidal copper sulphide, 1883, A., 904.
- perfect elasticity of solid bodies, 1884, A., 256.
- colour of water, 1884, A., 259.
- crystallisation of substances under pressure, 1884, A., 549.
- duplothiacetone, 1884, A., 580.
- a differential dilatometer and its use in an investigation on the formation of alum, 1884, A., 887.
- expansion of alums, 1884, A., 892.
- heat liberated by the compression of solids, 1884, A., 949.
- influence of repeated compressions on the amount of sulphides formed by pressure, 1884, A., 959.
- action of mass, 1885, A., 480.
- specific heat of alloys of lead and tin, 1886, A., 961.
- the periodic law, 1887, A., 211.
- reaction between barium carbonate and sodium sulphate under the influence of pressure, 1887, A., 332.
- influence of temperature on the rate of action of certain acids on marble, 1887, A., 882.
- rate of the reaction between Iceland spar and hydrochloric acid, 1888, A., 900; 1890, A., 843.
- proportion of carbon and hydrogen in carbonaceous schists, 1888, A., 925.
- compression of the moist powder of solid substances, 1888, A., 1243.
- chemical action between substances in the solid state, 1888, A., 1243.
- metallic lustre, 1889, A., 206.
- cause of rails rusting less quickly when in use than when not, 1889, A., 214.
- a new tin oxide, 1889, A., 1051.
- increase of chemical energy at the free surface of liquid substances, 1890, A., 828.
- rate of solution of carbonates in acids, 1890, A., 843.
- Spring, Walther**, the formation of trithionate by the action of iodine on a mixture of sulphite and thio-sulphate, 1892, P., 91.
- equilibrium of chemical systems under unequal pressures, 1892, A., 1148.
- Spring, Walther**, and *Edmond van Aubel*, action of acids on zinc containing lead, 1887, A., 1074.
- Spring, Walther**, and *Georges de Boeck*, colloidal copper sulphide, 1888, A., 227.
- soluble manganese oxide, 1888, A., 228.
- Spring, Walther**, and *Edouard Bourgeois*, formation of sulphuric acid in the preparation of dithionic acid, 1886, A., 978.
- action of iodine on sodium hydrogen sulphite, 1892, A., 681.
- Spring, Walther**, and *Jules Demarteau*, constitution of potassium polysulphides, 1889, A., 1110.
- Spring, Walther**, and *Jacobus Henricus van't Hoff*, chemical decomposition produced by pressure, 1888, A., 341.
- Spring, Walther**, and *Adolphe Leclercq*, halogen compounds of sulphur, 1886, A., 977.
- constitution of Guthrie's chlorethyl bisulphide, 1888, A., 664.
- action of chlorine on the sulphides of alcohol radicles: preparation of new chlorine derivatives, 1888, A., 664.
- Spring, Walther**, and *Emile Legros*, alkylthiosulphuric acids, 1888, A., 47.
- Spring, Walther**, and *Marcel Lucion*, constitution of manganese peroxide, 1890, A., 566.
- Spring, Walther**, and *Jérôme van Marsenille*, thiopinacone, 1892, A., 1317.
- Spring, Walther**, and *Eugene Frost*, liberation of chlorine during the decomposition of chlorates, 1889, A., 1105.
- Spring, Walther**, and *Léon Roland*, amount of carbonic anhydride in the air, 1886, A., 504.
- Spring, Walther**, and *Emile Tart*,  $\alpha$ -dichloropropaldehyde, 1890, A., 955.
- Spring, Walther**, and *Camille Winsinger*, action of chlorine on sulpho-derivatives of organic oxysulphides, 1888, A., 659; 1884, A., 1127.
- action of chlorine on sulphonic- and oxythio-derivatives of heptyl, 1888, A., 989.
- Springer, Alfred**, reduction of nitrates by ferments, 1884, A., 350.
- Spüller, Jos.** See *Wilhelm Kalmann*.

- Squibb, Edward R.**, preparation of cocaine, 1886, A., 371.  
 — valuation of crude cocaine from Peru, 1890, A., 838.
- Srpek, Joh. Ottokar**, action of furfuraldehyde on quinaldine, 1887, A., 976.
- Srpek, Otto**, hydroquinoline derivatives, 1890, A., 177.  
 — substitution in aromatic hydrocarbons, 1891, A., 41.
- Staats, Georg**, photochromatic properties of silver chloride, 1887, A., 1071; 1888, A., 1001.
- Stachowsky, Olgierd K.**, estimation of carbon in arable soils, 1888, A., 531.
- Stackler**, soluble naphthol compounds, 1892, A., 1116.
- Stade, G.**, the working of a sugar refinery, 1884, A., 791.
- Stadelmann, Ernst**, hydroxybutyric acid in diabetic urine, 1885, A., 924; 1887, A., 464.  
 — ferments in normal urine, 1888, A., 308.  
 — formation of ammonia in the pancreatic digestion of fibrin, 1888, A., 512.  
 — pepsin in normal and pathological urine, 1889, A., 430.  
 — proteinchrome and proteinchromogen, 1890, A., 804.
- Stadler, Otto**, mercaptans, 1884, A., 1328.
- Stadler, Otto**, mercaptans, 1884, A., 1328.  
 — nitrothiophens, 1885, A., 764.  
 — reduction of nitro- to amidothiophen, 1885, A., 971.  
 — compounds of thiophen, 1885, A., 1204.
- Stadler, Otto**. See also *Victor Meyer*.
- Stadt, Hendrik Justus van de**. See *Charles Marius van Deventer*.
- Stadthagen, Max**, cystine not present in normal urine, 1885, A., 830.
- Staedel, Wilhelm**, relation between boiling-points and specific volumes, 1888, A., 302.  
 — the history of the *m*-nitriles, 1888, A., 323.  
 — hydrobromides and hydriodides of aromatic bases, 1888, A., 578.  
 — bromacetophenone and acetophenone derivatives, 1888, A., 586.  
 — substitution products of alkyl derivatives of phenols, 1888, A., 662.  
 — nitrocresols, 1888, A., 662.  
 — bromonitro- and bromamido-anisols and phenetols, 1888, A., 662.  
 — action of nitric acid on phenols, 1888, A., 861.  
 — nitrophenols and nitrocresols, 1888, A., 864.  
 — ethylamidocresols, 1888, A., 866.  
 — aromatic ketones, 1888, A., 990.
- Staedel, Wilhelm**, dinitrotoluene, 1885, A., 142.  
 — *m*-cresol, 1886, A., 232.  
 — removal of methyl from tertiary aromatic amines, 1886, A., 940.  
 — preparation of phenylacetic acid, 1886, A., 945.  
 — phenacyl compounds, 1888, A., 1093.  
 — nitro-*m*-cresols, 1889, A., 497.
- Staedel, Wilhelm, and Hermann Bauer**, introduction of methyl into *m*-nitraniline, 1886, A., 940.  
 — azo-compounds, 1886, A., 943.
- Staedel, Wilhelm, and Emil Haase**, derivatives of diphenylmethane and benzophenone, 1890, A., 1422.
- Staedel, Wilhelm, and Otto Hölz**, commercial xylidine, 1886, A., 145.
- Staedel, Wilhelm and Adalbert Kolb**, nitro-*m*-cresols, 1891, A., 186.
- Staedel, Wilhelm** (and others), new alkyl derivatives of phenols, 1888, A., 585.
- Staedel, Wilhelm**. See also *Heinrich vom Baur, Heinr. Reinhardt*.
- Stahel, Rudolph**, derivatives of diphenylhydrazine and methylphenylhydrazine, A., 1259.
- Stahel, Rudolph**. See also *Emil Fischer*.
- Stahl, J.**, ethylxylenes, 1890, A., 882.
- Stahl, Wilhelm** (and others), new molybdic acid as a reagent for aromatic hydroxy-compounds, 1892, A., 1133.
- Stahl, Wüh.**, analysis of copper, 1887, A., 529.  
 — celestine in *Nautilus aratus*, 1887, A., 781.  
 — hexagonal crystals of zinc sulphide, 1889, A., 20.  
 — estimation of zinc in blende containing manganese, 1890, A., 827.  
 — metallurgical assay of lead waste, 1891, A., 365.
- Stallard, George**, bromophthalic acids, 1886, T., 187; P., 138.  
 — bromination of naphthalene- $\beta$ -sulphonic acid, 1887, P., 113.
- Stamati**, gastric juice of clayfish, 1889, A., 534.
- Stammer, Karl, and Paul Degener**, percentage of sugar in beet, 1884, A., 133.
- Stammer, Karl, and E. Sostmann**, estimation of sugar in beet-root, 1884, A., 642.
- Standke, Otto**. See *Heinrich Cour. Klinger*.
- Stanford, Edward Charles Cortis**, new substance obtained from some of the commoner species of marine Algae, 1888, A., 943.

- Stanford, Edward Charles Cortis**, iodine in cod-liver oil, 1884, A., 504.
- Stanley, Arthur**, sodium dichromate, 1887, A., 110.
- Stanley, Arthur**. See also *Percy Faraday Frankland*.
- Stapleton, Joseph**, preparation of alkaline potassium permanganate solution for water analysis, 1883, A., 516.
- Stark, A. Campbell**, test for antipyrin, 1890, A., 309.
- Starkl, Gottfried**, bole from Steinkirchen near Budweis in Bohemia, 1883, A., 444.
- polyhydrite from St. Cristoph mine, Breitenbrunn in Saxony, 1883, A., 444.
- schuchardtite, 1885, A., 32.
- copaline from Hutteldorf, near Vienna, 1886, A., 21.
- minerals from the mica-diorite of Christianberg, Bohemia, 1886, A., 32.
- pycnophyllite from Aspang, 1886, A., 33.
- Starling, Ernest Henry**, and *F. Gowland Hopkins*, the urine in a case of phosphorus poisoning, 1892, A., 650.
- Starting, A.**, preparation of benzoic acid, 1889, A., 874.
- Stas, Jean Servais**, purification of bromine, 1886, A., 592.
- silver, 1890, A., 561.
- congratulatory address to, 1891, P., 75.
- memorial lecture on, 1892, P., 204; discussion, P., 207.
- Staub, Adolf**, and *Watson Smith*, on a bye-product of the manufacture of aurin, Part II., 1884, T., 301.
- derivatives of isodinaphthyl, 1885, T., 104.
- Staub, Adolf**. See also *Paul Tönnies*.
- Staub, Moriz**, contributions to the doctrine of thermic constants in plants, 1884, A., 1067.
- Staute, Hermann**, pinnoite, a new borate from Stassfurt, 1884, A., 1271; 1885, A., 1117.
- Stavely, William H.**, examination of crude phenol and cresol, 1890, A., 425.
- Stavenhagen, Alfred**. See *Adolph Claus*.
- Stead, John Eduard**, chemistry of the Bessemer converter, 1883, A., 832.
- method of estimating carbon in iron and steel: a new form of chromometer, 1883, A., 1032.
- gas sampling and testing apparatus, 1890, A., 411.
- estimation of minute quantities of aluminium in iron and steel, 1890, A., 548.
- Stead, John Edward**, and *Charles Henry Ridsdale*, crystals in basic converter slag, 1887, T., 601; P., 65; discussion, P., 65.
- Steche, Albert**, derivatives of  $\beta$ -naphth-indole, 1888, A., 284.
- Steche, Albert**. See also *Emil Fischer*.
- Steedman, Charles Ernest**, oxidation of ethyl alcohol in the presence of turpentine, 1887, P., 87.
- Stefan, Josef**, relation between the theories of capillarity and of evaporation, 1887, A., 323.
- diffusion of acids and bases into one another, 1889, A., 1046.
- evaporation and dissolution considered as processes of diffusion, 1891, A., 384.
- Steffens, F. W.**, kainite and bone meal in sandy soil, 1884, A., 868.
- Stegelitz, Paul**. See *Adolph Claus*.
- Steger, V.**, porphyry from Horka, Prussia, 1887, A., 223.
- Steiger, Eduard**, carbohydrate from the seed of *Lupinus luteus*, 1886, A., 608.
- estimation of galactose, 1889, A., 1089.
- Steiger, Eduard**, and *Ernst Schulze*, arabinose derived from wheat bran and rye bran, 1891, A., 33.
- Steiger, Eduard**. See also *Ernst Schulze*.
- Stein, Gottlieb**, aluminium thiocyanate free from iron, 1884, A., 540.
- estimation of manganese in foods, 1889, A., 183.
- double fluorides of antimony, 1890, A., 216.
- Stein, Gustav E.**, the melaphyses of the Little Carpathians, 1883, A., 447.
- Stein, H.** See *Werner Kelbe*.
- Stein, Stanislaus von**, method of obtaining hemoglobin crystals, 1885, A., 406.
- Stein, Walter M.**, and *Paul W. Schwarz*, estimation of ammonia by distillation, 1889, A., 1087.
- Steinbrügge, Hermann**, diagnosis of keratin in animal tissues, 1886, A., 106.
- Steinecke, Victor**, leucitophyre from Persia, 1890, A., 220.
- Steiner, Anton**, conversion of fulminates into hydroxylamine, 1883, A., 1074; 1884, A., 277.
- Steiner, Arnold**. See *Otto Billeter*.
- Steiner, Emil**, formation of patina, 1885, A., 308.
- Steinhart, O. J.**, anisylamines, 1888, A., 51.
- Steinheil, A.** See *Eduard Lauber*.
- Steinike, Georg**. See *Karl Elbs*.
- Steinkauler, Theodor**. See *Adolph Claus*.

- Steinmann, Theodor.** See *Rudolf Nietzki*.
- Steinscheider, Josef,** copper phosphates, 1891, A., 1423.
- Stellwaag, August,** rise of temperature induced in soils by the condensation of liquid and gaseous water and of gases, 1883, A., 615.
- composition of barley fat, 1886, A., 1065.
- composition of fats of fodders, 1890, A., 657.
- Steltzner, R.** See *J. Homans*.
- Stelzner, Alfred Wilhelm,** melilite and melilite-basalts, 1883, A., 719.
- the biotite-holding amphibole-granite from Syene, 1884, A., 413.
- the olivine of the melilite-basalt of Hochbohl, 1884, A., 829.
- the Freiberg gneiss, 1884, A., 829.
- Stelzner, Alfred Wilhelm,** and *Arnulf Schertel*, black zinc blende of Freiberg, 1887, A., 451.
- Stelzner, R.** See *Wilhelm Marckwald*, *Robert Moscheles*.
- Stengel, Fr.,** dialkyl disulphobenzoates, 1883, A., 999.
- Stenger, Franz,** thermal conductivity of tourmaline, 1885, A., 5.
- electrical conductivity of gases, 1885, A., 1023.
- absorption bands of chlorophyll, 1887, A., 693.
- modifications of the absorption spectra of a substance, 1888, A., 543.
- Stenglein,** mashing temperature, and the favourable temperature for yeast sowing, 1884, A., 789.
- Stenhouse, James.** See *William Henry Perkin, junior*.
- Stephan, Carl,** fluidity and galvanic conductivity, 1883, A., 769.
- Stephan, Richard,** amido-acids, 1887, A., 142.
- Stephan, Richard.** See also *Ferdinand Tiemann*.
- Stephens, Charles William,** estimation of milk sugar in milk, 1886, A., 582.
- Stern, Arthur Landauer,** action of bromine on phosphorus trichloride, 1886, T., 815.
- Stern, D.,** hydrazobenzene and benzdine, 1884, A., 1015.
- Stern, H.,** origin of the bile colouring matters, 1887, A., 290.
- Stern, Jacob.** See *Rudolph Fittig*.
- Stern, Richard,** oxyhæmoglobin in the bile, 1891, A., 599.
- Sternberg,** obtaining sugar from molasses, 1886, A., 403.
- Sternberg, Alfred,** preparation of ferrocyanides, 1886, A., 110.
- Stettenheimer, Ludwig.** See *Eugen Bamberger*.
- Steude, M.,** thiazole derivatives from bromopyruvic acids and from ethyl bromoacetate, 1891, A., 742.
- Studemann, Hugo,** *m*-nitrophenylthiocarbimide, 1883, A., 801; 1884, A., 306.
- *o*-nitro-*p*-tolylthiocarbimide, 1884, A., 307.
- Stevens, Edward Knights.** See *Henry Barker Hill*.
- Stevenson, Thomas,** solvent action of water on zinc, and effects of drinking water contaminated with zinc, 1884, A., 878.
- Stewart, Andrew,** thio-derivatives of *o*-amidobenzamide, 1892, A., 54.
- Stewart, A. J.** See *Emil Fischer*.
- Stewart, Charles W.** See *Russell H. Chittenden*.
- Stewart, George Neil,** electrolysis and putrefaction of bile, 1891, A., 591.
- electrolysis of animal tissues, 1891, A., 597.
- estimation of inorganic salts in small quantities of blood, 1891, A., 619.
- heat production in nerves during excitation, 1892, A., 365.
- Stiassny, Eduard,** preparation of methylpropylacetic acid, 1892, A., 581.
- Stich,** respiration of plants under oxygen tension and when injured, 1892, A., 1259.
- Stickel, Carl.** See *Eugen Lellmann*.
- Sticker, Georg,** influence of the secretion of gastric juice on the quantity of chlorine in urine, 1888, A., 620.
- Stiebel, Albert.** See *Adolph Claus*.
- Stieglitz, Alfred,** quinonecarboxylic acids, 1891, A., 455.
- Stieglitz, Julius,** behaviour of amidoximes towards diazobenzene-derivatives, 1890, A., 254.
- Stierlin, Richard,** derivatives of ethyl benzoylacetate, 1888, A., 1088, 1298.
- benzils, 1889, A., 512.
- Stift, A.,** influence of "saccharin" on digestion, 1889, A., 1022.
- estimation of ash in raw sugar, 1891, A., 1297.
- Stillman, Thomas B.,** composition of boiler scale, 1890, A., 944.
- Stillmark, Hermann,** ricin, 1890, A., 535.
- Stilwell, Charles M.,** opium analysis, 1887, A., 403.
- Stingl, Johann,** and *Theodor Morawski*, the soja bean, 1886, A., 829.
- Stingl, Johann.** See also *Theodor Morawski*.

- Stock, William Frederick Keating**, estimation of nitrogen in organic substances, 1892, A., 1516.
- Stock, Robert**. See *Ludwig Glaisen*.
- Stockbridge, H. E.**, lupulin, 1890, A., 657.
- Stockdale, R.** See *James Ernest Marsh*.
- Stockman, Ralph**, active principle of senna leaves, 1885, A., 991.
- amorphous cocaine, 1887, A., 980.
- hygrine, 1888, A., 508.
- physiological action of borncol, 1888, A., 1216.
- excretion of balsams in the urine, 1891, A., 600.
- Stockman, Ralph**, and *David Brown Dott*, physiological action of morphine and its derivatives, 1890, A., 1178.
- physiological action of thebaine and narcotine and their derivatives, 1891, A., 762.
- Stockman, Ralph**. See also *David Brown Dott*.
- Stocks**. See *Heinrich Fresenius*.
- Stocks, Herbert B.**, iodide of starch, 1888, A., 126, 668.
- Stoddard, John T.**, flashing-point of petroleum, 1883, A., 383, 517; 1884, A., 1431.
- Stöcker, Hermann**. See *Heinrich Goldschmidt*.
- Stoeklin, Louis**. See *Emilio Nötling*.
- Stoehr, Carl**, hydro-*p*-coumaric acid, 1884, A., 1349.
- strychninesulphonic acid, 1886, A., 269; 1888, A., 73.
- strychnine, 1887, A., 604; 1891, A., 86.
- scatole from strychnine, 1887, A., 682.
- 3-methylpyridine and 3-methylpiperidine, 1888, A., 63.
- constitution of ecgonine, 1889, A., 908.
- $\alpha$ -picoline and  $\alpha$ -isobutylene-pyridine, 1891, A., 81.
- $\beta$ -methylpyridine, 1891, A., 219.
- synthetical pyridine bases of the  $\beta$ -series, 1891, A., 579; 1892, A., 628.
- new class of organic bases, 1891, A., 581.
- dimethyldiazine, 1892, A., 507.
- pyridine and piperidine bases of the  $\beta$ -series, 1892, A., 628.
- Stoehr, Carl**, and *Max Wagner*,  $\beta\beta$ -dimethyldipyrindyl, 1892, A., 629.
- Stoehr, Carl**. See also *Ludwig Berend, A. Heuser*.
- Stössner, Edward**, effects of deep or shallow sowing on cereals, 1887, A., 747.
- Stohmann, Friedrich Carl Adolf**, estimation of the fuel value of coal according to Scheurer-Kestner, 1884, A., 930.
- calorimetric investigations, 1885, A., 857.
- thermochemical relations of the acids and alcohols of the fatty series, 1886, A., 295.
- heat equivalent of the hydroxyl groups in the hydroxybenzenes, 1886, A., 656.
- combustion of benzene, 1886, A., 842.
- Thomsen's investigations, 1887, A., 425.
- heats of combustion of organic compounds, 1887, A., 878, 1011; 1888, A., 1013; 1891, A., 251.
- relations of the heats of combustion of solid bibasic acids to those of gaseous hydrocarbons, 1891, A., 252.
- Stohmann, Friedrich Carl Adolf**, and *Olemons Kleber*, hydrogenation of closed chains, 1891, A., 376, 1146; 1892, A., 1040.
- constitution of camphoric acid, 1892, A., 1040.
- Stohmann, Friedrich Carl Adolf**, and *Hermann Langbein*, thermochemistry of fats and fatty-acids, 1891, A., 11.
- calorific value of food constituents and their derivatives, 1892, A., 4.
- thermochemistry of the carbohydrates and polybasic alcohols and phenols, 1892, A., 763.
- Stohmann, Friedrich Carl Adolf**, and *Paul Rodatz*, heats of combustion of lauric and myristic acids, 1885, A., 1176.
- heats of combustion of the fatty acids, 1886, A., 296.
- Stohmann, Friedrich Carl Adolf**, and *Heinrich Wilsing*, specific and latent heats of myristic and lauric acids, 1885, A., 1177.
- Stohmann, Friedrich Carl Adolf**, *Olemons Kleber*, and *Hermann Langbein*, combustion of organic substances in oxygen at high pressure, 1889, A., 929.
- heat of combustion of benzene and of other hydrocarbons of the aromatic series, 1889, A., 1042.
- thermochemistry of carboxylic acids of the aromatic series, 1889, A., 1096.
- thermochemistry of acids of the oxalic series and of fumaric and malic acids, 1889, A., 1097.
- thermochemistry of methyl alcohol and solid methyl salts, 1890, A., 100.

- Stohmann, Friedrich Carl Adolf, Paul Rodatz, and Wilhelm Herzberg**, heat of combustion of benzene, 1886, A., 409.
- heat equivalent of hydroxybenzenes, 1886, A., 655.
- heat of combustion and formation of homologous phenols, 1887, A., 98.
- heat equivalents of the homologues of benzene, 1887, A., 427.
- heat equivalents of ethers of the phenol series, 1887, A., 428.
- heat equivalents of benzoyl compounds, 1887, A., 878; 1888, A., 333.
- Stohmann, Friedrich Carl Adolf.** See also *Johann Wilhelm Julius Henneberg*.
- Stojentin, M. von**, action of ethoxalyl chloride on diphenylthiocarbamide and triphenylguanidine, 1884, A., 1159.
- action of ethyloxalic chloride on derivatives of carbamide and guanidine, 1885, A., 1195.
- Stokes, Alfred Walter**, an apparatus for the comparison of colour tints, 1887, P., 135.
- rapid estimation of fat in milk, 1890, A., 304.
- extraction of fat from milk solids, 1892, A., 391.
- Stokes, Alfred Walter, and Richard Bodmer**, estimation of mixtures of milk and cane sugar, 1886, A., 582.
- Stokes (Sir) George Gabriel**, crystalline reflection in potassium chlorate, 1885, A., 1175.
- the interactions occurring in flames, 1892, P., 22.
- optical proof of the existence of suspended matter in flames, 1892, A., 111.
- Stokes, Henry N.**, phthalic sulphinide, 1885, A., 539.
- action of phosphorus oxychloride on ethyl silicates and silicon ethoxychlorides, 1891, A., 814, 1171.
- Stokes, Henry N., and Hans (Freiherr) von Pechmann**, action of ammonia on ethyl acetonedicarboxylate; synthesis of pyridine derivatives, 1887, A., 155.
- Stokes, Henry N.** See also *Hans (Freiherr) von Pechmann, Frederic P. Treadwell*.
- Stoklasa, Julius**, distribution of phosphates in Bohemia, 1885, A., 877.
- weathering of sandstone, 1886, A., 35.
- Stoklasa, Julius**, recognition of phosphoric acid of mineral origin, 1889, A., 1032; 1890, A., 83.
- monocalcium phosphate, 1890, A., 695.
- composition of bone-meal, 1891, A., 105.
- estimation of water in superphosphates, 1891, A., 110.
- the soluble phosphoric acid compounds of superphosphates, 1891, A., 880.
- Stokvis, Barend Joseph**, turbidity of albuminous urine on heating, 1885, A., 680.
- Stolba, Franz**, disintegration of zircon, 1884, A., 821.
- preparation of zinc free from arsenic, 1885, A., 461.
- action of hydrochloric acid on sphalerite, 1887, A., 442.
- estimation of calcium and magnesium in presence of manganese, 1887, A., 865.
- estimation of chlorine, 1888, A., 751.
- reduction with lead, 1888, A., 756.
- ammonium borofluoride, 1890, A., 560.
- Stolle, E.**, *m*-ditolyl, 1888, A., 699.
- Stolte, H.**, selenio-carbon compounds, 1886, A., 781.
- phenylseleniocarbimide and diphenylseleniocarbamide, 1887, A., 43.
- Stoltz, L.**, crystals in cementation steel, 1888, A., 629.
- Stolz, Friedrich**, iodopropargylic acid, 1886, A., 530.
- *p*-ethoxyphenylhydrazine and dimethyl - *p* - ethoxyphenylpyrazolone, 1892, A., 1080.
- Stolz, Friedrich.** See also *Benno Homolka*.
- Stone, Fred. Beddow**, test for bismuth, 1888, A., 197.
- Stone, George C.**, volumetric estimation of manganese, 1884, A., 499.
- analyses of franklinite, 1888, A., 791.
- Stone, George H.**, asphalt of Utah and Colorado, 1892, A., 21.
- Stone, Winthrop E.**, composition of cultivated strawberries, 1890, A., 650.
- carbohydrate in peach gum, 1890, A., 1022.
- carbohydrates of the sweet potato, 1890, A., 1022.
- pentaglucooses [pentoses], 1891, A., 411.
- estimation of pentoses in vegetables, 1892, A., 247.

- Stone, Winthrop E.**, digestibility of pentose carbohydrates, 1892, A., 645.  
 — constituents of the nitrogen-free extract, 1892, A., 633.
- Stone, Winthrop E.**, and **Dumont Lotz**, xylose from maize cobs, 1891, A., 1001.
- Stone, Winthrop E.**, and **Bernhard Tollens**, arabinose, 1889, A., 480.  
 — fermentation of galactose, arabinose, sorbose, and other sugars, 1889, A., 480.
- Stone, Winthrop E.** See also **Robert Gans**, **Bernhard Tollens**.
- Stoney, George Johnstone**, logarithmic law of atomic weights, 1888, P., 55.
- Stood, A.**, action of water containing sodium chloride on soils and plants, 1889, A., 795.
- Storch, Ludwig**, precipitation of iron by hydrogen sulphide, 1883, A., 1169.  
 — solubility of metallic sulphides in thio-acids, 1883, A., 1169.  
 — action of ammonium salts on glycerol, 1886, A., 1044.  
 — qualitative and quantitative test for resin oils in mineral and lubricating oils, 1888, A., 536.  
 — stannic sulphide and thiostannic acid, 1889, A., 1053.  
 — constitution of thiocarbamides, 1891, A., 548.
- Storch, Ludwig.** See also **Wilhelm Friedrich Gintl**, **Carl Lepéz**.
- Storch, Mathias Wilhelm Samuel**, fossil milk, 1888, A., 1223.  
 — changes in milk by udder tuberculosis, 1890, A., 652.  
 — the souring of cream, 1891, A., 603.
- Storer, Francis Humphreys**, methods used by fishermen for barking and in other ways preserving nets and sails, 1884, A., 800.
- Storer, Francis Humphreys**, and **David Swanson Lewis**, gases occluded by coke, 1884, A., 377.
- Storp, Ferd.** (and others), effect of water holding sodium chloride and zinc sulphate in solution on the soil and on plants, 1884, A., 856.
- Stortenbeker, Willem**, compounds of chlorine with iodine, 1889, A., 102; 1892, A., 1387.  
 — estimation of iodine, 1889, A., 185; 1890, A., 1185.
- Stracciati, Enrico.** See **Adolfo Bartoli**.
- Strache, H.**, propylenediamine and trimethylenediamine, 1888, A., 1172.
- Strache, Hugo**, oxidation products of quinoidine, 1890, A., 179.
- Strache, Hugo**, pyridine-*o*-carboxylic acids, 1890, A., 1157.  
 — estimation of aldehydic and ketonic oxygen, 1892, A., 546, 1530.
- Strache, Hugo**, and **Moritz Kitt**, oxidation of phenylhydrazine with Fehling's solution, 1892, A., 1322.
- Strache, Hugo.** See also **Guido Goldschmiedt**, **Hugo Weidel**.
- Stransky, Alfred**, bases formed by the action of potash on additive products of papaveine, 1889, A., 166.
- Stransky, Sigmund**, numerical relations of the atomic weights, 1889, A., 567.  
 — veratrine, 1891, A., 585.
- Strasburger, Eduard**, experiments on grafting between plants of different species, 1886, A., 645.
- Strasburger, Jos.**, derivatives of phenanthraquinone, 1884, A., 328.  
 — *p*-amidofluorene, 1884, A., 754.
- Strasser, Carl.** See **Carl Paal**.
- Strasser, Ludwig.** See **Eugen Bamberger**.
- Strassmann, Hans**, derivatives of *o*-xylene, 1888, A., 474.  
 — action of hydroxylamine on bromacetophenone, 1889, A., 610.  
 — isomeric methyldeoxybenzoins, 1889, A., 883.  
 — indazole derivatives, 1890, A., 781.
- Straus, Julius.** See **Heinrich Goldschmidt**.
- Strazzeri, Baldassare.** See **Alberto Peratoner**.
- Streatfield, Frederick William.** See **Henry Edward Armstrong**, **Francis Robert Japp**, **Raphael Meldola**.
- Strebel** (and others), cultivation of cereals, 1883, A., 612.  
 — cultivation and preservation of certain cereals, 1885, A., 833.
- Strecker, Karl**, specific heat of gaseous compounds of chlorine, bromine, and iodine with one another and with hydrogen, 1883, A., 417.  
 — reproduction of Siemens' mercury unit, 1885, A., 1027, 1099.
- Strecker, Otto.** See **August Friedrich Kekulé**.
- Streintz, Franz**, galvanic polarisation, 1883, A., 410; 1888, A., 99, 544.  
 — galvanic polarisation of aluminium, 1887, A., 415.  
 — theory of the secondary battery, 1890, A., 315; 1892, A., 1381.  
 — a silver mercury cell and its relation to temperature, 1890, A., 550.
- Streintz, Franz**, and **Georg Neumann**, theory of secondary batteries, 1890, A., 1354.

- Streintz, Franz.** See also *Georg Neumann.*
- Streng, Ferd.,** *o*-nitrotoluene, 1891, A., 1197.
- Streng, Johann August,** hornblende-diabase from Graveneck, 1884, A., 275.
- diabase rich in apatite from Graveneck, 1884, A., 275.
- a new microchemical reaction for sodium, 1884, A., 366.
- microchemical reactions, 1885, A., 294; 1886, A., 487; 1889, A., 78.
- diopside from Zermatt, 1885, A., 1118.
- dolerite of Londorf, 1889, A., 110.
- Strick, G. H.,** estimation of silicon in iron, 1887, A., 527.
- Stricker, Théodore.** See *Emilio Nölting.*
- Striegler,** estimation of invert sugar in molasses, 1891, A., 769.
- Striegler, M.,** ammelide, 1885, A., 1194.
- melanurenic acid, 1886, A., 435.
- Strippelmann, Leo, and Carl Engler,** investigation of Bonthelm asphalt and analogous occurrences in Italy, 1884, A., 522.
- Ström, Knut Torsteinson.** See *Rudolph Fittig.*
- Strohecker, Jones Rudolph,** cerium, yttrium, and beryllium oxides and ammonium chloride in diluvial clays, 1886, A., 314.
- oxides of cerium in practical use, 1886, A., 424.
- ceriferous Hainstadt clays, 1887, A., 119.
- process for obtaining the rare earths from the ceriferous Hainstadt clays, 1888, A., 28.
- Strohl, Alexandre.** See *Otto Billeter.*
- Strohm, August,** crystallised mercurous bromide and iodide, 1888, A., 111.
- Strohmer, Friedrich,** estimation of glycerol in aqueous solution by its refractive power, 1884, A., 877.
- manurial value of the lime waste of sugar factories, 1884, A., 925.
- testing of cayenne pepper, 1885, A., 452.
- detection of colouring matters in wine and confectionery, 1886, A., 183.
- buffalo's milk and butter, 1888, A., 976.
- Strohmer, Friedrich** (and others), estimation of sugar-beet and sugar, 1884, A., 1219.
- Strohmer, Friedrich.** See also *Friedrich Holdefeiss, Otto Kohlrausch.*
- Stromeyer, Wilhelm,** sugar-compounds, 1887, A., 791.
- Strommenger, W.,** oxidation of acetophenone, 1886, A., 462.
- Strouhal, Vincent, and Carl Barus,** galvanic temperature coefficient, 1884, A., 140.
- Stroumbo, S.,** production of white light by mixing the colours of the spectrum, 1887, A., 1.
- Strüver, Giovanni,** columbite from Craveggia in Piedmont, 1885, A., 732.
- volcanic fragments from the Lake of Bracciano, 1887, A., 21.
- brookite from Beuna (Ossola), 1891, A., 527.
- Struve, Heinrich,** milk, 1883, A., 1174.
- dialysis of putrescible substances, 1883, A., 1176.
- chloroform-water and ether in dialysis, 1884, A., 375.
- kephir, 1884, A., 1086, 1235.
- analyses of human milk, 1884, A., 1396.
- studies on blood, 1885, A., 71.
- Stschükareff, A. N.,** velocity of reaction between metals and halogens, 1891, A., 1149.
- degree of saturation of the *d*-terpene from Russian turpentine, 1892, A., 1350.
- reduction of the hydrate of terpinol, 1892, A., 1351.
- Stuart, Charles Mauldick,** on the condensation products formed by benzaldehyde with malonic and isosuccinic acids, 1883, T., 403.
- nitrobenzmalonic acids, 1885, T., 155; P., 4.
- relation of benzalmalonic acid to its mononitro-derivatives, 1886, T., 357; P., 177.
- action of cinnamic and salicylic aldehydes on malonic acid, 1886, T., 365.
- improved method of ventilating chemical laboratories, 1886, A., 15.
- halogen substituted derivatives of benzalmalonic acid, 1887, P., 118; 1888, T., 140.
- action of phosphorus pentachloride on salicylaldehyde, 1888, T., 402; P., 24.
- Stuart, Charles Mauldick, and Walter John Elliott,** action of chromium oxychloride on orthosubstituted toluenes, 1888, T., 803.
- Studemund,** proteid requirements of healthy men, 1891, A., 1272.
- Studer, Arthur.** See *Adolf Liebmann.*
- Stürcke, Hermann,** chemical composition of carnauba wax, 1884, A., 1280.

- Stürcke, Hermann.** See also *Carl Hell*.
- Stütz, Ed.**, saponin, 1884, A., 463.
- Stuffer, Ernst**, decomposition of sulphones, 1890, A., 987.
- hydrolysis of sulphones, 1891, A., 180.
- condensation products of glyoxal and some mercaptans, 1891, A., 186.
- Stuhl, Max**, new automatic mercury air-pump with arrangement for self-action by means of water pressure, 1891, A., 640.
- glass air-pump, 1891, A., 1414.
- Stumpf, Max**, amount of gluten in starch, 1888, A., 236.
- alteration in the secretion of milk under the influence of drugs, 1888, A., 818.
- Stutzer, Albert**, occurrence of nuclein in moulds and in yeast, 1888, A., 1166.
- manuring vines, 1884, A., 103, 1421.
- analyses of wines from Palestine, etc., 1884, A., 646.
- amount of easily digestible proteids in germinating maize, 1884, A., 772.
- phosphoric acid soluble in the soil, 1885, A., 439.
- nitrogenous substances insoluble in gastric juice, 1885, A., 827.
- proteid digestion, 1886, A., 377.
- digestion of "saccharin," 1886, A., 379.
- Chili saltpetre as manure, 1887, A., 77.
- artificial digestion, 1887, A., 388.
- analyses of nitrogenous metabolites in feces, 1887, A., 613.
- relation of proteids to digestive ferments, 1887, A., 1129.
- estimation of phosphoric acid, 1889, A., 186.
- artificial digestion of proteids, 1890, A., 275.
- action of dilute hydrochloric acid and of pepsin with hydrochloric acid on the digestible albumin of fodders, 1890, A., 651.
- effect of "saccharin" on the digestion of proteids, 1890, A., 1450.
- estimation of ferric oxide and alumina in phosphatic manures, 1891, A., 245.
- estimation of nitric nitrogen by aluminium, 1891, A., 617.
- action of certain organic acids on the digestion of proteids, 1891, A., 751.
- Stutzer, Albert**, effect of salt on digestion, 1891, A., 752.
- influence of heat on the digestibility of fodder, 1891, A., 752.
- influence of fat on the digestibility of proteids, 1891, A., 752.
- analyses of fodders, 1891, A., 858.
- digestibility of raw and boiled meat, 1892, A., 1367.
- analyses of healthy and diseased sugar-cane, 1892, A., 1372.
- food value of brushwood, 1892, A., 1511.
- composition of frozen and unfrozen beet-chips, 1892, A., 1512.
- Stutzer, Albert**, and **Adolf Isbert**, relation of carbohydrates in food to digestive ferments, 1888, A., 170.
- Stutzer, Albert**, and **Wilhelm Klinkenberg**, decomposition of nitrogenous animal manures, 1888, A., 615.
- Stutzer, Albert**, and **Otto Reitmaier**, estimation of fusel oil in spirits, 1891, A., 622.
- Stutzer, Albert**, and **Hugo Werner**, feeding cows with "sections," 1886, A., 953.
- Stutzer, Albert** (and others), inferior manures, 1884, A., 490.
- Stutzer, Albert**. See also **J. P. Kallen**, **Wilhelm Klinkenberg**, **Adolf Isbert**.
- Stylos, Nicolaos**. See **Ludwig Claissen**.
- Suchowsky, N.**, respiration in compressed air, 1885, A., 677.
- Sudborough, John Joseph**, action of nitrosyl chloride on metals, 1891, T., 655; P., 123.
- isomeric change in the stilbene series, 1892, A., 1224.
- Sudborough, John Joseph**, and **James Hill Millar**, action of heat on nitrosyl chloride, 1890, P., 167; 1891, T., 73, 270.
- Süllwald, A.**, estimation of nitrogen in pure and mixed nitrates, 1892, A., 528.
- Süssenguth, Hermann**, bromo- $\gamma$ -cuminic acid and dibromomesitylonic acid, 1883, A., 469.
- Suida, Wilhelm**, derivatives of ethylbenzene, 1890, A., 134.
- Suida, Wilhelm**. See also **L. Liechti**, **Julius Mauthner**.
- Suilliot, H.**, and **Hipp. Raynaud**, manufacture of iodoform, 1889, A., 1055.
- Sukow, A.** See **J. Homans**.
- Süle, O.**, molecular weights of some acids of the oleic series, 1890, A., 737.
- Sundberg, Carl**, the pepsin ferment, 1885, A., 921.
- Sundell, August Fredrik**, spectrum analysis, 1887, A., 1066.

- Sutherland, *William*, specific heats at high temperatures, 1869, A., 4.  
 — molecular refraction, 1889, A., 451.  
 — new periodic property of the elements, 1891, A., 12.  
 Sutkowski, *J.*, quinoneoximes, 1887, A., 41.  
 — oximes of *p*-xyloquinone, 1887, A., 667.  
 Sutton, *Francis*, hay and ensilage from a poor quality of grass, 1883, A., 1026.  
 Sutton, *Frank S.*, post-mortem imbibition of arsenic, 1886, A., 89.  
 Swanwick, *Russell*. See *Edward William Prevost*.  
 Swart, *A. J.*, laws of dissociating gases, 1891, A., 780.  
 Swarts, *Théodore*, contributions to the history of the isomerism of the dibromocamphors, 1883, A., 214.  
 Sweetser, *R. C.* See *Leonard P. Kinnicutt*.  
 Swiatecki, *Jan*, alkalinity of the blood after large doses of sodium sulphate, 1891, A., 347.  
 Swinburne, *J.*, some points on electrolysis, 1892, A., 257.  
 Swoboda, *Edm.*, and *Wilhelm Fosseck*, dihydric alcohols derived from isobutaldehyde, 1891, A., 31.  
 Sworn, *Sidney Augustus*, constitution of the aromatic nucleus, 1890, A., 238.  
 Sykes, *Walter John*, examination of vinegar, 1892, A., 251.  
 Symons, *William Henry*, starch varieties detected by the swelling process, 1884, A., 370.  
 — detection of sodium in lithium carbonate, 1890, A., 547.  
 Symons, *William Henry*. See also *Alfred W. Gerrard*.  
 Szabó de St. Miklós, *József*, garnet and cordierite in the trachytes of Hungary, 1883, A., 166.  
 — pharmacosiderite and urvölgyite from a new locality, 1886, A., 517.  
 Szamatolski, *M.* See *Carl Friedheim*.  
 Szechényi, (*Huyf*) *E. von, junior*, cultivation of *Sorghum stachuratum*, 1885, A., 833.  
 Szilasi, *Jacob*, green ultramarine, 1889, A., 758.  
 — analyses of human milk, 1892, A., 517.  
 Szilasi, *Jacob*. See also *Albert Grittner*.  
 Szilassy, *Z. von*, and *Alec. Cserhádi*, experiments with green maize, 1891, A., 1895.  
 Sztankovánszky, *Johann*. See *Florian Kratschmer*.  
 Szul, *L.* See *Bronisław Radziszewski*.  
 Szymanski, *F.*, malt-peptone, 1885, A., 822.  
 — hemialbumose from vegetable albumin, 1885, A., 997.  
 — allylsulphuric acid, 1886, A., 43.  
 — methylpropylpinacolone, 1886, A., 784.  
 — microchemical detection of proteids in seeds, 1886, A., 1088.  
 Szymanski, *F.* See also *August Deichmüller*.  
 Szymanski, *Stanislas von*. See *Paul Friedländer*.

## T.

- "T., *A. v.*", estimation of butter in cream, 1885, A., 844.  
 "T., *F. v.*", new fodder plant, 1884, A., 100.  
 Tacchini, *Pietro*, meteoric dust and analyses of the soil of Sahara, 1884, A., 165.  
 Tacke, *Bruno*, apparatus for preparing oxygen quickly, 1884, A., 1254.  
 — inflammable gases in the animal system, 1884, A., 1395.  
 — disengagement of free nitrogen during putrefaction, 1889, A., 738.  
 Taege, *Carl*, nitrosalicylaldehyde and nitrocoumarin, 1887, A., 939.  
 — *m*-nitrocoumarin, 1891, A., 918.  
 Täuber, *Ernst*, estimation of phosphorus by the molybdate method, 1883, A., 750.  
 — some new diphenyl derivatives, 1890, A., 782.  
 — synthesis of a diamidocarbazole from benzidine, 1891, A., 227.  
 — *o*-dinitrodiphenyl and *o*-diamidodiphenyl, 1891, A., 570.  
 — diphenyleneazone, 1892, A., 183, 482.  
 — synthesis of diamidocarbazole, 1892, A., 480.  
 — formation of an *o*-amidoditolylamine from *p*-hydrazotoluene, 1892, A., 853.  
 Täuber, *Ernst*, and *Edmont Halberstadt*, new synthesis of diphenylene oxide, 1892, A., 1470.  
 Täuber, *Ernst*, and *Richard Loewenherz*, synthesis of carbazole derivatives, 1891, A., 834.  
 — dimethylcarbazole, 1891, A., 1491.  
 Täuber, *Ernst*. See also *Otto Fischer*.  
 Tafel, *Julius*, benzoyl derivatives of phenylhydrazine, 1885, A., 1060.

- Tafel, Julius**, method for preparing primary amines, 1886, A., 939.  
 —  $\gamma$ -amidovaleric acid, 1886, A., 1008; 1887, A., 463; 1889, A., 961.  
 — reduction of dihydroxytartaric acid diphenylhydrazide, 1887, A., 467.  
 — furfurylaniline, 1887, A., 470.  
 — apparatus for shaking, 1889, A., 934.  
 — reduction of hydrazones, 1889, A., 975.  
 — strychnine 1890, A., 1447; 1891, A., 1262; 1892, A., 1012.  
 — colour reactions of acid anilides, 1892, A., 709.  
 — acid hydrazides, 1892, A., 710.  
 — oxidation of reduced pyridine and quinoline bases, 1892, A., 1104.  
**Tafel, Julius, and Carl Enoch**, formation of alkyl derivatives of amides, 1890, A., 491, 973.  
**Tafel, Julius, and Alfred Mauritz**, phenacyl sulphide, 1891, A., 302.  
**Tafel, Julius, and Adolf Neugebauer**, methylpyrrolidine, 1889, A., 1015.  
 — dimethylpyrrolidine and diamidohexane, 1890, A., 1000.  
**Tafel, Julius**. See also **Friedrich Bölsing, Emil Fischer, Carl Paal**.  
**Taffe, Henri**, rapid method for the analysis of tallow, 1890, A., 305.  
**Tahara, Yoshisumi**, crystalline constituents of the seed of *Cataputia minor*, 1891, A., 238.  
 — synthesis of pærol: application of Perkin's reaction to aromatic ketones, 1891, A., 1223.  
 — adonin, a glucoside from *Adonis amurensis*, 1891, A., 1501.  
 — o-hydroxyacetophenone, 1892, A., 844.  
 — constitution of dehydrodiacetyl-pærol and of dehydrodiacetylresacetophenone, 1892, A., 846.  
**Takahashi, Djuntarō**, scopoletin, 1889, A., 255.  
 — scutellarin, 1890, A., 64.  
**Takamine, Jokichi**. See **Edmund James Mills**.  
**Takayama, J.**, Japanese teas and tobaccos, 1885, A., 582.  
**Tamba, Kei-ō**. See **Albert Hilger**.  
**Tamm, Adolf**, analysis of iron, 1883, A., 510.  
 — estimation of phosphorus in iron and in iron-ores, 1884, A., 875.  
 — analysis of iron and iron ores, 1888, A., 529.  
**Tammann, Gustav**, tension of aqueous vapour of salt solutions, 1885, A., 862.  
**Tammann, Gustav**, fate of sulphur in germination, 1885, A., 1004.  
 — detection and estimation of fluorine, 1886, A., 97.  
 — influence of small amounts of impurity on the vapour tension of liquids, 1888, A., 213.  
 — dynamical method of determining vapour pressure, 1888, A., 403.  
 — occurrence of fluorine in the organism, 1888, A., 732.  
 — osmose through precipitated diaphragms, 1888, A., 898.  
 — action of ferments, 1889, A., 566.  
 — vapour pressure of aqueous solutions, 1889, A., 668.  
 — constitution of alloys, 1889, A., 932.  
 — hydrogen peroxide, 1890, A., 106.  
 — isomerism of the *m*-phosphates, 1891, A., 7.  
 — electrical conductivity of precipitated membranes, 1891, A., 140.  
 — Nasso's experiments on the excitability of frog-muscle in salt solutions, 1892, A., 515.  
 — measurement of osmotic pressure, 1892, A., 556.  
 — unorganised ferments, 1892, A., 899.  
 — *m*-phosphates, 1892, A., 1050.  
 — permeability of precipitated membranes, 1892, A., 1383.  
**Tammann, Gustav, and Walther Nernst**, maximum tension with which hydrogen is set free from solution by metals, 1892, A., 561.  
**Tanatar, Simeon M.**, thermochemical data respecting succinic and isosuccinic acids, 1890, A., 320.  
 — action of alcoholic potash on bromosuccinic acid, 1890, A., 1238; 1892, A., 1305.  
 — action of methylene iodide and chlorine on ethyl malonate, 1891, A., 174.  
 — reaction between methylene iodide and ethyl malonate, 1891, A., 175; 1892, A., 1304.  
 — transformation of maleic and fumaric acids, 1892, A., 1305.  
 — complete transformation of fumaric acid into maleic acid, 1892, A., 1306.  
**Tanatar, Simeon M., and C. Tschelébéeff**, dilactylic acids, 1891, A., 177.  
**Taniguti, Ken**, analysis of urine, 1890, A., 1199.  
**Taniguti, Ken**. See also **Ernst Leopold Salkowski**.  
**Tanret, Charles**, caffeine, 1883, A., 97.  
 — vincetoxin, 1885, A., 552.

- Tanret, Charles**, cornutine and ergotine, 1885, A., 821.  
 — terpinol, 1885, A., 990.  
 — alkaloids produced by the action of ammonia on glucose, 1885, A., 1047.  
 — composition of the rind of the bitter orange, 1886, A., 576.  
 — nitrogen derivatives of terebenthene, 1887, A., 595.  
 — action of hydrogen on nitro-derivatives of terebenthene, 1887, A., 675.  
 — bases formed by alcoholic fermentation, 1888, A., 573.  
 — oxidation of hydrazocamphenes, 1888, A., 719.  
 — sugars from hesperidin and isohesperidin, 1888, A., 963.  
 — ergosterin, 1889, A., 407.  
 — sugar from the quebracho, 1890, A., 228.  
 — levosin, a new carbohydrate from cereals, 1891, A., 661.
- Tanret, Charles.** See also **Léon Maquenne**.
- Tappeiner, Anton Josef Franz Hermann**, comparative investigation of intestinal gases, 1883, A., 928.  
 — fermentation of cellulose, 1883, A., 1077; 1885, A., 178; 1887, A., 1131.  
 — marsh gas fermentation in the mud of ditches, swamps, and sewers, 1883, A., 1177.  
 — gases of the alimentary canal of *Herbivora*, 1884, A., 852.  
 — researches on the fermentation of cellulose, especially with reference to its solution in the alimentary canal, 1885, A., 178.  
 — new formation of hippuric acid, 1886, A., 482.
- Taquet, Ch.**, chromic selenite, 1883, A., 717.  
 — chronic hydrogen selenite, 1884, A., 397.  
 — preparation of chlorine, 1885, A., 1017.
- Tart, Emile.** See **Walthers Spring**.
- Tarugi, N.** See **Robert Schiff**.
- Tassel, Emile**, combination of phosphorus pentafluoride with nitrogen peroxide, 1890, A., 1052.
- Tassinari, Gabriele**, action of sulphur dichloride on phenol, 1887, A., 807.  
 — dihydroxythiobenzene, 1889, A., 245.  
 — action of thionyl chloride on the phenols, 1891, A., 186.  
 — constitution of dihydroxythiobenzene, 1892, A., 1316.
- Tassinari, P.**, tobacco and bacteria, 1888, A., 1327.
- Tatarinoff, P.**, gelatin peptone, 1884, A., 344.
- Tate, George**, estimation of minute quantities of gold, 1890, A., 830.
- Tate, William**, dry reactions in qualitative analysis, 1891, A., 959.
- Tatlock, Robert R.**, estimation of iron in alum and aluminium sulphate, 1888, A., 90.
- Tauber, Eduard**, fate of morphine in the animal organism, 1891, A., 479.
- Tauber, Georg**, precipitation of barium sulphate in the presence of bromine, 1889, A., 187.
- Taufkirch, Hugo.** See **Ludwig Knorr**.
- Tauss, H.** See **Eduard Hatle**.
- Tautphoeus, Carl von**, influence of different systems of applying manures, 1885, A., 1156.
- Tavel, Ernst**, and **Wilhelm Oswald Alexander Tschirch**, iodine trichloride, 1892, A., 1388.
- Taylor, Albert B.**, easy method of finding the specific gravity of liquids, 1888, A., 547.
- Taylor, J.**, Rupert's drops, 1883, A., 422.  
 — preparation of hydrogen sulphide from coal gas, 1883, A., 824.
- Taylor, W. J.**, detection of cyanides in presence of compound cyanides, 1885, A., 196.
- Tch.** See also under **Ch.**, **Cz.**, **Tsch.**
- Tcherniac, Joseph**, water of crystallisation of barium thiocyanate, 1892, A., 1418.  
 — monochloroacetone, 1892, A., 1425.  
 — thiocyanacetone, 1892, A., 1425.  
 — estimation and preparation of thiocyanacetone, 1892, A., 1426.
- Tcherniac, Joseph**, and **Robert Hellon**, thiocyanacetone, 1883, A., 654.
- Tcherniac, Joseph**, and **Thomas Herbert Norton**, thiocyanopropimine, 1883, A., 568.  
 — propimine thiocyanate, 1884, A., 664.
- Tcherniac, Joseph** (and others), manufacture of thiocyanates, 1883, A., 639.
- Tchomrowoff.** See **Tichomiroff**.
- Teall, J. J. Harris**, the Cheviot andesites, 1884, A., 413.  
 — quartz-felsites and augite-granites from the Cheviot district, 1886, A., 520.  
 — plagioclase from the Tynemouth dyke, 1887, A., 784.  
 — augite from the Whin Sill, 1887, A., 1022.  
 — andesine from Sutherlandshire, 1887, A., 1022.

- Teall, J. J. Harris**, minerals from the Lizard, 1891, A., 276.
- Tecklenburg**, the clay-ironstone of Rheinhesse, 1883, A., 448.
- Teclin, Nicolae**, the nature of flame, 1891, A., 1309.
- new laboratory burner, 1892, A., 768.
- Teed, Frank Litherland**, decomposition of potassium chlorate by heat, 1885, P., 105; discussion, P., 106; 1886, P., 141.
- estimation of iodides in presence of chlorides and bromides, 1885, A., 1261.
- potassium chlorate and perchlorate, 1887, T., 233; P., 23; discussion, P., 25.
- Clark's soap test, 1890, A., 421.
- Tegetmeier, Franz**. See **Emil Warburg**.
- Teisler, Emil**. See **Johannes Wislicenus**.
- Teissier, Joseph**, and **Herman Roque**, toxic effects of albuminous urine, 1888, A., 1326.
- Teissier, Jules**, analysis of a mixture of silver chloride, cyanide, thiocyanate, ferricyanide, and ferrocyanide, 1889, A., 88.
- Teixeira-Mendes, S. F.**, succinic acid ferment and its action on cane sugar, 1885, A., 1152.
- a new alcoholic ferment which does not invert sugar, 1885, A., 1168.
- Telbisz, Johann**, estimation of tartaric acid in the crude products of tartaric acid factories, 1891, A., 129.
- Teller, Friedrich**, and **Conrad Heinrich John (Edler von Johnesberg)**, dioritic rocks of Klausen in the Tyrol, 1883, A., 1069.
- Telusohkin, W.**, vivianite, 1892, A., 690.
- Tenne, C. August**, sigterite and albite from Sigteru, 1891, A., 1138.
- Tenney, Frank**, estimation of lead as lead dioxide by means of the electric current, 1884, A., 777.
- Ter-Grigorianitz**, hemialbumosuria, 1883, A., 1162.
- Terne, Bruno**, iron in bone-black, 1892, A., 1053.
- Terrell, A.**, mineral water at Montrond (Loire), 1883, A., 1071.
- crystallised ammonio-silver chloride and iodide, 1884, A., 890.
- crystallised argentammonium chloride and bromide, 1885, A., 18.
- analysis of chrysotile, 1885, A., 490.
- the red colouring matters of wine and vegetables, 1885, A., 1142.
- Terreil, A.**, melting and solidifying points of fats and their mixtures, 1890, A., 929.
- chromiferous clay from Brazil, 1892, A., 1057.
- nickel and cobalt reactions, 1892, A., 1132.
- Terrisse, André**, naphthalfluorescein and naphthal eosin, 1885, A., 667.
- Tersteegen, Hermann**. See **Adolph Claus**.
- Teschemacher, E. F.**, and **J. Denham Smith**, estimation of morphine in opium, 1888, A., 635, 1137.
- Tesmer, Hermann**, compounds of polyhydric alcohols with phenyl cyanate, 1885, A., 774; 1886, A., 49.
- Teuchert**, irrigation of meadows by waste water from beet-sugar factories, 1883, A., 500.
- Thabuis, Fr.**, deposit from the spring at Chabotout, 1886, A., 215.
- Thade, Alexander**, distribution of water in heliotropically inclined parts of plants, 1884, A., 352.
- Thaer, Albrecht**, nitrogen necessary for cultivated plants, 1885, A., 75.
- Thal, Karl**, action of nitrous acid on ethyl acetosuccinate and diacetosuccinate, 1892, A., 1074.
- Thalén, Tobias Robert**, spectral researches on scandium, ytterbium, erbium, and thulium, 1883, A., 954.
- Than, Carl von**, examination of illuminating gas, 1883, A., 629.
- Thate, Alexander**, action of reducing agents on *o*-nitrophenoxyacetic acid, 1884, A., 1170.
- Thelen, Heinrich**. See **Theodor Zincke**.
- Thenard, (Baron) Armand Paul Edmond**, black phosphorus, 1883, A., 150.
- Thenn, F.** See **A. Keim**.
- Theurer, Carl August**, xanthogallol, 1888, A., 1084.
- Thiel, H.**, experiments with ensilage in Holland, 1887, A., 1062.
- Thiele, Albert**, *B*-isopropylthiophen, 1892, A., 442.
- Thiele, Johannes**, preparation of chlorine in a Kipp's apparatus, 1890, A., 6.
- automatic apparatus for evolving gases from liquids, 1890, A., 6.
- preparation of nitric oxide, 1890, A., 9.
- detection and estimation of antimony and arsenic, 1890, A., 1193.
- separation and estimation of antimony, 1891, A., 1295.
- nitroguanidine and amidoguanidine, 1892, A., 1295.
- azodicarboxylic acid, 1892, A., 1429.

- Thieme, Paul**, action of ammonia and methylamine on derivatives of the ethyl and methyl salts of nitro-hydroxybenzoic acids, 1891, A., 915.
- Thierfelder, Hans**, physiology of the formation of milk, 1884, A., 914.
- formation of glycuronic acid during inanition, 1886, A., 572.
- casein peptone, 1886, A., 1051.
- glycuronic acid, 1887, A., 235, 717; 1889, A., 377.
- identity of brain sugar with galactose, 1890, A., 121.
- reduction of glycuronic acid by sodium amalgam, 1891, A., 294.
- Thierfelder, Hans, and Friedrich Joseph (Freiherr) von Mering**, physiological action of the tertiary alcohols, 1885, A., 1002.
- Thierry, Maurice de**, new absorption spectroscopy, 1886, A., 113.
- estimation of hydrogen peroxide, 1886, A., 579.
- Thiesing, H.**, methylenedibenzamide, 1892, A., 467.
- Thillot, Albert**. See **Ludw. Jawein**.
- Thilo, E.**, estimation of small quantities of silver in burnt pyrites, 1887, A., 79.
- estimation of phosphoric acid from the weight of the molybdate precipitate, 1887, A., 526.
- Thörner, Wilhelm**, apparatus for collecting and analysing the gases dissolved in water, 1885, A., 691.
- estimation of carbon in iron and steel, 1892, A., 913.
- Thoiss, G.**, adenine, 1889, A., 786.
- Thoma, Max**, absorption of hydrogen by metals, 1889, A., 568.
- Thomas, Charles**, examination of wine coloured by aromatic sulphonic derivatives, 1883, A., 625.
- detection of Bordeaux-red in wine, 1884, A., 370.
- Thomas, E.** See **L. Roos**.
- Thomas, Edward (J. P.)**. See **Otto Nikolaus Witt**.
- Thomas, Ernst**. See **Ludwig Berend**.
- Thomas, N. Wiley, and Edgar Francis Smith**, electrolysis of bismuth solutions, 1883, A., 1084.
- Thomas, Simon**. See **Simon-Thomas**.
- Thomas-Mamert, René, and Camille Lefèvre**, action of acetylacetone on carbonyl chloride, 1889, A., 235.
- Thommeret-Gélis**. See **Alfred Gélis**.
- Thompson, Charles**, lithium citrate, 1883, A., 1086.
- Thompson, Charles**. See also **Charles Romley Alder Wright**.
- Thompson, Claude Metford**, *m*-azophenylglyoxylic acid, 1883, A., 998.
- tetramethylammonium cyanide, 1884, A., 286.
- Thompson, Claude Metford, and James Tudor Cundall**, action of potassium on tetralkyl ammonium iodides, 1888, T., 761; P., 79.
- Thompson, F. A.**, alkaloids of Gelsemium root, 1887, A., 981.
- Thompson, George de Roos**. See **Charles Herbert Bothamley**.
- Thompson, Jacob Baynes, and James Pellatt Rickmann**, bleaching yarns and fabrics, 1884, A., 1234.
- bleaching vegetable fibres, 1886, A., 187.
- Thompson, Silvanus Phillips**, electromotive forces of metals in cyanide solutions, 1888, A., 392.
- Thoms, Hermann**, acorin and its derivatives, 1886, A., 895.
- ammonio-zinc chlorides, 1887, A., 551.
- estimation of hydrogen peroxide, 1887, A., 862.
- bitter principle of Calamus root, 1888, A., 162.
- constituents of Calamus roots, 1888, A., 984.
- zinc-ammonium compounds, 1890, A., 452.
- ethoxycaffeine, 1890, A., 1166.
- detection of traces of copper in distilled water, 1891, A., 620.
- valuation of oil of cloves, 1892, A., 250.
- constituents of the buds of *Chrysanthemum cinerariaefolium*, 1892, A., 849.
- Thomsen, Hans Petter Jürgen Julius**, thermochemical investigation of the chlorides of iodine, 1883, A., 543.
- thermochemical investigation of the chlorides of sulphur, selenium, and tellurium, 1883, A., 543.
- method of estimating the heat of formation of difficultly combustible volatile carbon compounds, 1883, A., 543.
- heat of formation of the chlorides of phosphorus and arsenic, 1883, A., 544.
- heat of formation of the chlorides and oxides of antimony and bismuth, 1883, A., 544.
- heat of formation of carbon tetrachloride and ethylene perchloride, 1883, A., 544.
- hydrogen gold chloride, 1883, A., 1054.

- Thomsen, Hans Peter Jürgeu Julius**, heats of combustion and formation of carbon bisulphide and carbonyl sulphide, 1884, A., 249.
- heat of formation of the oxychlorides of carbon, phosphorus, and sulphur, 1884, A., 250.
- heats of solution and hydration of the alkaline earths and their hydrates, 1884, A., 250.
- cadmium oxide, 1884, A., 263.
- molecular weight of fluid water, 1885, A., 870.
- constitution of thiophen, 1885, A., 1126.
- heat of combustion of benzene, 1886, A., 842.
- supposed influence of multiple bonds of union on the molecular refraction of the hydrocarbons, 1887, A., 198.
- constitution of benzene, 1887, A., 362.
- avidity formula, 1887, A., 633.
- heat of combustion of organic substances, 1887, A., 761; 1891, A., 632.
- preparation of aurosoauric chloride, 1888, A., 559.
- heat of formation of mercury compounds, 1888, A., 1011.
- thermochemistry of hydrazine and of hydroxylamine, 1892, A., 1143.
- Thomsen, Th.**, conditions of equilibrium in aqueous solution, 1886, A., 12.
- equilibrium of aqueous solutions; existence of acid salts and double salts in aqueous solutions, 1886, A., 925.
- conditions of equilibrium in aqueous solutions; action of aqueous soda on some normal sodium salts, 1887, A., 440.
- Thomson, Andrew**, colorimetric estimation of small quantities of iron, 1885, T., 498; P., 65; discussion, P., 66.
- Thomson, Andrew**. See also *Thomas Carnelley*.
- Thomson, Arved**, phosphoric acid soluble in the soil, 1886, A., 392.
- behaviour of sandy soil towards superphosphate, 1891, A., 105.
- Thomson, Joseph John**, combination of gases, 1885, A., 341.
- dissociation of some gases by the electric discharge, 1887, A., 1013.
- passage of electricity through hot gases, 1890, A., 1037.
- Thomson, Joseph John**, and *Hugh Frank Newall*, electric discharge, 1888, A., 400.
- Thomson, Joseph John**, and *Richard Threlfall*, production of ozone, 1887, A., 327.
- passage of electric discharges through pure nitrogen, 1887, A., 328.
- Thomson, Robert T.**, litmus, methyl-orange, phenacetolin, and phenolphthalein as indicators, 1883, A., 682, 824.
- use of rosolic acid as an indicator; additional notes on phenolphthalein and methyl-orange, 1883, A., 827.
- litmus, rosolic acid, methyl-orange, phenacetolin, and phenolphthalein as indicators, 1884, A., 691, 869.
- lakmoid and other indicators, 1885, A., 1157.
- estimation of aluminium in presence of much iron, 1887, A., 182.
- estimation of alumina and iron oxide in manures, 1887, A., 302.
- Thomson, Robert T.**, and *Horatio Ballantyne*, revision of constants employed in the analysis of fats and oils, 1892, A., 547.
- Thomson, William**, Adams' method for milk analysis, 1887, A., 186.
- Thorne, Leonard Temple**, note on an apparatus for fractional distillation under reduced pressures, 1883, T., 301.
- conversion of ketonic acids into unsaturated lactones, 1885, A., 1200.
- Thorp, E.** See *Robt. G. Grissom*.
- Thorpe, Thomas Edward**, on the atomic weight of titanium, 1884, A., 395; 1885, T., 108; P., 1; discussion, P., 3.
- on the sulphides of titanium, 1885, T., 491; P., 69.
- note on the formation of titanous chloride, 1885, P., 70.
- the decomposition of carbon disulphide by shock (a lecture experiment), 1889, T., 220; P., 33; discussion, P., 34.
- a lecture experiment to illustrate the phenomena of coal dust explosions, 1892, T., 414; P., 53; discussion, P., 53.
- remarks regarding alterations in Society's rooms, 1892, P., 157.
- Thorpe, Thomas Edward**, and *Thomas H. Greenall*, on morindin and morindon, 1886, P., 256; discussion, P., 257; 1887, T., 52.
- Thorpe, Thomas Edward**, and *Frederick John Hambly*, on manganese trioxide, 1888, T., 175; P., 2.
- note on Chatard's method for estimating small quantities of manganese, 1888, T., 182; P., 2; discussion, P., 2.

- Thorpe, Thomas Edward**, and **Frederick John Hambly**, the vapour density of hydrogen fluoride, 1888, T., 765; P., 87; 1889, T., 163; P., 27; discussion, P., 28.
- on phosphoryl trifluoride, 1889, T., 759; P., 182.
- Thorpe, Thomas Edward**, and **Walter Kirman**, fluorsulphonic acid, 1892, T., 921; P., 160; discussion, P., 161.
- Thorpe, Thomas Edward**, and **Arthur Pillans Laurie**, on the atomic weight of gold, 1887, T., 565, 866; P., 57, 106; discussion, P., 60, 106.
- Thorpe, Thomas Edward**, and **Alexander Kenneth Miller**, on frangulin, 1891, P., 158; 1892, T., 1.
- Thorpe, Thomas Edward**, and **Barker North**, diethylphosphorous acid, 1890, T., 634; P., 75.
- Thorpe, Thomas Edward**, and **George H. Perry**, note on the interaction of iodine and potassium chlorate, 1892, T., 925; P., 161.
- Thorpe, Thomas Edward**, and **Henry Halliburton Robinson**, frangulin, 1890, T., 38; P., 165.
- Thorpe, Thomas Edward**, and **James Wyllie Rodger**, Potilizin's law of the mutual displacement of chlorine and bromine, 1888, P., 20.
- thiophosphoryl fluoride, 1888, T., 766; P., 87; 1889, T., 306; P., 77.
- Thorpe, Thomas Edward**, and **Arthur William Ricker**, on a relation between the critical temperatures of bodies and their thermal expansions as liquids, 1884, T., 135; 1887, A., 429.
- on the critical temperature of heptane, 1884, T., 165.
- Thorpe, Thomas Edward**, and **William J. Smith**, on morindon, 1888, T., 171; P., 2.
- Thorpe, Thomas Edward**, and **Alfred Edwin Tutton**, on phosphorus tetroxide, 1886, T., 833; P., 235.
- phosphorous oxide, 1890, T., 545; P., 61; 1891, T., 1019; P., 156; discussion, P., 157.
- Thorpe, Thomas Edward**, and **John William Young**, on the atomic weight of silicon, 1887, T., 576; P., 60.
- Thorpe, Thomas Edward**. See also **Carl Schorlemmer**.
- Thoulet, Julien**, determination of the coefficient of cubic dilatation of minerals, 1885, A., 218.
- attraction between dissolved substances and solids immersed in the solutions, 1885, A., 476, 866.
- Thoulet, Julien**, solubility of minerals in sea water, 1889, A., 682.
- solubility of some substances in sea water, 1890, A., 719.
- diffusion of fresh water into sea water, 1891, A., 970.
- water from the Arctic Ocean, 1892, A., 1287.
- Thoulet, Julien**, and **Adolphe Chevalier**, specific heat of sea water of different densities, 1889, A., 666.
- Thoulet, Julien**, and **Henri Lagarde**, specific heats of small quantities of substances, 1883, A., 6.
- new method of determining specific heats, 1885, A., 6.
- Threlfall, Richard**, theory of explosions, 1886, A., 761.
- specific heats of the vapours of acetic acid and nitrogen tetroxide, 1887, A., 429.
- Threlfall, Richard**. See also **Joseph John Thomson**.
- Thresh, John Clough**, the Orchard alum spring, 1883, A., 171.
- proximate constituents of *Hedychium spicatum*, 1885, A., 582.
- new form of apparatus for continuous percolation with boiling liquids, 1885, A., 835.
- a new method of estimating the oxygen dissolved in water, 1890, T., 185; P., 1; discussion, P., 3.
- estimation of ethyl nitrite in spirit of nitrous ether, 1890, A., 927.
- Thudichum, John Louis William**, alkaloids in human urine, 1888, A., 1119.
- Thümen, Felix Charles (Baron) von**, fairy rings, 1885, A., 425.
- Thümen, Felix Charles (Baron) von** (and others), vine diseases, 1883, A., 110.
- Thümmel, Carl**, behaviour of mercuric chloride with hydrogen ammonium carbonate, 1887, A., 774.
- mercury oxychlorides, 1889, A., 1050.
- cattle marrow, 1890, A., 1172.
- Thümmel, Carl**, and **Wilhelm Kwasnick**, Macassar oil, 1891, A., 1133.
- Thümmel, Carl**. See also **Theodor Poleck**.
- Thümmel, Oskar**, process for finishing silken goods with amber, 1884, A., 799.
- Thürach, H.**, zircon and titanium minerals, 1886, A., 126.
- Thun, Karl**. See **Theodor Curtius**.
- Thurnauer, G.**, preparation of aromatic thiocyanates, 1890, A., 749.

- Thurnlackh.** See **Garzaroli-Thurnlackh.**
- Thylmann, Victor,** and **Albert Hilger**, products of alcoholic fermentation, especially with reference to glycerol, 1889, A., 579.
- Tiebborne, Charles R. C.**, new form of apparatus for estimating ammonia in potable waters, 1883, A., 382.
- preparation of a volumetric solution for estimating the hardness of water, 1883, A., 516.
- Tichomiroff and Petroff**, meteorite from Ochansk, 1889, A., 358.
- Tichomiroff, Aleksandr A.**, chemical changes attending the development of the embryo in the eggs of *Bombus Mori*, 1885, A., 1000, 1150.
- Tichomiroff, Wladimir A.** See **Alexander P. Lidoff.**
- Tieghem, Philippe Edouard Léon van,** and **Gaston Bonnier**, effect of drying on the germination of seeds, 1884, A., 629.
- Tiemann, (Johann Carl Wilhelm) Ferdinand**,  $\alpha$ -phenamidoisobutyric acid and its amide and nitrile, 1883, A., 199.
- triphenyl *o*-formate, 1883, A., 340.
- glucosamine hydrochloride, 1884, A., 724.
- action of hydroxylamine on nitriles, 1884, A., 734.
- amidoximes and azoximes, 1885, A., 895; 1890, A., 41, 140, 141, 253; 1891, A., 538, 697; 1892, A., 135, 317.
- glucovanillin and glucovanillyl alcohol, 1885, A., 980.
- reactions of amidoximes, 1885, A., 1216.
- dehydrodivanillin, 1886, A., 238.
- a glucoside allied to coniferin, 1886, A., 250.
- glucosamine, 1886, A., 329.
- specific rotatory power and crystalline form of glucosamine, 1886, A., 329.
- reduction products of aromatic aldehydes, 1886, A., 460.
- preparation of amidoximes, 1886, A., 875.
- thiocoumarin and its derivatives, 1886, A., 880.
- nitrile of salicylic acid, 1888, A., 276.
- amidoxime of oxalic acid, 1889, A., 1142.
- action of hydroxylamine on thio-carbimides, 1889, A., 1165.
- mononitrated hydroxybenzaldehydes and their methyl ethers, 1889, A., 1168.
- action of acetaldehyde and of ethyl acetoacetate on benzenylamidoxime, 1890, A., 44.
- Tiemann, (Johann Carl Wilhelm) Ferdinand**, *o*-hydroxybenzylamine, 1891, A., 50.
- azoximes, 1891, A., 538.
- amidoximes, 1891, A., 538, 697.
- sulphur derivatives of amidoximes, 1891, A., 557.
- production of *o*-chloranisaldehyde from *p*-nitrotoluene, 1891, A., 703.
- isoeugenol, diisoeugenol, and their derivatives, 1892, A., 45.
- oxidation products of safrole, 1892, A., 46.
- paeonol-phenylhydrazone and oxime, 1892, A., 59.
- acetovanillone, 1892, A., 59.
- vanilloylcarboxylic acid, 1892, A., 64.
- reduction of aromatic aldehydes, 1892, A., 167.
- constitution of the hydroxamic acids, 1892, A., 300, 461.
- action of nitrous acid on benzenylamidethoxime, 1892, A., 323.
- action of benzenesulphonic chloride on amidoximes, 1892, A., 460.
- preparation of benzenylhydrazoximamidobenzylidene, 1892, A., 461.
- phenyl- $\alpha$ -hydroxyerconic acid, 1892, A., 471.
- Tiemann, Ferdinand,** and **Albert Fock**, amidoximes and azoximes, 1886, A., 797.
- Tiemann, Ferdinand,** and **Rudolf Haarmann**, isosaccharic acid, 1886, A., 689.
- Tiemann, Ferdinand,** and **Alfred Kees**, reactions of the glucosides, helicin and glucovanillin, 1885, A., 1072.
- glucosides prepared from helicin, 1885, A., 1073.
- Tiemann, Ferdinand,** and **Rudolf Kraaz**, derivatives of homoferrulic acid, 1883, A., 198.
- constitution of eugenol, 1883, A., 200.
- Tiemann, Ferdinand,** and **Paul Krüger**, amidoximes and azoximes, 1884, A., 1325.
- relation of benzenylamidoxime derivatives to the benzhydroxamic group, 1885, A., 790.
- Tiemann, Ferdinand,** and **Robert Ludwig**, *m*-hydroxybenzaldehyde and some of its derivatives, 1883, A., 188.
- isomeric nitrobenzaldehydes, 1883, A., 586.
- Tiemann, Ferdinand,** and **Ernst Nägeli**, action of sodium amalgam on aqueous solutions of benzenylamidoxime, 1885, A., 895.

- Tiemann, Ferdinand**, and **Karl Piest**, phenylphenamidoacetic acid and its amide and nitrile, 1883, A., 198.
- Tiemann, Ferdinand**, and **Richard Stephan**, nitriles of  $\alpha$ -phenamido-,  $\alpha$ -*p*-toluamido-, and  $\alpha$ -*o*-toluamido-propionic acids and their amides and nitriles, 1883, A., 199.
- Tiemann, Ferdinand**, and **Wilhelm Will**, constitution of  $\alpha$ -esculetin, 1883, A., 199.
- Tiemann, Ferdinand**. See also **Arnold Reissert**, **Friedrich Wilhelm Semmler**.
- Tiemann, Walter**, oxidation of gluconic acid with Fehling's solution, 1891, A., 426.
- Tiesenhausen, Hildebr.** (Baron). See **Georg Dragendorff**.
- Tiesler, Wilhelm**. See **Friedrich Kehrmann**.
- Tietze, Emil Ernst August**, turquoise from Nischapur, Persia, 1886, A., 25.
- Tiffereau**, action of direct sunlight on nitric acid mixed with carbon bisulphide, 1885, A., 1110.
- Tigerstedt, Arthur**. See **Carl Adam Bischoff**.
- Tilden, William Augustus**, hydrocarbons of the formula  $(C_3H_5)_n$ , 1883, A., 75.
- note on the melting points, and their relation to the solubility of hydrated salts, 1884, T., 266.
- on the decomposition of terpenes by heat, 1884, T., 410.
- sources of error in the calorimetric study of salts, 1886, P., 198; discussion, P., 199.
- influence of temperature on the heat of dissolution of salts, 1886, A., 499; 1887, P., 66; discussions, P., 68.
- the constitution of the terpenes and benzene, 1888, T., 879; P., 89; discussion, P., 91.
- on limettin, 1892, T., 344; P., 33.
- spontaneous conversion of isoprene into caoutchouc, 1892, A., 1482.
- Tilden, William Augustus**, and **Charles Ridgeway Beck**, crystallised substances obtained from the fruits of various species of Citrus, 1890, T., 323; P., 30.
- Tilden, William Augustus**, and **James Hill Millar**, formation and nitration of phenyldiazoimide, 1892, P., 215.
- Tilden, William Augustus**, and **William Ashwell Shenstone**, solubility of salts in water at high temperatures, 1884, A., 254.
- solubility of calcium sulphate in saline solutions, 1885, A., 1183.
- Tillmanns, Heinrich**, anhydrides of the diphenylsuccinic acids, 1890, A., 1135.
- Timiriazoff, Clemens A.**, chlorophyll and the distribution of energy in the solar spectrum, 1883, A., 697.
- chemical action of light on chlorophyll, 1885, A., 714.
- chlorophyll: the reduction of carbonic anhydride by plants, 1886, A., 626.
- relation between the intensity of radiation and the decomposition of carbonic anhydride, 1889, A., 1234.
- protophyllin in etiolated plants, 1889, A., 1236.
- Timm, J.** (and others), cultivation of potatoes, 1884, A., 1411.
- Timoféeff, Wladimir F.**, solubility of oxygen and hydrogen in water and in alcohol, 1891, A., 15.
- effusion of gases through a narrow aperture at different temperatures, 1891, A., 381.
- heat of dissolution of carbon compounds in various alcohols, 1891, A., 1313.
- specific heats of some solutions, 1891, A., 1406.
- Tingle, John Bishop**, action of ethyl oxalate on camphor, 1890, T., 652; P., 99.
- Tingle, John Bishop**. See also **William Henry Perkin, junior**.
- Tissandier, Gaston**, apparatus for the constant production of gas, 1885, A., 722.
- Tissier, Louis**, the fourth primary amyl alcohol, 1891, A., 998.
- Tissot, Georg**. See **Arthur Michael**.
- Tissot, Georges**. See **Paul Juillard**.
- Tiatschenko, Watschislau E.**, action of halogen hydrides on oxymethylene, 1888, A., 803.
- action of halogens on oxymethylene, 1888, A., 804.
- action of zinc organic compounds on oxymethylene: synthesis of primary alcohols, 1888, A., 804.
- Tite, Georges**. See **Gustave Rousseau**.
- Tivoli, Deodato**, compounds of platinum and arsenic, 1885, A., 728.
- action of hydrogen arsenide on arsenious anhydride, 1888, A., 221.
- action of hydrogen arsenide on potassium permanganate, 1890, A., 1210.
- dehydracetic acid, 1891, A., 1455.
- Tivoli, Deodato**. See also **Alfredo Cavazzi**, **Guido Pellizzari**.
- Tobias, Georg**, formation of anilides, 1883, A., 325.
- formanilide and its homologues, 1883, A., 325.

- Tobias, Georg**, behaviour of alkali phosphates to various indicators, 1883, A., 380.
- diazosulphonic acids, 1890, A., 1149.
- Tobin, Thomas William**, explosive and dangerous dusts, 1883, A., 836.
- Tobisch**, influence exerted by the weight of potato "sets," 1883, A., 236.
- Tocher, James Fowler**, detection of sesame oil in olive oil, 1891, A., 1400.
- Töhl, Albert**, *s-m*-xylidine and *s*-xlenol, 1885, A., 522.
- *c-o*-xylidine and *o*-xlenol, 1886, A., 57.
- derivatives of 1:2:3:4-tetramethylbenzene (prehnitene), 1888, A., 584.
- synthesis of *p*-propyltoluene and *p*-isopropyltoluene, 1891, A., 1022.
- halogen derivatives of methylbenzenes, 1892, A., 967.
- action of sulphuric acid on bromoprehnitene, 1892, A., 968.
- action of sulphuric acid on chlorodurone, 1892, A., 968.
- chlorodurenesulphonic acid, 1892, A., 1465.
- Töhl, Albert**, and **Adolf Geyger**, *s*- and *as*-ethyl-*m*-xylenes, 1892, A., 968.
- Töhl, Albert**, and **Dionysius von Karchowski**, ethyl- $\psi$ -cumene and the action of sulphuric acid on it, 1892, A., 990.
- Töhl, Albert**. See also **Robert Heise**.
- Tölle, Alfred**. See **Hans Julius Anton Edward Hübner**.
- Tölle, Ernst**. See **Karl Elbs**.
- Tönnies, Paul**, action of nitrous acid on anethoil, 1888, A., 264.
- Tönnies, Paul**, and **Adolf Staub**, action of nitrous acid on furfurylbutylene, 1884, A., 1129.
- Törnebohm, Alfred Elis**, occurrence of iron ores at Taberg, in Smaaland, 1883, A., 429.
- phonolites of Elfdalen, 1884, A., 276.
- Törning, Hans (Graf) von**, amount of glycerol in the residuary liquors of brandy distillation, 1889, A., 735.
- estimation of glycerol in wine and beer, 1890, A., 426.
- Tollens, Bernhard**, ammoniacal silver solution as a reagent for formaldehyde, 1888, A., 125.
- behaviour of dextrose with ammoniacal alkaline silver solution, 1884, A., 283.
- oxymethylene and formaldehyde, 1884, A., 293.
- simple method of demonstrating Spring's compression experiments, 1884, A., 958.
- Tollens, Bernhard**, derivatives of formaldehyde, 1884, A., 988.
- action of baryta on acetaldehyde and formation of aldehyde-gum, 1884, A., 989.
- melting point of monochloroacetic acid, 1884, A., 990.
- circular polarisation of cane-sugar, 1884, A., 1285.
- circular polarisation of dextrose, 1885, A., 40.
- raffinose (melitose ?) from molasses, 1885, A., 368.
- melitose from *Eucalyptus mamma*, 1886, A., 527.
- formaldehyde, 1886, A., 1006.
- normal solutions and the retention of Mohr's system, 1886, A., 1070.
- behaviour of sugar towards acids and phenol, 1887, A., 534.
- rotatory power of levulose and invert sugar, 1891, A., 1178.
- reactions of xylene and arabinose, 1892, A., 290.
- Tollens, Bernhard**, and **Friedrich Mayer**, determination of the molecular weight of raffinose and formaldehyde, 1888, A., 809.
- estimation of the molecular weight of *p*-formaldehyde, 1889, A., 369.
- Tollens, Bernhard**, and **Winthrop E. Stone**, fermentation of galactose, 1888, A., 808.
- Tollens, Bernhard**, and **P. Wigand**, penterythritol, a tetrahydric alcohol, 1892, A., 127.
- Tollens, Bernhard**, **Friedrich Mayer**, and **Homer J. Wheeler**, molecular weight of arabinose and xylose, 1889, A., 367.
- Tollens, Bernhard** (and others), carbohydrates, 1892, A., 218.
- Tollens, Bernhard**. See also **Edwin West Allen**, **K. Beythien**, **Kurt Bieler**, **Justus Block**, **Guillaume J. L. de Chalmot**, **Robert Creydt**, **August Deichmüller**, **Robert Gans**, **August Günther**, **Julius Haedicke**, **Paul Herrmann**, **C. Hitzemann**, **Walter Henry Kent**, **Karl Kreckeler**, **J. B. Lindsey**, **Hermann Moschato**, **Eugen Parcus**, **Paul Rischbieth**, **Wilhelm Schnelle**, **Carl Schulze**, **Otto Soest**, **Winthrop E. Stone**, **John H. Washburn**, **Carl Wehmer**, **Fred. C. Weld**, **Charles Wellington**, **Homer J. Wheeler**.
- Tomasini, Francesco**. See **Pietro Cardani**.
- Tomaszewski, Franz**, specific inductive capacity of liquids, 1888, A., 395.

- Tomíček, František.** See *Bohuslav Brauner*.
- Tomlinson, Charles,** boiling of liquids in a vessel contained in a water-bath, 1885, A., 474.
- motions of camphor on water, 1885, A., 1180.
- decolorisation of iodide of starch by heating, 1886, A., 328.
- cohesion and submersion figures, 1887, A., 209.
- Tomlinson, Herbert,** recalcence of iron, 1883, A., 546.
- magnetic properties of nickel, 1888, A., 892.
- Tommasi, Donato,** action of light on silver bromide, 1883, A., 3.
- zinc-carbon couples in electrolysis, 1883, A., 4.
- nascent hydrogen, 1883, A., 7.
- action of aluminium on cupric chloride, 1883, A., 19.
- stability of cupric hydroxide, 1883, A., 19.
- ferric hydrates, 1883, A., 24.
- electrolysis of hydrochloric acid, 1883, A., 142.
- laws of thermal constants of substitution, 1883, A., 143; 1884, A., 883.
- heat of formation of glycolates, 1883, A., 708.
- heat of combination of glycolates, 1883, A., 775.
- heat of formation of fluorides, 1884, A., 545; 1885, A., 8.
- non-existence of ammonium hydroxide, 1884, A., 1247; 1885, A., 484.
- dehydrating action of salts, 1884, A., 1251.
- heat of formation of some soluble compounds and the law of thermal substitution constants, 1885, A., 8.
- heat of formation of hydrogen compounds, 1885, A., 716.
- electro-pseudolysis, 1885, A., 1029.
- electrolysis of some chemical compounds, 1886, A., 408.
- law of thermal constants, 1886, A., 408.
- cfluviography, 1886, A., 959.
- Tommasi, Donato, and Guido Pellizzari,** change which ferric hydrate undergoes after a time, 1883, A., 24.
- Tommasi, Donato, and Radiguet,** battery with carbon electrodes, 1884, A., 1240.
- electric couple with carbon elements, 1887, A., 756.
- Tompson, Frederick William.** See *Cornelius O'Sullivan*.
- Toms, G.,** silage, 1884, A., 864.
- Tonn, Leonhard.** See *Adolph Claus*.
- Tony-Garcin,** detection of cane sugar, glucose, and dextrin in wines, 1887, A., 692.
- acidimetry with red wines, 1888, A., 93.
- Tooth, Howard Henry.** See *Vincent Dormer Harris*.
- Topf, G.,** iodometric studies, 1887, A., 688, 997.
- Topsøe, Haldor,** estimation of chlorides, bromides, and iodides in presence of sulphuretted hydrogen, 1883, A., 508.
- Tornani, Achille.** See *Dioscoride Vitali*.
- Tornier, Victor.** See *Adolph Claus*.
- Tornøe, Hercules,** trimethylene: formation of allyl alcohol from *s*-dichlorhydrin, 1883, A., 665.
- allyl alcohol and its preparation from dichlorhydrin and sodium, 1891, A., 1442.
- Tornøe, Hercules, and Ludwig Schmelok,** solid and gaseous constituents of sea water and oceanic deposits, 1884, A., 31.
- Tortelli, Massimo,** synthesis of *m*-quinolinecarboxylic acid, 1887, A., 503.
- Torup, Sophus,** production of the proteids of the blood, 1889, A., 532.
- Torup, Sophus.** See also *Christian Bohr, Vaughan Harley*.
- Tosse, Franz.** See *Adolph Claus*.
- Tóth, Julius,** estimation of phenol in crude carbolic acid, 1886, A., 744.
- comparison between methods for the estimation of tartaric acid, 1891, A., 128.
- Tozzetti, Targeoni** (and others), phylloxera, 1884, A., 355.
- Trainer, Ernst.** See *Adolph Claus*.
- Trapedach, Alexander.** See *Alfred Seyberlich*.
- Trapesonjanz, Chat-cheres.** See *Carl Adam Bischoff*.
- Traub, Max Carl,** action of phthalic anhydride on quinoline, 1883, A., 667.
- composition of cocoa butter, 1884, A., 40.
- Traub, Max Carl, and Karl Hock,** a lakmoid, 1885, A., 148.
- Traub, Max Carl, and C. Schärger,** coal-tar quinoline, 1885, A., 173.
- Traube, Hermann,** nephrite from Jordansmühl in Silesia, 1885, A., 361, 1189.
- analyses of diallage, labradorite, etc., 1886, A., 212.
- laubanita. laumontite, 1887, A., 903.
- eclogite from Frankenstein in Silesia, 1889, A., 681.
- zinc bearing aragonite from Tarnowitz, 1889, A., 763.

- Traube, Hermann**, pyrrargyrite from Kajánal in Transylvania, 1890, A., 1070.
- syenites and hornblende-schists near Glatz in Lower Silesia, 1890, A., 1076.
- the proportion of molybdenum in scheelite, 1891, A., 406.
- Traube, Isidor**, action of cyanogen chloride on amido-acids, 1888, A., 192.
- contributions to the knowledge of *m*-carbamidobenzoic acid and carbamidodibenzoic acid, 1883, A., 194.
- capillary phenomena in relation to constitution and molecular weight, 1885, A., 116.
- preparation of cyanamide, 1885, A., 739.
- capillary constants of certain aqueous and alcoholic solutions, 1885, A., 866.
- influence of temperature on the capillary meniscus angle, 1885, A., 1038.
- specific viscosity of organic liquids, 1886, A., 657.
- estimation of fusel oil, 1886, A., 743.
- size of maximum drops of alcohols, etc., 1886, A., 844.
- dependence of the size of drops on external influences, 1886, A., 844.
- capillary constants and the meniscus angle, 1887, A., 101.
- weight of drops and their relation to capillarity, 1887, A., 210.
- the stalagmometer: estimation of fusel oil in spirituous liquors, 1888, A., 91, 198; 1892, A., 543.
- examination of spirituous liquids, 1889, A., 654.
- dissociation hypothesis, 1891, A., 255, 638, 874.
- the association hypothesis in its relation to the theories of Clausius and van't Hoff, 1891, A., 390.
- freezing points of dilute aqueous solutions of non-electrolytes and electrolytes, 1891, A., 971.
- electrical conductivity and freezing point, 1891, A., 971.
- capillary constants of organic substances in aqueous solution, 1891, A., 1408.
- capillary constants of salts at their melting points, 1892, A., 7.
- cryoscopic behaviour of dilute solutions, 1892, A., 8.
- estimation of fusel oil in spirits, 1892, A., 543.
- cryoscopic communications, 1892, A., 765.
- Traube, Isidor**, molecular volumes of dissolved substances, 1892, A., 1383.
- Traube, Isidor**, and **Oscar Neuberg**, formation of layers in mixtures of alcohol, water, and salts or bases, 1888, A., 783.
- action of iodine on the alcohols of the  $C_nH_{2n+2}O$  series, 1891, A., 656.
- Traube, Isidor**. See also *August Bernthsen, Guilo Bodländer*.
- Traube, Moritz**, oxidation of carbonic oxide by palladium hydride and oxygen, 1883, A., 150.
- activity of oxygen, 1883, A., 282.
- action of platinum and palladium on carbonic oxide and hydrogen, 1883, A., 422.
- oxidation, 1883, A., 709.
- action of nascent hydrogen on oxygen gas, 1883, A., 900.
- cupric iodide, 1884, A., 962.
- test for hydrogen peroxide, 1884, A., 1073.
- cooperation of water in the slow oxidation of zinc, lead, iron, and palladium-hydrogen, 1885, A., 1105.
- slow oxidation of copper in presence of dilute sulphuric acid or of a solution of ammonium carbonate, 1885, A., 1107.
- cooperation of water in the combustion of carbonic oxide, and formation of hydrogen peroxide during such combustion, 1885, A., 1108.
- formation of hydrogen peroxide during the combustion of hydrogen, 1885, A., 1108.
- constitution of hydrogen peroxide, 1886, A., 660.
- oxygen molecular compounds, 1886, A., 661.
- change of valency; combinations of molecules with atoms, 1886, A., 661.
- electrolytic formation of hydrogen peroxide at the anode, 1888, A., 210.
- autoxidation, 1889, A., 937; 1890, A., 208.
- constitution of peroxides, 1889, A., 939.
- formation of hydrogen peroxide from persulphuric acid, 1889, A., 940.
- behaviour of persulphuric acid towards nitrogen: evaporation of hydrogen peroxide, 1889, A., 941.
- sulphuryl peroxide (holoxide), 1891, A., 978; 1892, A., 401.
- Traube, Wilhelm**, additive compounds of cyanic acid, 1889, A., 393.
- derivatives of allophanic acid, 1889, A., 964.

- Traube, Wilhelm**, aromatic sulphonamic acids, 1890, A., 1137; 1891, A., 569.
- amides and imides of sulphuric acid, 1892, A., 1389.
- Traube-Mengarini, M.**, gases in the swimming-bladder of fishes, 1890, A., 183.
- Traumann, Victor**, amidothiazoles and their isomerides, 1889, A., 414.
- Traumann, Victor**. See also *Arthur Rudolf Hantzsch*.
- Trautmann, Emile**, dyes of the primuline group, 1891, A., 195.
- Trautmann, Emile**. See also *Emilio Nölting*.
- Travali, G. Russo**. See *L. de Blasi*.
- Treadwell, Frederic P.**, estimation of sulphur, 1891, A., 1137; 1892, A., 1375.
- milarite, 1892, A., 1056.
- Treadwell, Frederic P.**, and *Victor Meyer*, molecular weight of isoindole, 1883, A., 665.
- Treadwell, Frederic P.**, and *Henry N. Stokes*, source of error in the estimation of benzene in coal gas, 1889, A., 190.
- Treadwell, Frederic P.**, and *Bernhard Westenberger*, nitrosoketones, 1883, A., 572.
- Trechmann, Charles O.**, epistilbite, 1883, A., 442.
- Trenkler, Bruno**, indoles, 1889, A., 259.
- Trescot, Thomas Outhbert**. See *Charles Albert Crampton*.
- Tresidder, Richard C.**, preparation of diquinoline, 1884, A., 84.
- Tresidder, Richard C.** See also *Francis Robert Japp*.
- Treupel, K.**, carbohydrates of putrefying human urine, 1892, A., 226.
- Trève, Auguste Robert Stanislas**, prevention of boiler explosions, 1883, A., 250, 835.
- Trevor, Jos. B.**, solutions of double salts, 1891, A., 973.
- mutual solubility of salts in water, 1892, A., 264.
- Trey, Heinrich**, basicity of thiosulphuric acid, 1885, A., 870.
- influence of some normal salts on the hydrolysis of methyl acetate, 1887, A., 102.
- Tribe, Alfred**, conditions affecting area of electrification, 1884, A., 247.
- distribution of electricity on hollow conductors in electrolytes, 1884, A., 248.
- Tribe, Alfred**. See also *John Hall Gladstone*.
- Tribe, Alfred**, obituary notice of, 1886, T., 352.
- Trillat, Auguste**, and *de Baczowski*, azo- and alkyl-compounds of chrys-aniline and the colouring matters derived therefrom, 1892, A., 1095.
- Trillich, H.**, estimation of carbonic acid in potable waters containing magnesium, 1890, A., 197.
- Trimble, Henry**, chestnut-wood tannin, 1892, A., 716.
- Trimble, Henry**, and *Hermann J. M. Schroeter*, oils of wintergreen and of birch, 1890, A., 256.
- oil of camphor, 1890, A., 261.
- Trimble, Henry**. See also *Helen C. S. Abbot (Mrs. Michael)*.
- Trinius, Paul**, derivatives of hydratropic acid; artificial formation of phloretic acid, 1885, A., 529.
- Trobach, Konrad**, new method of sugar extraction, 1885, A., 848.
- Tröger, Julius**, bases obtained with nascent formaldehyde, 1888, A., 286.
- action of sodium on isobutyl cyanide and isoamyl cyanide, 1888, A., 801.
- Tröger, Julius**. See also *Robert Otto*.
- Trötsch, J.**, influence of water of crystallisation on the electrical conductivity of salt solutions, 1891, A., 141.
- Troilius, Magnus**, estimation of manganese and phosphorus in iron and steel, 1885, A., 597.
- Troisier, E.** See *Emile Elie Bourquelot*.
- Troost, Louis Joseph**, boiling-point of selenium, 1883, A., 17.
- permeability of silver to oxygen, 1884, A., 961.
- remarks on some criticisms of Friedel concerning chloral hydrate, 1885, A., 746.
- vapour density of thorium chloride, 1885, A., 1113.
- thorium *m*-phosphate, 1885, A., 1113.
- Troost, Louis Joseph**, and *Léon Victor René Ouvrard*, thorium potassium and zirconium potassium sulphates, 1886, A., 853.
- thorium silicates, 1887, A., 1016.
- thorium sodium and zirconium sodium phosphates, 1887, A., 1017.
- Troschke**, carnallite, a cheap substitute for kainite, 1884, A., 868.
- preservation of ammonia in stable manure, 1885, A., 187.
- water culture of lupines, 1885, A., 420.

- Troschke**, composition of furze (*Ulex europaeus*), 1885, A., 684.  
 — cultivation and composition of sorghum, 1885, A., 1155.  
 — German and American clover, 1886, A., 646.  
 — composition of white mustard during growth, 1886, A., 913.  
 — composition of lupines, 1887, A., 518.  
**Trottarelli, Giacomo**, meteorite from Collescipoli, 1891, A., 533.  
**Trottarelli, Giacomo**. See also *Antonio Verri*.  
**Trouvé, Gustave**, modification of the bichromate battery, 1888, A., 700.  
 — reply to the observations of Reynier on bichromate batteries, 1888, A., 765.  
**Trowbridge, John**, measurement of strong electric currents, 1885, A., 855.  
**Trowbridge, John**, and *C. C. Hutchins*, oxygen in the sun, 1887, A., 1065.  
 — existence of carbon in the sun, 1887, A., 1065.  
**Trowbridge, John**, and *Wallace Clement Sabine*, metallic spectra in the ultraviolet, 1889, A., 1.  
**Trowbridge, John**. See also *Hammond Vinton Hayes*.  
**Truchot, Ch.**, determination of the limits of electrolysis, 1884, A., 2.  
 — thermochemistry of alkaline fluor-silicates, 1884, A., 884.  
 — thermochemistry of ammonium fluor-silicates, 1885, A., 626.  
**Truffi, Ferruccio**. See *Giacomo Bertoni*.  
**Truhlar, Jos.**, thio-*p*-toluidine, 1887, A., 472.  
**Trussewitsch, A. A.**, surface tension of the halogens, 1891, A., 257.  
**Trzcinski, Wawrzyniec**, action of dibromobarbituric acid on thiocarbamide and thiocyanates, 1883, A., 913.  
 — condensation of aromatic aldehydes with phenols, 1884, A., 590.  
 — condensation product of  $\beta$ -naphthol with benzaldehyde, 1884, A., 1185.  
**Tschacher, Oswald**, condensation of nitrobenzaldehyde with hydrocarbons, 1887, A., 44.  
 — condensation of *m*-nitrobenzaldehyde with benzene and toluene, 1888, A., 373.  
**Tschajtschinsky, (Fraulein) M.**, serpentine from Finland, 1890, A., 715.  
**Tschaplowitz, F.**, nourishment of fruit trees, 1886, A., 890.  
 — estimation of carbonic anhydride, 1891, A., 1291.  
**Tschebotareff, Alexander**, and *Alexander M. Saytzeff*, synthesis of ethyldi-propylcarbinol, 1886, A., 437.  
**Tschelebéeff, C.** See *Simoon M. Tanatar*.  
**Tschelzoff, Ivan M.**, heat of formation of picrates, 1885, A., 1103; 1886, A., 841.  
**Tschermak, Gustav**, the scapolite group, 1884, A., 566; 1887, A., 560.  
 — classification of meteorites, 1884, A., 975.  
 — proportion of chlorine in scapolite, 1885, A., 1187.  
**Tschermak, Gustav**. See also *Ernst Ludwig*.  
**Tschernai, Nicolai A.**, dilatation of salt solutions, 1889, A., 204, 330, 1101; 1890, A., 318.  
**Tscherven-Iwanoff, N.**, polynneride of trichloroacetonitrile, 1891, A., 1332.  
 — polymerides of dichloroacetonitrile and trichloroacetonitrile, 1892, A., 1291.  
**Tschenschner, E.**, calculation of glass-batches, 1885, A., 937.  
**Tschirsch, Wilhelm Oswald Alexander**, microchemical reaction methods, 1883, A., 376.  
 — on the preparation of pure chlorophyll, 1884, T., 57.  
 — *Hyacinthus orientalis*, 1885, A., 1254.  
 — aleurone-grains in the seeds of *Myristica surinamensis*, 1887, A., 1061.  
 — chlorophyll, 1887, A., 1116.  
 — influence of sterilisation of soil on the growth of plants, 1888, A., 985.  
 — estimation of chlorophyll in leaves and extracts, 1890, A., 672.  
 — formation of phlobaphenes, 1891, A., 1287.  
**Tschirsch, Wilhelm Oswald Alexander**. See also *Ernst Tavel*.  
**Tschirwinsky, Nicolai P.**, formation of fat in the animal organism, 1881, A., 345, 912.  
**Tschuschke, A.**, manuring sugar-beet, 1883, A., 823.  
**Tabby, Alfred Herbert**, and *Thomas Davys Manning*, human succus entericus, 1892, A., 1368.  
**Türin, V. von**, determination of the molecular weight of metals, 1890, A., 1046.  
**Tuma, Josef**. See *Franc. Exner*.  
**Tummeley, Edward**, azo-compounds of salicylaldehyde, salicyl alcohol, and salicylamide, 1889, A., 779.  
**Turner, Alfred E.** See *Francis Robert Japp*.  
**Turner, Charles**, preparation of *o*-nitro-aniline, 1892, A., 837. —

- Turner, Thomas**, on the estimation of silicon in iron and steel 1884, T., 260; 1887, A., 1140; 1888, A., 195.  
 — selective alteration of the constituents of cast-iron, 1885, T., 474; P., 61.  
 — influence of silicon on the properties of cast-iron, 1885, T., 577, 902; P., 85, 100; discussion, P., 85, 101; 1886, T., 130; P., 133, 266; discussion, P., 134, 267; 1887, T., 129; 1888, T., 844.  
 — estimation of carbon in iron and steel, 1885, A., 1161.  
 — influence of remelting on the properties of cast-iron, 1886, T., 493; P., 209.  
**Turner, Thomas**. See also *Arthur Edward Barrows*, *Percy Faraday Frankland*, *A. E. Jordan*.  
**Turpin, Eug.**, explosives, 1884, A., 1452.  
**Turpin, George Sherbrooke**, septadecylamine, 1888, A., 1174.  
 — the action of picric chloride on amines in presence of alkali, 1891, T., 714; P., 123.  
**Tursini, Alfonso**, action of perthiocyanic acid on some aromatic monamines, 1884, A., 1140.  
**Tust, Karl**, bromo-opianic acid, 1892, A., 1209.  
**Tust, Paul**, tetrachlorobenzoic acid from tetrachlorophthalic acid, 1887, A., 1046; 1888, A., 836.  
**Tutein, Friedrich**. See *Adolf von Baeyer*.  
**Tutton, Alfred Edwin**, crystallographical relations of the derivatives of dibenzoylcinnamene, 1890, T., 714; P., 139.  
 — crystalline form of the calcium salt of the new optically active glyceric acid, 1891, T., 233; P., 29.  
 — crystallographical characters of aconitine from *Aconitum Napellus*, 1891, T., 288; P., 39.  
**Tutton, Alfred Edwin**. See also *Thomas Edward Thorpe*.  
**Tuxen, Chr. Fr. A.**, rain as a source of nitrogen for vegetation, 1892, A., 233.  
**Twerdomedoff, Sergius**. See *Carl Hell*.  
**Twitchell, Ernst**, estimation of resin in its mixtures with fatty acids, 1892, A., 389.  
**Twitchell, Ernst**. See *Thomas Herbert Norton*.  
**Tyndall, John**, unobserved resemblance between carbonic anhydride and carbon bisulphide, 1883, A., 1049.  
 — heat radiation from the earth, 1884, A., 486.  
**Typke, Paul George William**, nitro-derivatives of resorcinol, 1883, A., 917.

- Tzschucke, H.**, direct estimation of phosphoric acid as tricalcium phosphate, 1889, A., 439.

## U.

- Udránszky, László von**, urinary pigments, 1887, A., 1133; 1888, A., 180.  
 — furfuraldehyde colour reactions, 1888, A., 863, 878; 1889, A., 449.  
 — formation of glycerol in alcoholic fermentation, 1889, A., 1027.  
**Udránszky, László von**, and *Eugen Baumann*, benzoic chloride as a reagent, 1888, A., 1296.  
 — identity of putrescine and tetramethylenediamine, 1889, A., 33.  
 — diamines [ptomaines] in cystinuria, 1889, A., 1024; 1891, A., 350.  
**Udránszky, László von**. See also *Oscar Hinsberg*.  
**Uebel, Carl**, ammonia derivatives of cumaldehyde, 1888, A., 1078.  
**Uffemann, Julius**, on the digestion of cows' milk, and on the substances which increase its digestibility, 1884, A., 192.  
 — oxidation of ammonia in waters and soils, 1886, A., 917.  
 — estimation of fusel oil in spirits, 1886, A., 1079.  
 — analysis of atmospheric air, 1889, A., 209.  
**Uhl, Johannes**, action of sulphurous anhydride on metals, 1890, A., 1371.  
**Uhl, Johannes**. See also *Joh. Friederich Carl Schall*.  
**Uhlhorn, E.**, laurenes, 1890, A., 1248.  
 — propylxylenes, 1890, A., 1249.  
 — diisopropylbenzene, 1891, A., 184.  
**Ulbricht**, amount of substances yielding oil of mustard in various foods, and their action in the animal body, 1890, A., 539.  
**Ulbricht, Richard**, estimation of dry substance in wine and must, 1884, A., 1432.  
 — wine analysis, 1885, A., 692.  
 — estimation of tannins by Löwenthal's method, 1885, A., 934.  
 — researches on gourds, 1886, A., 95.  
**Uldall, P.**, comparative value of fresh and artificial butter, 1884, A., 622.  
**Ulffers, Fritz**. See *Augustin Bistrzycki*.  
**Uljanin, W. von**, contact electricity, 1888, A., 390.  
 — electromotive force produced by the action of light on selenium, 1888, A., 883; 1889, A., 202.

- Ullik, Franz**, nitrogenous constituents of malt, wort, beer, and bread, 1883, A., 821.  
 — steeping of barley, 1884, A., 526.  
 — carbohydrates, 1892, A., 1066.
- Ullmann, Carl**, nitrotoluidine from liquid dinitrotoluene, 1884, A., 1316.  
 — derivatives of triphenylmethane, 1885, A., 1236; 1888, A., 288.
- Ulrich, Ed.**, new blue for printing, 1886, A., 187.
- Ulrich, Carl**, oxidation of bisecundary pentethylphloroglucinol by means of uncombined oxygen, 1892, A., 1188.
- Ulrich, Moritz**, new synthesis of vanillin, 1886, A., 60.
- Ulsch, Karl**, decomposition of ethyl chlorocarbonate by zinc chloride, 1885, A., 376.  
 — Kjeldahl's method for estimating nitrogen, 1887, A., 863.  
 — estimation of nitric acid by reduction to ammonia, 1891, A., 617, 960.  
 — action of the copper-iron couple on nitrates and nitrites, 1892, A., 1518.
- Ulzer, Ferdinand**, derivatives of resorcinolsulphonic acid, 1889, A., 510.
- Ulzer, Ferdinand**. See also *Rudolf Benedikt*.
- Umney, John C.**, oil of anise, 1889, A., 659.
- Umney, John C.** See also *Wyndham Rowland Dunstan*.
- Underwood, George Robinson**. See *Walter Spooner Allen*.
- Ungar, E.**, tin in preserved food, 1884, A., 800.
- Unger, B.**, analysis of vulcanised caoutchouc, 1885, A., 841.
- Ungern-Sternberg, T. von**, the Rapa-kiwi granite from Finland, 1883, A., 447.
- Unwin, William Cavorthorne**, relations of pressure, temperature, and volume in saturated vapours, 1886, A., 764.
- Upmeyer**. See *Eduard Reichardt*.
- Upward, William**, estimation of caustic in causticised soda liquor, 1886, A., 1074.
- Urban, V.**, constituents of vegetable tissues, 1884, A., 858.
- Urban, V.** See also *Edmond Fremy*.
- Urban, Carl**, 1:3-naphthylenediamine, 1887, A., 674.
- Urban, Karl**. See *Rudolph Fittig*.
- Urech, Friedrich**, strobometric determination of the rate of inversion of cane sugar, and transition of the birotation of milk sugar to its normal rotation, 1888, A., 174.
- Urech, Friedrich**, influence of mass and time on the inversion of sugar, 1883, A., 306.  
 — rapidity of separation of cuprous oxide by the action of invert sugar on Fehling's solution, 1883, A., 385.  
 — effect of temperature and concentration of acid on the rate of inversion of saccharose, 1883, A., 1077; 1885, A., 41.  
 — relation between the solubility and rotation of milk sugar, 1884, A., 36.  
 — influence of the quantity of the constituents of Fehling's solution on the rate of separation of cuprous oxide by invert sugar, 1884, A., 574.  
 — inversion of cane sugar by acids, 1884, A., 721.  
 — rate of reduction of Fehling's solution by sugars, 1884, A., 1112.  
 — action of alkalis on invert sugar, dextrose, and milk sugar, 1884, A., 1112.  
 — birotation of glucose and milk sugar, 1884, A., 1112.  
 — influence of the diluent on the rate of chemical action, 1885, A., 480.  
 — birotation of some saccharoses and glucoses, 1886, A., 220.  
 — rudimentary formula of the rate of reactions, 1886, A., 816.  
 — velocity of chemical reactions, 1887, A., 697.  
 — influence of temperature on the rate of inversion of cane sugar, 1887, A., 768.  
 — influence of the temperature on the rate of chemical change, 1888, A., 338.  
 — reduction velocity of alkaline copper solution, 1889, A., 462.
- Urech, Friedrich**. See also *Carl Hell*.
- Urquhart, D., and William Augustus Rowell**, process for working up strontium sulphate, 1884, A., 1225.
- Urwanzoff, Leo**, oxidation of erucic acid, 1889, A., 1146.
- Ussing, N. V.**, minerals from Fiskernæs in Greenland, 1890, A., 19.
- Ustinoff, Dmitrius**,  $\beta$ -dimethacrylic acid, 1886, A., 140; 1887, A., 359.
- Ustinoff Dmitrius**, and *Alexander M. Saytzeff*, dipropylcarbinol, 1887, A., 353.

## V.

(For names not found here, see under W.)

**Valenta, Eduard**, examination of fats, 1884, A., 504.

- Valenta, Eduard**, seeds of *Bassia longifolia* and the fat contained therein, 1884, A., 919.
- behaviour of some fats and lubricating oils towards glacial acetic acid, 1884, A., 1078.
- testing mineral oils, 1885, A., 93.
- toilet soap analysis, 1885, A., 696.
- apparatus for fractional distillation under reduced pressure, 1890, A., 556.
- resin obtained from Thwaites' *Doona zeylanica*, 1891, A., 1385.
- Valentine, E. P.**, a decomposition product of allanite, 1886, A., 128.
- Valentini, Antonio**, lecture experiments, 1885, A., 215; 1887, A., 442.
- *p*-methoxyphenoxycinnamic acid, 1885, A., 264.
- methyl methyl dibromo-*p*-coumarate, 1887, A., 488.
- Valeur, Fredrik**. See *Wilhelm La Coste*.
- Valle, Giuseppe La**. See *Alfonso Cossa*.
- Vallin, K.**, *m*-toluenesulphonic acid, 1887, A., 263.
- Valser**. See *Granval*.
- Vandevelde, Guillaume**, chemistry of *Bacillus subtilis*, 1885, A., 287.
- Vanino, Ludwig**, titration of permanganate and of bleaching powder by hydrogen peroxide, 1891, A., 246.
- technical valuation of bleaching powder, 1891, A., 615.
- Vanni, Angelo**,  $\alpha$ -naphthylamine-phthalen, 1886, A., 68.
- Vanni, Angelo**. See also *Hugo Schiff*.
- Vanni, J.**, apparent variability of the electrical equivalent of copper, 1892, A., 105.
- Vanni, Luigi** and *Enrico Pons*, phosphates in urine, 1888, A., 621.
- Varda, Giovanni de**, sulphoisovaleric acid, 1889, A., 35.
- derivatives of methylpyrrolidine, 1889, A., 57.
- tertiary pyrrolines, 1890, A., 389.
- action of light on anethoil, 1891, A., 1347.
- nitro-derivative of methyl  $\alpha$ -hydroxypropionate, 1892, A., 583.
- condensation of nitrobenzaldehydes with salicylic acid, 1892, A., 621.
- Varda, Giovanni de**, and *Menotti Zenoni*, products of condensation of *m*-nitrobenzaldehyde with phenol and resorcinol, 1891, A., 1846. \*
- Varda, Giovanni de**. See also *Matteo Spica*.
- Varenne, Eugène**, preparation of mesitylene, 1884, A., 588.
- Varenne, Eugène**, coagulation of albumin, 1886, A., 373.
- Varet, Raoul**, ammonio-zinc cyanides, 1888, A., 123.
- action of zinc cyanide on metallic chlorides, 1888, A., 799.
- action of mercuric cyanide on cupric salts, 1889, A., 359.
- ammonio-mercuric cyanides, 1890, A., 223.
- interaction of haloid salts of mercury and zinc, 1890, A., 224.
- action of ammonia on the compounds of mercuric cyanide with metallic chlorides, 1890, A., 351.
- action of cupric salts on metallic cyanides, 1890, A., 464.
- combination of mercuric cyanide with lithium salts, 1891, A., 28.
- combination of mercuric cyanide with cadmium salts, 1891, A., 161.
- ammoniacal derivatives of mercuric cyanide, 1891, A., 655.
- isopurpurates, 1891, A., 681.
- pyridine compounds, 1891, A., 732, 838.
- terebenthene, 1891, A., 1084.
- action of ammonia on some compounds of the haloid salts of mercury, 1891, A., 1441.
- cyanogen compounds of magnesium, 1891, A., 1442.
- action of ammonia on mercuric cyanide and its haloid derivatives, 1892, A., 575.
- action of metals on salts dissolved in organic liquids, 1892, A., 797.
- piperidine compounds, 1892, A., 1483.
- Varet, Raoul**, and *H. Vienne*, action of acetylene on benzene in presence of aluminium chloride, 1887, A., 806.
- Varigny, Henri de**, and *Paul Bert*, influence of sea-water on fresh-water animals, 1884, A., 620.
- Varnholt, L.**, chlorosalicylic acids, 1887, A., 945.
- Vasey, S. Archibald**. See *Charles W. Heaton, Frederick Walker Mott*.
- Vassilieff**. See *Wassilieff*.
- Vatel, E.** See *J. Massignon*.
- Vater, Heinrich**, action of monochloroacetic acid on *o*-amido- and *p*-amido-phenols, 1884, A., 1144.
- Vaubel, Wilhelm**, behaviour of sodium thiosulphate with acids, 1889, A., 943; 1890, A., 10.
- formation of ethers in the preparation of isocallylene and its homologues from the corresponding halogen derivatives and alcoholic potash, 1891, A., 996. \*

- Vaubei, Wilhelm**, "acetone-potash" and "acetone-soda," 1891, A., 1183.  
 — ring and nucleus structure of aromatic hydrocarbons, 1891, A., 1343.  
 — phenylene oxide, 1892, A., 1187.  
**Vaughan, Victor C.**, ptomaine from poisonous cheese, 1886, A., 373.  
 — tyrotoxicon, 1888, A., 497.  
**Veley, Victor Herbert**, the rate of decomposition of ammonium nitrate, 1883, T., 370.  
 — on some sulphur compounds of calcium, 1885, T., 478; P., 66.  
 — some sulphur compounds of barium, 1886, T., 369; P., 183; discussion, P., 183.  
 — interaction of metals and sulphuric acid, 1888, A., 104.  
 — on a method of investigating the dissolution of metals in acids, 1889, T., 361; P., 65.  
 — evolution of gases from homogeneous liquids, 1889, A., 94.  
 — conditions of the reaction between copper and nitric acid, 1890, A., 170.  
 — conditions of chemical change between nitric acid and certain metals, 1891, A., 525.  
 — chemical changes between lead and nitric acid, 1892, A., 410.  
**Veley, Victor Herbert**. See also *George J. Burch*.  
**Venable, Frank P.**, hydrated carbon bisulphide, 1884, A., 260.  
 — zinc in drinking-water, 1885, A., 453.  
 — leaves of *Ilex Cassine*, 1885, A., 1254.  
 — bromination of heptane, 1888, A., 929.  
 — two new meteoric irons, 1891, A., 159.  
 — preparation of pure zirconium chloride from zircons, 1892, A., 412.  
**Venator**. See *Adolf Isbert*.  
**Venator, Emil**, strontianite in Westphalia, 1883, A., 431.  
**Venator, Wilhelm**, molybdenum residues, 1886, A., 124.  
**Venator, Wilhelm**, and *Emil Etienne*, analysis of chrome iron ore, 1887, A., 532.  
**Venturini, Vittorio**, methods of estimation of morphine and opium, 1886, A., 1086.  
**Venturoli, Francesco**, volumetric estimation of albumin in urine, 1891, A., 627.  
**Venturoli, Giuseppe**, estimation of hydrocyanic acid, 1892, A., 1530.  
**Verbeek, Rogier Diederik Marius**, pyroxene-andesites from the Dutch Indian archipelago, 1885, A., 1120.  
**Vergerand, Aug.** See *Charles Gros*.  
**Vernadsky**. See *Wernadski*.  
**Verneuil, Auguste Victor Louis**, nitrogen selenide, 1883, A., 423.  
 — action of iodine on potassium seleniocyanate, 1884, A., 1109.  
 — seleniocarbamide, 1885, A., 50, 376.  
 — simultaneous action of oxygen and hydrazine on seleniocarbamide, 1885, A., 967.  
 — action of chlorine on potassium seleniocyanate, 1886, A., 1002.  
 — preparation of calcium sulphide with a violet phosphorescence, 1887, A., 2.  
 — phosphorescence of calcium sulphide, 1887, A., 539.  
 — phosphorescent blends, 1888, A., 791, 1282.  
 — automatic return of mercury in Sprengel pumps, 1892, A., 8.  
**Verneuil, Auguste Victor Louis**. See also *Edmond Fremy*.  
**Vernon, Horace Middleton**, action of hydrochloric acid on manganese dioxide; manganese tetrachloride, 1890, P., 58; 1892, A., 19.  
 — a new modification of phosphorus, 1891, P., 3; discussion, P., 4.  
 — law of diffusion of liquids, 1891, A., 383.  
 — silent discharge and chlorine, 1891, A., 877.  
 — maximum density of water, 1892, A., 7.  
 — manganese tetrachloride, 1892, A., 19.  
 — molecular weights of liquids as evinced by their boiling-points, 1892, A., 107.  
**Vernon Harcourt**. See *Harcourt*.  
**Verri, Antonio**, and *Giacomo Trottairelli*, calcareous rocks and pozzuolana from Tevere, 1888, A., 120.  
**Vesterberg, Albert**, pimelic acids, 1886, A., 365, 1038; 1888, A., 294.  
 —  $\alpha$ - and  $\beta$ -amyris, 1887, A., 732; 1891, A., 165.  
 — hydrocarbons from  $\alpha$ - and  $\beta$ -amyris, 1892, A., 288.  
 — oxidation products of the amyris, 1892, A., 290.  
**Vézes, Maurice**, potassium nitrosoplatinochloride, 1890, A., 709.  
 — bromonitro-compounds of platinum, 1891, A., 807.  
 — iodonitro- and bromonitro-platinum compounds, 1892, A., 280.

- Vézes, Maurice**, nitrogen compounds of platinum, 1892, A., 1283.  
 — chlorazopalladium compounds, 1892, A., 1284.
- Vézes, Maurice**. See also *Alexandre Joly*.
- Viard, Georges**, zinc and cadmium chromites, 1889, A., 1111.  
 — basic magnesium and zinc chromites and normal cadmium chromite, 1891, A., 987.
- Vialt, oxygen** in the blood of animals at great altitudes, 1891, A., 753.
- Vicentini, Giuseppe**, thermal dilatation of liquid bismuth near its melting point, 1891, A., 518.
- Vidal, Raymond**, action of hydroxy-hydrocarbon derivatives on nitrides and hydronitrides, 1891, A., 1003; 1892, A., 1311.
- Vieille, Paul**, measurement of pressures developed in closed vessels by the explosion of gaseous mixtures, 1883, A., 542.  
 — specific heats of gases at high temperatures, 1883, A., 771, 898.
- Vieille, Paul**. See *Marcellin Berthelot, Emile Sarrau*.
- Vienne, G.** See *Ruoul Varet*.
- Vieth, Paul**, composition of mares' milk and koumiss, 1885, A., 849.  
 — composition of the milk of short-horns and other cows, 1886, A., 168.  
 — presence of matter soluble in ether in filter paper, 1886, A., 1083.  
 — alcoholic fermentation of milk-sugar, 1887, A., 1090.  
 — composition of cows' milk produced in English dairy farms, 1888, A., 620; 1889, A., 914.  
 — relation between specific gravity, fat, and solids in milk, 1888, A., 631.  
 — estimation of milk-sugar in milk by the polariscope, 1889, A., 315.  
 — composition of butter-fat as determined by the Reichert-Wollny method, 1891, A., 507, 508.
- Vieth, Paul** (and others), cheese, oleo-margarine-cheese, etc., 1883, A., 256.
- Vigbi, Eugenio**. See *Girolamo Mazzara*.
- Vigier, Ferdinand**, physiological action of borax, 1884, A., 1061.  
 — o-phenolsulphonic acid, a new antiseptic, 1885, A., 612.
- Vigier, Pierre**, digestive ferments, 1885, A., 279.
- Vigna, Agostino**, fermentation of glycerol with the bacteria from ammonium tartrate, 1884, A., 170.  
 — estimation of tannin and of free tartaric acid in wines, 1891, A., 1399.
- Vigna, Agostino**. See also *Mario Zecchini*.
- Vignal, H.**, estimation of chromium, 1886, A., 580.
- Vignal, William Victor. Montgomery**, action of micro-organisms from the mouth and from faeces on food-stuffs, 1887, A., 1059.
- Vignon, Léo**, estimation of dissolved carbonic anhydride in water, 1888, A., 325.  
 — thermochemistry of diazo-derivatives, 1888, A., 774.  
 — heats of formation of salts of phenylenediamine, 1888, A., 1012.  
 — heats of neutralisation of aromatic amines, 1888, A., 1013.  
 — dimethylaniline and diphenylamine sulphates, 1888, A., 1282.  
 — tin, 1889, A., 107.  
 — oxidation of tin, 1889, A., 351.  
 — variations in the acid function of stannic oxide, 1889, A., 833.  
 — rapid method of analysing water prior to its softening for technical purposes, 1889, A., 1035.  
 — thermochemistry of phenylenediamines, 1889, A., 1099.  
 — action of water on stannic chloride, 1889, A., 1121.  
 — thermochemical properties of silk, 1890, A., 553.  
 — water analysis, 1890, A., 667.  
 — estimation of acetone in methyl alcohol and in the liquids used for methylating alcohol, 1890, A., 837.  
 — thermochemistry of wool and cotton, 1890, A., 939.  
 — cotton dyeing, 1891, A., 662.  
 — formation of coloured lakes, 1891, A., 807.  
 — theory of dyeing, 1891, A., 832.  
 — estimation of acetone in denaturated alcohol, 1891, A., 1142.  
 — melting-points of binary systems of hydrocarbons, 1891, A., 1495.  
 — rotatory powers of various silks, 1892, A., 254, 645.  
 — specific gravity of silk, 1892, A., 1036.
- Vignon, Léo**, and *Paul Sisley*, nitrated silk, 1892, A., 1111.
- Vignon, Léo**. See also *Philippe Barbier, Raphael Dubois*.
- Vignon, P.**, separation of aluminium and iron, 1885, A., 689.
- Villard, P.**, hydrates of gases, 1888, A., 1020; 1890, A., 1386.  
 — hydrates of methane and ethylene, 1888, A., 1241.  
 — hydrates of haloid alkyl salts, 1890, A., 1386.

- Villard, P.** See also *Robert de Forcrand*.  
**Villavecchia, Vittorio**, derivatives of  
 santonin, 1886, A., 73.  
**Villavecchia, Vittorio**. See also *Raf-  
 faele Nasini*.  
**Ville, Georges**, influence of the com-  
 position of the soil on the physical  
 properties of plants, 1890, A., 81.  
**Ville, Jules**, crystallised zinc hydroxide,  
 1885, A., 1112.  
 — action of cyanamide on benzene-  
 sulphonic acids, 1887, A., 833.  
 — action of hypophosphorous acid on  
 benzaldehyde, 1889, A., 141.  
 — dihydroxyphosphinic acids, 1889,  
 A., 1134.  
 — dihydroxyphosphinic acid and  
 hydroxyphosphinous acid, 1890, A.,  
 618.  
 — action of urea on sulphanilic acid,  
 1891, A., 1066.  
 — transformation in the animal  
 economy of sulphanilic acid into  
 sulphanilicarbamie acid, 1892, A., 903.  
**Ville, Jules**. See also *Rodolphe Engel*.  
**Villejean, E.** See *Jules Regnaud*.  
**Villiers, Antoine**, nitro-derivatives of  
 ethylene, 1884, A., 33; 1885, A.,  
 1044.  
 — nitro-derivatives of ethane, 1884,  
 A., 717.  
 — formation of ptomaines in cholera,  
 1885, A., 404.  
 — formation of alkaloids in disease,  
 1885, A., 926.  
 — curarine from *Strychnos toxifera*,  
 1885, A., 997.  
 — pathological urines, 1885, A.,  
 1084; 1886, A., 88.  
 — barium phosphates, 1887, A., 701.  
 — detection of sulphites in presence  
 of thiosulphates, 1887, A., 749.  
 — new sulphur oxy-acid, 1888, A.,  
 649.  
 — sodium dithiopersulphate, 1888,  
 A., 912.  
 — sodium trithionate, 1888, A., 915.  
 — action of sulphurous acid on sodium  
 thiosulphate, 1889, A., 568.  
 — conversion of starch into dextrin  
 by the butyric ferment, 1891, A.,  
 659, 1446.  
 — fermentation of starch by the  
 butyric ferment, 1891, A., 660.  
**Villon, A.**, new method for the estima-  
 tion of tannin, 1887, A., 872.  
 — animal tannin, 1888, A., 77.  
 — manufacture of decolorised tannins,  
 1891, A., 70.  
**Vincent, Camille**, methylation of phenol,  
 1884, A., 589.  
**Vincent, Camille**, new iridium com-  
 pounds, 1885, A., 356.  
 — new rhodium compounds, 1885,  
 A., 1116; 1886, A., 311.  
 — *n*-propylamines, 1886, A., 1004.  
 — reaction of dipropylamine, 1886,  
 A., 1005.  
 — action of lead oxide on toluene,  
 1890, A., 962.  
**Vincent, Camille**, and *James Chappuis*,  
 critical temperatures and pressures of  
 vapours, 1885, A., 861, 1104; 1886,  
 A., 963.  
 — action of alcoholic chlorides  
 on ammonia and the methylamines,  
 1886, A., 438.  
**Vincent, Camille**, and *Bénédict Dela-  
 chanal*, carbohydrates from acorns,  
 1887, A., 909.  
 — tannic acid in mountain-ash  
 berries, 1887, A., 950.  
 — estimation of sorbitol, 1889,  
 A., 478.  
 — sorbitol and its occurrence  
 in the fruits of Rosaceæ, 1889, A.,  
 580; 1890, A., 21.  
 — action of ammoniacal cupric  
 oxide on carbon compounds, 1890,  
 A., 21.  
 — sorbitol, 1890, A., 21.  
 — hydrogenation of sorbin and  
 oxidation of sorbitol, 1890, A., 1389.  
 — occurrence of mannitol and  
 sorbitol in the cherry laurel, 1892,  
 A., 908.  
**Vincent, Camille**, and *Léon Roux*, two  
 isomeric benzyl-naphthalenes, 1884,  
 A., 609.  
**Vincenzi, Livio**, chemical constituents  
 of bacteria, 1887, A., 393.  
**Vielle, Jules**, apparatus for the deter-  
 mination of specific heats by cooling,  
 1883, A., 6.  
 — radiation from silver at the solidi-  
 fying point, 1883, A., 771.  
 — absolute unit of light, 1885, A., 622.  
 — comparative radiation of fused  
 platinum and fused silver, 1887, A.,  
 1010.  
**Vielle, Jules**, and *Michel Chassagny*,  
 electrolysis, 1889, A., 558.  
**Viollette, C.**, estimation of nitrogen by  
 Kjeldahl's method, 1889, A., 546.  
 — butter and margarine, 1891, A.,  
 130.  
 — optical analyses of butters, 1891,  
 A., 130.  
 — analyses of butter, 1891, A., 869.  
**Viron, L.**, soluble colouring matters  
 produced by bacteria in distilled  
 medicinal waters, 1892, A., 907.

- Virtue, William.** See **Frank Faulkner.**
- Vis, Gerhard N.**, 1:4-ethoxyacetanidoquinoline, 1892, A., 1104.
- Vis, Gerhard N.** See also **Adolph Claus.**
- Vitali, Dioscoride**, detection of acetanilide, 1888, A., 1136.
- detection of poisoning by caustic alkalis, 1888, A., 1224.
- detection of mercuric cyanide in toxicological investigations, 1890, A., 198.
- action of sulphuric acid on the haloid salts of the alkalis in presence of some metallic salts, 1890, A., 289.
- analysis of sulphurous waters, 1891, A., 116.
- sulphuric acid in plastered and natural wines, 1891, A., 1551.
- reactions of cocaine and ecgonine, 1891, A., 1561.
- reactions of hydrastine and other alkaloids, 1892, A., 755.
- action of hydrogen cyanide on mercurous salts, 1892, A., 1416.
- volumetric estimation of soluble sulphides, 1892, A., 1515.
- volumetric estimation of the metals of the alkaline earths and of some heavy metals, 1892, A., 1521.
- Vitali, Dioscoride**, and **Achille Tornani**, detection of chloral hydrate, 1885, A., 933.
- Vité, F.**, estimation of caffeine in tea, 1891, A., 372.
- Vivier, Léon Charles Auguste**, apatite from Logrozan (Spain), 1885, A., 30.
- estimation of nitrites, 1888, A., 527.
- new hydrate of molybdic acid, 1888, A., 557.
- Vizern, Marinus**, assay of commercial glycerol, 1890, A., 835.
- Vizern, Marinus**, and **Cl. Nicolas**, estimation of fats in vaseline, 1891, A., 1401.
- Vladesco, Dmitri**, products of the distillation of wood, 1890, A., 956.
- action of chlorine on methyl ethyl ether, 1891, A., 1183.
- action of chlorine on some fatty ketones, 1892, A., 424, 810.
- Voelcker, Johann Christoph August**, comparative feeding value of barley, malt, and peas, 1884, A., 206.
- continuous cultivation of wheat and barley at Woburn, 1884, A., 482.
- sterile soil from California, 1884, A., 486.
- feeding-stuffs, 1884, A., 630.
- Voelcker, Johann Christoph August**, four year rotation experiments, 1884, A., 635.
- four course system at Woburn, 1885, A., 78.
- action of soluble and insoluble phosphates, 1885, A., 82.
- Voelcker, John Augustus**, chemical composition of apatites, 1884, A., 162.
- experiments on ensilage, 1890, A., 286.
- Völker, Ottomar**, estimation of hippuric acid in urine, 1887, A., 535, 1001.
- Voeller, Fritz**, assay of indigo, 1891, A., 1564.
- Vogdt, Constantin von**, diabase-porphyrine from Petrosavodsk, 1887, A., 454.
- Vogel, August**, estimation of the fertility of a soil, 1883, A., 517.
- detection of cyanogen, 1885, A., 297.
- influence of ozone on germination, 1887, A., 516.
- Vogel, Hans** (and others), researches on milk and milk-analysis, 1884, A., 1219.
- Vogel, Hermann Wilhelm**, Lockyer's dissociation theory, 1883, A., 762.
- modifications of silver bromide and chloride, 1883, A., 936; 1885, A., 846.
- rendering photographic films sensitive to green, yellow, and red rays, 1884, A., 1081.
- relation between the absorption spectrum and sensitising action of dyes on silver bromide, 1886, A., 585, 958.
- photography in natural colours, 1886, A., 749.
- relation between the composition and the absorption spectra of organic dyes, 1888, A., 97.
- spectroscopic notes, 1888, A., 1129.
- difference between the colouring matters of bilberry and wine, 1888, A., 1137.
- Vogel, J. H.**, estimation of phosphoric acid in basic slag, 1888, A., 991.
- chemical composition of vesuvian, 1890, A., 221.
- loss of nitrogen during the decomposition of nitrogenous organic matter, and the means of limiting or avoiding it, 1891, A., 1547.
- estimation of sugar and tannin in wines, 1891, A., 1557.
- estimation of lime in phosphates by Glaser's process, 1892, A., 534.

- Vogel, J. H.**, analysis of phosphates, 1892, A., 912.
- Vogel, J. H.** See also *Franz Lehmann*.
- Voges, Emil**, identity of Bottinger's pyridinedicarboxylic acid with luti-dinic acid, 1886, A., 257.
- Vogler, Ch. August**, variations of the amount of oxygen in the atmosphere, 1883, A., 284, 551.
- Vogt, Georges**, rocks used in the manu-facture of Chinese porcelain, 1890, A., 461.
- composition of clays and kaolins, 1890, A., 1060.
- Vogt, J. H. L.**, tetragonal minerals in crystallised slag, 1888, A., 1259.
- artificial magnesia-mica, 1888, A., 1260.
- composition of slags, 1891, A., 651.
- composition of melilite, 1892, A., 1410.
- Vogtherr, Hans**, action of *p*-amidodi-methylaniline on ketones, 1892, A., 854.
- Vogtherr, Hans**. See also *Paul Ehrhardt Jannasch*.
- Vohwinkel, E.**, new constant galvanic element, 1885, A., 853.
- Voigt, A.**, volumetric estimation of zinc, 1890, A., 196.
- Voigt, Karl**, benzonanilide and its derivatives, 1885, A., 1067.
- action of primary aromatic amines on benzoin, 1886, A., 887.
- Voigt, Karl**. See also *Robert Otto*.
- Voigt, Rich.**,  $\beta$ -pyridinedicarboxylic acid, 1885, A., 812.
- Voigt, Woldemar**, colour phenomena of pleochroic crystals, 1885, A., 621.
- optical properties of thin metallic layers, 1885, A., 1026.
- Voigtländer, Felix**, diffusion in agar jelly, 1889, A., 817.
- Voiry, Raymond Paul Eugene**, essence of *Eucalyptus Globulus*, 1888, A., 961.
- essence of cajuput, 1888, A., 962.
- Voiry, Raymond Paul Eugene**, and *Gustave Bouchardat*, oil of spike, 1888, A., 605.
- Voiry, Raymond Paul Eugene**. See also *Gustave Bouchardat*.
- Voit, Carl von**, influence of asparagine on the elimination of albumin, 1885, A., 412.
- Voit, Carl von, Jakob G. Otto, A. C. Abbott, Graham Lunak, and Fritz Voit**, formation of glycogen from different sugars, 1892, A., 902.
- Voit, Eduard**. See *Carl Adam Bischoff*.
- Voit, Edwin**, formation of glycogen from carbohydrates, 1889, A., 631.
- Voit, Fritz**, behaviour of milk sugar in a diabetic patient, 1892, A., 903.
- Voit, Fritz**. See also *Carl von Voit*.
- Volhard, Jakob**, preparation of  $\alpha$ -bromo-acids, 1888, A., 129.
- estimation of sulphurous acid by standard iodine, 1888, A., 192.
- preparation of oxygen in a Kipp's apparatus, 1890, A., 8.
- acetonediacetic or hydrochelidonic acid, 1890, A., 30; 1892, A., 432.
- crystalline mercury oxychloride and estimation of mercury, 1890, A., 565.
- oxidation of potassium cyanide with potassium permanganate, 1891, A., 160.
- preparation of pyromucic acid from furfuraldehyde, 1891, A., 896.
- phenylhydrazonohydrazide of levu-linic acid, 1892, A., 436.
- compounds of thiophen and of its homologues, and of some ketones, with mercuric chloride, 1892, A., 828.
- preparation of maleic anhydride, 1892, A., 963.
- Volhard, Jakob, and Hugo Erdmann**, synthesis of thiophen, 1885, A., 763.
- Volkman, Paul**, remarks on Schiff's paper "on the capillary constants of liquids at their boiling-point," 1885, A., 721.
- Volkoff**. See *Wolkoff*.
- Vollhardt, G.**, cobalt ores, 1888, A., 1257.
- Volney, C. W.**, manufacture of nitric acid, 1892, A., 941.
- Volpert, Franz**, gluconic acids, 1887, A., 127.
- Volpi, Alessandro**, homologues of acrid-ine, 1892, A., 342.
- Voltmer, Ludwig**, action of hydroxyl-amine and its derivatives on the thio-carbimides, 1890, A., 1126; 1891, A., 558.
- Volz, Otto**. See *Adolph Claus*.
- Voorhees, Edward Burnett**, estimation of nitrogen, 1892, A., 751.
- Vorce, L. D.** See *William Merriam Burton*.
- Vorländer, Daniel**, constitution of di-substituted oxalenediamidines, 1891, A., 697.
- Vorster, and Hermann Grüneberg**, working up the mother liquors from schonite, 1885, A., 306.
- Vortmann, Georg**, cobalt sulphate, 1888, A., 25.
- cobaltamine compounds, 1888, A., 25.

- Vortmann, Georg**, direct estimation of chlorine in presence of bromine and iodine, 1883, A., 119.  
 — separation of nickel from cobalt, 1883, A., 621.  
 — cobaltammonium compounds, 1885, A., 1041.  
 — estimation of chlorine in presence of bromine, 1886, A., 648.  
 — use of sodium thiosulphate in place of hydrogen sulphide in qualitative analysis, 1886, A., 1071.  
 — detection of traces of hydrocyanic acid, 1886, A., 1082.  
 — estimation and separation of metals by means of sodium pyrophosphate, 1888, A., 755.  
 — action of sodium thiosulphate on cupric salts, 1888, A., 787.  
 — behaviour of sodium thiosulphate with acids and metallic salts, 1889, A., 1107.  
 — estimation of nitric acid by electrolysis, 1890, A., 1467.  
 — volumetric estimation of manganese, 1890, A., 1470.  
 — cobalt dioxide, 1891, A., 1429.  
 — electrolytic estimation of metals as amalgams, 1891, A., 1553.  
**Vortmann, Georg, and Otto Blasberg**, cobaltoctamine salts, 1890, A., 14.  
**Vortmann, Georg, and Emil Borsbach**, mercuri-cobaltammonium salts, 1890, A., 1877.  
**Vortmann, Georg, and Gustav Magdeburg**, action of sulphurous acid on cobaltammonium salts, 1890, A., 14.  
**Vortmann, Georg, and E. Morgulis**, mercuri-cobaltammonium salts, 1890, A., 13.  
**Vortmann, Georg, and Carl Padberg**, action of sulphur on solutions of metallic salts, 1890, A., 9.  
 — action of sodium thiosulphate on metallic salts, 1890, A., 12.  
**Vortmann, Georg**. See also *Josef Messinger, Zdenko Hanns Skraup*.  
**Vorwerk, P.**, estimation of phosphorus in iron and steel, 1887, A., 299.  
**Vosmaer, A.**, apparatus for a constant supply of chlorine, 1889, A., 13.  
 — preparation of chromic chloride, 1889, A., 832.  
**Voss, Gerhard**. See *Wilhelm Clemens Lossen*.  
**Vossler, Otto von**, experiments with stall-fed cattle, 1884, A., 472.  
**Voswinkel, Hugo**, new derivatives of salicylaldehyde, 1883, A., 189.  
**Voswinkel, Arnold**, *m*-diethylbenzene, 1889, A. 38.  
**Voswinkel, Arnold**, *o*-diethylbenzene, 1889, A., 388.  
 — *p*-diethylbenzene, 1889, A., 493.  
 — occurrence of gums which yield xylose, 1892, A., 380.  
**Vrba, Karel**, cronstedtite from Kuttenberg in Bohemia, 1888, A., 1260.  
 — bertrandite from Pisek, 1889, A., 471.  
 — strontianite from Althahlen, 1889, A., 837.  
 — apatite from Pisek, 1889, A., 837.  
**Vriens, Johannes Gerardus Cornelis**, vapour pressure of copper potassium chloride and its solutions, 1891, A., 783.  
**Vries, Henry J. F. de, and Arnold Fredrik Holleman**, phenylhydrazine acetate, 1892, A., 981.  
**Vries, Hugo de**, function of resins in plants, 1883, A., 365.  
 — part played by vegetable acids in causing the turgescence of cells, 1884, A., 1064.  
 — attraction between soluble substances in dilute solutions and water, 1884, A., 1065.  
 — decomposition of organic acids under the influence of light, 1885, A., 964.  
 — estimation of the combined acids in plant sap, 1885, A., 1014.  
 — molecular weight of raffinose, 1888, A., 667.  
 — osmotic experiments with living membranes, 1888, A., 1153.  
 — isotonic coefficient of glycerol, 1889, A., 9.  
**Vrij, Johan Eliza de**, assay of commercial quinine sulphate, 1885, A., 302; 1886, A., 397.  
 — quinine chromate in analysis, 1887, A., 404.  
 — potassium chromate as a reagent for the purity of quinine sulphate, 1889, A., 1091.  
**Vulpinus, Gustav**, testing potassium bromate, 1884, A., 218.  
 — pyroligneous acid, 1884, A., 371.  
 — thallin preparations, 1885, A. 398.  
 — almond oil testing, 1886, A., 194.  
 — examination of ether, 1886, A. 1079.  
 — estimation of quinine sulphate, 1887, A., 404.  
 — morphine reaction, 1887, A., 870.  
 — testing chloroform, 1888, A., 632.  
 — terpin hydrate, 1889, A., 1202.  
 — analysis of diuretin, 1890, A. 1475.

- Vulté, Hermann T.** See *Elwyn Waller*.  
**Vyvere, E. van de**, estimation of methyl alcohol in ethyl alcohol, 1885, A., 600.

## W.

(For names not found here, see under V.)

- Waage, A.**, composition of some leguminous seeds, 1887, A., 991.  
**Waage, Alfred**, action of ammonia on propaldehyde, 1883, A., 39; 1884, A., 172.  
**Waage, Theodor**, formation of phloroglucinol in plants, 1891, A., 605.  
 — detection of tannin in plants, 1891, A., 770.  
 — presence and function of phloroglucinol in plants, 1892, A., 1120.  
**Waals, Johannes Diderik van der**, molecular theory of a substance formed from two different substances, 1890, A., 556.  
 — formulæ for electrolytic dissociation, 1891, A., 1309.  
 — magnitude of the pressure in co-existing phases of mixtures especially in salt and acid solutions, 1891, A., 1319.  
**Wache, Robert**, polymerides of nitriles, 1889, A., 684.  
**Wachsmuth, O.**, estimation of tin and lead in alloys, 1887, A., 304.  
**Wachtel, A. von**, valuation of sugarbeets by their density, 1884, A., 118.  
**Wachtel, G.**, utilisation of the nitrogen compounds from the manufacture of sulphuric acid, 1883, A., 130.  
 — manufacture of potassium dichromate, 1885, A., 846.  
**Wachter, H.**, analyses of Markgräfer of different districts and vintages, 1883, A., 631.  
**Wachter, Wilhelm**, desaurin, 1892, A., 1095.  
**Wachter, Wilhelm**. See also *Victor Meyer*.  
**Wackenroder, B.**, preparation of strontium and barium chlorides, 1885, A., 19.  
**Wacker, Leonhard**, aromatic nitrosobases, 1888, A., 466.  
**Wacker, Leonhard**. See also *Otto Fischer*.  
**Wada, Tsunashiro**, Japanese minerals, 1885, A., 221.  
**Waddell, John**, atomic weight of tungsten, 1887, A., 111.  
**Wadsworth, George Henry**, action of aldehydes and ammonia on  $\alpha$ -diketones, 1889, P., 161; 1890, T., 8.  
**Wadsworth, George Henry**, condensation of acetonephenanthraquinone, 1890, P., 151; 1891, T., 105.  
**Wadsworth, George Henry**. See also *Francis Robert Japp*.  
**Wadsworth, Marshman Edward**, the Bishopville and Waterville meteorites, 1884, A., 976.  
 — peridotite of iron, Mine Hill, Cumberland, Rhode Island, 1889, A., 27.  
**Wächter, Friedrich**, particles of matter in the electric spark, 1883, A., 415.  
**Wäterling, H.**, manuring barley, 1884, A., 1419.  
**Wagener, G.**, glass enamels, porcelain, and refractory clays, 1883, A., 397.  
**Wagner**, manuring with peat, 1885, A., 1009.  
**Wagner, Ad.**, test for adulteration in butter, 1886, A., 103.  
**Wagner, August**, oxygen prepared from potassium chlorate, 1883, A., 281.  
 — some reactions of ozone, 1884, A., 259.  
 — chemical changes in decayed wood, 1884, A., 477.  
**Wagner, Ed.**, urochloralic acid in urine, 1891, A., 624.  
**Wagner, Edmund**, ethylene ethers of the nitrophenols and hydroxybenzoic acids, 1884, A., 433.  
 — action of zinc organo-metallic compounds on aldehydes, 1885, A., 370.  
**Wagner, Friedr.**, influence of organic manures on the temperature of the soil, 1883, A., 821.  
 — thermal conductivity of soils, 1884, A., 923.  
**Wagner, Georg**, oxidation of ketones, 1885, A., 1197.  
 — oxidation of olefines and alcohols of the allyl series, 1888, A., 665.  
 — oxidation of the hydrocarbons,  $C_nH_{2n-2}$ , 1889, A., 226.  
 — oxidation of unsaturated compounds, 1889, A., 231.  
 — part played by water in the oxidation of unsaturated compounds, 1889, A., 232.  
 — diallyl tetrabromides, 1890, A., 223.  
 — camphene glycol and a tetrahydric alcohol from limonene, 1890, A., 1313.  
 — presence of ethylene linkings in terpenes, 1891, A., 1084.  
 — constitution of pinene, 1891, A., 1242.  
 — oxidation of tertiary alcohols, 1892, A., 28.  
 — oxidation of mixed fatty ketones, 1892, A., 35.

- Wagner, Georg**, oxidation of aromatic compounds containing the side chain  $C_2H_5$ , 1892, A., 310.
- Wagner, Georg**. See also *Alexander I. Pawlinoff*.
- Wagner, Henry**. See *C. Fr. W. Krukenberg*.
- Wagner, Hermann**, oxidation of santonin, 1887, A., 733.
- Wagner, Julius**, aromatic sulphonamic acids, 1886, A., 708.
- viscosity of liquids, 1890, A., 441.
- Wagner, Ladislaus von**, manufacture of maize-starch as a new branch of agricultural industry, 1884, A., 528.
- Wagner, Max**. See *Carl Stoehr*.
- Wagner, Otto**. See *Leopold Mayer*.
- Wagner, Paul**, influence of the state of division of manures on their action, 1883, A., 117.
- nitrogen in bone-meal, 1884, A., 359.
- amount of fat and proteids in feeding stuffs, 1884, A., 631.
- action of superphosphates, 1884, A., 1071.
- estimation of nitrogen in Chili saltpetre, 1885, A., 435.
- composition of wood ashes, 1885, A., 834.
- manual value of basic slag, 1887, A., 525.
- increase in yield of crops by nitrogenous manures, 1888, A., 525.
- Wagner, Paul** (and others), theory of manuring, 1884, A., 486.
- contributions to systematic manuring, 1884, A., 634.
- various manure material, 1885, A., 1156.
- Wagner, Philipp**, *m*-amidophenetol, 1885, A., 1212.
- azo- and amido-derivatives of methylketole, 1888, A., 284.
- Wagner, Philipp**. See also *Emil Fischer*.
- Wagner, Reinhard F.**, titanium chloride and titanate acid, 1888, A., 557.
- Wagner, Richard**, compounds of fluorides of heavy metals with alkaline fluorides, 1886, A., 670.
- potassium antimony oxalate, 1889, A., 489.
- Wagner, Richard L.**, estimation of nitrogen in organic substances by means of alkaline permanganate, 1891, A., 109.
- Wahl, Johannes**. See *Otto Wallach*.
- Wahlberg, Emil**, volumetric estimation of chromium in iron and steel, 1890, A., 85.
- Wajss, Anton**. See *Kasimir Gasiorowski*.
- Waiz, Karl**, influence of galvanic polarisation on friction, 1884, A., 189.
- Wakeman, Alfred John**, solubility of ammonium magnesium phosphate in alcohol, 1888, A., 1131.
- Wakeman, Alfred John**, and *Horace Lemuel Wells*, basic lead nitrates, 1887, A., 1080.
- Wakker, J. H.**, formation of crystals of calcium oxalate in plant cells, 1888, A., 1126.
- Walbaum, Heinrich**. See *Julius Bertram, Theodor Zincke*.
- Wald, F.**, adhesion at the freezing-point, 1891, A., 969.
- energy-content in chemistry and physics, 1891, A., 1414.
- Walden, Paul**, comparative value of some proposed tests for nitric acid, 1888, A., 321.
- determination of the size of the molecules of salts from the conductivity of their aqueous solutions, 1888, A., 891, 1008.
- tetric acid, oxytetric acid, and their homologues, 1891, A., 1187.
- affinity coefficients of organic acids and their relation to chemical constitution, 1892, A., 266.
- Walden, Paul**, and *Alexander Kernbaum*, isomerism in the stilbene group, 1890, A., 1299.
- Walden, Paul**. See also *Carl Adam Bischoff*.
- Walder, Franz**, benzyl derivatives of hydroxylamine, 1886, A., 796; 1887, A., 246, 813.
- Walder, Hans Jakob**,  $\beta$ -dinaphthol, 1883, A., 208.
- $\alpha\beta$ -hydroxynaphthalbenzoic acid, 1883, A., 666.
- colouring matter from anthraquinonedisulphonic acid and sodium nitrite, 1888, A., 961.
- Waldie, David**, obituary notice of, 1890, T., 456.
- Walisz, Al.** See *St. Gniewosz*.
- Walker, Charles**. See *William Albert Noyes*.
- Walker, James**, method of determining vapour-tensions at low temperatures, 1889, A., 6.
- determination of the affinity of organic bases, 1890, A., 5.
- analysis of organic substances containing copper, 1890, A., 296.
- solubility and heat of fusion, 1890, A., 686.

- Walker, James**, theory of solution, 1891, A., 788; 1892, A., 264.  
 — the dissociation constants of organic acids, 1892, T., 696; P., 137.  
 — preparation of alkyl iodides, 1892, T., 717; P., 187.  
 — the methyl salts of camphoric acid, 1892, T., 1088; P., 156.  
**Walker, James**. See also **Thomas Carnelley, Alexander Crum Brown**.  
**Walker, John Francis**, ethereal salts of nitrosophenol, 1884, A., 1003.  
**Walker, J. Wallace**. See **Thomas Purdie**.  
**Walker, P. H.**, varvacite, 1888, A., 658.  
 — genthite, 1888, A., 660.  
**Walker, T. S.**, clay coloured stools without jaundice, 1890, A., 397.  
**Wallace, Daniel L.** See **Edgar Francis Smith**.  
**Wallace, Shippen**. See **Henry Bedinger Cornwall**.  
**Wallace, William**, insensibility arising from a deficiency of oxygen in the air, 1883, A., 819.  
 — decay of building stones, 1883, A., 1036.  
**Wallach, M.**, carbonates of bivalent alcohols and phenols, 1885, A., 254.  
**Wallach, Otto**, action of phosphorus pentachloride on acid amides, 1883, A., 48.  
 — conversion of tolylenediamine into an amidocresol and  $\gamma$ -orcinol, 1883, A., 329.  
 — *m*-nitriles, 1883, A., 577.  
 — new azo- and diazo-compounds, 1883, A., 584; 1887, A., 40.  
 — oxaline and glyoxalines, 1883, A., 910.  
 — ethereal oils, 1885, A., 171.  
 — terpenes and ethereal oils, 1885, A., 550; 1886, A., 70; 1887, A., 595, 965; 1888, A., 60, 1098, 1204; 1889, A., 1072; 1890, A., 1314; 1891, A., 217, 1078, 1086, 1240.  
 — carbohydrates, 1887, A., 26.  
 — preparation of organic fluorides, 1887, A., 130.  
 — diazo- and diazoamido-compounds, 1887, A., 137.  
 — nitrosates, nitrosites, and their derivatives, 1888, A., 37.  
 — terpenes, 1888, A., 60, 1098; 1891, A., 1078, 1086.  
 — irisin, 1888, A., 438.  
 — molecular refraction as a means of determining the constitution of members of the terpene group, 1888, A., 845.  
**Wallach, Otto**, amylene nitrosate and its derivatives, 1889, A., 233.  
 — molecular refraction of camphene, 1889, A., 1069.  
 — isomerism in the terpene group, 1889, A., 1069.  
 — pinene, 1890, A., 1315.  
 — so-called massoyene, 1890, A., 1316; 1891, A., 935.  
 — displacement of the hydrogen atoms in the methylene group, 1891, A., 189.  
 — terpenes and camphors, 1891, A., 1078.  
 — new compounds of the camphor series and a new terpene, 1891, A., 1686.  
 — derivatives of carvole, 1892, A., 499.  
 — menthylamine, 1892, A., 500.  
 — camphene and camphoric acid, 1892, A., 868, 1481.  
 — constitution of pinene, 1892, A., 997.  
 — camphor and fenchone series, 1892, A., 1236.  
 — isomerism in the limonene series, 1892, A., 1348.  
**Wallach, Otto**, and **Abraham Berkenheim**, tetrahydropinene, 1892, A., 998.  
**Wallach, Otto**, and **Wilhelm Brass**, *Oleum cinis*, 1885, A., 171.  
**Wallach, Otto**, and **Eugen Conrady**, rotatory power of terpene derivatives, 1889, A., 1071.  
**Wallach, Otto**, and **Paul Engels**, decomposition of amylene nitrosate with sodium ethoxide, 1891, A., 1005.  
**Wallach, Otto**, and **Ernst Früstück**, nitrolamines of pinene, 1892, A., 997.  
 — preparation of pinole glycol and its derivatives, 1892, A., 998.  
**Wallach, Otto**, and **Eduard Gilde-meister**, terpenes and ethereal oils, 1888, A., 1205.  
**Wallach, Otto**, and **Julius Griepenkerl**, comparison of bornylamine and fenchylamine, 1892, A., 1288.  
**Wallach, Otto**, and **Fritz Hartmann**, fenchole, an isomeride of camphor, 1891, A., 218.  
**Wallach, Otto**, and **Albert Hesse**, action of chlorine on dihydrochlorodipentene, 1892, A., 1350.  
**Wallach, Otto**, and **Friedr. Heusler**, organic fluorine compounds, 1888, A., 362.  
**Wallach, Otto**, and **Ludolf Jenckel**, fencholamine, 1892, A., 1240.  
**Wallach, Otto**, and **Alfred Kölliker**, action of hydrochloric acid on amido-azo-compounds, 1884, A., 1014.

- Wallach, Otto, and Friedrich Lehmann**, action of phosphorus pentachloride on substituted formamides and on piperidine derivatives, 1887, A., 384.
- Wallach, Otto, and Georg Lorentz**, pinylamine, 1892, A., 996.
- Wallach, Otto, and Alex. Otto**, isomeride of camphor, 1890, A., 169.
- Wallach, Otto, and Gustav Reinhardt**, rubeanic acid, 1891, A., 1008.
- Wallach, Otto, and Ernst Schulze**, azo- and diazo-derivatives of phenylenediamine, 1883, A., 583.
- Wallach, Otto, and Johannes Wahl**, derivatives of aniline nitrosate, 1891, A., 1004.
- Wallach, Otto, and Michael Wüsten**, reaction of aromatic amines with lactic acid, 1883, A., 1096.
- Wallach, Otto**. See also *Paul Engels*.
- Waller, Elwyn**, hardness of water, 1890, A., 86.
- purification of alcohol, 1890, A., 727.
- estimation of lithium in mineral waters, 1891, A., 1292.
- Waller, Elwyn, and Hermann T. Vulté**, analysis of chromite, 1892, A., 1525.
- Wallroth, K. A.**, action of microcosmic salt on various oxides, 1883, A., 850.
- Walter, B.**, influence of concentration on fluorescence, 1888, A., 881; 1889, A., 553.
- evidence afforded by fluorescence and absorption of the decomposition of molecular-groups in solutions, 1889, A., 554.
- refractive indices of saline solutions, 1890, A., 202, 678.
- optical properties of  $\alpha$ -bromonaphthalene, 1891, A., 776.
- Walter, Georg**, cyst of *Protopterus unneferens*, 1889, A., 793.
- ichthulin, 1891, A., 1389.
- oxidation of benzoyltetrahydroquinoline and nitro-derivatives of the same, 1892, A., 881.
- Walter, Johann**, preparation of magnesium, 1884, A., 1231.
- use of steam in chemical laboratories, 1885, A., 482.
- apparatus for chemical laboratories, 1885, A., 631, 1035; 1886, A., 301; 1887, A., 105.
- substitution of amidogen by means of sodamide, 1886, A., 1004.
- acridine, 1886, A., 1038.
- Walther**, synthesis of fatty acids in the animal organism, 1891, A., 757.
- Walther, Frank Otto**. See *William Gilbert Mixer*.
- Walther, Franz**, experiments on the value of various fodders for cows, 1883, A., 820.
- Waltz, Gustav**, ethylic propyl- and isopropyl-ethylnitricarboxylates, 1883, A., 46.
- Wanklyn, James Alfred**, employment of limed coal in gas making, 1884, A., 223.
- occurrence of free iodine in a mineral water, 1887, A., 221.
- specific gravity of lime water, 1887, A., 700.
- Priestley's method of measuring oxygen in air, 1891, A., 362.
- liquid and gaseous mixtures, 1892, A., 935.
- Wanklyn, James Alfred, and William John Cooper**, hydrogen, 1891, A., 392.
- nature of solution, 1891, A., 1412.
- Wanklyn, James Alfred, and William Fox**, constitution of natural fats, 1884, A., 35.
- Wanklyn, James Alfred, and William Johnstone**, nature of solution, 1892, 108.
- alde-acids, 1892, A., 696.
- Wanklyn, James Alfred, William Johnstone, and William John Cooper**, change of volume on dissolution, 1892, A., 264.
- Wanklyn, James Alfred**. See also *William Fox*.
- Warburg, Emil**, electrolysis of solid glass, 1884, A., 1241.
- theory of the voltaic cell and of galvanic polarisation, 1890, A., 314.
- fall of potential at the cathode in Geissler's tubes, 1890, A., 1035.
- Warburg, Emil, and Joseph Sachs**, relation between the density and viscosity of liquids, 1885, A., 9.
- Warburg, Emil, and Franz Tegetmeier**, electrolytic conductivity of rock salt, 1889, A., 91.
- Warburg, Otto**, biological significance of organic acids, 1886, A., 905.
- Ward, John Septimo**, estimation of citric and tartaric acids when mixed, 1889, A., 447.
- Warden, Charles James Hislop**, ash of *Pistia Stratiotes* or "paná salt," 1883, A., 822.
- biological examination of water, 1885, A., 1266.
- cobra poison, 1887, A., 170.
- cocataunic acid, 1888, A., 1090.
- *Erythroxylon Coca* grown in India, 1889, A., 297.
- embelic acid, 1889, A., 408.

- Warden, Charles James Hislop**, rapid method of estimating urea in urine, 1891, A., 133.
- soil containing iron and chromium from the Andaman Islands, East Indies, 1891, A., 958.
- ash of *Achryanthes aspera*, 1892, A., 230.
- Warder, Robert Bowne**, dissociation of brass, 1884, A., 660.
- Eyster's scheme for qualitative analysis, 1886, A., 100.
- coefficients of volatility for aqueous hydrochloric acid, 1889, A., 337; 1891, A., 798.
- dynamical theory of albuminoid ammonia, 1890, A., 87.
- Warington, Robert**, nitrification of soils, 1888, A., 115.
- on nitrification. Part III., 1884, T., 637. Part IV., 1891, T., 484; P., 92; discussion, P., 94.
- some of the changes which the nitrogenous matters in the soil experience, 1884, A., 490.
- action of gypsum in promoting nitrification, 1885, T., 758.
- detection of nitrous and nitric acids, 1885, A., 593.
- behaviour of nitrates in Kjeldahl's method for the determination of nitrogen, 1885, A., 1261.
- distribution of the nitrifying organisms in the soil, 1886, P., 267; discussion, P., 267; 1887, T., 118.
- a contribution to the study of well waters, 1887, T., 500; P., 63.
- nature of the nitrogenous organic matter of soils, 1887, A., 523.
- the chemical action of some micro-organisms, 1888, T., 727; P., 69; discussion, P., 72.
- the amount of nitric acid in the rain water of Rothamsted; notes on the analysis of rain water, 1889, T., 537; P., 102.
- Warington, Robert**. See also (*Sir*) **John Bennet Lawes**.
- Warnecke, Hermann**, wrightine (conessine), 1886, A., 372.
- wrightine (conessine) and oxy-wrightine, 1888, A., 355.
- Bettendorf's arsenic reaction, 1891, A., 1290.
- Warren, Henry Nepean**, ferric chloride as an exciting agent for voltaic batteries, 1887, A., 413.
- decomposition of ammonium chloride by an alloy of zinc and iron, 1887, A., 443.
- Warren, Henry Nepean**, use of electro-dissolution in analysis, 1887, A., 531.
- "zinc-eisen," 1887, A., 550.
- thallium in platinum, 1887, A., 702.
- preparation of anhydrous metallic chlorides, 1887, A., 702.
- action of nitrogen on certain metals, 1887, A., 702.
- nitrogen fluoride, 1887, A., 770.
- phosphorised silver, 1887, A., 1079.
- volatile hydrocarbons in commercial alcohols, 1887, A., 1088.
- method for decomposing arsenical sulphides, 1888, A., 26.
- electrolytic method of preparing metallic alloys, 1888, A., 27.
- preparation of silicon, 1888, A., 415; 1889, A., 212.
- selenium in meteoric iron, 1888, A., 435.
- estimation of selenium, 1888, A., 527.
- action of sulphur vapour on copper, 1888, A., 555.
- separation of tin from antimony, 1888, A., 632; 1891, A., 366.
- pressure tubes, 1888, A., 646.
- fulminates, 1888, A., 1047; 1891, A., 1442.
- solvent action of Rochelle salt on metallic hydroxides, 1888, A., 1131.
- electrical dialysis, 1888, A., 1235.
- bismuth and lithium in iron and slags, 1888, A., 1256.
- electrolytic method of liquefying gases, 1889, A., 7.
- dissemination of sulphur and phosphorus in masses of metal, 1889, A., 13.
- graphite from various metals, 1889, A., 343.
- action of ammonia on metallic magnesium, 1889, A., 345.
- solution for depositing metallic cobalt, 1889, A., 348.
- action of silicon on gold, silver, platinum, and mercury, 1889, A., 1125.
- preparation of the chlorides of silicon, aluminium, etc., 1890, A., 108.
- magnesium as a reagent, 1890, A., 195.
- crystalline metallic precipitates, 1890, A., 851.
- new form of silicon, 1891, A., 799.
- separation of cadmium and copper, 1891, A., 1138.
- saponification of tallow, 1891, A., 1144.
- sodium and potassium nitrites, 1891, A., 1321.

- Warren, Henry Nepean**, reducing action of graphitoid silicon, 1892, A., 115.  
 — electrolytic preparation of metallic alloys, 1892, A., 394.  
 — aluminum sulphide, 1892, A., 943.  
 — new silver ore, 1892, A., 1404.  
**Warren, Thomas Thomas Peter Bruce**, detection of adulteration in metallic nickel and other metals by the magnet, 1887, A., 531.  
 — vapour density apparatus, 1887, A., 695.  
 — metallic manganese, 1887, A., 1081.  
 — new method of examining butter, 1888, A., 199, 538.  
 — action of sulphur chloride on oils, 1888, A., 538, 633, 1348.  
 — stability of fatty glycerides, 1889, A., 1130.  
 — examination of oils, fats, etc., 1890, A., 1347; 1891, A., 248, 505, 506.  
 — valuation of coal for use in steam boilers, 1892, A., 668.  
**Warren, William Homer**. See *William Burdelle Bentley, Charles Loring Jackson*.  
**Warrington, Arthur Wally**. See *Victor Meyer*.  
**Wartanian, Warton**, condensation of *m*-nitrobenzaldehyde with quinaldine, 1891, A., 329.  
**Wärth, Constantin**. See *Werner Kelbe*.  
**Wartba, Vince**, estimation of sulphurous acid in wine, 1883, A., 621.  
 — alkaline reaction of glass, 1885, A., 838.  
 — minerals of the serpentine-chlorite group, 1887, A., 783.  
**Warwick, Arthur W.**, assaying lead ores by fusion with potassium cyanide, 1891, A., 863, 962.  
**Washburn, John H.**, and *Bernhard Tollens*, cane sugar from maize, 1889, A., 918.  
**Washington, H. S.** See *William Francis Hillebrand*.  
**Wasmund, Richard**. See *Hermann Maas*.  
**Wasowicz, Vincent**. See *Paul Ehrhardt Jannasch*.  
**Wassermann, Max**. See *Joseph Achille Le Bel*.  
**Wassilieff, Michael Th.** See *Nicolai A. Menshutkin*.  
**Wassilieff, Nikolai P.**, influence of calomel on fermentation and the life of micro-organisms, 1883, A., 743.  
**Wasum, A.**, influence of sulphur and copper on steel, 1883, A., 404.  
**Watson, David**, specific gravity of commercial copper, 1884, A., 218.  
**Watson, George**, dead space in chemical reactions, 1889, A., 335.  
 — precipitation, 1890, A., 847; 1891, A., 875.  
**Watson, John**, estimation of sulphur in burnt pyrites, 1889, A., 806.  
 — estimation of available soda in commercial caustic soda, 1891, A., 498.  
**Wattenberg, H.** See *Ernst Kern*.  
**Watts, Francis**, essential oil of lime leaves (*Citrus Limetta*), 1886, T., 316; P., 158.  
 — fermentation of citric acid, 1887, A., 235.  
 — titration of citric acid, 1887, A., 307.  
 — milk analysis, 1890, A., 929.  
**Way, James Thomas**, obituary notice of, 1884, T., 629.  
**Wayss**. See *Waijss*.  
**Weber, Adolf**, calcium chloride, 1883, A., 151.  
**Weber, Adolf**, and *Nathan Wolff*, perchlorophenol from perchlorobenzene, 1885, A., 519.  
**Weber, Adolf**. See also *Alexander Martini, Christoph Bis*.  
**Weber, Carl Ludwig**, electrical conductivity of amalgams, 1885, A., 211; 1887, A., 757.  
 — electrical conductivity and temperature coefficient of solid mercury, 1885, A., 1028; 1889, A., 557.  
 — absolute velocity of the ions, 1889, A., 1095.  
**Weber, Everhard**, ethereal oils, 1887, A., 596.  
**Weber, Friedrich Rudolph**, octosulphates, 1885, A., 121.  
 — compounds of selenious and arsenious anhydrides with sulphuric anhydride, 1887, A., 212.  
 — combinations of sulphuric anhydride with phosphoric and iodic anhydrides, 1887, A., 328.  
 — influence of the composition of glass on the depression phenomena of thermometers, 1888, A., 641.  
 — ether levels, 1889, A., 207.  
 — influence of the composition of the glass of slides and cover-glasses on the durability of microscopic objects, 1892, A., 1276.  
**Weber, Friedrich Rudolph**, and *Ewald Sauer*, composition of glass suitable for chemical utensils, 1892, A., 410, 1052.  
**Weber, H.** See *E. Hintz*.  
**Weber, Johannes**, oil of cinnamon, 1892, A., 1509.  
**Weber, Julius Hugo**, pyridinepolycarboxylic acids, 1887, A., 1117.

- Weber, Julius Hugo.** See also *Arthur Rudolf Hantzsch*.
- Weber, Max,** hydrocyanic acid from animals, 1884, A., 348.
- Weber, Oscar,** toluic sulphinide ("methyl-saccharin"), 1892, A., 1092.
- Weber, Rudolf,** distribution of ash in trees, 1888, A., 742.
- Weber, Rudolf.** See also *Robert Hartig*.
- Websky, Christian Friedrich Martin,** the Nogoya meteorite, 1884, A., 977.
- idunium, a new element, 1884, A., 1265.
- caracolite and pereylite, 1888, A., 561.
- Webster, Charles Stuart Stanford,** the analysis of certain plant fibres, 1883, T., 23.
- trichloropyrogallol, 1884, T., 205.
- the chlorination of phloroglucol, 1885, T., 423; P., 51.
- note on the constitution of mairougallol, 1887, P., 130.
- Webster, Charles Stuart Stanford,** and *Lewis Govartz Hunt*, action of halogens on rufigallol, 1889, A., 405.
- Wedard, E. M.,** action of heat on tartaric acid in aqueous solution, 1889, A., 36.
- Weddige, Anton,** tribasic nitrophenyl *o*-formate, 1883, A., 340.
- a polymeride of trichloroacetonitrile, 1884, A., 35; 1886, A., 323.
- derivatives of *o*-amidobenzamide, 1885, A., 661.
- derivatives of acetyl-*o*-amidobenzamide, 1887, A., 1043.
- Weddige, Anton,** and *Hermann Finger*, action of nitrous acid on *o* amidobenzamide, 1887, A., 667.
- Weddige, Anton,** and *Moritz Körner*, polymeric dichloroacetonitriles, 1885, A., 739.
- Wedding, Hermann,** estimation of phosphorus in iron, 1887, A., 865.
- Wedel, Wilhelm,** derivatives of ethylic acetoacetate, 1884, A., 834.
- Wedemeyer, Konrad.** See *Carl Arnold*.
- Wedenski, Nicolai E.,** carbohydrates in normal urine, 1889, A., 293.
- Wedensky, Woldemar,** constitution of phosphorous acid, 1889, A., 103.
- action of ethyl iodide and zinc on *p*-aldehyde, 1889, A., 954, 1136.
- Weed, Walter Harvey,** a gold-bearing hot-spring deposit, 1892, A., 24.
- Weed, Walter Harvey,** and *Louis V. Pirsson*, sulphur, orpiment, and realgar in the Yellowstone Park, 1892, A., 283.
- Weegmann, R.,** molecular refraction of some bromine derivatives of ethane and ethylene, 1888, A., 999.
- Weeren, Jul. M.,** cause of the slight solubility of chemically pure zinc in acids, 1891, A., 983.
- Wege, Hermann,** acetoximes, 1892, A., 333.
- deoxybenzoin, 1892, A., 338.
- Wege, Hermann.** See also *Victor Meyer*.
- Weger, Felix,** specific volume of saturated and unsaturated ethereal salts, 1884, A., 8.
- Weger, Felix.** See also *Carl Heinrich Leopold Ritthausen*.
- Wegerhoff, Paul,** intramolecular change of phenanthraquinonemonoxime, 1888, A., 1200.
- intramolecular change of the oximes of *p*-chlorobenzophenone, *p*-tolyl phenyl ketone, phenanthraquinone, and diphenylene ketone, 1889, A., 1066.
- Wegner, Robert,** molecular refraction of the halogen salts of lithium, sodium and potassium, 1890, A., 549.
- Wegscheider, Rudolf,** isovanillin, 1883, A., 190.
- derivatives of opianic acid, 1883, A., 996.
- isobutyl naphthalene, 1884, A., 1185.
- impurities in commercial barium carbonate, 1890, A., 826.
- dinaphthyl picrates, 1891, A., 216.
- ethyl hydrogen hemipinate, 1891, A., 712.
- methyl salts of abnormal structure, 1892, A., 1208.
- Wegscheider, Rudolf.** See also *Heinrich Goldschmidt*.
- Wehmer, Carl,** the carbohydrate character of formose, 1888, A., 40.
- behaviour of formose in contact with vegetable cells deprived of starch, 1888, A., 739.
- calcium oxalate in the leaves of *Alnus glutinosa*, *Symphoricarpos racemosus*, and *Crataegus Oxyacantha*, 1890, A., 191.
- formation and physiological significance of oxalic acid in Fungi, 1892, A., 230.
- absence of oxalates in young leaves as in the case of some Phanerogamous parasites, 1892, A., 651.
- Wehmer, Carl,** and *Bernhard Tollens*, formation of levulinic acid from various substances, 1886, A., 532.
- action of boiling acids on methylenitan, 1888, A., 438.

- Wehmer, Carl**, and **Bernhard Tollens**, formation of levulinic acid, a reaction for the detection of carbohydrates, 1888, A., 535.
- Wehmer, Julius**, preparation of pressed yeast, 1883, A., 692.
- Wehr, R.** See **Adolph Claus**.
- Wehsarg, Karl**, iodic anhydride, 1885, A., 346.
- Wehsarg, Karl**. See also **Hans (Freiherr) von Pechmann**.
- Weibull, Mats**, manganese minerals from Vester-Silfberg in Dalarne, 1884, A., 409.
- gothite from Pitkaranta in Finland, 1886, A., 24.
- halotrichite and epsomite from the Falu mine, 1886, A., 25.
- igelstromite from Dalarne, 1886, A., 33.
- minerals of Vester-Silfberg, 1886, A., 33.
- Swedish minerals, 1886, A., 928.
- galenobismuthite from the Falu mine, 1887, A., 343.
- crystallised compounds of zirconium, 1887, A., 778.
- manganese-apatite: composition of apatite, 1887, A., 781.
- hjolmite, 1889, A., 219.
- fluorocrite from Osterby, 1889, A., 765.
- Weichardt, Oscar**. See **Friedrich Kehrmann**.
- Weidel, Hugo**, reactions of quinoline, 1887, A., 847.
- non-nitrogenous acids derived from pyridinecarboxylic acids, 1891, A., 733, 1525.
- Weidel, Hugo**, and **Max Bamberger**, quinoline derivatives, 1888, A., 966.
- Weidel, Hugo**, and **Fritz Blau**, pyridine derivatives, 1886, A., 176.
- Weidel, Hugo**, and **Theory von Georgievics**, phenylquinoline derivatives, 1888, A., 967.
- Weidel, Hugo**, and **H. Gläser**, diquinoline derivatives, 1886, A., 949.
- Weidel, Hugo**, and **Karl Hazura**, cinchonine, 1883, A., 222.
- hydro-compounds of cinchonic acid, 1885, A., 561.
- Weidel, Hugo**, and **Josef Herzig**, isocinchomeric acid, 1886, A., 477.
- Weidel, Hugo**, and **B. Pick**, compounds from animal tar, 1885, A., 556.
- Weidel, Hugo**, and **M. Russo**, researches on pyridine, 1883, A., 483.
- Weidel, Hugo**, and **Hugo Strache**, constitution of  $\alpha$ -diquinoline, 1886, A., 950.
- Weidel, Hugo**, and **J. Wilhelm**, oxidation products of 2':2'-diquinoline, 1887, A., 979.
- Weidel, Hugo**. See also **Ludwig (Ritter) Barth von Barthenau**.
- Weidmann, Ulrich**, composition and ripening of Emmenthaler cheese, 1883, A., 692.
- Weigelt, Curt Heinrich**, preparation of poudrette, 1884, A., 489.
- estimation of wine extract, 1885, A., 602.
- Weigert, Leopold**, valuation of calcium tartrate, 1884, A., 1434.
- influence exerted by salicylic acid on the proportions of glycerol and alcohol formed in wines, 1889, A., 433.
- estimation of glycerol in wine, 1889, A., 446.
- estimation of salicylic acid, 1889, A., 446.
- Terrell's reaction for testing the colouring matter of wine, 1889, A., 655.
- Weigle, Th.**, presence of chlorine in potassium bromide, 1885, A., 723.
- Weil, Albert**. See **Adolph Claus**.
- Weil, Frédéric**, analysis of type-metal, 1884, A., 1429.
- volumetric estimation of sulphur in sulphides, 1886, A., 918.
- valuation of zinc dust, 1887, A., 301.
- volumetric estimation of sulphides, 1887, A., 618, 998.
- titration of zinc powder, 1887, A., 1000.
- Weil, Hugo**, diacetoneamine, 1886, A., 528.
- amidotrimethylbutyllactic acid, 1886, A., 1009.
- Weilandt, M.**, free phosphoric acid and superphosphate, 1887, A., 995.
- Wein, E.**, feeding value of hop foliage, 1886, A., 577.
- Weinberg, Alexander M.**, kaolin deposits of South-west Russia, 1885, A., 879.
- Weinberg, Arthur**,  $\alpha$ -naphthalenedisulphonic acid, 1888, A., 160.
- hydroxydiphenyl bases, 1888, A., 285.
- intermolecular migration in  $\beta$ -naphthylaminesulphonic acids, 1888, A., 290.
- $p$ -amidoalkyl- $o$ -toluidines, 1892, A., 1078.
- Weinberg, Arthur**. See also **Paul Friedländer**.
- Weiner, Jean**. See **Siegmond Gabriel**.
- Weingärtner**, hydrogen peroxide as a beer preservative, 1884, A., 1447.
- Weingärtner, Eduard**. See **Emilia Nölting**.

- Weinland, Carl**, guanine in the excrement of spiders, 1889, A., 430.
- Weinreb, Carl**, crystal glass, 1885, A., 1019.
- Weinreb, Carl**, and **Simon Bondi**, titration of phenol with bromine, 1885, A., 1266.
- Weinreb, Carl**. See also **Eduard Lauber**.
- Weinreich, S.**, mono- and di-hydroxy-toluic acids, 1887, A., 669.
- Weinschenk, Ernst**, alteration of quartz and talc, 1888, A., 1259.
- mineral synthesis, 1890, A., 709.
- meteoric iron from Magura, Aiva, Hungary, 1891, A., 27.
- Weinschenk, Ernst**. See also **George Frederick Kunz**.
- Weinstein, Ludwig**,  $\alpha$ - and  $\beta$ -hydro-piperic acids, 1885, A., 664.
- Weisbach, Julius Albin**, mineralogical notes, 1883, A., 432.
- brucite, 1883, A., 1061.
- hercynite, 1884, A., 1102.
- aegyrine, 1886, A., 774.
- arnimitite, 1888, A., 1259.
- Weisberg, J.**, estimation of sugar in beet, 1889, A., 314.
- Weise, Bruno**. See **Siegmund Gabriel**.
- Weise, Julius**, *p*-nitrobenzylamid-oxime and *p*-methyl-o-nitrobenzylamidoxime, 1890, A., 44.
- Weise, Wilhelm G. M.**, derivatives of diphenylacetaldehyde, 1889, A., 253.
- Weiske, Hugo**, occurrence of crystals of ammonium magnesium phosphate in wine, 1883, A., 609.
- gelatin, 1884, A., 619.
- water-culture of lupines, 1884, A., 1400; 1885, A., 420.
- estimation of nitrogen in milk and urine of Herbivora, 1886, A., 1072.
- quantitative separation of albumin from peptones, 1886, A., 1087.
- asparagine as a nourishing constituent of food, 1888, A., 80.
- does cellulose economise the decomposition of proteid in the nutrition of Herbivora? 1888, A., 618.
- influence of acid mineral salt on the composition of bone, 1891, A., 848, 1525.
- influence of various salts on live weight and on the composition of bones and teeth, 1892, A., 647.
- Weiske, Hugo**, and **E. Flechsig**, saving effect on albumin of organic acids in vegetable foods, 1890, A., 538.
- Weiske, Hugo, Bernhard Schulze**, and **E. Flechsig**, does cellulose economise the decomposition of proteid in the nutrition of Herbivora? 1886, A., 728.
- Weiske, Hugo** (and others), effect of food on sheep of different breeds, 1883, A., 226.
- composition and feeding value of *Synphyton asperillum*, 1883, A., 613.
- composition and digestibility of serradella at various ages, 1884, A., 206.
- digestibility of certain leguminous straws, 1884, A., 482.
- ensilage, 1884, A., 1409.
- digestibility and feeding value of cotton cake and meal, 1886, A., 272.
- composition of blood, liver, and flesh under varying conditions, 1887, A., 855.
- Weiss, A.**, fluorescence of the pigments of Fungi, 1887, A., 314.
- Weiss, B.** See **Ferd. Simand**.
- Weiss, Christian Ernst**, carbonates from the coal measures, 1886, A., 775.
- Weiss, F.**, chicken leaves, 1888, A., 1100.
- Weiss, G.**, estimation of iodine, 1886, A., 97.
- Weiss, Julius**,  $\alpha$ - and  $\beta$ -homobetaines, 1890, A., 747.
- Weiss, Julius**. See also **Ernst Albert Schmidt**.
- Weiss, Ludwig**, synthesis of isocinchomeronic acid, 1886, A., 719.
- Weiss, Ludwig**. See also **Arthur Rudolf Hantzsch**.
- Weissmann, Gust.**, estimation of manganese in pig-iron and steel, 1888, A., 992.
- Weith, Wilhelm**. See **Victor Merz**.
- Weitz, Lambert**, the thiophen group, 1884, A., 1130.
- Weitz, Ludwig**. See **Carl Arnold August Michaelis**.
- Welch, John Culbert**, limonite, 1885, A., 1116.
- embolite, 1886, A., 988.
- assay of iron pyrites for available sulphur, 1887, A., 180.
- analysis of money, 1889, A., 17.
- Weld, Fred. C.**, melting point of certain alloys, 1891, A., 613.
- Weld, Fred. C., J. B. Lindsey, Wilhelm Schnelle**, and **Bernhard Tollens**, the so-called 'sulphite liquor' and the rotation of gluconic, galactonic, and rhammonic acids, 1891, A., 43.
- Weld, H. W.**, analysis of Lockport sandstone, 1888, A., 925.
- Weldon, Walter**, manufacture of sodium sulphide, 1883, A., 627.
- preparation of chlorine from magnesium oxychloride, 1885, A., 1016.

- Welleman, Christiaan**, the chlorine reaction with fatty oils, 1891, A., 870.
- Welleman, Christiaan**. See also *Eduard Mulder*.
- Weller, Albert**, a higher oxide of titanium, 1883, A., 295.
- detection and estimation of titanium, 1883, A., 381.
- ethylnitraniline, 1883, A., 579.
- phenacylethylanilide, 1883, A., 582.
- occurrence of alkaloid-like bases in paraffin oil, 1887, A., 979.
- Weller, Albert**. See also *George Kerner*.
- Weller, J.**, xyllyphosphorus compounds, 1887, A., 824; 1888, A., 835.
- toluphosphonic acids, 1888, A., 835.
- Wellington, Charles**, and *Bernhard Tollens*, derivatives of formaldehyde, 1886, A., 330.
- hydrogen sulphates of aromatic amines, 1886, A., 347.
- Wells, Horace Lemuel**, basic zinc and cadmium nitrates, 1887, A., 1080.
- bismuthosphærite from Connecticut, 1888, A., 346.
- automatic mercury pump, 1891, A., 875.
- occurrence of pollucite at Hebron, Maine, 1891, A., 993.
- Wells, Horace Lemuel**, and *Samuel Lewis Penfield*, gerhardite and artificial basic copper sulphates, 1886, A., 315.
- sperryllite, 1889, A., 471.
- salts of caesium containing three atoms of halogen to one of metal, 1892, A., 773.
- Wells, Horace Lemuel**. See also *Eduard Salisbury Dana*, *Alfred John Wakeman*.
- Wells, James S. C.**, estimation of phosphoric acid in fertilisers, 1885, T., 185; P., 20; discussion, P., 21.
- separation of copper and cadmium, 1892, A., 534.
- analysis of tin ores, 1892, A., 540.
- Welmans, Paul**, detection of vegetable oils in lard, 1892, A., 1133.
- Welmans, Peter**. See *Paul Friedländer*.
- Welsbach**. See *Auer von Welsbach*.
- Welsh, William**. See *Hans (Freiherr) von Fechemann*.
- Welter, Adolph**, action of hypochlorous acid on bromoquinolines, 1891, A., 1248.
- Welter, Adolph**. See also *Adolph Claus*.
- Weltner, Albert**, action of chloro- and bromo-acetone, acetophenone bromide, and phenylbromacetic acid on ethyl acetoacetate, 1884, A., 746.
- Weltner, Albert**, action of phenylbromacetic acid on ethyl acetate, 1885, A., 793.
- Weltner, Leo**. See *Carl Graebe*.
- Welzel, A.** See *Wetzel*.
- Welzel, Otto**. See *Adolph Claus*.
- Wende, Hermann**, cresolcarboxylic acid, 1887, A., 45.
- trimethylanthragallol, 1887, A., 593.
- Wender, Neumann**, influence of inactive substances on the rotatory power of very dilute solutions of grape sugar, 1891, A., 1178.
- Wender, Vazio**, *c*-dinitrophenol, 1890, A., 751.
- conversion of ethyl acrylate into  $\beta$ -alanine, 1890, A., 862.
- trisubstituted derivatives of benzene, 1890, A., 884.
- Wender, Vazio**. See also *Wilhelm Körner*.
- Wense, Wilhelm**, compounds of guanidine and diketones, 1886, A., 556.
- Wense, Wilhelm**. See also *Samuel Kleemann*, *Carl Theodor Liebermann*.
- Wenukoff, Paul N.**, sphærolite-tachylite from the Ussuri district, 1890, A., 461.
- eutaxitic glasses of the liparites, 1891, A., 649.
- Wenz, J.**, intestinal digestion of albumin, 1886, A., 376.
- Wenzell, William Theodore**, preparation of phosphoric acid by the oxidation of phosphorus with air in presence of moisture, 1883, A., 1050.
- Wenzing, Max**, methylindoles, 1887, A., 957.
- Wenzlick, Carl**. See *Adolph Claus*.
- Weppen and Lüders**, detection of pyridine bases, 1888, A., 1136.
- Werenskiöld, F. H.** See *V. Direks*.
- Werigo, Br.**, Harnack's ash-free albumin, 1891, A., 1268.
- presence of pentamethylenediamine in pancreas extracts, 1892, A., 1368.
- influence of oxygen in the separation of carbonic anhydride in the lungs, 1892, A., 1369.
- Wernadski, Vladimir I.**, phosphorites from the Government of Smolensk, 1890, A., 1071.
- production of sillimanite; constitution of porcelain, 1890, A., 1074.
- Wernecke, Mac**, reactions of caffeine and caffedine, 1888, A., 68.
- Wernecke, Mac**. See also *Ernst Albert Schmidt*.
- Werner, A.**, detection of sugar in urine, 1890, A., 427.

- Werner, Alfred**, a second benzoinoxime, 1890, A., 1264.  
 — two stereochemically isomeric derivatives of furfuraldoxime, 1890, A., 1266.  
 — stereoisomeric derivatives of benzhydroxamic acid, 1892, A., 461.  
 — — basic calcium nitrate, 1892, A., 1276.  
**Werner, Alfred**. See also *Arthur Rudolf Hantzsch*.  
**Werner, Emil A.**, detection and estimation of thallium in presence of lead, 1886, A., 490.  
 — researches on chrom-organic acids. Part I. 1887, T., 383; P., 2; discussion, P., 3.  
 — oxidation of oxalic acid by potassium dichromate, 1887, P., 142; 1888, T., 602.  
 — researches on chrom-organic acids. Part II. Chromoxalates; red series, 1888, T., 404; P., 33.  
 — benzylammonium succinates and their derivatives, 1889, T., 627; P., 127.  
 — interaction of benzyl chloride and allyl bromide respectively with thiocarbamide, phenylthiocarbamide, and diphenylthiocarbamide, 1890, T., 283; P., 33.  
 — action of acetic anhydride on substituted thiocarbamides, and on an improved method of preparing aromatic thiocarbimides, 1891, T., 396; P., 80.  
 — interaction of phenylthiocarbimide with acetic and propionic acids respectively, 1891, T., 544; P., 85.  
 — chemistry of the thiouras, 1892, P., 96.  
**Werner, Eugène W.**, bromophenols, 1884, A., 900.  
 — bromoxytribromophenol, 1885, A., 658.  
 — aromatic bromo-substitution compounds, 1886, A., 1015.  
**Werner, Eugène W.** See also *Petr P. Alexeeff, Marcelin Berthelot, Henri Gal*.  
**Werner, Hermann**, the thiocyanate reaction for iron, 1883, A., 510.  
 — purification of chloroform, 1888, A., 570.  
**Werner, Hugo**, feeding sheep with raw sugar, 1886, A., 569.  
**Werner, Hugo**. See also *Albert Stutzer*.  
**Werner, Paul**. See *Emilio Nölting*.  
**Werner, W. S.** See *Adolph Claus*.  
**Wernicke, Aug.**, refining sugar and molasses by means of concentrated acetic acid, 1884, A., 790.  
**Wershoven, F. J.**, electrical conductivity of solutions of cadmium salts, 1890, A., 1203.  
**Werth, Jean**. See *Floris Osmond*.  
**Wertheimer, Emile**, and *Edouard Meyer*, oxyhæmoglobin in the bile: spectroscopic characters of bile, 1889, A., 636.  
**Werther Moritz**, formation of lactic acid in muscles, 1891, A., 348.  
**Werweke, Leopold van**, otrelith rocks of Otré and Viel-Sahn, 1885, A., 961.  
**Weselsky, Philipp**, and *Rudolf Benedikt*, resorcinol dyes, 1885, A., 526.  
**Wesendonck, Karl**, spectra of carbon compounds, 1883, A., 761.  
 — spectra of silicon fluoride and hydride, 1884, A., 649.  
 — diathermancy of resculin, 1885, A., 213.  
 — fluorescence of naphthalene-red, 1886, A., 585.  
**Wesener, M.** See *Franz Josef König*.  
**Wessel, R.**, carbodiimides of the aromatic series and phenylhydrazine, 1888, A., 1083.  
**West, Samuel Hatch**, acetouria and diabetic coma, 1890, A., 399.  
**Westberg, Alexander**, toxic action and detection of carbon bisulphide, 1892, A., 1520.  
**Westenberger, Bernhard**, isonitroso-compounds, 1884, A., 581.  
**Westenberger, Bernhard**. See also *Frederic P. Treadwell*.  
**Westenhoff, John Hermann**. See *Thomas Herbert Norton*.  
**Westermaier, Max**, structure and functions of the epidermic system of plants, 1884, A., 1066.  
 — osmotic functions of living parenchyma, 1884, A., 1103.  
 — physiological signification of tannin in vegetable tissues, 1888, A., 187.  
**Westmoreland, James William**, estimation and valuation of copper in ores, etc., 1887, A., 80.  
 — estimation of sulphur in pyrites, 1888, A., 85.  
 — copper assays, 1888, A., 1343.  
**Wetzel, A.**, detection of carbonic-oxide-hæmoglobin, 1890, A., 432, 1200.  
**Weyer, Heinrich**. See *Richard Anschütz*.  
**Weyl, Theodor**, influence of chemical agents on the assimilative capacity of green plants, 1883, A., 611.  
 — nitrates in urine, 1885, A., 413.

- Weyl, Theodor**, chemical studies on the torpedo, 1887, A., 1128.  
 — saffron substitutes, 1888, A., 184.  
 — poisonous properties of dinitro-cresol, 1888, A., 520.  
 — silk, 1888, A., 857.  
 — action of artificial dyes on the animal organism, 1888, A., 1122.  
 — creolin, 1889, A., 389.  
 — physiological action of antharobin and chrysarobin, 1889, A., 539.  
**Weyl, Theodor**. See also *Johannes Frenzel*.  
**Wheeler, H. A.**, artificial lead silicate from Bonne Terre, Montana, 1887, A., 109.  
 — platnerite from Idaho, 1890, A., 339.  
 — ferro-goslarite, a new variety of zinc sulphate, 1891, A., 992.  
**Wheeler, H. A.**, and *Charles Luedeking*, new blowpipe reagent, 1885, A., 596.  
**Wheeler, H. A.** See also *Charles Luedeking*.  
**Wheeler, Henry Lord**. See *William James Comstock*.  
**Wheeler, Homer J.**, and *Bernhard Tollens*, xylose and wood gum, 1889, A., 187.  
**Wheeler, Homer J.** See also *Bernhard Tollens*.  
**White, John**. See *Harmon Northrup Morse*.  
**White, John Tsauro**, volumetric estimation of sulphuric and phosphoric acids, 1888, A., 751.  
 — volumetric estimation of bromine, 1888, A., 1130.  
 — volumetric estimation of potassium and sodium, 1888, A., 1130.  
 — volumetric estimation of chlorine, 1889, A., 302.  
 — ash of the indigo stem, 1889, A., 794.  
 — estimation of tea tannin, 1889, A., 1092.  
**White, T. P.**, action of tin on the animal organism, 1886, A., 1058.  
**White, William Hale**, treatment of chlorosis by hydrochloric acid, 1892, A., 1117.  
**Whitehead, Cubell**, use of cadmium in assaying gold, 1892, A., 919.  
 — estimation of small quantities of silver and gold in base metals, mattes, etc., 1892, A., 1525.  
**Whitehouse, Henry H.** See *Russell H. Chittenden*.  
**Whiteley, Richard Lloyd**, chemical formula for wool keratine, 1886, P., 142.  
**Whiteley, Richard Lloyd**, and *J. T. Wood*, Lowenthal's method of tannin analysis, 1892, A., 667.  
**Whitfield, James Edward**, indirect estimation of chlorine, bromine, and iodine, 1887, A., 525.  
 — natural borates and borosilicates, 1888, A., 347.  
 — the Rockwood meteorite, 1888, A., 352.  
 — new meteorite from Mexico, 1890, A., 346.  
**Whitfield, James Edward**. See also *Joseph St'as Diller*, *Frank Austin Gooch*.  
**Whiting, James**, process for phosphorising bronze or brass, 1884, A., 936.  
**Wiborgh, Johan Gustaf**, colorimetric estimation of sulphur in iron, 1886, A., 743.  
 — volumetric estimation of carbon in iron, 1890, A., 924.  
**Wichelhaus, Karl Hermann**, dye from dimethylaniline and chloranil, 1883, A., 1098.  
 — crystalline bases of methyl-violet, 1884, A., 595; 1885, A., 895.  
 — bases of methyl-violet and magenta, 1886, A., 362.  
 — diamidobenzophenone, 1889, A., 781.  
 — methylnaphthalenes, 1892, A., 492.  
**Wichmann, Georg**. See *Ludwig Gattermann*, *Albrecht Schmidt*.  
**Wichmann, Carl Ernst Arthur**, corundum in graphite, 1886, A., 23.  
**Wickel, E.**, crystallography of some organic compounds, 1886, A., 234.  
**Widman, Oskar**,  $\alpha$ - and  $\beta$ -dichloronaphthalenes, 1883, A., 208.  
 — synthesis of indole from cuminol, 1883, A., 329.  
 — a new group of organic bases, 1884, A., 302.  
 — nitrohydroxypropylbenzoic acid and its derivatives, 1884, A., 316.  
 — action of nitrous acid on amidohydroxypropylbenzoic acid and amidopropenylbenzoic acid, 1884, A., 1022.  
 — action of ethyl chloroformate on amidohydroxypropylbenzoic acid, 1884, A., 1022.  
 — argentammonium phosphate, 1885, A., 18.  
 — nitrocumenylacrylic acids and their derivatives, 1885, A., 55.  
 — the propyl group in the cumyl and cymene series, 1886, A., 453.

- Widman, Oskar**, intramolecular changes in the propyl group, 1886, A., 461; 1887, A., 132; 1892, A., 43.
- *o*-derivatives of cumenylacrylic acid, 1886, A., 464.
- oxidation product of *o*-nitro-cumenylacrylic acid, 1886, A., 466.
- *m*-nitrocumenylacrylic acid, 1886, A., 467.
- the propyl group in thymol, 1886, A., 470.
- constitution of glycoluril, 1887, A. 34.
- reciprocal transformations of cymene- and cumene-derivatives, 1887, A., 133.
- acetopropylbenzene, acetocumene, and their derivatives, 1888, A., 1085.
- nomenclature of compounds containing nitrogenous nuclei, 1889, A., 56; 1892, A., 875.
- *p*-carboxyhydrocinnamic acid, 1889, A., 1181.
- constitution of cumenylpropionic acid, 1889, A., 1182; 1891, A., 69.
- isomeric change in the propyl group, 1889, A., 1185.
- change of propyl into isopropyl in the cumene series, 1891, A., 45.
- the constitution of cymene, 1891, A., 686, 897.
- ethylpropylbenzene, 1891, A., 688.
- thaumasite, wollastonite, chabazite, and vesuvian, 1892, A., 1407.
- Widman, Oskar**, and **Joh. Adolph Bladin**, oxidation of cymene; so-called nitrocumene, 1886, A., 541.
- Widman, Oskar**. See also *Per Wilhelm Abenius, Henrik Gustav Söderbaum*.
- Widmer, J.**, estimation of carbon in graphite, 1890, A., 923.
- Wiechert, Emil**, electrical conductivity of serpentine, 1886, A., 113.
- Wiechmann, Ferdinand H.**, red sediment formed in a raffinose solution, 1891, A., 813.
- estimation of mixtures of saccharose, fruit-sugar, and dextrose or levulose, 1892, A., 248.
- Wiedeburg, Otto**, hydro-diffusion, 1891, A., 383.
- Wiedemann, Ernst Eilhard Gustav**, dissociation of the water molecule and the electrical luminosity of gases, 1883, A., 547.
- thermochemical researches, 1883, A. 704.
- molecular refraction, 1883, A., 762.
- constitution of hydrated salts, 1883, A., 780.
- Wiedemann, Ernst Eilhard Gustav**, change of volume of metals and alloys on melting, 1881, A., 7.
- relations between coefficients of friction and galvanic conduction, 1884, A., 139.
- spark spectra emitted by metallic elements under varying conditions, 1884, A., 801.
- hypothesis of the dissociation of salts in very dilute solutions, 1888, A., 1021.
- optical notes, 1891, A., 139.
- Wiedemann, Ernst Eilhard Gustav**, and **Charles Luedeking**, thermal phenomena of colloids, 1885, A., 1031.
- Wiedemann, J.** See *R. Serda*.
- Wiedemann, Max**, contributions to the constitution of brazilin, 1881, A., 756.
- Wiederhold, B.**, levonic acid, 1885, A., 653.
- Wiegand, Eugen**, estimation of titanate acid in presence of iron, 1883, A., 381.
- Wiegand, Eugen**. See also *Fedor F. Beilstein*.
- Wiegmann, Dietrich**. See *Zdenko Hanns Skraup*.
- Wieland, Joh.**, alkalimetric indicators, 1883, A., 1167.
- electrolytic estimations, 1881, A., 1426; 1885, A., 412.
- Wieler, A.**, effect of variations in the quantity of oxygen on the growth of plants, 1884, A., 625.
- Wien, Willy**, transparency of metals, 1888, A., 1230.
- Wiens, Arnold**, specific volume of some ethereal salts of the oxalic acid series, 1890, A., 102.
- Wiernik, Joachim**, action of carbon bisulphide on dimethylaniline in presence of nascent hydrogen, 1889, A., 130.
- Wiernik, Joachim**. See also *Karl Henmann, Georg Lunge*.
- Wierss, F.** See *Oscar Georg Jacobsen*.
- Wiesinger, Friedrich**, action of ferric chloride on *o*-phenylenediamine, 1884, A., 1322.
- Wiesner, unanly potassium chromate**, 1883, A., 425.
- Wiesner, Julius**, action of rain, dew, and watering on plants, 1884, A., 766.
- withering of flowers and leaves, 1884, A., 918.
- the gum ferment, 1885, A., 1211.
- examination of different forms of carbon, 1892, A., 1273.

- Wietersheim** (and others), loss of sugar in beet-roots when stored, 1885, A., 102.
- Wigand, P.** See *Bernhard Tollens*.
- Wiggert, F.** See *Moritz Adolf von Reis*.
- Wiik, Fredrik Johan**, relation between the optical properties and chemical composition of pyroxene and amphibole, 1883, A., 560; 1884, A., 971.
- the so-called ersbyite from Pargas, 1883, A., 561.
- emerald from Paavo in Finland, 1883, A., 561.
- clazolite-syenite from Jwaara, 1884, A., 413.
- triclinic potash soda felspar, 1884, A., 970.
- Wijsman, Hendrik Paulus, junior**, diastase considered as a mixture of maltase and dextrinase, 1890, A., 998.
- Wiklund, C. L.**, phosphoric acid in soil and its estimation, 1892, A., 750.
- Wilber, Francis A.**, gas receiver for absorption analyses, 1888, A., 320.
- Wilber, Francis A.** See also *Peter Town and Austen*.
- Wilcock, Edgar**, obituary notice of, 1883, T., 255.
- Wild, Eugen.** See *Emilio Nörling*.
- Wilde, P. de, and Albert Reychler**, conversion of oleic acid into stearic acid, 1889, A., 1140.
- Wildermann, Mejer**, boiling-points of substances are a function of their chemical nature, 1890, A., 941, 1361.
- velocity of the halogenisation of fatty hydrocarbons, 1891, A., 115.
- method for determining the constitution of saturated and unsaturated halogen derivatives and hydrocarbons, 1892, A., 285.
- exchange of chlorine, bromine, and iodine between inorganic and organic haloid compounds, 1892, A., 574.
- Wildermann, Mejer, and Senjon Aisimann**, velocity of the reaction between alcoholic potash and alkyl haloids, 1892, A., 399.
- Wildermann, Mejer.** See also *Carl Hell*.
- Wildt, Eugen**, manuring experiments in Posen in 1882, 1884, A., 361.
- removal of the bitter principle from lupines, 1885, A., 184.
- Wildt, Eugen, and Anton Scheibe**, estimation of nitric acid, 1884, A., 871.
- Wiley, Harvey Washington**, estimation of dextrose, maltose, and dextrin in starch sugar, 1883, A., 123.
- Wiley, Harvey Washington**, maple sugar, 1885, A., 499.
- estimations of lactose in milks by optical methods, 1885, A., 601.
- maple sugar industry in the United States, 1886, A., 289.
- estimation of acetic acid, 1886, A., 582.
- kouniss, 1886, A., 782.
- determination of molecular weights of substances from the boiling-points of their solutions, 1890, A., 104.
- analyses of the seed of *Calycanthus glaucus*, 1890, A., 403.
- composition of Sorghum seed, 1891, A., 210.
- pine tree honey dew and pine tree honey, 1891, A., 412.
- laid and its adulterations, 1891, A., 1560.
- Wiley, Harvey Washington, and Frank Vincent Broadbent**, estimation of water in glucose, honey, etc., 1886, A., 282.
- Wiley, Harvey Washington, and Walter Maxwell**, organic acids in the Sorghum cane, 1890, A., 819.
- Wiley, Walter Brown.** See *William Albert Noyes*.
- Wilfarth, H.**, modification of Kjeldahl's method of estimating nitrogen, 1885, A., 837.
- assimilation of nitrogen by plants, 1888, A., 979.
- estimation of nitric acid, 1888, A., 1336.
- Wilfarth, H.** See also *Hermann Hellriegel*.
- Wilhelm, Friedrich.** See *Ernst Albert Schmidt*.
- Wilhelm, Gustavus Frederick**, ratio of flesh to stone in stone fruit, 1884, A., 477.
- germinative power of seeds after exclusion of air and drying at high temperatures, 1886, A., 171.
- Wilhelm, J.** See *Hugo Weidel*.
- Wilkens, F., and H. Back**, o-chlorobenzoic acid and its derivatives, 1884, A., 602.
- Wilkes, J. H.**, decomposition of potassium cyanide, 1885, A., 495.
- Wilkinson, Ernest**, occurrence of native mercury in Louisiana, 1885, A., 876.
- Wilkowski, August**, theory of galvanic circuits, 1883, A., 948.
- Will, Huns**, estimation of grape sugar in urine, 1888, A., 535.
- volumetric estimation of boric acid, 1888, A., 628.\*

- Will, Hermann**, effect of steeping and drying on the germination of seeds, 1883, A., 490.
- Will, (Carl) Wilhelm**, *æsculetin*, 1884, A., 67.
- *naringin*, 1885, A., 906; 1887, A., 497.
- a constituent of the root of *Paeonia Moutan*, 1886, A., 906.
- sugars from hesperidin and *naringin*, 1887, A., 715.
- trimethoxybenzenes, and the constitution of *asarone*, 1888, A., 457.
- *atropine* and *hyoscyamine*, 1888, A., 855.
- constitution of the compound obtained by acting on trimethylpyrogallol with nitric acid, 1888, A., 1089.
- *hydroxypyruvic acid*, a product of the decomposition of cellulose, 1891, A., 542.
- *osazone* of *hydroxypyruvic acid*, 1892, A., 356.
- Will, Wilhelm**, and **Karl Albrecht**, *diabase* from *Weilburg*, 1883, A., 959.
- derivatives of *pyrogallol* and *phloroglucinol* and their relation to *daphnetin* and *æsculetin*, 1884, A., 1335.
- Will, Wilhelm**, and **Paul Beek**, derivatives of *unibelliferone*, 1886, A., 880.
- Will, Wilhelm**, and **Georg Bredig**, conversion of *hyoscyamine* into *atropine*, 1888, A., 1316.
- estimation of the molecular weights of dissolved substances, 1889, A., 820.
- Will, Wilhelm**, and **Otto Jung**, *daphnetin*, 1884, A., 1042.
- Will, Wilhelm**, and **Hermann Leymann**, the colouring matter of cochineal, 1886, A., 252.
- Will, Wilhelm**, and **Karl Peters**, derivatives of *isodulcitol*, 1888, A., 933.
- oxidation of *rhamnose* (*isodulcitol*), 1889, A., 952.
- Will, Wilhelm**, and **Johannes Pinnow**, meteorite from *Carcote*, *Chili*, 1890, A., 462.
- Will, Wilhelm**, and **Wilhelm Pukall**, resorcinol derivatives, 1887, A., 660.
- Will, Wilhelm**. See also *Martin Freund*, *Carl Ludwig Reimer*, *Ferdinand Tiemann*.
- Will, Wm. Watson**, apparatus for continual percolation with boiling liquids, 1885, A., 631.
- Willard, J. T.**, improved form of gas apparatus, 1888, A., 750.
- Willard, J. T.**, and **G. H. Failyer**, extraction apparatus, 1892, A., 910.
- Willard, A. A.** (and others), cheese from skim-milk and foreign fat, 1884, A., 536.
- Willcox, Charles Percy**. See *William Gilbert Mixer*.
- Wille, Johan Nordal Fischer**, gases contained in the bladders of *Fucus vesiculosus* and *Oothulla nodosa*, 1890, A., 916.
- Willgerodt, (Heinrich) Conrad (Christoph)**, conversion of *acetonechloroform* into *hydroxyisobutyric acid*, 1883, A., 177.
- bye-products in the preparation of *acetonechloroform*, 1883, A., 177.
- *acetonechloroform*, 1883, A., 1079.
- *p*-nitrophenyl mercaptan and *p*-nitrophenyl disulphide, 1885, A., 519.
- $\alpha$ -dinitrophenyl thiobenzoate and the ethers of dinitrophenyl mercaptan, 1885, A., 519.
- application of various substances as halogen carriers, 1885, A., 1031; 1887, A., 130, 326.
- trinitrobenzenesulphonic acid, 1885, A., 1232.
- tetrachlorothiophen tetrachloride, 1886, A., 339.
- aromatic iodochlorides, 1886, A., 341.
- benzene containing thiophen, 1886, A., 692.
- estimation of chlorine, bromine, iodine, cyanogen, ferrocyanogen, and ferricyanogen by Field's method, 1886, A., 833.
- the halogen carriers in the natural groups of the elements, 1887, A., 806.
- halogen benzene haloids:  $\alpha$ -trichlorobenzene hexachloride, 1887, A., 806.
- acids from *acetonechloroform*, 1887, A., 1030.
- action of yellow ammonium sulphide on ketones and quinones, 1887, A., 1045.
- conversion of ketones and aldehydes into acids and acid-amides by means of yellow ammonium sulphide, 1888, A., 476.
- iodation of the phenols by nitrogen iodide, 1888, A., 910.
- hydrazines, 1888, A., 949.
- *s*-nitrophenylhydrazines of the aromatic series, 1890, A., 40.
- arrangement of the atoms in space in compounds containing nitrogen, 1890, A., 576.

- Willgerodt, (Heinrich) Conrad (Christoph)**, stereochemistry of nitrogen compounds, 1890, A., 951.
- geometrically isomeric nitrogen compounds, 1890, A., 1089.
- reduction of nitro-azo-compounds by alcoholic ammonium sulphide, 1890, A., 1116.
- azohydrazine and polyazo-compounds, 1890, A., 1118.
- preparation of nitroso-compounds, 1891, A., 688.
- *s*-trinitrosophenyl-*p*-bromazobenzene, 1891, A., 905.
- *o*-chlorophenylhydrazine, 1891, A., 1043.
- first reduction products of the nitro-group, 1892, A., 594.
- *m*-dinitrobenzene, 1892, A., 704.
- dinitrosoazobenzene, 1892, A., 1079.
- constitution of nitrosoazo-compounds, 1892, A., 1321, 1453.
- Willgerodt, Conrad, and Amand Böhm**, picrylchlorophenylhydrazine and related compounds, 1891, A., 905.
- Willgerodt, Conrad, and Felix Dürr**, tertiary trichlorobutyl chloride and ether, 1887, A., 570.
- derivatives of solid acetonechloroform, 1889, A., 689.
- Willgerodt, Conrad, and Ludwig Ellon**, nitrohalogenhydrazo- and nitroso-halogenazo-compounds, 1891, A., 1361.
- Willgerodt, Conrad, and Mina Ferko**, preparation of mononitroanisols and mononitrophenols by Kolbe's method, 1886, A., 345.
- phenylhydrazines, 1888, A., 829.
- Willgerodt, Conrad, and Adolf Gieser**, acetonechloroform, 1888, A., 810.
- Willgerodt, Conrad, and Bernhard Hermann**, *o*-*p*-dinitrophenylphenylhydrazine; dinitroso- and nitronitrosoazobenzene, 1889, A., 1160.
- derivatives of *o*-*p*-dinitrophenylphenylhydrazine, 1890, A., 1259.
- Willgerodt, Conrad, and Ernst Huetlin**, *p*- and *o*-nitrophenyl ethers of dinitrophenol and of picric acid, 1884, A., 1328.
- Willgerodt, Conrad, and Arthur Kornblum**, iodation of phenols in ammoniacal solution, 1889, A., 697.
- Willgerodt, Conrad, and Paul Mohr**, *as-m*-dinitrobenzenesulphonic acid, 1885, A., 665.
- *o*-*p*-dinitrobenzenesulphonic acid, 1886, A., 1030.
- Willgerodt, Conrad, and Ed. Georg Mühe**, derivatives of phenylhydrazine, 1892, A., 453.
- Willgerodt, Conrad, and Albert Müller**, acetonechloroform, acetonebromoform, and acetoneiodoform, 1885, A., 648.
- Willgerodt, Conrad, and Heinrich Salzmänn**, halogen derivatives of toluene and of benzoic acid, 1889, A., 985.
- Willgerodt, Conrad, and Sally Schiff**, acetonechloroform: chloroisobutyric chloride: ethylacetonechloroform, 1890, A., 959.
- Willgerodt, Conrad, and Friedrich Schulz**, picryl- $\alpha$ - and  $\beta$ -naphthylhydrazines, and  $\alpha$ -dinitrophenyl- $\alpha$ - and  $\beta$ -naphthylhydrazines, 1891, A., 571.
- Willgerodt, Conrad, and Reinhold Wolfen**, chlorobromo-*p*-xylenes and their derivatives, 1889, A., 965.
- Williams, Charles Hanson Greville**, liquid hydrocarbons from compressed petroleum-gas, 1884, A., 879.
- trimethylamine and pyrroline from coal-gas, 1885, A., 369.
- occlusion of hydrogen by zinc dust, 1885, A., 634.
- source of hydrogen occluded by zinc dust, 1886, A., 15.
- action of zinc dust on zinc hydroxide, 1886, A., 204.
- cerium quinoline nitrate, 1889, A., 281.
- Williams, Charles Theodore**, influence of culture fluids and reagents on the growth of *Bacillus tuberculosis*, 1885, A., 578.
- Williams, Dawson**. See *Sidney Harris Cow Martin*.
- Williams, George H.**, the eruptive rocks near Tryberg in the Black Forest, 1883, A., 723.
- pyramorphosis of pyroxene to hornblende in rocks, 1885, A., 492.
- amphibole-anthophyllite from Baltimore, 1886, A., 128.
- hornblende from St. Lawrence, New York, 1886, A., 128; 1890, A., 1073.
- cleavage in American sphene, 1886, A., 317.
- peridotites near Peckskill, New York, 1886, A., 432.
- serpentine from Syracuse, New York, 1888, A., 120.
- pyroxene from New York, 1888, A., 351.
- celestine from Mineral Co., West Virginia, 1890, A., 1071.
- crystals of metallic cadmium, 1892, A., 1398.

- Williams, George H., and William Merriam Burton**, crystalline form of metallic zinc, 1889, A., 755.
- Williams, Henry Jules.** See *Lewis Mills Norton*.
- Williams, J. Francis**, manganopectolite, 1891, A., 407.
- eudialyte and eucolite from Magnet Cove, Arkansas, 1891, A., 529.
- Williams, J. Francis.** See also *Richard N. Brackett*.
- Williams, John**, preparation of aconitine, 1887, A., 1125.
- Williams, John, and Miles H. Smith**, preparation of amyl nitrite, 1886, A., 327.
- Williams, (Miss) Katherine J.**, the composition of cooked vegetables, 1891, P., 174; discussion, P., 175; 1892, T., 226.
- Williams, (Miss) Katherine J., and William Ramsay**, estimation of free oxygen in water, 1886, T., 751; P., 223.
- supposed existence of an allotropic modification of nitrogen, 1886, P., 223.
- Williams, Rowland**, testing aniline hydrochloride, 1885, A., 446.
- estimation of alumina and free sulphuric acid in alum cake and sulphate of alumina, 1888, P., 84.
- estimation of sodium hydroxide in soda ash, 1888, A., 89.
- analysis of alum cakes, 1888, A., 90.
- estimation of morphine in opium, 1888, A., 635.
- estimation of copper by the iodide process, 1889, A., 309.
- iodine absorptions, combining weights and melting-points of some fatty acids, 1889, A., 318.
- adulteration of lard with cottonseed oil, 1889, A., 320.
- examination of certain gums and resins, 1889, A., 322.
- estimation of citric acid in lemon juice, 1890, A., 88.
- reactions of essential oils, 1890, A., 199.
- examination of commercial carbolic acid and of disinfectant powders made therefrom, 1890, A., 300.
- Maumené's test for essential oils, 1890, A., 884.
- estimation of resin in soap, 1891, A., 131.
- estimation of fatty matter in Turkey-red oil, 1891, A., 1560.
- Williams, Walter Collingwood**, reactions supposed to yield nitroxyl or nitryl chloride, 1886, T., 222; P., 155.
- Williams, William John**, treatment of 'Redonda' phosphate, 1885, A., 1018.
- Williams, William Lloyd.** See *Wynne Rowland Dunstan*.
- Williamson, R. T.** See *John Berry Hayeraft*.
- Williamson, Sidney.** See *Henry Edward Armstrong, Eugen Bamberger*.
- Williamson, W.**, hopeine, 1886, A., 721.
- Willm, Edmond**, preparation of cyanides and ferrocyanides from trimethylamine, 1884, A., 1276.
- waters of Bagnères de Luchon, 1886, A., 997.
- sulphuretted waters of Olette, 1887, A., 710.
- chalybeate waters containing free sulphuric acid, 1891, A., 1110.
- Willson, Robert Wheeler.** See *Benjamin Osgood Peirce*.
- Wilm, Theodor**, magnetic property of platinum ore, 1883, A., 859.
- preliminary notice on a substance obtained from native platinum, 1883, A., 954.
- chemistry of the platinum metals, 1883, A., 1057.
- a new rhodium salt, 1881, A., 660; 1885, A., 355.
- analysis of native platinum, 1886, A., 181.
- alkali platino-cyanides, 1886, A., 604.
- halogen additive compounds of potassium platino-cyanide, 1886, A., 605.
- potassium platino-cyanide, 1888, A., 931.
- derivatives of potassium platino-cyanide, 1889, A., 951.
- antimony pentasulphide, 1891, A., 1432.
- lecture experiment, 1892, A., 563.
- palladious oxide, 1892, A., 572.
- Wilm, V. von**, estimation of fat in palm-nut meal, 1885, A., 290, 1161.
- Wilsing, H.**, volumetric estimation of sulphuric acid, 1887, A., 181.
- Wilsing, Heinrich**, amount of volatile acid in the excrement of ruminants, 1886, A., 87.
- Wilsing, Heinrich.** See also *Friedrich Carl Adolf Stohmann*.
- Wilsmore, U. T. M.** See *David Orme Masson*.
- Wilson, David**, composition, nutritive value, and produce of the permanent grasses, 1886, A., 906; 1889, A., 1077.
- comparative yield and composition of turnips grown with different manures, 1886, A., 913.

- Wilson, J. Arthur**, estimation of free caustic alkali in soap, 1889, A., 448.  
 — cotton-seed oil and beef-fat in lard, 1889, A., 659.  
 — free alkali of soap, 1889, A., 1037.  
 — estimation of cane sugar in soap, 1891, A., 1558.  
 — estimation of combined alkali in soap, 1892, A., 384.  
 — separation of resin from fatty acids, 1892, A., 546.  
 — action of alkaline mercuric cyanide on maltose, dextrose, and dextrin, 1892, A., 1032.
- Wilson, J. Arthur**. See also *Joshua Knowles*.
- Wilson, Jo. Millar**, standardising iodine solutions for the estimation of sulphur in steel, etc., 1892, A., 382.
- Wilson, John Henry**, test for nitrous compounds in sulphuric acid, 1890, A., 922.
- Wilson, W. H.** See *Francis Robert Japp*.
- Wilson, W. P.**, elimination of carbonic anhydride by plants in absence of oxygen, 1883, A., 105.
- Wimmer, Hermann**. See *Bernhard Fischer*.
- Windisch, W.**, estimation of lactic acid, 1888, A., 199.  
 — detection of aldehyde, 1888, A., 1316.
- Wing, Henry Hiram**. See *Isaac Phillips Roberts*.
- Wing, John F.** See *Charles Loring Jackson, Arthur Michael*.
- Wingard, Fr. Carl von**, chondrodite and humites, 1886, A., 29.
- Winkelhofer**, preparation of manure from iron furnace slag, 1881, A., 212.
- Winkelmann, Adolf August**, diffusion of gases and vapours, 1885, A., 10.  
 — diffusion of homologous ethereal salts, 1885, A., 10.  
 — time of existence of thiosulphuric acid in aqueous solution, 1885, A., 722.  
 — diffusion of fatty alcohols and acids, 1886, A., 11.  
 — lecture experiment on gaseous diffusion, 1886, A., 591.  
 — relation of the conductive capacity of gases to temperature, 1887, A., 5.  
 — anomalous dispersion produced by glowing vapours, 1888, A., 207.  
 — influence of temperature on evaporation and on the diffusion of vapours, 1889, A., 461.  
 — composition of the vapour of mixed liquids, 1890, A., 554.
- Winkelmann, Ado August**. See also *Friedrich Nies*.
- Winkler, Clemens Alexander**, recovery of ammonia from the gases of coke ovens, 1884, A., 1411.  
 — change of arsenious oxide from the amorphous to the crystalline condition, 1885, A., 871.  
 — germanium, 1886, P., 161, 197; A., 421, 985; 1887, A., 1081.  
 — apparatus for the reduction of gas volumes, 1886, A., 96.  
 — new arrangement of the volumetric system, 1886, A., 96.  
 — preparation of chlorine from bleaching powder, 1887, A., 442; 1889, A., 821.  
 — preparation of hydrogen sulphide free from arsenic, 1888, A., 220.  
 — fire-damp, 1888, A., 663.  
 — estimation of the percentage of lead in tin-lead alloys by taking the specific gravity, 1889, A., 309.  
 — draught arrangement for water baths, 1889, A., 437.  
 — atomic weight of nickel and cobalt, 1889, A., 759.  
 — technical gas analysis, 1889, A., 924.  
 — reduction of oxygen compounds by magnesium, 1890, A., 331, 451, 693, 1372; 1891, A., 801, 1155.
- Winkler, Ludwig Wilhelm**, estimation of oxygen dissolved in water, 1889, A., 79.  
 — solubility of oxygen in water, 1889, A., 936.  
 — solubility of gases in water, 1891, A., 384; 1892, A., 271.  
 — absorption of gases by liquids, 1892, A., 556.
- Winogradsky, Sergel**, the nitrifying organism, 1890, A., 1180.  
 — formation and oxidation of nitrites in soils, 1891, A., 1515.
- Winssinger, Camille**, a new fractioning apparatus, 1884, A., 364.  
 — propane derivatives, 1888, A., 243.  
 — colloidal state of sulphides, 1888, A., 911.
- Winssinger, Camille**. See also *Wulthère Spring*.
- Winston, William Bamford**. See *Sydney Monckton Copeman*.
- Winter, Heinrich**, levulose, 1888, A., 438.
- Winter, Heinrich**. See also *Alexander Herzfeld*.
- Winter, J.**, urobilin in the bile, 1890, A., 187.

- Winternitz, Hugo**, proteid in normal urine, 1891, A., 1130.  
 — alkalinemetry of the blood, 1891, A., 1398.  
 — colour reactions of the proteid precipitate produced by potassium ferrocyanide, 1892, A., 1036.  
 — putrefaction of milk, 1892, A., 1116.  
**Winterstein, Ernst**, vegetable amyloid, 1892, A., 803.  
**Winther, Adolf**, process for preparing orcinol, 1883, A., 893.  
**Winzer, Hugo**, ethyl camphorylmalonate, 1890, A., 1150.  
**Wipprecht, Walter**, absorption of ammonia by clay, 1887, A., 1136.  
**Wirtz, Karl**, determination of the heat of vaporisation by means of the steam calorimeter, 1890, A., 1040.  
**Wirtz, Quirin**. See **Richard Anschütz**.  
**Wisbar, G.**, distillation of the potassium hydrogen salts of some acids of the oxalic series, 1891, A., 1011.  
 — decomposition of glutaric acid and succinic acid by sunlight in presence of an uranium salt, 1891, A., 1013.  
**Wischin, R.**, *m*-xylenedisulphonic acid, 1891, A., 73.  
**Wislicenus, Hans**, apparatus for distillation under reduced pressure, 1891, A., 146.  
**Wislicenus, Johannes**, methyl  $\beta$ -butyl ketone and its derivatives, 1883, A., 966.  
 — reduction of phthalic anhydride by zinc and glacial acetic acid, 1885, A., 57.  
 — reactions of dichlorether, 1885, A., 366.  
 — chloro-derivatives of crotonic acid, 1887, A., 655.  
 — arrangement in space of the atoms of the molecules of carbon compounds, 1888, A., 35.  
 — action of phthalyl dichloride on ethyl sodiomalonate, 1888, A., 149.  
 — the position of atoms in space, 1888, A., 405; 1889, A., 576.  
 — fumaric and maleic acids, 1888, A., 1058.  
**Wislicenus, Johannes**, and **A. Blank**, arrangements of the atoms in space: members of the stilbene group, 1889, A., 261.  
**Wislicenus, Johannes**, and **Heinr. Reinhardt**, action of dichlorether on phenol, 1888, A., 373.  
**Wislicenus, Johannes**, and **Max Siegfried**, action of dichlorether on the dihydroxybenzenes, 1888, A., 374.  
**Wislicenus, Johannes**, and **Georg Zwanziger**, action of dichlorether on naphthol, 1888, A., 376.  
**Wislicenus, Johannes**, **Emil Teisler**, and **Hermann Langbein**, geometrical constitution of the crotonic acids, 1889, A., 236.  
**Wislicenus, Wilhelm**, action of potassium cyanide on phthalide, 1885, A., 532.  
 — action of potassium cyanide on lactones, 1886, A., 879.  
 — ethyl oxalacetate, 1887, A., 231; 1888, A., 361.  
 — action of phenylhydrazine on lactones, 1887, A., 489.  
 — syntheses of ethyl salts of ketonic acids, 1887, A., 587.  
 — combination of lactones with ethereal salts, 1887, A., 952.  
 — ethereal salts of aldehydo-acids, 1888, A., 129.  
 — synthesis of ketonic acids, 1888, A., 1178.  
 — action of ethyl isobutyrate and of other ethereal salts on ethyl oxalate, 1888, A., 1193.  
 — action of ethyl acetate on ethyl phthalate, 1888, A., 1193.  
 — action of ethyl oxalate on lactones, 1888, A., 1194.  
 — ethyl oxallevulinate, 1888, A., 1273.  
 — ethyl oxalosuccinate, 1889, A., 767.  
 — action of bromine on ethyl oxalacetate, 1890, A., 133.  
 — ethyl benzamido-oxalacetate and benzamidopyruvic acid, 1891, A., 922.  
 — reduction of ethyl oxalacetate, 1892, A., 117.  
 —  $\beta$ -methylmalic acid, 1892, A., 589, 963.  
 — synthesis of hydrogen nitride, 1892, A., 1151.  
 — inactive ethyl malate, 1892, A., 1431.  
**Wislicenus, Wilhelm**, and **Eduard Arnold**, ethyl methyl oxalacetate, 1888, A., 361.  
**Wislicenus, Wilhelm**, and **Arthur Kötze**, diketohydrindene, 1889, A., 1067.  
 — action of ethyl propionate on ethyl phthalate, 1889, A., 1068.  
**Wislicenus, Wilhelm**, and **Wilhelm Sattler**, combination of ethyl oxalate with anilides, 1891, A., 902.  
**Wislicenus, Wilhelm**, and **Max Scheidt**, ethyl ethoxyoxalacetate, 1891, A., 545.

- Wislicenus, Wilhelm, and Max Scheidt**, combination of phenylhydrazine with ethyl oxalacetate, 1892, A., 49.
- action of phenylhydrazine on ethyl ethoxyoxalacetate, 1892, A., 458.
- Wislicenus, Wilhelm, and Karl Spiro**, action of aniline on ethyl oxalacetate and ethyl methylloxalacetate, 1890, A., 378.
- Wispek, Paul**, derivatives of mesitylene, 1883, A., 1095.
- Wispek, Paul, and Rudolf Zuber**, action of allyl chloride on benzene in presence of aluminium chloride, 1883, A., 977.
- formation of *n*-propylbenzene, 1885, A., 972.
- Wispek, Paul**. See also *Bronislaw Radziszewski*.
- Wissokowitsch**, production of lactic acid during artificial circulation of blood through the liver, 1888, A., 860.
- Witt, Constantin**. See *Adolph Claus*.
- Witt, Otto Nikolaus**, indulines, 1884, A., 743.
- indophenols, 1884, A., 743.
- nitroso-derivatives of aromatic amines, 1885, A., 782.
- new series of dyes, 1885, A., 945.
- tannin method of fixing colours on cotton, 1885, A., 1024.
- the eurhodines, a new class of colouring matters, 1886, T., 391; P., 187; A., 473.
- preparation of azo-derivatives, 1886, A., 145.
- isomeric  $\alpha$ -naphthylaminesulphonic acids, 1886, A., 364, 554.
- dyes obtainable from the tannins and their derivatives, 1886, A., 403.
- filtering apparatus, 1886, A., 592.
- separation of xylylides, 1886, A., 699.
- constitution of naphthionic acid and Congo-red, 1886, A., 889.
- dinitronaphthylamine, 1886, A., 947.
- qualitative tests for the dyes found in commerce, 1887, A., 91.
- eurhodines and Laurent's naphthase, 1887, A., 153.
- action of ethyl acetoacetate on aromatic diamines, 1887, A., 247.
- constitution of the safranines, 1887, A., 250.
- new method of preparing azines, 1887, A., 590.
- constitution of isomeric tolunaphthazines, 1887, A., 591.
- azonium bases, 1887, A., 729; 1891, A., 1108.
- Witt, Otto Nikolaus**, induline of azophenue, 1887, A., 821.
- manufacture of  $\alpha$ -naphthylamine, 1887, A., 1048.
- azophenue, 1888, A., 54.
- homologues of aniline, 1888, A., 138.
- derivatives of  $\alpha$ -naphthol, 1888, A., 486.
- eurhodines and safranines, 1888, A., 491.
- naphthalene derivatives, 1888, A., 492.
- eurhodines, 1888, A., 1186.
- reduction products of the azo-dyes of the naphthalene series, 1889, A., 270.
- constitution of  $\beta$ -naphthol- $\alpha$ -sulphonic acid, 1889, A., 275.
- cyanamines, a new group of dyes, 1890, A., 1307.
- $\beta$ -naphthaquinonesulphonic acids, 1892, A., 196.
- derivatives of *p*-nitro-*o*-chlorobenzyl bromide, 1892, A., 444.
- sulphonic acids of amido- $\alpha$ -naphthol and  $\alpha$ -naphthaquinone, 1892, A., 722.
- Witt, Otto Nikolaus, and Herbert Kaufmann**,  $\alpha$ -naphthol- $\alpha$ -sulphonic acid, 1892, A., 194.
- Witt, Otto Nikolaus, and Christoph Schmidt**, products of the reduction of alkylated azo-colours of the naphthalene series, 1892, A., 862.
- azonium bases, 1892, A., 1246.
- Witt, Otto Nikolaus, and Edward G. P. Thomas**, researches on the induline group, 1883, T., 112.
- Witt, Otto Nikolaus, Emilio Nölting, and Sylvestre Forel**, preparation and properties of *p*-xylydine, 1889, A., 603.
- Witt, Otto Nikolaus, Emilio Nölting, and Eugène Grandmougin**, indazole derivatives, 1891, A., 312.
- Witt, Otto Nikolaus**. See also *Philipp Brunner, Carl Theodor Liebermann, Emilio Nölting*.
- Witte, Friedrich Carl**. See *Siegmund Levy*.
- Wittenberg, Max**, azophenylacetic acid, 1885, A., 661.
- Wittenberg, Max, and Victor Meyer**, benzil, 1883, A., 803.
- Witter, Hugo**. See *Eduard Buchner*.
- Wittich, Otto**, triphenylmethyltoluidines, 1884, A., 1032.
- Wittich, Otto**. See also *Karl Elbs*.
- Witting, F.**, Chilian boronatrocalcite, 1885, A., 846.
- Wittjen, B., and H. Frecht**, blue rock-salt, 1883, A., 1051.

- Wittkamp, L.**, action of ammonia on the ethers of nitronaphthol, 1884, A., 1036.
- Wittmaek, Charles**. 1. See **Otto Fischer**.
- Wittmaek, Marx Carl Ludewig**, detection of adulteration of rye meal with flour, 1883, A., 392.
- Witz, Aimé**, combustion of explosive gases in various states of dilution, 1884, A., 1247.
- calorific power of coal gas, 1885, A., 472.
- combustion of mixtures of coal gas and air, 1885, A., 857.
- influence of a magnetic field on the electrical resistance of gases, 1890, A., 1359.
- Witz, Georges**, sulphurous anhydride in the air of towns, 1885, A., 953.
- Witz, Georges, and Floris Osmond**, detection and estimation of vanadium with oxycellulose, 1886, A., 923.
- Wladesco**. See **Wladesco**.
- Wladimiroff, Alexander**, osmotic experiments on living bacteria, 1891, A., 1131.
- Wietzel, Severin, and S. Henrichsen**, magnetism of organic bodies, 1884, A., 1243.
- Wietzel, Severin**. See also **Paul Friedländer, A. Schillinger**.
- Wöhler, Friedrich**, obituary notice of, 1883, T., 258.
- Wöhle, Ernst**. See **Carl Engler**.
- Wohl, Alfred**, compounds of hexamethyleneamine with alkyl iodides, 1886, A., 863.
- thioformaldehyde derivatives, 1887, A., 27.
- amidonacetals, 1888, A., 413.
- behaviour of catechol with Fehling's solution, 1888, A., 994.
- reduction of a solution of methyl-violet by invert sugar, 1888, A., 995.
- carbohydrates, 1890, A., 1085.
- glucosoxime and levulosoxime, 1891, A., 813.
- Wohl, Alfred, and Wilhelm Marckwald**, condensation products of amido-acetal, 1889, A., 624, 866.
- Wohlbrück, (Fraulein) Olga**, action of sodium on the ethyl salts of the higher fatty acids, 1887, A., 1099.
- Wohlbrück, (Fraulein) Olga**. See also **Arthur Rudolf Hantzsch**.
- Wohmann, Michael**, diazo-compounds of the thiazole series, 1891, A., 225.
- Woitachach, Georg**, the granite hills of Königshain in Oberlausitz, with special regard to the minerals therein, 1883, A., 446.
- Wolde, W.**, rice and earth-nut-meal as food for milch cows, 1883, A., 820.
- Wolf, Hans**. See **Martin Freund**.
- Wolf, J.**, estimation of calcium salts in syrup and sugar products, 1892, A., 1377.
- Wolf, Max**. See **Philipp Lenard**.
- Wolfbauer, Johann H.**, chemical composition of the water of the Danube above Vienna in 1878, 1884, A., 122.
- irrigation by means of Danube water, 1884, A., 635.
- Wolfbauer, Johann F.** See also **Franz Xavier R. (Freiherr) von Höhnel**.
- Wolfenden, Richard Norris**, snake poison, 1886, A., 1057.
- Wolfenden, Richard Norris**. See also **Sidney Harris Cox Martin**.
- Wolfe, Ludwig**, investigation of crude acetone, 1891, A., 819.
- Wolff, Carl Heinrich**, detection of rosaniline hydrochloride in wine by means of stearin, 1883, A., 384.
- examination of molasses for dextin-syrup, 1883, A., 624.
- valuation of indigo, 1884, A., 507.
- detection of blood in urine, 1888, A., 880.
- electrolytic detection of mercury, 1889, A., 441.
- Wolff, Emil Theodor von, and C. Kreuzhage**, behaviour of various plants towards nitrogenous manures, 1888, A., 320.
- Wolff, Emil Theodor von (and others)**, digestibility of potatoes and carrots with hay and oats by the horse, 1885, A., 72.
- digestibility of lucerne and clover lay by the horse and sheep, 1885, A., 410.
- digestibility of clover and meadow hay by the horse and sheep, 1885, A., 411.
- foddering of horses and the circulation of mineral matter in the horse, 1888, A., 735.
- Wolff, Emil Theodor von**. See also **C. Kreuzhage**.
- Wolff, H.**, basaltic rocks of Hessen, 1891, A., 1440.
- Wolff, Heinrich**, phenylallenylamidoxime derivatives, 1886, A., 798; 1890, A., 41.
- Wolff, John Eliot**, nepheline rocks of the United States, 1885, A., 230.
- Wolff, Ludwig**,  $\delta$ -lactone of *n*-caproic acid, 1883, A., 455.
- bismuth salicylate, 1884, A., 905.
- derivatives of levulinic acid, 1885, A., 1123.

- Wolff, Ludwig**,  $\beta$ -bromovaleric acid, 1887, A., 464.  
 — dimethylindole, 1888, A., 371.  
 — acetalamine and diacetylamine, 1888, A., 809.  
 — indole derivatives, 1889, A., 259.  
 — glyoxypropionic acid and its derivatives, 1891, A., 416.  
 — hydroxylevulinic acid and acetyl-acrylic acid, 1891, A., 1185.  
**Wolff, Ludwig, and Paul F. Gans**, furazanearboxylic acid, 1891, A., 896.  
**Wolff, Nathan**. See *Adolf Weber*.  
**Wolff, Nic.**, use of air saturated with bromine in the precipitation of manganese, 1884, A., 640.  
**Wolffenstein, Richard**, action of phosphorus pentachloride on  $\alpha$ -hydroxynaphthoic acid, 1887, A., 963; 1888, A., 714.  
 — constitution of  $\alpha$ -hydroxynaphthoic acid, 1889, A., 615.  
 — oxidation of piperidine with hydrogen peroxide, 1892, A., 1484.  
**Wolffenstein, Richard**. See also *Adolf Pinner*.  
**Wolfen, Reinhold**. See *Conrad Willgerodt*.  
**Wolfmann, Julius**, estimation of tartaric acid, 1891, A., 129.  
**Wolfrum, L.** See *Josef Plöchl*.  
**Wolkoff, Alesci A.**, dehydration of monhydric alcohols, 1890, A., 354.  
**Wolkoff, Alesci A., and Bugaieff**, decomposition of butylene and amylene hydrates by heat, 1886, A., 137.  
**Wolkow, Michael, and Eugen Baumann**, alcaptonuria, 1891, A., 1128.  
**Woll, Fritz Wilhelm August**, butter analysis, 1887, A., 309.  
 — decomposition of organic ammoniacal compounds in ensilage, 1889, A., 1030.  
 — loss of nitrogen in acid fodders, 1890, A., 1339.  
**Wollemann, J.**, the Badenweiler ore deposit, 1889, A., 27.  
**Wollheim, J.**, chlorophyll, 1888, A., 723.  
**Wollner, Robert**, the so-called rubeanhydric acid, 1884, A., 1109.  
 — hydroxy-base of cyanmethine, 1884, A., 1292.  
**Wollner, Robert**. See also *Adolph Claus*.  
**Wollny, Martin Ewald**, effect on the fertility of the soil produced by covering it with farmyard manure, 1883, A., 237.  
 — influence of the state of aggregation on the temperature of, and moisture in a soil, 1883, A., 500.
- Wollny, Martin Ewald**, influence of climate and weather on the amount of carbonic anhydride in air, 1883, A., 614.  
 — influence of artificial manures on the physical properties of soil, 1884, A., 210.  
 — effect of artificial influences on the internal causes of growth, 1884, A., 624.  
 — influence of a crop or covering on the physical properties of a soil, 1884, A., 922; 1888, A., 1222.  
 — manuring with crude ammonium superphosphate, 1884, A., 926.  
 — effect of depth of sowing on the germination and growth of plants, 1884, A., 1404.  
 — protective influence of growing plants on the undergrowth, 1885, A., 77.  
 — influence of the soil and its cultivation on the temperature and moisture of the air, 1885, A., 81.  
 — micro-organisms in the soil, 1885, A., 426, 683.  
 — influence of the position of the "set" on the potato crop, 1885, A., 586.  
 — absorptive and evaporative powers of various litters, 1885, A., 1008.  
 — influence of different systems of applying manures, 1885, A., 1156.  
 — carbonic anhydride in the atmosphere, 1886, A., 594.  
 — influence of the physical properties of a soil on the amount of free carbonic anhydride present, 1887, A., 521.  
 — decomposition of organic matter in soils, 1887, A., 523.  
 — effects of atmospheric deposits on plants and soil, 1888, A., 316.  
 — percentage of carbonic anhydride in the air of soils, 1889, A., 1030.  
**Wollny, Rudolf**, analytical operations and apparatus, 1885, A., 591, 835.  
 — the Reichert-Meißl process for the estimation of butter-fat, 1888, A., 200.  
 — estimation of fatty acids from butter, 1889, A., 1037.  
**Wolpe, hydroxybutyric acid** in diabetic urine, 1887, A., 857.  
**Wood, Charles Henry, and Edward Louis Barret**, notes on cinchona alkaloids, 1883, A., 1018.  
**Wood, E. Fred.**, modified molybdate method for estimating phosphorus in steel, 1886, A., 280.  
**Wood, Horatio C., and John Marshall**, elimination of urea in fever, 1891 A., 1530.

- Wood, Julian**, and **J. L. Borden**, action of ammonia on the halogen salts of lead, 1885, A., 1114.
- Wood, J. T.** See *Richard Lloyd Whiteley*.
- Woodhead, G. Sims.** See *Robert Irvine*.
- Woodruff, T.**, preparation of alon, 1890, A., 170.
- Woods, Charles Dayton.** See *Wieber Olin Atwater*.
- Woodridge, Leonard Charles**, the origin of the fibrin ferment, 1885, A., 571.
- fibrin ferment in blood, 1885, A., 1253.
- intravascular clotting, 1886, A., 821.
- new constituent of blood serum, 1887, A., 983.
- changes effected by digestion on fibrinogen and fibrin, 1888, A., 618.
- coagulation of the blood, 1888, A., 619; 1889, A., 288, 1076.
- Woolley, Edmund James.** See *Wyndham Rowland Dunstan*.
- Woringer, Leo**, camphanic acid, 1885, A., 668.
- Worm-Müller, Jacob**, estimation of sugar in urine, 1883, A., 829.
- estimation of dextrose in urine by the polarimeter, 1885, A., 702.
- Worm-Müller, Jacob**, and **Jacob G. Otto**, Schwarz's process for preparing pure grape-sugar, 1883, A., 565.
- Worm-Müller, Jacob** (and others), testing grape-sugar and some reactions of sugar, 1884, A., 778.
- Worms, Rudolf**, constitution of nitronaphthols, 1883, A., 69.
- Wortmann, Julius**, diastatic ferment of bacteria, 1883, A., 930.
- influence of radiant heat on the growing parts of plants, 1884, A., 626.
- presence and function of diastase in plants, 1891, A., 856.
- Woussen**, estimation of potassium by reduction of the platinumchloride with sodium formate, 1888, A., 89.
- Woy, E. F. R.**, massoy bark oil, 1890, A., 638.
- massoyene, 1891, A., 464.
- Wrampelmeyer, Eduard**, the existence of avenine, 1889, A., 1223.
- estimation of fat in linseed cake, 1889, A., 1251.
- Wrampelmeyer, Eduard.** See also *Ludwig Gattermann*.
- Wreszinski, Hugo.** See *Otto Fischer*.
- Wright, Almoth Edward**, intravascular coagulation, 1891, A., 953.
- tissue fibrinogens, 1891, A., 1524; 1892, A., 646.
- plasma and serum, 1892, A., 1113.
- Wright, Almoth Edward.** See also *Rudolph Eduard Kütz*.
- Wright, Charles Romley Alder**, manufacture of cuprammonium and zinc-ammonium compounds and their technical application, 1884, A., 1232.
- Wright, Charles Romley Alder**, and **Charles Thompson**, chemical affinity in terms of electromotive force, 1884, A., 246; 1885, A., 325, 721.
- estimation of resin in soaps, 1886, P., 175.
- new class of voltaic combinations in which oxidisable metals are replaced by alterable solutions, 1887, T., 672; P., 81; discussion, P., 85.
- development of voltaic electricity by atmospheric oxidation, 1887, A., 1008; 1889, A., 90.
- aeration currents, 1888, A., 639.
- two-fluid cells, 1889, A., 89.
- ternary alloys, 1890, A., 336; 1891, A., 267, 1158.
- air batteries, 1890, A., 841.
- Wright, Charles Romley Alder**, **Charles Thompson**, and **John Temple Leon**, ternary alloys: method of graphic representation, 1891, A., 1158.
- Wright, Lewis Thompson**, some notes on hydrated ferric oxide and its behaviour with hydrogen sulphide, 1883, T., 156.
- on the estimation of hydrogen sulphide and carbonic anhydride in coal-gas, 1883, T., 267.
- colloidal copper sulphide, 1883, A., 1054.
- on the influence of the temperature of distillation on the composition of coal-gas, 1884, T., 90.
- the illuminating power of methane, 1885, T., 200; P., 21; discussion, P., 22.
- analysis of gas coal, 1887, A., 84.
- Wright, William T.**, and **Thomas Burton**, analysis of Woodall spa, 1884, T., 168.
- Wrightson, John**, and **John May Herbert Munro**, manurial value of basic steel slag, 1887, A., 176.
- Wrightson, Thomas.** See *William Chandler Roberts-Austen*.
- Wroblewski, Eduard A.**, decomposition of diazo-compounds by alcohol, 1885, A., 257.
- c-xylidines, 1886, A., 145.
- Wroblewski, Siegiemund A. von**, absorption of gases by liquids under high pressures, 1883, A., 418.

- Wroblewski, Siegfismund A. von**, specific gravity of liquid oxygen, 1884, A., 11, 388.
- critical temperature and pressure of liquid oxygen, 1884, A., 148.
- ebullition of liquid oxygen and solidification of nitrogen, 1884, A., 553.
- boiling-points of oxygen, air, nitrogen, and carbonic oxide under atmospheric pressure, 1884, A., 817.
- liquefaction of hydrogen, 1884, A., 888.
- properties of liquid methane and its use as a refrigerator, 1884, A., 1275.
- production of low temperatures by means of liquid oxygen, nitrogen, etc., 1885, A., 715.
- phenomena which accompany the evaporation of the permanent gases in a vacuum, 1885, A., 861.
- electrical resistance of copper at very low temperatures: insulating properties of liquid oxygen and nitrogen, 1885, A., 1099.
- liquid atmospheric air, 1886, A., 8.
- density of liquefied air and its constituents: atomic volume of oxygen, 1886, A., 661.
- pressure curves of fluids at their critical points, 1886, A., 964.
- representation of the connection between the gaseous and liquid states of matter by isopycnics, 1887, A., 432.
- compressibility of hydrogen, 1889, A., 563.
- Wroblewski, Siegfismund A. von**, and **Karl Olszewski**, liquefaction of nitrogen and of carbonic oxide, 1883, A., 781, 952.
- Wülfing, A.**, separation of the toluidines, 1886, A., 1021.
- separation of *o*- and *p*-toluidines, 1887, A., 576.
- Wülfing, Ernst Anton**, mica from the Rheinwaldhorn, Graubünden, 1886, A., 991.
- nepheline-syenite from the Transvaal, 1888, A., 925.
- formula of tourmaline, 1889, A., 765.
- kryokonito, 1891, A., 408.
- the pyroxene family, 1892, A., 1408.
- Wüllner, Friedrich Hugo Anton Adolph**. See **Karl Richard Koch**.
- Würtl, Julius**, constitution of the cinchona alkaloids: quinine, 1889, A., 626.
- Würtl, Julius**. See also **Zdenko Hanns Skraup**.
- Würthner, Emil**. See **Eugen Lellmann**.
- Würtz, Otto**. See **Adolph Claus**.
- Wüst, Albert**, and **Wilhelm Julius Otto Leopold Kirchner**, Oberbockstruck's milk refrigerator, 1885, A., 1022.
- Wüsten, Michael**. See **Otto Wallach**.
- Wukoloff, Semen P.**, solubility of gases, 1889, A., 670.
- solubility of carbonic anhydride in chloroform, 1889, A., 1110.
- Wulf, H.**, petrography of South-west Africa, 1890, A., 221.
- Wulff, Ludwig**, do crystals grow only by juxtaposition of new molecules? 1886, A., 9.
- Wulz, Paul**. See **Eugen Bamberger**.
- Wunderlich, Aemilius**, carbaminecyanamide, 1886, A., 435.
- Wurm, Alois**, benzenylazoximethenyl-carboxylic acid and its derivatives, 1890, A., 258.
- Wurster, Casimir**, active oxygen in the atmosphere, 1887, A., 211.
- formation of active oxygen in paper, 1887, A., 211.
- reagents for active oxygen, 1887, A., 295.
- Griess' reaction for nitrous acid, 1887, A., 298.
- behaviour of hydrogen peroxide towards albumin, 1887, A., 607.
- oxidation in the animal body, 1887, A., 610.
- quantitative estimation of wood in paper, 1887, A., 620.
- action of oxidising agents on albumin, 1887, A., 633.
- behaviour of sodium nitrite towards albumin and haemoglobin, 1887, A., 633.
- oxidation by means of hydrogen peroxide, 1888, A., 43.
- formation of dyes by means of hydrogen peroxide, 1888, A., 141.
- estimation of active oxygen, 1888, A., 627.
- active oxygen in living tissues, 1888, A., 863.
- estimation of ammonia in urine, 1888, A., 991.
- formation of nitrous acid and nitric acid in saliva from formaldehyde and ammonia, 1889, A., 1228.
- naphthylamine as a reagent for hydrogen peroxide in presence of sodium chloride, 1889, A., 1242.
- use of ammonium acetate in detecting nitrites by Griess' reaction, 1889, A., 1245.

- Wurtz, Charles Adolphe**, quaternary base derived from hydroxylamine, 1883, A., 923.
- $\beta$ -butyl glycol, 1884, A., 169.
- hydration of crotonaldehyde, 1884, A., 420.
- action of heat on aldol and *p*-aldol, 1884, A., 579.
- electrical conductivity of saline solution, 1884, A., 882.
- Wurtz, Charles Adolphe**, and **Arthur Henninger**, action of ethyl chloro-carbonate on potassium cyanate, 1885, A., 968.
- Wurtz, Robert**, volatile bases in the blood and breath, 1888, A., 616.
- toxic action of bases produced by alcoholic fermentation, 1888, A., 622.
- Wyborn, John Middleton**, ptomaines and their genesis in relation to Panum's sepsin, 1889, A., 421.
- Wyndham, Stanley**. See **Adolph Claus**.
- Wynne, William Palmer**, note on the constitution of Neville and Winther's *o*-toluidinesulphonic acid, and of the sulphonic acids of *o*-chloro- and *o*-bromo-toluene, 1892, T., 1036; P., 155.
- the action of sulphuryl chloride on aceto-*o*-toluidide and aceto-*p*-toluidide; mono-, di-, and tri-chlorotoluenesulphonic acids, 1892, T., 1042; P., 139.
- Wynne, William Palmer**. See also **Henry Edward Armstrong**, **Francis Robert Japp**.
- Wyruboff (Wyrouboff), (Frederic N.)**, crossed dispersion of several rhombic substances, 1884, A., 381.
- dispersion of sodium chromate, 1885, A., 211.
- sodium potassium racemate, 1886, A., 445.
- sodium ammonium and sodium potassium racemates, 1886, A., 533.
- dimorphism of hydrogen potassium sulphate, 1886, A., 665.
- optical phenomena of lead dithionate, 1886, A., 958.
- cerium hydrogen sulphate, 1890, A., 452.
- Wyss, Georg Heinrich von**, determination of the rotatory dispersion of an active substance, 1888, A., 542.
- Yeates, William Smith**, pseudomorphs of native copper after azurite, 1890, A., 453.
- Yeo, Gerald Francis**, stability of oxy-hemoglobin, 1890, A., 1012.
- Yoshida, (Hikaroku)**, chemistry of lacquer (*urushi*), Part I., 1883, T., 472.
- constituents of camphor oil, 1885, T., 779.
- aluminium in the ashes of flowering plants, 1887, T., 748.
- Yoshii, T.** See **Oscar Kellner**.
- Young, A. V. E.**, thermochemical analysis of the reaction between alum and potassium hydroxide, 1886, A., 589.
- Young, George**, condensation of the three isomeric methylhydriocinnamic acids to the corresponding methylhydriindones, 1892, A., 1221.
- Young, George**. See also **Robert Irvine**.
- Young, James**, obituary notice of, 1884, T., 630.
- Young, John**, pectolite from Kilsyth, 1887, A., 645.
- Young, John William**. See **Thomas Edward Thorpe**.
- Young, Robert Arthur**, retiform tissue, 1892, A., 1113.
- Young, Sydney**, on  $\alpha$ -ethylvalerolactone,  $\alpha$ -ethyl- $\beta$ -methylvalerolactone, and on a remarkable decomposition of  $\beta$ -ethylaceto-necinic ether, 1883, T., 172.
- hepta- and octo-lactones, 1883, A., 455.
- peculiar decomposition of the ethereal salts of substituted acetoacetic acids, 1883, A., 456.
- test for gallic acid, 1884, A., 119.
- delicate thermometer for lecture purposes, 1888, A., 410.
- the vapour-pressure of quinoline, 1889, T., 483; P., 101.
- on the vapour-pressures and specific volumes of similar compounds of elements in relation to the position of those elements in the periodic table, 1889, T., 486; P., 103.
- a new method of determining the specific volumes of liquids and of their saturated vapours, 1890, P., 157; 1891, T., 37.
- the molecular volumes of the saturated vapours of benzene and of its halogen derivatives, 1890, P., 177; 1891, T., 125.
- dibenzyl ketone, 1891, T., 621; P., 119.
- on the vapour-pressures of dibenzyl ketone, 1891, T., 626; P., 119.

## Y.

- Yardley, H. B.**, Kjeldahl's method for the estimation of nitrogen, 1886, A., 282.
- alumina in superphosphate, 1886, A., 288.

**Young, Sydney**, the vapour-pressures of mercury, 1891, T., 629; P., 120.

— on the vapour-pressures and molecular volumes of acetic acid, 1891, T., 903; P., 124.

— on the vapour-pressures and molecular volumes of carbon tetrachloride and stannic chloride, 1891, T., 911; P., 124.

— relation between the boiling-points, molecular volumes, and chemical characters of liquids, 1891, A., 379.

**Young, Sydney**. See also *William Ramsay*.

**Young, William Charles**, the logwood test for alum in bread, 1887, A., 1143.

— aluminium as a natural constituent of wheat flour, 1888, A., 624.

— estimation of aluminium in bread, etc.; solubility of aluminium phosphate in acetic acid, 1891, A., 114.

— volatile organic matter in potable water: method of estimating dissolved fixed and volatile organic matter in water, 1892, A., 921.

**Younger, William**, estimation of the total acidity in blue gases from vitriol chambers, 1888, A., 193.

— estimation of chlorine and hydrogen chloride in gases, 1890, A., 412.

**Yvon, Paul**, alteration of mercurous iodide by exposure to light, 1886, A., 17.

— volumetric estimation of lead in presence of tin, 1889, A., 549.

— reagents for  $\alpha$ - and  $\beta$ -naphthol, 1890, A., 927.

**Yvon, Paul**, and *Antoine Berlioz*, mean composition of normal urine, 1888, A., 1320.

## Z.

**Zaaijer, Hendrik Herrik de**, andromedotoxin, 1887, A., 497; 1889, A., 278.

**Zabudsky, Frigoriuz A.**, new method of estimating carbon in steel, 1884, A., 1427.

— "hydrate of carbon" from cast-iron, 1885, A., 42.

**Zacharewicz, Etl.**, urine of cows and sheep, 1884, A., 1204.

**Zacharewicz, Etl.** See also *A. Audoy-naud*.

**Zacharias, Eduard**, albumin, nuclein, and plastin, 1884, A., 90.

— contents of the cribriform vessels of *Cucurbita Pepo*, 1884, A., 1067.

**Zacharias, Emil**, action of ammonia on derivatives of the ethyl and methyl salts of *o*-amidobenzoic acid, 1891, A., 912.

**Zaertling, Rudolf**, derivatives of nitro- $\beta$ -naphthlaquinone, 1890, A., 509.

**Zahn, G. H.**, electrical resistance of bismuth, 1891, A., 515.

**Záhoř, Heinrich**, densimetric estimation of albumin in urine, 1888, A., 1227.

**Záhoř, Heinrich**. See also *Carl Hugo Huppert*.

**Zakrzewski, Ignaz**. See *Julian Schramm*.

**Zaleski, Stanislaus Szcz von**, new reaction of carbonic oxide haemoglobin, 1885, A., 825.

— presence of iron in the liver, 1886, A., 1054.

— excretion of iron from the animal organism, 1888, A., 977.

— macro- and micro-chemical iron reactions, 1890, A., 296.

**Zalocostas, Pierre**, constitution of spongin, 1888, A., 1318.

**Zaloziecki, Roman**, estimation of paraffin, 1888, A., 759.

— estimation of ferrocyanides, 1891, A., 247.

— estimation of ferrocyanides in gas refuse, 1891, A., 367.

— constitution of the oxygen compounds in petroleum, 1891, A., 999.

— Glauber's salt in the potash mines of Kalusz, 1892, A., 1286.

— pyridine-like bases in petroleum, 1892, A., 1357.

**Zambelli, Luigi**, colorimetric estimation of nitrites in water, 1887, A., 533.

**Zambelli, Luigi**, and *E. Luzzato*, separation of arsenic from antimony, 1887, A., 78.

**Zande, Karel Hendrik Marinus van der**, diisopropylamine, 1889, A., 953.

— *as*-dialkylcarbarnides, 1889, A., 962.

**Zander, Albert**, specific volumes of allyl and propyl compounds, 1883, A., 13.

— specific volumes of normal fatty acids and alcohols, 1884, A., 1278.

**Zander, Albert**. See also *Wilhelm Clemens Lossen*.

**Zanetti, Carlo Umberto**, thiosuccinic anhydride, 1889, A., 960.

— derivatives of alkylpyrrolines, 1890, A., 65.

— action of ethyl and propyl iodides on potassium-pyrroline, 1890, A., 907.

— tertiary pyrroline derivatives, 1890, A., 1430.

— action of nascent hydrogen on  $\beta$ -benzylmonoxime, 1891, A., 726.

— synthesis of ethylpyrroline, 1891, A., 1387.

— determination of the constitution of the homologues of pyrroline, 1892, A., 74.

- Zanetti, Carlo Umberto**, constitution of the ethylpyrrolines, 1892, A., 350.
- Zanetti, Carlo Umberto**. See also *Giacomo Luigi Ciamician*.
- Zanner, Adolf**. See *Rudolph Fittig*.
- Zanoli, Eugen**. See *Heinrich Goldschmidt*.
- Zatti, Carlo**, action of acetic anhydride on 2'-indolecarboxylic acid, 1889, A., 712.
- nitro-derivatives of the indoles, 1890, A., 897.
- Zatti, Carlo**, and **Adolfo Ferratini**, acetyl derivatives of indole, 1890, A., 988.
- methyl derivatives of indole, 1890, A., 1292.
- nitrosoindole, 1890, A., 1293.
- synthesis of  $\beta$ -indolecarboxylic acid, 1890, A., 1293.
- action of methyl iodide on hydro- $\alpha$ -methylindole, 1891, A., 311; 1892, A., 614.
- molecular weight of nitrosoindole, 1892, A., 67.
- Zatti, Carlo**. See also *Giacomo Luigi Ciamician*.
- Zatzek, E.**, beeswax, 1883, A., 39.
- Zatzek, E.** See also *Max Hönic*.
- Zanni, Jos.**, tests for butter, 1885, A., 695.
- Zaunschirm, Hans**, alkyl derivatives of benzylamine: reduction of amarine, 1888, A., 1077.
- analysis of celluloids, 1891, A., 866.
- Zay, C. E.**, trimethylamineaurochloride, 1884, A., 286.
- Zecchini, Mario**, compact magnetic iron-ore from Cogne, Valley of Aosta, 1883, A., 429.
- nitrates in wine, 1891, A., 961.
- Zecchini, Mario**, and **Agostino Vigna**, estimation of nitrogen by Kjeldahl's method, 1889, A., 649.
- estimation of ready-formed nitrogen in manures, 1889, A., 619.
- Zechnissen, H.**, conversion of starch in the human stomach, 1889, A., 631.
- Zeckendorf, Adolf**. See *Georg Lunge*.
- Zeckendorf, Aloys**. See *Arthur Rudolf Hantzsch*.
- Zedel, Wilhelm**, action of hydroxylamine on acetylacetone, 1888, A., 1051.
- Zedel, Wilhelm**. See also *Ludwig Claisen*.
- Zega, Alexander**, and **Karl Buch**, reaction of aniline with orcinol, 1886, A., 873.
- Zega, Alexander**. See also *Alexander Hatschek*.
- Zehenter, Josef**, action of phenol and sulphuric acid on hippuric acid, 1885, A., 55, 1235.
- Zehenter, Josef**, bromine derivatives of resorcinol, 1887, A., 921.
- Zehnder, Ludwig**, determination of the specific gravity of soluble substances, 1887, A., 9.
- influence of pressure on the index of refraction of water for sodium light, 1888, A., 765.
- Zehra, A.**, *m-p*-diamidobenzoic acid, 1891, A., 303.
- derivatives of benzidine-*m*-sulphonic acid, 1891, A., 313.
- Zeisel, Simon**, colchicine and colchicine, 1883, A., 672.
- colchicine, 1884, A., 1387; 1887, A., 284; 1888, A., 613.
- estimation of methoxyl, 1886, A., 493, 1079.
- action of chlorine on crotonaldehyde, 1886, A., 1006.
- Zeisel, Simon**. See also *Josif Herzig*, *Gustav Johanny*, *Adolf Lieben*, *Hans Molisch*.
- Zelinsky, Nicolai D.**, action of dehydrating agents on benzylideneacetoxime, 1887, A., 666.
- ethyl phthalate chloride, 1887, A., 669.
- preparation of ethyl  $\alpha$ -bromopropionate, 1887, A., 912.
- thiophen group, 1887, A., 921.
- 2:4-thioxen and tetramethylthiophen, 1888, A., 939.
- action of potassium cyanide on ethyl  $\alpha$ -bromopropionate, 1889, A., 122.
- two isomeric *s*-dimethylglutamic acids, 1890, A., 132.
- ethyl methylenemalonate and its polymerides, 1890, A., 361.
- stereoisomeric dimethyladipic acids and dimethylpinelic acids, 1892, A., 430.
- stereoisomerism of dimethyldihydroxyglutaric acid, 1892, A., 436.
- Zelinsky, Nicolai D.**, and **A. Besredka**, relative properties of dimethylglutaric and trimethylsuccinic acids: stereoisomeric trimethylsuccinic acids, 1891, A., 669.
- Zelinsky, Nicolai D.**, and **Athanasius A. Bitschichin**, action of potassium cyanide on  $\alpha$ -bromo- and  $\alpha$ -chlorosuccinic ethereal salts, 1889, A., 377.
- an additive compound of hydrogen cyanide with ethyl  $\alpha$ -cyanopropionate, 1892, A., 1301.
- Zelinsky, Nicolai D.**, and **Lazarus Buchstab**, stereoisomeric methylphenylsuccinic acids, 1891, A., 1065.

- Zelinsky, Nicolai D.**, and **Marc. Feldmann**, *s*-diphenyltrimethylencyanide and *s*-diphenylglutaric acid, 1890, A., 384.
- Zelinsky, Nicolai D.**, and **Sergei G. Krapirvin**, *s*-dimethylsuccinic acids, 1889, A., 692.
- Zelinsky, Nicolai D.** See also **Athanasius A. Bitschichin**, **Sergei G. Krapirvin**, **Petr. G. Melikoff**.
- Zeller, Albert**, fate of iodoform and chloroform in the organism, 1884, A., 1062.
- Zemjatschensky, Petr. A.**, iron ores of Central Russia, 1892, A., 689.
- Zenger, Karel Václav**, spectroscopy for furnaces, etc., 1886, A., 190.
- Zenoni, Menotti**, action of methyl iodide on furfurylamine, 1891, A., 294.
- pyromucic and dehydromucic acids, 1891, A., 295.
- Zenoni, Menotti**. See also **Giacomo Bertoni**, **Giovanni de Varda**.
- Zepharovich, Victor Leopold (Ritter) von**, mineralogical notes, 1884, A., 1098; 1885, A., 641.
- crystallography of some camphor derivatives, 1886, A., 248.
- orthoclase in geodes in basalt, 1886, A., 518.
- pyroxene: schoelite, 1887, A., 902.
- irona, idrialite, and zinc bloom, 1887, A., 1021.
- Zepharovich, Victor Leopold (Ritter) von**. See also **Hideon E. Moore**.
- Zetsche, Paul**, irregularities in the composition of steel ingots, 1886, A., 108.
- Zglénicky, B.**, epsomite from Poland, 1887, A., 1021.
- Zibell, J. D.**, the *o*-hydroxyazo-dyes, 1891, A., 1473.
- Zibell, J. D.** See also **Stanislaus von Kostanecki**.
- Ziegeler**, detection of mercury in urine by electrolysis, 1888, A., 1344.
- Ziegeler, H. A.**, preparation of phosphoric acid, 1886, A., 201.
- Ziegenspeck, Hugo**, rock from the Volcano Yate, 1884, A., 973.
- analyses of plagioclase and olivine from Chili, 1886, A., 214.
- Ziegler, Alfred**, estimation of tungsten in metallic tungsten, 1890, A., 420.
- analysis of ferro-aluminium and aluminium steel, 1890, A., 1471.
- Ziegler, Joseph**, molecular migrations in the quinoline series, 1888, A., 609.
- Ziegler, J. Henri**, tetramethylamidobenzophenone, 1887, A., 674.
- roshydrazine and a new class of dyes, 1887, A., 822.
- Ziegler, J. Henri**, new synthesis of tetraphenylethylene, 1888, A., 596.
- synthesis of tetraphenylthiophen, 1890, A., 1246.
- preparation of aromatic sulphides and of thioxanthone, 1890, A., 1292.
- Ziegler, J. Henri**, and **Max Locher**, the tartrazines; a new class of dyes, 1887, A., 578.
- condensation products of secondary hydrazines with dihydroxytartaric acid, 1887, A., 579.
- Zielke, Oskar**. See **Carl Engler**.
- Ziemssen, Hans**. See **Eugen Lellmann**.
- Zikes, Heinrich**, butenylglyceryl chlorhydrins, 1885, A., 1046.
- Zillessen, Hermann**, lactic acid and glucose in organs with impeded circulation and in hydrocyanic acid poisoning, 1891, A., 1126.
- Zillner, Eduard**, adipocere, 1886, A., 89.
- Zillner, Eduard**. See also **Ernst Ludwig**.
- Zimmer, Hermann**, action of aldehydes on benzenylamidoxime, 1890, A., 253.
- Zimmermann, Adolf**, separation of alumina from glucina, 1888, A., 323.
- Zimmermann, Hennig Christoph Julius**, and **Max Knyrim**, action of ethyl chloracetate on primary diamines, 1883, A., 797.
- Zimmermann, Hennig Christoph Julius**, and **Albert Müller**, formation of diquinoline by aid of heat, 1884, A., 1372.
- new synthesis of *p*-rosaniline, 1885, A., 386.
- *p*-nitrobenzylidene chloride, 1885, A., 771.
- Zimmermann, Hennig Christoph Julius**. See also **Mazimiliano Dennstedt**.
- Zimmermann, Julius Ludwig Clemens**, atomic weights of cobalt and nickel, 1886, A., 596.
- uranium, 1886, A., 598.
- Zinke, Theodor**, action of amines on quinones, 1883, A., 1117; 1885, A., 787.
- phenylhydrazine derivatives of the quinones, 1883, A., 1135.
- two isomeric phenyl methyl glycols, 1884, A., 1003.
- *o*-amidoazo-compounds, 1886, A., 236.
- constitution of the compounds obtained from  $\beta$ -naphthylamine and diazo-salts, 1886, A., 244.
- $\beta$ -naphthaquinone, 1887, A., 53; 1888, A., 158, 489.
- conversion of  $\beta$ -naphthaquinone into indonaphthene derivatives, 1887, A., 728.

- Zincke, Theodor**, derivatives of *o*-benzoquinone, 1887, A., 808.  
 — the hydrocarbon,  $(C_{16}H_{12})$ , from styrolene alcohol, 1887, A., 959.  
 — action of chlorine on phenols, 1887, A., 960; 1888, A., 708; 1892, A., 1186.  
 — action of chlorine on  $\beta$ -naphthol, 1889, A., 886.  
 — hexachloro- $\alpha$ -diketohexene, 1890, A., 964.  
 — azo-derivatives of phenyl- $\beta$ -naphthylamine, 1890, A., 990.  
 — action of chlorine on hydroxyquinoline, 1891, A., 1249.  
 — action of bleaching powder and of hypochlorous acid on quinones, 1892, A., 720, 859, 970.  
 — nitro- $\beta$ -naphthaquinone, 1892, A., 1229.  
**Zincke, Theodor**, and **Theodor Arnst**, tetrachloro-*o*-diketohydronaphthalene, its hydrates and alcoholates, 1892, A., 858.  
**Zincke, Theodor**, and **Hans Arzberger**, azinido-compounds, 1889, A., 501.  
**Zincke, Theodor**, and **Carl Bindewald**, phenylhydrazine derivatives of  $\alpha$ - and  $\beta$ -naphthaquinone, 1885, A., 391.  
**Zincke, Theodor**, and **Ferdinand Brauns**, action of amines on quinones, 1883, A., 209.  
**Zincke, Theodor**, and **August Breuer**, the hydrocarbon,  $(C_{16}H_{12})$ , from styrolene alcohol, 1885, A., 269.  
**Zincke, Theodor**, and **Lloyd Campbell**, azinido-compounds, 1890, A., 787.  
**Zincke, Theodor**, and **Thomas Cooksey**, tetrachloro- $\alpha$ -diketohydronaphthalene and its decomposition products: *o*-trichloroacrylbenzoic acid and phthalylchloroacetic acid, 1890, A., 784.  
**Zincke, Theodor**, and **Carl Fröhlich**, halogen derivatives of phenylenedichloroacetylene ketone, 1887, A., 955.  
**Zincke, Theodor**, and **Oskar Fuchs**, hexachloro-*p*-diketohexene, 1892, A., 417.  
 — hexachloro-*m*-diketohexene, 1892, A., 1461.  
**Zincke, Theodor**, and **Conrad Gerland**, action of bromine on diamido- $\alpha$ -naphthol, 1887, A., 838.  
 — action of bromine on diamido- $\beta$ -naphthol, 1888, A., 290.  
 — conversion of hydiindonaphthene and indonaphthene derivatives into substituted acetophenonecarboxylic acids, 1888, A., 1192.  
 — action of hypochlorous and hypobromous acids on chloro- and bromo-hydroxynaphthaquinone and their conversion into hydiindonaphthene and indonaphthene-derivatives, 1888, A., 1198.  
**Zincke, Theodor**, and **Dietrich von Hagen**, cinnamaldehyde, 1881, A., 1343.  
**Zincke, Theodor**, and **August Hebebrand**, action of quinones on amidophenols, 1885, A., 257.  
**Zincke, Theodor**, and **Heinrich Jaenke**, *o*-amidoazo-compounds of xylene and  $\psi$ -cumene, 1888, A., 169.  
**Zincke, Theodor**, and **Otto Kegel**, action of chlorine on  $\beta$ -naphthol, 1889, A., 265.  
 —  $\gamma$ -tetrachloroacetone, 1889, A., 955.  
 — action of chlorine on phloroglucinol, 1889, A., 967; 1890, A., 488.  
 — action of bromine on phloroglucinol, 1890, A., 1108.  
**Zincke, Theodor**, and **Friedrich Wilhelm Küster**, action of chlorine on catechol and *o*-amidophenol, 1888, A., 1277; 1889, A., 599; 1890, A., 754, 1255.  
 — behaviour of hexachloro-*o*-diketohexene on heating and towards phosphorus pentachloride, 1891, A., 819.  
 — propylideneacetic acid, 1891, A., 821.  
**Zincke, Theodor**, and **Matthias Latten**, action of chlorine on nitro- $\beta$ -naphthaquinone in glacial acetic acid solution, 1892, A., 1229.  
**Zincke, T.**, and **Thomas Atkinson Lawson**, *o*-amidoazo- and hydrazinido-compounds, 1886, A., 795; 1887, A., 731; 1888, A., 159.  
 — azo-derivatives of phenyl- $\beta$ -naphthylamine, 1887, A., 730.  
**Zincke, Theodor**, and **Simon Rabnowitsch**, action of chlorine on resorcinol, 1891, A., 689.  
**Zincke, Theodor**, and **Friedrich Rathgen**, benzene- and toluene-azonaphthols and their isomeric hydrazine derivatives, 1887, A., 54.  
**Zincke, Theodor**, and **Oswald Scharfenberg**, action of chlorine on nitro- $\beta$ -naphthaquinone in chloroform solution, 1892, A., 1232.  
**Zincke, Theodor**, and **Ludwig Schmunk**, action of chlorine on quinoneoximes, 1890, A., 1146.  
**Zincke, Theodor**, and **Heinrich Thelen**, phenylhydrazine derivatives of hydroxynaphthaquinone, 1884, A., 1359; 1888, A., 1097.

- Zincke, Theodor**, and **Heinrich Walbaum**, action of chlorine on hydroxybenzoic acids, 1891, A., 708.
- Zingel, Jos.**, crystallographic examination of some organic compounds, 1886, A., 62.
- Zink, Julius**. See **Carl Amthor**.
- Zinkeisen, Heinrich**, manganese-spar and celestine from Scharfenberg, 1892, A., 1406.
- Zinkeisen, William**, oxalenediamidoxime and oxalencanilidoximamidoxime, 1890, A., 122.
- Zinoffsky, Oscar**, the hemoglobin molecule, 1886, A., 165.
- Zinsser, Frederick George**, aromatic nitriles, 1892, A., 344.
- Zipperer, Paul**, detection of sesame oil in cocoa-butter, 1888, A., 1136.  
— estimation of nitrogen in nitrate-superphosphate and in Chili saltpetre, 1889, A., 185.
- Zirnité, A.**, solution of iron in aqueous soda, 1889, A., 105.
- Zöllfel, Georg**, tannins of algarobilla and myrobalans, 1891, A., 918.
- Zolla, D.**, use of potassium chloride in agriculture, 1885, A., 588.
- Zopf, Wilhelm**, occurrence of the butyric ferment, 1884, A., 476.  
— colouring matters of Fungi, 1889, A., 919.
- Zott, Alois**, relative permeability of various diaphragms, 1886, A., 414.
- Zotta, Victor von**, zinc hydrosulphide, 1890, A., 214.
- Zschokke, Bruno**. See **Carl Graebe**.
- Zsigmondy, Richard**, source of error in the estimation of the nitrogen in substances containing halogens, 1889, A., 546.
- Zuber, Rudolf**, eruptive rocks from Krzozowice, near Cracow, 1887, A., 563.
- Zuber, Rudolf**. See also **Paul Wispek**.
- Zucco**. See **Marino-Zucco**.
- Zübelen, Joseph**. See **Rudolf Nietzki**.
- Zuelzer, Wilhelm**, estimation of chlorine in human urine, 1885, A., 608.
- Zürcher, Hans**, oxidation of 1-quinoline-sulphonic acid, 1888, A., 378.  
— action of thiocyanates and thiocarbamide on chlorinated ethyl acetate, 1889, A., 725.
- Zürcher, Hans**. See also **Arthur Rudolf Hantzsch**.
- Zürcher, Karl**, formation of aniline-black, 1885, A., 1276.
- Zürrer, Robert**, campholenic acid, 1885, A., 1241.
- Zurrer, Robert**. See also **Heinrich Goldschmidt**.
- Zufall, A.** See **K. Lange**.
- Zulkowski, Karl**, analysis of fats, 1883, A., 936, 1036.  
— estimation of manganese in iron ores, 1884, A., 116.  
— potassium ferrocyanide manufacture, 1884, A., 501.  
— colouring matters formed by the union of phenols with aromatic aldehydes, 1884, A., 837.  
— aromatic acids as dye-forming substances, 1884, A., 1169.  
— estimation of the halogens in organic compounds, 1885, A., 1162.  
— grinding mill for minerals, 1888, A., 85.  
— changes suffered by starch when dissolved in hot glycerol, 1889, A., 116.  
— starch, 1891, A., 165.
- Zulkowski, Karl**, and **Carl Lepéz**, estimation of the halogens in organic compounds, 1885, A., 591.
- Zulkowski, Karl**, and **Karl Peters**, orcein, 1890, A., 1405.
- Zune**, detection of resin oil in terebenthene, 1892, A., 923.
- Zuntz, Nathan**, behaviour of amides in animal nutrition, 1884, A., 472.  
— nutritive value of the so-called meat peptones, 1886, A., 378.
- Zuntz, Nathan**, and **Curt Lehmann**, respiration in the horse during rest and work, 1890, A., 1170.
- Zuntz, Nathan**, **Curt Lehmann**, and **Oskar Hagemann**, change of substance in the horse at rest and at work, 1889, A., 911.
- Zuntz, Nathan**. See also **S. Pollitzer**.
- Zuschlag, Georg**. See **Adolph Claus**.
- Zuurdeeg, Johann**. See **Heinrich Conr. Klinger**.
- Zwaardemaker**, idiosyncrasy of certain animals with respect to phenol, 1891, A., 762.
- Zwanziger, Georg**. See **Johannes Wislicenus**.
- Zweifel, Paul**, behaviour of blood when deprived of oxygen, 1883, A., 818, 937.
- Zwergel, Arthur**, extracting by diffusion, 1884, A., 539.
- Zwilling, K.**, correct time for the honey harvest, 1885, A., 590.



# INDEX OF SUBJECTS.

## A.

*Abies excelsa*, colouring matters of the cones of (MACCHIATI), 1890, A., 641.  
**Abietene**. See Heptane.  
**Abriachanite** (CHESTER and CAIRNS), 1888, A., 119.  
**Abrin** (MARTIN), 1887, A., 990.  
*Abrus precatorius*, proteid poisons of (MARTIN), 1889, A., 1026.  
**Absinthin** from *Artemisia Absinthium* (SENGER), 1892, A., 1240.  
**Absinthole** (BRUHL), 1888, A., 494.  
**Absorption** without osmosis (REID), 1892, A., 646.  
**Absorption-coefficients** of gases. See Solution.  
**Absorption-compounds** (VAN BEMMELEN), 1888, A., 985.  
**Absorption-plates** of wood-wool (CAMERER), 1891, A., 260.  
**Absorption-spectrum**. See Photochemistry.  
*Acacia tenerrima*, alkaloid from (GRESHOFF), 1891, A., 336.  
**Accumulator**, chemistry of the (CANTOR), 1891, A., 514.  
     thermal alterations in the (MEYER), 1888, A., 393.  
**Accumulators**, variation of electromotive force in (REYNIER), 1884, A., 881.  
**Accaffeine** (FISCHER), 1883, A., 356.  
**Acediamine**. See Ethenylamidine.  
**Acenaphthalide**. See Acetonaphthalide.  
**Acenaphthene** (GRAEBE), 1887, A., 592.  
     constitution of (BAMBERGER and PHILIP), 1887, A., 495.  
     action of chlorine on (KEBLER and NORTON), 1888, A., 961.  
     action of chromyl dichloride on (EWAN and COHEN), 1889, T., 582; P., 124.  
     oxidation of (GRAEBE and GFELLER), 1892, A., 863.

**Acenaphthene**, oxidation of intermediate products of (EWAN and COHEN), 1889, T., 578; P., 123.  
     perhydride (*decahydroacenaphthene*) (LIEBERMANN and SPIEGEL), 1889, A., 720.  
     ketone (EWAN and COHEN), 1889, T., 580; P., 123.  
**Acenaphthene**, amido- (QUINCKE), 1887, A., 592; 1888, A., 844.  
     diamido- (QUINCKE), 1888, A., 844.  
     brom- (BAMBERGER and LODTER), 1888, A., 604.  
     tri- and tetra-brom- (EWAN and COHEN), 1889, T., 581; P., 123.  
     nitr- (QUINCKE), 1887, A., 592; 1888, A., 843; (JANDRIER), 1887, A., 964.  
     dinitr- (QUINCKE), 1888, A., 843.  
**Acenaphthenecarboxylamide** (HARRIS), 1890, A., 158.  
**Acenaphthenequinone** (GRAEBE and GFELLER), 1892, A., 864.  
**Acenaphthyl benzyl ketone** (PÄPCKE), 1888, A., 702.  
**Acenaphthylenic glycol**, mono- and di-acetate, and benzoate (EWAN and COHEN), 1889, T., 578; P., 123.  
*Acer dasycarpum*, leaves of (RAY), 1886, A., 1065.  
**Acet-**. See also Aceto- and Acetyl-.  
**Acetal**, derivatives of (AUTENRIETH), 1891, A., 540.  
     chloro-derivatives of (MAGNANIMI), 1887, A., 28.  
     test for (GRODZKI), 1883, A., 790.  
**Acetal**, amido- (WOHL), 1888, A., 443.  
     preparation of (MARCKWALD), 1892, A., 1327.  
     condensation products of (WOHL and MARCKWALD), 1889, A., 624, 866.  
     derivatives of (WOHL), 1888, A., 443.  
**Acetals**, behaviour of, with alcohols at a high temperature (BACHMANN), 1883, A., 726.  
**Acetalamine** (WOLFF), 1888, A., 809.

- Acetaldehyde**, relation between the spectrometrical constants and chemical constitution of (BRÜLL), 1891, A., 830.  
 density and magnetic rotation of hydrated (PERKIN), 1887, T., 813; P., 82.  
 a chief product of fermentation by "Champignon du muguet" (LINS-SIER and ROUX), 1890, A., 1179.  
 conversion of alcohol into, by "Champignon du muguet" (LINS-SIER and ROUX), 1891, A., 854.  
 action of acetic chloride on, in presence of zinc-dust (PAAL), 1888, A., 62.  
 action of alcoholic potash on (PERKIN), 1888, T., 88.  
 condensation of, with aniline (v. MILLER and PLÜCHL), 1892, A., 1191.  
 action of baryta on (TOLLENS), 1884, A., 989.  
 action of carbonyl chloride on (ECKENROTH), 1885, A., 786.  
 action of *as*-dialkylcarbamides on (VAN DER ZANDE), 1889, A., 963.  
 action of hydrogen chloride on a mixture of, with alcohols and phenols respectively (CLAUS and TRAINER), 1887, A., 231.  
 action of hydrogen sulphide on (BAUMANN), 1890, A., 478.  
 action of *o*-nitrobenzaldehyde on (v. BAAYER and DREWSEN), 1884, A., 58.  
 action of, on polyvalent phenols (CAUSSE), 1887, A., 809.  
 condensation of, with succinic acid (FITTIG and FRÄNKEL), 1890, A., 584.  
 action of zinc and ethylic chloracetate on (REFORMATSKY), 1892, A., 1300.  
 action of zinc *iso*amyl and zinc *iso*-butyl on (SOKOLOFF), 1888, A., 125.  
 derivatives of (RUBENCAMP), 1885, A., 136.  
 formation of crotonaldehyde and  $\beta$ -hydroxybutaldehyde from (MICHAEL and KOPP), 1884, A., 420.  
 in urine (GAUBE), 1890, A., 188.  
 formation and change of, in the organism (ALBERTONI), 1888, A., 973.  
 detection of (PENZOLDT and FISCHER), 1883, A., 829; (WINDISCH), 1888, A., 1346; (BORNTRAGER), 1889, A., 657; (ORISMER), 1889, A., 1197.  
 use of magenta with sulphurous anhydride as a microchemical test for (LOWE and BOKORNY), 1888, A., 829.
- Acetaldehyde**, chlor-, action of alcohol on (NATTERER), 1885, A., 366.  
*trichlor*-. See Chloral and Chloral hydrate.  
 cyan- (CHAUTAUD), 1888, A., 810.  
 iod- (CHAUTAUD), 1886, A., 330, 1006; (BLOXAM and HERRON), 1886, A., 864, 1006.  
 thio- (GUARENCHI), 1884, A., 294; (MARCKWALD), 1886, A., 864.  
*trithio*- (MARCKWALD), 1886, A., 864; 1888, A., 127; (BAUMANN and FROMM), 1890, A., 25; 1891, A., 1008, 1010.  
**Metacetaldehyde** (*metalddehyde*), heat of combustion of (LUGININ), 1889, A., 668.  
**Paracetaldehyde** (*paralddehyde*) (FRANCHIMONT), 1888, A., 453.  
 relation between the spectrometrical constants and chemical constitution of (BRÜLL), 1891, A., 680.  
 condensation of, with chloral (KÖNIGS), 1892, A., 694.  
 action of ethylic iodide and zinc on (WIDENSKY), 1889, A., 954, 1136.  
 action of quinaldine on (EISELER), 1887, A., 975.  
 influence of, on digestion (CHITTENDEN and STEWART), 1889, A., 538.  
 physiological action of (CERVETTO), 1884, A., 199; (BOOKAL), 1887, A., 891.  
 chloro- (NATTERER), 1885, A., 1196.  
**Acetaldehydeaniline** (v. MILLER and PLÜCHL), 1892, A., 1191.  
**Acetaldehydophenylhydrazone** (*ethylydenephennylhydrazine*), action of heat on (JAPP and KLINGEMANN), 1888, T., 542.  
*p*-biom- (NEUFELD), 1889, A., 251.  
*m*-nitro- (BISCHLER and BRODSKY), 1890, A., 150.  
**Acetaldehydesulphone**, *trithio*- (BAUMANN and FROMM), 1890, A., 26.  
**Acetaldoxime**, preparation of (DUNSTAN and DYMOND), 1892, T., 473; P., 90.  
 action of hydrocyanic acid on (v. MILLER and PLÜCHL), 1892, A., 1196.  
 hypochlorite (MOHLAU and HOFFMANN), 1887, A., 795.  
**Acetaldoxime**, *trichlor*-. See Chloral, oxime of.  
**Acetaldoximes** (DUNSTAN and DYMOND), 1892, T., 470; P., 89, 135; (FRANCHIMONT), 1892, A., 951.  
**Acetalresorcinol** (CATHER), 1887, A., 40.  
**Acetalylcarbamide** (MARCKWALD), 1892, A., 1827.

- Acetetyl- $\alpha$ -naphthylthiocarbamide**, (MARCKWALD), 1892, A., 1331.  
**Acetylphenylthiocarbamide** (WOHL and MARCKWALD), 1889, A., 624.  
**Acetyl-*p*-tolylthiocarbamide** (MARCKWALD), 1892, A., 1328.  
**Acetyl-*m*-xylthiocarbamide** (MARCKWALD), 1892, A., 1329.  
**Acetamide** (MASON), 1888, P., 96; 1889, T., 107; (MEYER), 1889, A., 381.  
 preparation of (SCHULZE), 1888, A., 1088.  
 formation of, from acetic acid and ammonia (MENSCHUTKIN), 1884, A., 1295.  
 thermochemistry of (BERTHELOT and FOCH), 1890, A., 1360.  
 action of acetone and zinc chloride on (CANZONERI and SPICA), 1885, A., 746.  
 action of acids on (OSTWALD), 1888, A., 575.  
 action of hydrogen on (ESCHNER), 1885, A., 245.  
 action of hydroxylamine on (HOFFMANN), 1887, A., 911.  
 combination of, with metallic chlorides (ANDRÉ), 1886, A., 337.  
 mercury derivative of, action of iodine on (TAFEL and ENOCH), 1890, A., 973.  
**Acetamide**, brom- (BUCHNER and PAPENDIECK), 1892, A., 827.  
 chlor-, action of bromine on (v. HOFMANN), 1886, A., 45.  
 dichlor- and dichlorobrom- (ZINCKE and KRGEL), 1890, A., 489.  
 cyan- (HENRY), 1887, A., 796.  
 iod- (HENRY), 1885, A., 373.  
**Acetamidine**. See Ethenylamidine.  
*o*-Acetamidoacetophenone, esobrom-, and *o*-libromo-*m*-brom- (v. BAEYER and BLOEM), 1884, A., 1026.  
*o*-Acetamidoacetophenoneoxime (AUWERS and v. MEYENBURG), 1891, A., 1877.  
**Acetdiamidoazobenzene** (NIETZKI), 1884, A., 1016.  
*o*-Acetamidobenzaldehyde (FRIEDLÄNDER and GÜHRING), 1884, A., 1020.  
*p*-Acetamidobenzaldehyde (HERZBERG), 1885, A., 662.  
**Acetamidobenzaldehyde-green** (FISCH and SCHMIDT), 1884, A., 1316.  
*p*-Acetamidobenzaldoxime (GABRIEL and HERZBERG), 1883, A., 1104; (HERZBERG), 1885, A., 662.  
*o*-Acetamidobenzamide, derivatives of (WEDDIGE), 1887, A., 1048.  
*o*-Acetamidobenzanilide (KÜRNER), 1887, A., 1045.  
**Acetamidobenzene-*m*-azodimethylaniline** (WALLACH), 1887, A., 41.  
**Acetamidobenzene-*m*-diazopiperidine** (WALLACH), 1887, A., 131.  
*o*-Acetamidobenzoic acid, bromination of (ALT), 1889, A., 986.  
*m*-Acetamidobenzoic acid (PELLIZZARI), 1886, A., 548.  
**Acetamidobenzoic acids**, *m*- and *p*-, mononitro-derivatives of, and their products of reduction (KAISER), 1886, A., 149.  
*o*-Acetamidobenzophenone (v. BAEYER and BLOEM), 1883, A., 198; (AUWERS and v. MEYENBURG), 1891, A., 1378.  
*o*-Acetamidobenzylacetanilide (PAAL and KRECKE), 1892, A., 81.  
*p*-Acetamidobenzylphthalimidine (HAFNER), 1889, A., 983; 1890, A., 487.  
**Acetamidobisazobenzene** (NIETZKI and DIETERWILG), 1888, A., 1082.  
**4:5:3-Acetamidobromonitrobenzyl cyanide**. See Acetamidophenylacetonitrile.  
*p*-Acetamidoisobutylbenzene, bromonitro- (GELZER), 1889, A., 44.  
 nitro- (GELZER), 1888, A., 266.  
**Acetamidocarbazole** (MAZZARA and LEONARDI), 1892, A., 616.  
**Acetamidochrysene and its derivatives** (ABEGG), 1891, A., 730.  
**Acetamidocumic acid** (WIDMAN), 1884, A., 303.  
**Acetamido-derivatives of the aromatic series**, halogen-substituted, and their derived *p*-diazines (ABENIUS and WIDMAN), 1889, A., 184.  
**4-Acetamido-2:6-dimethyl-*m*-diazine** (PINNER), 1884, A., 723; 1889, A., 1004.  
*p*-Acetamidodiphenyl sulphide (ZIEGLER), 1890, A., 1292.  
*p*-Acetamidodiphenylmethane (MANN), 1889, A., 261.  
*o*-Acetamidoethenylamidocarvacrol (MAZZARA), 1891, A., 188.  
*o*-Acetamidoethenylamidothymol (MAZZARA), 1891, A., 188.  
*o*-Acetamidoethylpiperonylcarboxylic anhydride (PERKIN), 1890, T., 1016.  
**Acetamidoguanidine salts** (THIELE), 92, A., 1297.  
*p*-Acetamidohydrocinnamic acid, bromo- (GABRIEL), 1883, A., 195.  
**Acetamidohydroxynaphthaquinone** (KEHRMANN and WEICHHARDT), 1889, A., 1197.  
**Acetamidohydroxypropylbenzoic acid** (WIDMAN), 1884, A., 817.  
*o*-Acetamido-*p*-hydroxypropylbenzoic acid (WIDMAN), 1886, A., 466.

**Acetamidohydroxyquinone** (NIETZKI and SCHMIDT), 1889, A., 968.  
*p*-**Acetamido-malachite-green** (KAESWURM), 1886, A., 553.  
**Acetamido-1-methylquinoline** (NOLTING and TRAUTMANN), 1891, A., 328.  
**Acetamido- $\alpha$ -naphthaquinone** (MEERSON), 1888, A., 713.  
**Acetamido- $\alpha$ -naphthaquinoneacetimide** (MEERSON), 1888, A., 713.  
**Acetamido- $\beta$ -naphthoic acids** (EKSTRAND), 1891, A., 78, 79.  
 **$\alpha$ -Acetamido- $\beta$ -naphthol** (BOITCHER), 1885, A., 659.  
**4:3:2-Acetamidonitrocresol** (NIETZKI and RUPPERT), 1891, A., 308.  
**Acetamidonitrosocarbazole** (MAZZARA and LEONARDI), 1892, A., 616.  
*o*-**Acetamidophenol**, chlor- (ASCHAN), 1887, A., 814.  
*p*-**Acetamidophenylacetamide** (PURGOTTI), 1891, A., 562.  
**Acetamidophenylacetnitrile**, bromonitr- (GABRIEL), 1883, A., 64.  
*o*-**Acetamidophenylethylhydrazine** (HEMPER), 1890, A., 613.  
*o*-**Acetamidophenylhydrazine** (BISCHLER), 1890, A., 150.  
*p*-**Acetamidophenyl ethylxanthate** (LEUCKART), 1890, A., 605.  
*o*-**Acetamidophenyl phenylcarbamate** (LEUCKART), 1890, A., 761.  
*o*-**Acetamidophenylmethylhydrazine** (HEMPER), 1890, A., 613.  
*aa*-**Acetamidophenylsulphonepropionic acid**, and its *p*-halogen derivatives (KUNIG), 1892, A., 1090.  
*as*-**Acetamidoisophthalic acid** (LOEWENHERZ), 1892, A., 1464.  
*o*-**Acetamidopiperonylnitrile** (HADDER), 1891, A., 706.  
*o*-**Acetamidoquinoline** (KYRITZ), 1890, A., 1324.  
**Acetamidostyrychne** (LOEBINCH and SCHOOP), 1886, A., 814.  
*p*-**Acetamidostyrene**, bromo- and *d*-nitro- (GABRIEL and HERZBERG), 1883, A., 1123; (HERZBERG), 1885, A., 662.  
*p*-**Acetamidothiophenol** (LEUCKART), 1890, A., 605.  
*p*-**Acetamidotoluene- $\alpha$ -azodiethylaniline** (WALLACH), 1887, A., 41.  
**Acetamidotolueneazodimethylanilines**, *o*- and *p*- (WALLACH), 1887, A., 41.  
**Acetamidotoluic acid** (v. MILLER), 1891, A., 1095.  
*o*-**Acetamido-*p*-toluic acid**, nitr- (NIEMENTOWSKI), 1889, A., 1066.  
**Acetamidotolylloxamethane**. See Ethylic acetamidotolylloxamate.

*p*-**Acetamido-*o*-tolylurethane** (SCHIFF), 1892, A., 1203.  
*p*-**Acetamidotriphenylcarbinol** (v. BANYER and LOHR), 1890, A., 1141.  
*p*-**Acetamidotriphenylmethane** (v. BANYER and LOHR), 1890, A., 1141.  
**Acetanilide**. formation of, from acetic acid and aniline (MENSCHUTKIN), 1884, A., 1295.  
 thermochemistry of (BERTHELOT and FOGN), 1890, A., 1360.  
 boiling point of (PICTET and CHIFFREUX), 1888, A., 690.  
 decomposition of, by water (MEYER), 1883, A., 56; (TOBIAS), 1883, A., 325; (MENSCHUTKIN), 1883, A., 326.  
 action of benzoic chloride on (MEDOLA and SALMON), 1888, T., 780.  
 action of phosphoric chloride on (MICHAEL), 1887, A., 481.  
 action of zinc chloride on (PICTET and BUNZI), 1889, A., 971.  
 nitration of (NOLTING and COLLIN), 1884, A., 1012.  
 hydrochloride, decomposition products of (NOLTING and WEINGARTNER), 1885, A., 978.  
 sodium derivative of, action of carbonic anhydride on the (SEIFERT), 1885, A., 983.  
 action of, on blood (LÉPINE), 1888, A., 184.  
 influence of, on digestion (CHITTENDEN and STEWART), 1889, A., 533.  
 metabolism of, in the human body (MORNER), 1889, A., 289.  
 relation of, to animal metabolism (JAFFE and HILBERT), 1888, A., 785.  
 detection of (FLÜCKIGER), 1888, A., 761; (VITALI), 1888, A., 1136; (RITZERT), 1890, A., 1349.  
 See also Antifebrin.  
**Acetanilide**, amido-. See Acetophenylenediamine.  
 brom- (ABENTUS), 1890, A., 268.  
*m*-bromo-*p*-nitr- (CLAUS and SCHUTTEN), 1891, A., 564.  
 3:5:4-*t*-bromonitr- (CLAUS and WEIL), 1892, A., 1205.  
 2:3:4:5-*t*-trachlor- (TUST), 1888, A., 836.  
*α*-cyan- (QUENDA), 1892, A., 1072.  
*o*-, *m*-, and *p*-iod- (KORNER and WENDER), 1888, A., 1279, 1280.  
*p*-nitr-, reduction of (MIXTER), 1884, A., 665.  
 1:2:3-, 1:3:4-, and 1:3:6-*d*-nitr- (WENDER), 1890, A., 885.  
 thio- (JACOBSON), 1886, A., 700.

- Acetanilide-*p*-sulphonic acid** (*acetyl-sulphanilic acid*) (NIETZKI and BENCKISER), 1884, A., 1024.
- Acetanilidoacetic acid** (REBUFFAT), 1887, A., 1108; 1890, A., 623; (PAAL and OTTEN), 1890, A., 1415.
- chlor-** (ABENIUS), 1888, A., 854; 1890, A., 268.
- Acetanilidobutyric acid** (BISCHOFF and MINTZ), 1892, A., 1338.
- β*-Acetanilidoisobutyric acid** and **lactone** (BISCHOFF and MINTZ), 1892, A., 1339.
- α*-Acetanilidocoumarin** (REBUFFAT), 1890, A., 623.
- β*-Acetanilidoglutaranil** (ANSCHÜTZ), 1891, A., 742.
- β*-Acetanilidoglutaranilic acid** (ANSCHÜTZ), 1891, A., 742.
- β*-Acetanilidoglutaric anhydride** (ANSCHÜTZ), 1891, A., 742.
- α*-Acetanilidopropionic acid** (NASTVOGEL), 1890, A., 1160.
- Acetanisidine, dinitr-** (WENDER), 1890, A., 751.
- Acetanisidines, *o*-, *m*-, and *p*-** (KÜRNER and WENDER), 1888, A., 1280.
- Acetantranillic acid** (FRIEDLANDER and HENRIQUES), 1888, A., 188; (DOEBNER and v. MILLER), 1888, A., 602.
- Acetates, decomposition of, by water** (FOUSSEREAU), 1887, A., 767.
- chlor-, physical properties of** (HENRY), 1885, A., 1121.
- ethereal, action of alcohols and metallic alkylic oxides on** (PURDIE), 1887, T., 632; P., 79.
- cyan-** (HALLER), 1888, A., 823, 1298.
- 1:3:4-Acetazimidotoluene** (BOESSNECK), 1886, A., 874.
- Acetenyltrimethylammonium.** See Trimethylacetenylammonium.
- Acet-*p*-ethoxyphenylhydrazide** (ALTSCHUL), 1892, A., 1081.
- Acetethylenediamine, dicyan-** (GUARESCI), 1892, A., 1071.
- Acetethyl-*p*-nitranilide** (MELDOLA and SALMON), 1888, T., 778.
- Acetethyl-*o*-phenylenediamine** (HEMPER), 1890, A., 612.
- Acetic acid in plants** (BORGMANN), 1888, A., 611.
- synthetical** (HENRY), 1887, A., 796.
- production of, from cellulose** (ISAAC), 1892, A., 1421.
- preparation of concentrated** (GORING), 1885, A., 105.
- magnetic rotation of hydrated** (PERKIN), 1886, T., 779.
- Acetic acid, electrical conductivity of solutions of** (CROMPTON), 1888, T., 122; (HARTWIG), 1888, A., 399.
- electrochemistry of** (JAHN), 1890, A., 99; (BERTHELOT and MATIGNON), 1892, A., 1139.
- specific heat of gaseous** (BERTHELOT and OGIER), 1888, A., 6; (THRELFALL), 1887, A., 429.
- thermochemistry of** (JAHN), 1890, A., 99; (BERTHELOT and MATIGNON), 1892, A., 1139.
- thermal properties of** (RAMSAY and YOUNG), 1886, T., 790; P., 225.
- fluidity of absolute and diluted** (NOACK), 1886, A., 971.
- molecular volumes of** (YOUNG), 1891, T., 903; P., 124.
- molecular composition of gaseous** (PICKERING), 1889, A., 29.
- vapour density of** (KRAUSE and MEYER), 1890, A., 1365.
- vapour pressures of** (RAMSAY and YOUNG), 1885, T., 42; (RICHARDSON), 1886, T., 765, 774, 776; (YOUNG), 1891, T., 903; P., 124.
- vapour pressure of solutions in** (RAOULT and RECOURA), 1890, A., 554.
- coefficient of diffusion of** (STEFAN), 1889, A., 1047.
- decomposition of, by the silent discharge** (MAQUEENNE), 1884, A., 543.
- behaviour of, with phosphoric chloride** (MICHAEL), 1887, A., 359.
- oxidation of, by *Bacterium aceti*** (BROWN), 1886, T., 172; P., 136.
- effect of, on respiratory changes** (MALLÉVRE), 1891, A., 344.
- detection of, in the presence of morphine** (JOHNSON), 1888, A., 633.
- separation of, from formic acid** (MACNAIR), 1887, A., 751.
- estimation of, by distillation in liquids containing organic matter** (WILEY), 1886, A., 582.
- estimation of the strength of** (ANON.), 1885, A., 1267.
- estimation of, in acetates** (SONNENSCHNEIN), 1887, A., 869.
- estimation of, in wine by distillation with steam** (LANDMANN), 1884, A., 641.
- Acetic acid, aluminium salt of, preparation of** (ATHENSTADT), 1884, A., 540.
- behaviour of** (REINITZER), 1884, A., 39.
- ammonium salt of, magnetic rotatory power of solutions of** (PERKIN), 1891, T., 984.

- Acetic acid**, diammonio-silver salt of (REYCHLER), 1884, A., 722.  
barium and calcium salts of, solubility of (V. KRASNIKI), 1888, A., 359.  
calcium salt of, valuation of (BLAIR), 1885, A., 1014; (PHILLIPS), 1886, A., 747.  
calcium copper salt of (RUDORFF), 1888, A., 446.  
decomposition of, by pressure (SPRING and VAN'T HOFF), 1888, A., 341.  
temperature of decomposition of (REICHER), 1888, A., 360.  
chromium and iron salts of, behaviour of (REINITZER), 1884, A., 39.  
lead salt of, molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
dissociation of (MULLER-ERZBACH), 1888, A., 213.  
action of carbonic anhydride on (BELLAMY), 1884, A., 990.  
basic, as a test for olive oil (BRADFORD), 1885, A., 603.  
decalhydrated (FASNAUGHT and LINDSEY), 1890, A., 862.  
magnesium salt of (KUBEL), 1886, A., 530.  
action of magnesium oxide and lead oxide on (KUBEL), 1892, A., 1178.  
manganic salt of (CHRISTENSEN), 1884, A., 398.  
mercuric salt of, heat of formation of (BERTHELOT), 1884, A., 706.  
potassium salt of, electrolysis of fused (LASSAR-COHN), 1889, A., 1056.  
electrolysis of solutions of (MURRAY), 1891, P., 134; 1892, T., 10.  
absorption of, by plants (BERTHELOT and ANDRÉ), 1888, A., 740.  
silver salt of (IWIG and HECHT), 1886, A., 440.  
dry distillation of (KACHLER), 1892, A., 37.  
action of iodine on (SIMONINI), 1892, A., 1301.  
sodium salt of, magnetic rotatory power of solutions of (PERKIN), 1891, T., 987.  
dissociation of (MULLER-ERZBACH), 1888, A., 1022.  
action of carbonic oxide on a mixture of sodium isopentylate and (POTTSCH), 1888, A., 729.  
valuation of crude (NEUMANN), 1888, A., 1346.  
uranium salt of, from residues (SAVERY), 1884, A., 397.
- Acetic acid**, zinc salt of, anhydrous, crystallised (PETER and D'IEU FOR DE ROCHEFONTAINE), 1885, A., 371.  
See also Pyroligneous acid.  
**Acetic acid**, amido-. See Glycocine.  
brom-, convenient method of preparing (MICHAEL), 1884, A., 421.  
dibrom-, electrolysis of (LASSAR-COHN), 1889, A., 1056.  
chlor-, preparation of (HENRICHEL), 1884, A., 990; (AUGER and BÉHAL), 1890, A., 234.  
melting-point of (TOLLENS), 1884, A., 990.  
electrolysis of potassium salt of (LASSAR-COHN), 1889, A., 1056.  
trichlor-, preparation of (CLERMONT), 1886, A., 222.  
preparation of ethers of (CLERMONT), 1888, A., 729.  
decomposition of the potassium salt of, by water (SEUBERT), 1886, A., 332.  
action of, in the organism (HERMANN), 1885, A., 575.  
as a test for albumin (BOYMOND), 1890, A., 312.  
cyan- (HENRY), 1887, A., 796.  
oxime of (WOLFF and GANN), 1891, A., 897; (SODERBAUM), 1891, A., 1184.  
nitrosocyan- (WOLFF and GANN), 1891, A., 897.  
oxime of (CRAMER), 1892, A., 699.  
thio-, action of, on ethylic thiocyanate (CHANLAROFF), 1883, A., 39.  
isothiocyani- (ANAPIDEN), 1889, A., 414.
- Acetic anhydride**, decomposition of, by water (MANSCHUTKIN and WASSILIEFF), 1890, A., 359.  
thio- (DAVIES), 1892, A., 300, 581.
- Acetic chloride**, preparation of (AUGER and BÉHAL), 1890, A., 234.  
action of aluminium chloride on (COMBER), 1887, A., 127; (GUSTAVSON), 1888, A., 575.  
action of, on arsenious oxide (POHL), 1889, A., 767.  
action of zinc propyl on (MARKOWNIKOFF), 1884, A., 1280.  
chlorination by means of (BECKER), 1887, A., 932.  
higher homologues of (KRAFFT and BURGER), 1884, A., 1125.
- Acetic fluoride** (MELANS), 1892, A., 1068, 1069.
- Acetic sulphide** (DAVIES), 1892, A., 300, 581.
- Acetimido  $\beta$ -chlorethyl ether** (GABRIEL and NEUMANN), 1892, A., 1332.

- Acetimidomethylene ethylenic disulphide** (MIOLEATI), 1891, A., 894.
- Aceto-**. See also **Acet-** and **Acetyl-**.
- Acetoacetaldehyde** and its derivatives (CLAISEN and STYLOS), 1888, A., 671.
- action of hydroxylamine on (CLAISEN and HORR), 1891, A., 416.
- Acetoacetamide**, *pentabrom-* (v. PECHMANN and STOKES), 1885, A., 1202.
- ac-m-Acetoacetamidobenzoic acid* (PELLIZZARI), 1891, A., 1485.
- Acetoacetanilide** (KNORR), 1892, A., 708.
- bromo- and *isonitroso-* derivatives of (KNORR), 1887, A., 159.
- Acetoacetates**, action of alcohols on the carboxylic alkyl-group in (PETERS), 1888, A., 253.
- condensation of, with dibasic acids (FITTING), 1886, A., 47.
- alkylated alkyl, action of aqueous ammonia on (PETERS), 1888, A., 253.
- $\gamma$ -cyan-, and their chlorimido-derivatives (HALLER and HELD), 1891, A., 171.
- Acetoacetic acid** (CERESOLE), 1883, A., 41; (HANTZSCH and HERRMANN), 1888, A., 675.
- constitution of (GEUTHER), 1888, A., 579.
- action of diazobenzene chloride on (JAPP and KLINGEMANN), 1888, T., 538; P., 11.
- derivatives (CERESOLE), 1883, A., 41.
- Acetoacetic acid phenylhydrazone**, phenylhydrazine salt of (v. PECHMANN and JENISCH), 1892, A., 162.
- Acetoacetic acids**, behaviour of ethereal salts of alkyl-substituted, with ammonia (PETERS), 1890, A., 1097.
- substituted, peculiar decomposition of the ethereal salts of (YOUNG), 1888, A., 456.
- Acetoacetic ether**. See **Ethylic acetoacetate**.
- Acetoacetictetrahydroquinolide** (REISERT), 1891, A., 736.
- Acetomesocanthramine** (GOLDMANN), 1890, A., 1426.
- Acetobenzamide**. See **Benzimidazoacetate**.
- Acetobenzenehydrazo-o-cresol** (GOLD-SCHMIDT and POLLAKE), 1892, A., 975.
- Acetobenzenehydrazo-p-cresol** (GOLD-SCHMIDT and BRUBACHER), 1891, A., 1209.
- Acetobenzenehydrazo- $\psi$ -cuminaldehyde** (GOLD-SCHMIDT and BRUBACHER), 1891, A., 1209.
- Acetobenzenehydrazo- $\alpha$ -naphthol** (GOLD-SCHMIDT and BRUBACHER), 1891, A., 1211.
- $\alpha$ -Aceto- $\beta$ -benzo- and  $\beta$ -aceto- $\alpha$ -benzo-m-nitrophenylhydrazides** (BISCHLER and BRODSKY), 1890, A., 150.
- $\beta$ -Aceto- $\alpha$ -benzophenylhydrazide** (MICHAELIS and SCHMIDT), 1887, A., 820.
- Acetobenzoylphenylhydrazide** (RUHEMANN and BLACKMAN), 1889, T., 614.
- Acetobenzylamine**, cyan- (GUARESCHI), 1892, A., 1072.
- Acetobenzyl-p-nitranilide** (MELDOLA and SALMON), 1888, T., 779.
- Acetobenzylthiocarbamide** (WERNER), 1891, T., 408; (DIXON), 1891, T., 562.
- Acetobenzyl-o-toluidide** (RABAUT), 1892, A., 48.
- Acetobenzyl-m-xylidide** (JABLIN-GONNET), 1892, A., 1320.
- Acetocamphorylphenylhydrazide** (CHAPLIN), 1892, A., 1481.
- Acetocarbamide**, thermochemistry of (MATIGNON), 1891, A., 1448.
- Acetochloralimide** (MOSCHELES), 1891, A., 1003.
- Acetochloro-p-xylidide** (KLUGE), 1885, A., 1208.
- Acetocumidide**, *mono-* and *di-nitr-* (ENGEL), 1885, A., 1215.
- thio- (JACOBSON and NEY), 1889, A., 771.
- Aceto- $\psi$ -cumidide** (EDLER), 1885, A., 771.
- Aceto- $\psi$ -cumylhydrazide** (RUHEMANN), 1890, T., 55.
- Acetodehydrodiacetylcapronamide** (KIPPING and PERKIN), 1889, T., 341.
- Acetodehydrothiotoluidide** (GREEN), 1889, T., 230.
- Acetodibenzylthiocarbamide** (WERNER), 1891, T., 406.
- Acetodiethylamide**, *trichlor-* (FRANCHIMONT and KLOBBE), 1888, A., 1062.
- Aceto-p-diethylanilide** (VOSWINKEL), 1889, A., 493.
- Acetodimethylamide**, *trichlor-* (FRANCHIMONT and KLOBBE), 1888, A., 1062.
- Acetodiphenylcarbamide** (KÜHN), 1885, A., 260.
- Acetodiphenylethylenediamine** (BISCHOFF and NASTVOGEL), 1889, A., 1010.
- Acetodiphenylhydrazide** (TAFEL), 1892, A., 710; (GATTERMANN, JOHNSON, and HÖLZLE), 1892, A., 843.
- p-brom-* (BÖLSING and TAFEL), 1892, A., 982.
- Acetodiphenyltolylenediamine**. See **Bisphenylaceto-o-tolylenediamine**.
- Acetodi-o- and p-tolylhydrazide** (GATTERMANN, JOHNSON, and HÖLZLE), 1892, A., 843.
- Acetoethyl-**. See **Acetethyl-**.

- Acetofenchylamine** (WALLACH and GRIEPENKER), 1892, A., 1239.
- Acetofluoranilide** (WALLACH), 1887, A., 131.
- Acetoformimide** (PINNER), 1883, A., 1090.
- Acetoglycocine** (*aceturic acid*), preparation of (CURTIUS), 1883, A., 1088; 1884, A., 1306.
- salts of (CURTIUS), 1884, A., 1306.
- Acetoglycolyldibrom-o-toluidide** (ABENIUS and WIDMAN), 1889, A., 135.
- Acetohexadecylanilide** (KRAFFT and GÖTTIG), 1889, A., 129.
- Acetohydrazobenzene** (STERN), 1884, A., 1015.
- Acetohydroxamic acid** (HOFFMANN), 1890, A., 127.
- Acetohydroximidoacetonitrile** (SODERBAUM), 1892, A., 816.
- Acetol**. See Acetylcarbinol.
- Acetomethylamide**, trichlor- (FRANCHIMONT and KLOBBE), 1888, A., 1062.
- Acetomethylamidomethylthiazole** (HANTZSCH and WEBER), 1888, A., 257.
- Acetomethylanilide**, preparation of (REINHARDT and STAEDEL), 1883, A., 578.
- m*-chlor- (STAEDEL), 1886, A., 940.
- m*- and *p*-nitro- (MELDOLA and SALMON), 1888, T., 776.
- Acetomethylanthranilic acid** (v. MILLER), 1891, A., 1095.
- 1:2:3-Acetomethylxylylide** (MENTON), 1891, A., 1203.
- Acetonaloxybutyric acid** (WILLGERODT), 1887, A., 1030.
- Acetonaloxyisobutyric acid** (WILLGERODT), 1883, A., 177; 1887, A., 1030.
- α*-Acetonaphthalide** (PIERSON and HEUMANN), 1883, A., 916.
- action of chlorine on (CLEVE), 1887, A., 494.
- sulphonation of (LANGE), 1888, A., 160.
- physiological action of (ODDO), 1892, A., 366.
- α*-Acetonaphthalide**, 2:4-bromamido- (MELDOLA), 1885, T., 500.
- 1:4-chlorobromo- (MELDOLA and DESCH), 1892, T., 768.
- 4-iodo- and 4:2-iodonitro- (MELDOLA), 1885, T., 523; P., 73.
- γ*-nitro-, Liebermann's, bromination of (MELDOLA), 1885, T., 502.
- o*- and *p*-nitro- (LELLMANN), 1884, A., 751, 752; (LELLMANN and REMY), 1886, A., 623.
- o*- and *p*-nitro-, action of bromine on a mixture of (ARMSTRONG and ROSSITER), 1891, P., 186.
- β*-Acetonaphthalide**, *o*-bromo-, action of bromine on (MELDOLA), 1883, T., 7.
- tetrabromo- (MELDOLA), 1883, T., 8.
- 4:1-bromido- (MELDOLA and DESCH), 1892, T., 767.
- bromonitro-, preparation of (FRAGER), 1885, A., 1239.
- 1-chloro- (CLEVE), 1887, A., 961.
- tetrachloride (CLAUS and PHILIPSON), 1891, A., 462.
- Δ*nitro- (MASCHKE), 1887, A., 839.
- thio- (JACOBSON), 1888, A., 1307.
- Acetonaphthalides**, bromonitro- (MELDOLA), 1883, T., 9; 1885, T., 499.
- nitr-, bromination of (MELDOLA), 1885, T., 499.
- Acetonaphthylamidoacetic acid** (FORTE), 1890, A., 901.
- Aceto-*β*-naphthylamidoacetic acid** (BISCHOFF and HAUSDORFER), 1892, A., 1342.
- Aceto-*α*-naphthylhydrazide** (FRUND), 1892, A., 509.
- Acetone**, investigation of crude (WOLFFS), 1891, A., 819.
- decomposition of, by the silent discharge (MAQUENNE), 1884, A., 543.
- action of heat on (BARBIER and ROUX), 1886, A., 865.
- condensation of, with aromatic aldehydes (CLAISEN and PONDER), 1884, A., 1166.
- action of allylic and isobutylic iodides on, in presence of zinc (SCHATZKI), 1885, A., 237.
- action of anhydrous aluminium chloride on (LOUISE), 1883, A., 176.
- action of amides of the acetic series on (CANZONERI and SPICA), 1885, A., 746.
- action of *p*-amidoazobenzene on (ENGLER and SCHENSTROPAL), 1887, A., 479.
- action of ammonium formate on (LEUCKART), 1890, A., 784.
- action of the ammonium salts of fatty acids on, in the presence of dehydrating agents (RUHEMANN and CARNEGIE), 1888, T., 424; P., 39.
- action of aniline on (ENGLER and RIEHM), 1885, A., 1246.
- condensation products, with aniline and ammonia (RIEHM), 1887, A., 599.
- action of bleaching powder on (ORNDORFF and JESSEL), 1889, A., 34.
- action of caustic alkalis on (JAFFÉ), 1883, A., 596.
- action of diazobenzene chloride on (BAMBERGER and WULZ), 1891, A., 1449.

- Acetone**, action of ethylic oxalate on (CLAISEN and STYLOS), 1887, A., 917; 1888, A., 676.  
 condensation of, with hydrochloric acid (PINNER), 1888, A., 1079.  
 action of nitrous acid on (GOLD-SCHMIDT), 1887, A., 568.  
 action of dilute nitric acid on (NEW-BURY and ORNDORFF), 1891, A., 287.  
 action of *p*-nitrobenzaldehyde on (V. BAEYER and BECKER), 1883, A., 1120.  
 action of nitrogen iodide on (LEPETIT), 1890, A., 1402.  
 condensation products of, with phenol (DIANTIN), 1889, A., 1187.  
 action of potash on a mixture of chloroform and (ENGEL), 1887, A., 569.  
 action of silicon tetrafluoride on (NORTON and WESTENHOFF), 1888, A., 936.  
 action of sodium on (FREER), 1890, A., 956; 1891, A., 1181.  
 action of zinc and ethylic chloracetate on (REFORMATSKY), 1891, A., 169.  
 bromination of (NORTON and WESTENHOFF), 1888, A., 936.  
 cyanhydrin, imido-ethers from (PINNER), 1884, A., 1292.  
 aniline sulphite, dimethylaniline sulphite, ethylaniline sulphite, and ethylene tolylenamidide sulphite (BOESSNECK), 1888, A., 942.  
 compound from benzoil and (JAPP and RASCHEN), 1890, T., 783; P., 189.  
*mono*- and *di*-hydrofluoride (LANDOLPH), 1888, A., 655.  
 pyridine and piperidine bases from (DÜRKOPF), 1888, A., 1313.  
 phosphorus compounds (MICHAELIS), 1885, A., 747; 1886, A., 609.  
 absence of, in healthy urine (WEST), 1890, A., 399.  
 detection of (V. JAKSCH), 1885, A., 680; (SCHWICKER), 1892, A., 1032.  
 detection of, in pathological liquids (CHAUTARD), 1886, A., 495.  
 detection of, in urine (LEGAL), 1888, A., 1346.  
 estimation of, in urine (HUPPERT), 1891, A., 370; (SALKOWSKI and TANIGUTI), 1891, A., 624. See also Acetonuria.  
 estimation of, as iodoform (ARACHEQUESNE), 1890, A., 837; (COLLISCHONN), 1891, A., 370.  
 estimation of, in denaturated alcohol (VIGNON), 1891, A., 1142.  
 estimation of, in methylic alcohol, etc. (HINTZ), 1888, A., 759; (MES-SINGER), 1889, A., 313; (VIGNON), 1890, A., 837.
- Acetone**, *diamido*- (RÜGHEIMER and MISCHEL), 1892, A., 952.  
 platinochloride (RUGHEIMER), 1889, A., 250.  
 brom-, action of, on ammonium thiocyanate (NORTON and WESTENHOFF), 1888, A., 936.  
*s-dibrom*- (HJELT and SIVÉN), 1889, A., 234.  
*hexabrom*- (HERZIG), 1883, A., 464; (HANTZSCH), 1888, A., 1192.  
 chlor- (CLOËZ), 1887, A., 1091; (TCHERNIAC), 1892, A., 1425.  
 action of benzoic anhydride on (VAN ROMBURGH), 1888, A., 63.  
 action of ethylic acetoacetate on (WELTNER), 1884, A., 746.  
 action of ethylic benzoylsodacetate on (COLEFAX), 1891, T., 191.  
 action of phenylhydrazine on (BENDER), 1888, A., 1189.  
*di*-, *tri*-, and *tetrachlor*-, isomeric forms of (CLOËZ), 1887, A., 1092.  
*s-dichlor*-, preparation of (ERLENBACH), 1892, A., 952.  
*s-tetrachlor*- (HANTZSCH), 1888, A., 1191; (LEVY and CURCHOD), 1889, A., 1136.  
 action of phenylhydrazine on (ZINCKE and KEGEL), 1889, A., 955; (LEVY & WITTE), 1889, A., 1160.  
 derivatives of (LEVY, WITTE, and CURCHOD), 1890, A., 232.  
 hydrate of (LEVY and JEDLIKA), 1888, A., 444.  
*pentachlor*- (CLOËZ), 1884, A., 580; 1887, A., 1095.  
 isomeride of (CLOËZ), 1884, A., 580.  
*hexachlor*- (CLOËZ), 1887, A., 1096.  
 chlorotribrom- (CLOËZ), 1887, A., 1097.  
 chloropentabrom- (HANTZSCH), 1889, A., 854.  
*dichlorodibrom*- (CONRAD and GUTH-ZEIT), 1883, A., 1083; (CLOËZ), 1887, A., 1098.  
*dichlorotetrabrom*- (HANTZSCH), 1889, A., 853.  
*trichlorobrom*- (CLOËZ), 1887, A., 1098.  
*trichlorotribrom*- (HANTZSCH), 1888, A., 1191.  
*tetrachlorobrom*- (ZINCKE and KEGEL), 1890, A., 489.  
 cyan- (HANTZSCH), 1890, A., 1094, 1095.  
 iod- (DE CLERMONT and CHAUTARD), 1885, A., 648.  
 halogen substitution products, action of ammonia and amines on (CLOËZ), 1887, A., 1098.

- Acetone**, nitroso- (v. PECHMANN), 1887, A., 1104.  
 sodium salt of, action of benzylic chloride on (MEYER and CERESOLE), 1888, A., 572.  
*d*-nitroso-, (v. PECHMANN and WEHSARG), 1889, A., 34.  
 oxime of. See Acetylformoxime.  
*d*ioxime of (v. PECHMANN and WEHSARG), 1887, A., 28.  
 thio- (BAUMANN and FROMM), 1890, A., 26.  
 trithio-, and its pentoxide (FROMM and BAUMANN), 1889, A., 852.  
 thiocyan- (ARAPIDES), 1889, A., 414; (TCHERNIAK), 1892, A., 1425, 1426.  
 preparation and properties (TCHERNIAK and HELLO), 1883, A., 654.  
**Acetoneacetic acid**, dithio- (BONGARTZ), 1886, A., 938.  
**Acetone-ammonia**, tetrachlor- (LEVY and CURCHOD), 1889, A., 1136.  
**Acetoneazobenzene**. See Pyruvaldehyde-phenylhydrazine.  
**Acetonebenzil** and its reactions (JAPP and MILLER), 1885, T., 22.  
 preparation of (JAPP and KLINGEMANN), 1890, A., 673.  
**Acetonebenzilimide** (JAPP and MILLER), 1885, T., 24.  
**Acetonebenzophenylhydrazide** (MICHAELIS and SCHMIDT), 1887, A., 820.  
**Acetonebenzylidenephnylmethylhydrazine** (KOTILAUSSCH), 1890, A., 24.  
**Acetoneberberine** (GAZE), 1890, A., 1011.  
**Acetonebisazobenzene** (CLAISEN), 1892, A., 710.  
**Acetonebromoform** (WILLGERODT and MULLER), 1885, A., 648.  
**Acetonechloroform** (WILLGERODT), 1883, A., 1079; (WILLGERODT and MULLER), 1885, A., 648; (WILLGERODT and GENIESER), 1888, A., 810.  
 acids from (WILLGERODT), 1887, A., 1030.  
 bye-products in the preparation of, and conversion of, into hydroxyisobutyric acid (WILLGERODT), 1883, A., 177.  
 derivatives, reactions of (WILLGERODT and SCHIFF), 1890, A., 959.  
 solid, and its derivatives (WILLGERODT and DUBER), 1889, A., 689.  
**Acetonediacetic acid** (HAITINGER and LEBEN), 1885, A., 47; (VOLHARD), 1890, A., 30; 1892, A., 432.  
 dilactone of (MICHAEL), 1891, A., 1837.  
**Acetonedicarboxylic acid** (v. PECHMANN), 1885, A., 138; 1891, A., 670.  
 reduction of (v. PECHMANN and JENISCH), 1892, A., 147.  
**Acetonedicarboxylic acid**, action of diazobenzene and phenylhydrazine on (v. PECHMANN and JENISCH), 1892, A., 161.  
 condensation of, with phenols (BURTON and v. PECHMANN), 1891, A., 672.  
 synthesis of citric acid from (DUNSCHMANN and v. PECHMANN), 1891, A., 672.  
 alkyl derivatives of (DUNSCHMANN and v. PECHMANN), 1891, A., 673.  
 oxime of (EMERY), 1891, A., 422.  
 substitution-products of (DUNSCHMANN and v. PECHMANN), 1885, A., 1201.  
**Acetonedithylmercaptole**, chloro- (AUFENBERG), 1891, A., 568.  
**Acetonediphenanthraquinone** (JAPP and MILLER), 1885, T., 20.  
**Acetonedisulphone**, trithio- (BAUMANN and FROMM), 1890, A., 26.  
**Acetone-ethylenephnylhydrazine**. See Diphenylethylen propyldenedihydrazine.  
**Acetonehydrazonebenzenesulphonic acid** (FULF), 1887, A., 938.  
**Acetonenitrophenylhydrazone** (BISCHLER and BRODSKY), 1890, A., 151.  
**Acetone/nitrophenylhydrazones** (FISCHER and ACH), 1890, A., 40.  
**Acetonephenanthraquinone** (JAPP), 1883, A., 596.  
 formation and reactions of (JAPP and MILLER), 1885, T., 16, 17.  
 condensation of (WADSWORTH), 1890, P., 151; 1891, T., 105.  
**Acetonephenylhydrazone** (REISENEGGER), 1883, A., 798.  
 salts of (MICHAELIS and SCHMIDT), 1889, A., 1159.  
*p*-brom- (NEUFELD), 1889, A., 251.  
 nitroso- (v. PECHMANN and WEHSARG), 1889, A., 47.  
*d*-nitroso (v. PECHMANN and WEHSARG), 1889, A., 34.  
**Acetonephenylmethylhydrazone**, *d*-nitroso- (v. PECHMANN and WEHSARG), 1889, A., 48.  
 "Acetone-potash and -soda" (VAUBERT), 1891, A., 1183.  
**Acetonequinol** (HABERMANN), 1885, A., 53.  
**Acetone-4-quinolyldhydrazone** (DUTTON), 1892, T., 787.  
**Acetoneresorcinol** (CAUSSE), 1892, A., 1212.  
**Acetone-sodium**, action of ethylic chlorocarbonate on (FREER and HIGLEY), 1891, A., 1182.  
**Acetonitrile**, synthetic (HENRY), 1887, A., 712.

- Acetonitrile**, heats of combustion and formation of (BERTHELOT and PETIT), 1889, A., 812.  
 action of organic acids on (COLBY and DODGE), 1891, A., 409.  
 benzoyl-derivatives of (V. MEYER), 1890, A., 1251.  
 transformation of, in the organism (GIACOSA), 1884, A., 1061.
- Acetonitrile** and its derivatives, compounds of, with aluminium chloride (GENVRESSE), 1888, A., 932.
- Acetonitrile**, brom- (HENRY), 1886, A., 1001.  
 dichlor-, polymerides of (WEDDIGE and KORNER), 1885, A., 739; (TSCHERVEN-IWANOFF), 1892, A., 1291.  
 trichlor-, hydration of (ARMSTRONG), 1889, P., 122.  
 polymeride of (WEDDIGE), 1884, A., 35; 1886, A., 323; (TSCHERVEN-IWANOFF), 1891, A., 1332; 1892, A., 1291.  
 iod- (HENRY), 1886, A., 1001.
- Acetonitriles**, chlorinated, and their derivatives, boiling-point anomalies of (BAUER), 1885, A., 1120.
- Aceto-*o*-nitrobenzyl-*p*-toluidide**, reduction of (LELLMANN), 1891, A., 726.
- Acetonitro- $\psi$ -cumididesulphonic acid** (MAYER), 1887, A., 659.
- $\beta$ -Aceto-*o*-nitrophenylalanine**, lactam of (EINHORN), 1884, A., 305.
- Acetonuria** (V. JAKSCH), 1883, A., 1161; 1885, A., 680; (WEST), 1890, A., 399.  
 testing for acetone and allied substances in (LE NOBEL), 1885, A., 449.  
 See also Acetone.
- Acetylacetone** (PAAL), 1885, A., 505; (KNOHR), 1889, A., 385.  
 preparation of, from ethylic diacetosuccinate (KNOHR), 1889, A., 1139.  
 action of alcoholic ammonia on (PAAL), 1885, A., 1206.  
 action of nitric acid on (ANGELL), 1891, A., 890.  
 action of phosphoric selenide on (PAAL), 1885, A., 1207.  
 derivatives (PAAL), 1885, A., 505.
- Acetylacetonephenylmethyldihydrazone** (KOHLEAUSCH), 1890, A., 24.
- Acetylcarbamide**, nitr- (FRANCHIMONT and KLOBBIN), 1889, A., 125.
- Acetyldiphenylthiocarbamide** (PAWLEWSKI), 1888, A., 478.
- 5-Acetyl-4-hydroxy-2-phenyl-6-methyl-*m*-diazine** (PINNER), 1890, A., 70.
- Acetylphenylic sulphide** (DELISLE), 1889, A., 489.
- Acetylphthalimide** (GOEDECKE-MEYER), 1888, A., 1294.
- Acetylquinoline** (FISCHER and KUTZEL), 1883, A., 588.
- Acetopentamethylenediamine** and dicyan- (GUARESCHI), 1892, A., 1071.
- Acetophenone**, formation of, from benzene (FRIEDEL and CRAFTS), 1889, A., 243.  
 formation of, from ethylic benzoylacetate (FISCHER and KUZEL), 1883, A., 587.  
 dispersive power of (BARBIER and ROUX), 1889, A., 805.  
 action of heat on (BARBIER and ROUX), 1886, A., 865.  
 action of, on ammonia (ENGLEB and RIEHM), 1886, A., 369.  
 condensation of, with aniline and ammonia (RIEHM), 1887, A., 599.  
 action of ethylic oxalate on (BRÜMME and CLAISEN), 1888, A., 691.  
 action of nitric acid on (HOLLEMAN), 1888, A., 275; 1889, A., 49.  
 action of phosphorus pentachloride on (BÉNAL), 1889, A., 984.  
 action of potassium ferricyanide on (V. BUCHKA and IRISH), 1887, A., 483.  
 chlorination of (GAUTIER), 1886, A., 800.  
 oxidation of (STROMMINGER), 1886, A., 462; (CLAUS and NEUKRANZ), 1891, A., 1364.  
 oxidation of, by alkaline permanganate (GLUCKSMANN), 1890, A., 1416.  
 derivatives of (STAEDTL), 1883, A., 586.  
 mercuric chloride (VOLHARD), 1892, A., 829.  
*p*-nitrophenyl ether (MÜHLAU), 1883, A., 332.  
 sodium derivative of (BECKMANN and PAUL), 1892, A., 170.  
 physiological action of (MAIRET and COMBEMALE), 1886, A., 385; (KARMENSKI), 1889, A., 1076.  
 hypnotic properties of (DUJARDIN-BRAUMETZ and BARDET), 1886, A., 169.
- Acetophenone**, *o*-amido- (V. BAeyer and BLOEM), 1883, A., 197, 198.  
 derivatives of (V. BAeyer), 1884, A., 1021; (V. BAeyer and BLOEM), 1884, A., 1026.  
*p*-amido-, and some of its derivatives (KLINGEL), 1884, A., 1343; 1886, A., 60.  
*exo*-amido- (BRAUN and MEYER), 1888, A., 366, 700.  
 hydrochloride (BRAUN and MEYER), 1888, A., 700.

- Acetophenone**, *exo*-amido-, picrate (GOE-DECKEMEYER), 1888, A., 1294.  
 brom- (SCHWEIZER), 1891, A., 684.  
 $\omega$ -brom- (MOHLAU), 1883, A., 332;  
 (WELLER), 1883, A., 582.  
 action of acid amides on (LEWY), 1888, A., 55.  
 action of amides on (BLUMLEIN), 1885, A., 162.  
 action of secondary aromatic amines on (CULMANN), 1888, A., 1287.  
 action of, on ethylic acetoacetate (WELTNER), 1884, A., 746.  
 action of, on ethylic sodacetoacetate (PAAL), 1884, A., 598.  
 action of, on hydroxylamine (STRASSMANN), 1889, A., 610.  
 action of, on hydroxylamine hydrochloride (SCHRAMM), 1884, A., 51.  
 action of, on phenol (MOHLAU), 1883, A., 332.  
 action of phenylhydrazine on (HESS), 1886, A., 547.  
 derivatives (STAEDEL), 1883, A., 586.  
*o*-*di*brom-, action of phenylhydrazine on (BENDER), 1888, A., 1189.  
 derivatives (ENGLER and HASENKAMP), 1885, A., 1223.  
*o*-bromo-*o*-nit- (GEVEKOHRT), 1884, A., 445.  
*o*-bromo-*p*-nitro-derivatives of (ENGLER and ZIELKE), 1889, A., 505.  
*p*-chlor- (GAUTIER), 1885, A., 1061.  
*o*-*di*- and *o*-*tri*-chlor- (GAUTIER), 1887, A., 141, 922.  
*o*-*dichloro*-*m*-bromo-*o*-amido- (v. BAEYER and BLOEM), 1884, A., 1027.  
*dichloro*-*o*-nit- (GEVEKOHRT), 1884, A., 445.  
 cyan-, and its derivatives. See Benzoylacetoneitrile.  
*p*-iod- (SCHWEIZER), 1891, A., 684, 830.  
*o*-nit- (GEVEKOHRT), 1884, A., 445.  
 direct formation of, by nitration of acetophenone (ENGLEU), 1885, A., 1223.  
*p*-nit- (ENGLER and ZIELKE), 1889, A., 505.  
 nit-, preparation of the three isomeric (GEVEKOHRT), 1883, A., 191; 1884, A., 445.  
*o*-thiocyan- (ARAFIDES), 1889, A., 413.  
**Acetophenoneacetic acid**, *d*-thio- (BONGARTZ), 1886, A., 938.  
**Acetophenoneacetoacetic acid** (PAAL), 1884, A., 598.  
 derivatives of the ethereal salts of (PAAL), 1884, A., 1177.  
**Acetophenoneacetone** (PAAL), 1884, A., 1177.  
 isonitroso-derivative of (PAAL), 1884, A., 599.  
**Acetophenoneacetonedioxime** (CIAMICIAN and ZANETTI), 1890, A., 1155; 1891, A., 1503.  
**Acetophenoneanilide** and its derivatives (MOHLAU), 1883, A., 332.  
**Acetophenoneazobenzophenol** (KLINGEL), 1886, A., 61.  
**Acetophenonebenzil** (JAPP and MILLER), 1885, T., 35.  
**Acetophenonebenzophenylhydrazones** (MICHAELIS and SCHMIDT), 1887, A., 821.  
**Acetophenone-*p*-benzoylphenylhydrazones** (RUHEMANN and BLACKMAN), 1889, T., 615.  
**Acetophenone-*o*-carboxyanilide** (MERTENS), 1887, A., 52.  
*o*-chlor- (ZINCKE and COCKSEY), 1890, A., 785.  
**Acetophenone-*o*-carboxylic acid**, formula of (GABRIEL), 1883, A., 1127.  
 action of sulphuric acid on (GABRIEL), 1885, A., 166.  
*o*-chlor- (ZINCKE and COCKSEY), 1890, A., 786.  
**Acetophenone-*o*-carboxylic acids**, chlorinated and brominated (ZINCKE and GERLAND), 1888, A., 1192, 1193.  
 substituted, conversion of hydrindonaphthene- and indonaphthene-derivatives into (ZINCKE and GERLAND), 1888, A., 1192.  
**Acetophenone-*o*-carboxylicphenylhydrazide** (ROSER), 1885, A., 797.  
*o*-*o*-Acetophenonedicarboxylic acid, formula of, and action of hydroxylamine hydrochloride on (GABRIEL), 1883, A., 1127.  
 action of phenylhydrazine on (ROSER), 1885, A., 797.  
**Acetophenonedimethylhydrazones** (REISENNGER), 1883, A., 798.  
**Acetophenoneoxime** (CLAISEN), 1887, A., 575; (CLAISEN and MANASSE), 1887, A., 944.  
*o*-amido- (AUWERS and v. MEYENBURG), 1891, A., 1876.  
**Acetophenonephenylhydrazones** (REISENNGER), 1883, A., 798.  
*o*-amido- (AUWERS and v. MEYENBURG), 1891, A., 1877.  
 nit- (DISCHLER and BRODSKY), 1890, A., 151.  
**Acetophenonesulphonic acid** (KRECKELER), 1887, A., 141.  
**Acetophenonethiophenylhydrazones** (RUHL), 1892, A., 1326.

- Acetophenyl- $\alpha$ -isoamylhydrazide** (PHILIPS), 1889, A., 1159.
- Acetophenylbenzylidenehydrazide** (MICHAELIS and SCHMIDT), 1887, A., 821; 1889, A., 1159.
- Acetophenylisobutylhydrazide** (PHILIPS), 1889, A., 1159.
- Acetophenylcarbamic acid, sodium salt of** (SEIFERT), 1885, A., 983.
- Acetophenylcarbamide** (KUHN), 1885, A., 260.
- Acetophenylcitrazonazide** (MICHAELIS), 1886, A., 699.
- Acetophenyldimethylhydrazide** (FISCHER), 1887, A., 932.
- Aceto-*m*-phenylenediamine hydrochloride** (WALLACH and SCHULZE), 1883, A., 583.
- Aceto-*p*-phenylenediamine and some new azo-derivatives** (NIETZKI), 1884, A., 1016.
- Acetophenyl- $\alpha$ -ethylhydrazide** (PHILIPS), 1889, A., 1158.
- Acetophenylhydrazide** (MICHAELIS and SCHMIDT), 1889, A., 1159.
- Acetophenylmethylhydrazide** (FISCHER), 1887, A., 932.
- p*-brom-** (BOLSING and TAFEL), 1892, A., 982.
- chlor-** (GATTERMANN and HÜLZLE), 1892, A., 844.
- Acetophenylhydrazonaphthalaldehydic acid** (ALLENDOERFF), 1891, A., 1371.
- Acetophenylisopropylhydrazide** (PHILIPS), 1889, A., 1159.
- Acetophenylsemithiocarbazide** (DIXON), 1889, T., 303.
- Acetophthalylimide** (ASCHAN), 1886, A., 704.
- Aceto- $\beta$ -tetrahydronaphthylamide** (BAMBERGER and MÜLLER), 1888, A., 712.
- Acetotetrahydro- $\alpha$ - and - $\beta$ -naphthylcarbinyldiamines** (BAMBERGER and HELWIG), 1889, A., 1199.
- Acetothienone** (*thienyl methyl ketone*) (PETER), 1885, A., 141, 764.
- action of ethylic oxalate on** (ANGELI), 1891, A., 550.
- derivatives** (PETER), 1885, A., 141, 764; (BRUNSWIG), 1887, A., 236, 237.
- mercuric chloride** (VOLHARD), 1892, A., 829.
- Acetothienone, brom-** (GATTERMANN and RÖMER), 1886, A., 537; (BRUNSWIG), 1887, A., 236.
- cyan-** (SALVATORI), 1892, A., 304.
- iod- and chlor-** (GATTERMANN and RÖMER), 1886, A., 537, 538.
- Acetothienoneoxalic acid** (ANGELI), 1891, A., 550; 1892, A., 154.
- oxime of** (SALVATORI), 1892, A., 304.
- Acetothienonephenylhydrazine** (PETER), 1885, A., 141.
- Acetothiocarbimide, action of aldehyde-ammonia on** (DIXON), 1892, T., 530.
- Acetothio- $\beta$ -dinaphthylamide** (KYM), 1889, A., 51.
- Acetothiofenaldoxime** (HANTZSCH), 1891, A., 444.
- Acetothiosulphuric acid, salts of** (PURGOTTI), 1892, A., 1419.
- Aceto-*o*-toluidide** (KELBE), 1883, A., 916.
- action of sulphuryl chloride on** (WYNNE), 1892, T., 1045; P., 139.
- nitration of**-(NÜLTING and COLLIN), 1884, A., 1012.
- colour reaction of** (TAFEL), 1892, A., 709.
- Aceto-*o*-toluidide, 5-brom-** (ALT), 1889, A., 1214; (NIEMENTOWSKI), 1892, A., 838.
- 5-brom-, oxidation of, by permanganate** (ALT), 1889, A., 987.
- oxobrom-* [CH<sub>2</sub>Br.CO-]** (ABENIUS and WIDMAN), 1888, A., 824.
- oxotibrom-* [CHBr<sub>2</sub>.CO-]** (ABENIUS and WIDMAN), 1889, A., 134.
- 5-bromo-3-nitr-** (NIEMENTOWSKI), 1892, A., 838; (CLAUS and BECK), 1892, A., 1207.
- 5-bromodinitr-** (NIEMENTOWSKI), 1892, A., 838.
- 4-chlor-** (GOLDSCHMIDT and HÜNIG), 1886, A., 1022.
- 5-chlor-** (LELLMANN and KLOTZ), 1886, A., 452; (WYNNE), 1892, T., 1047.
- 6-chlor-** (HÜNIG), 1887, A., 1034.
- oxodichlor-* [CHCl<sub>2</sub>.CO-]** (RÜGHEIMER and HOFFMANN), 1886, A., 160.
- 3-nitr-** (LELLMANN and WÜRTHNER), 1885, A., 974.
- 4-nitr- and 5-nitr-** (NÜLTING and COLLIN), 1884, A., 1007, 1012.
- 6-nitr-** (ULLMANN), 1884, A., 1316; (GREEN and LAWSON), 1891, T., 1014.
- Aceto-*m*-toluidide, 4-brom-** (CLAUS), 1892, A., 1201.
- 4-chlor-** (GATTERMANN and KAISER), 1886, A., 49; (GOLDSCHMIDT and HÜNIG), 1886, A., 1022; (CLAUS), 1892, A., 1201.
- 5-chlor-** (HÜNIG), 1887, A., 1034.
- 6-chlor-** (GOLDSCHMIDT and HÜNIG), 1887, A., 363.
- oxodichlor-* [CHCl<sub>2</sub>.CO-]** (RÜGHEIMER and HOFFMANN), 1886, A., 161.
- 6-nitr-** (LIMPRICHT), 1885, A., 974.

- Aceto-*p*-toluidide** (KELBE), 1888, A., 916.  
 action of chlorine on (ERDMANN), 1891, A., 1466.  
 action of sulphuryl chloride on (WYNNE), 1892, T., 1053; P., 139.  
 nitration of (NÜLTING and COLLIN), 1884, A., 1012.  
 hydrochloride (NÜLTING and WEINGARTNER), 1885, A., 979.
- Aceto-*p*-toluidide, amido-**. See **Aceto-*o*-tolylenediamine**.  
*di*amido- (NIRMENOWSKI), 1886, A., 545.  
 diazo-compounds. See **Azo**.  
 3:5-*di*brom- (CLAUS and HERBANY), 1892, A., 175.  
 3-bromo-5-nitr- (HAND), 1886, A., 1018.  
*exo*brom- [ $\text{CH}_2\text{Br.CO-}$ ] (ABENIUS), 1890, A., 269.  
 3-chlor- (LELLMANN and KLOTZ), 1886, A., 452; (ERDMANN), 1891, A., 1466; (WYNNE), 1892, T., 1057; (LELLMANN), 1892, A., 450.  
 crystallography of (POPE), 1892, T., 1057.  
 3:5-*di*chlor- (LELLMANN and KLOTZ), 1886, A., 453.  
*exo*chlor- [ $\text{CH}_2\text{Cl.CO-}$ ] (BISCHOFF and HAUSDÖRFER), 1890, A., 1285; (ECKENROTH and DONNER), 1891, A., 195.  
 conversion of, into dimethyl-indigo (ECKENROTH), 1891, A., 722.  
*exo*dichloro [ $\text{CHCl}_2\text{CO-}$ ] (RÜGHEIMER and HOFFMANN), 1886, A., 159.  
 2-chloro-5-nitr- (CLAUS and BOCHER), 1892, A., 173.  
 3-chloro-5-nitr- and 3-chloro-6-nitr- (CLAUS and DAVIDSEN), 1892, A., 172.  
 2-nitr- and 3-nitr- (NÜLTING and COLLIN), 1884, A., 1012.  
 3-nitr-, reduction products of (BANKIEWICZ), 1889, A., 865.  
 isomeric modifications of (GATTERMANN), 1890, A., 1112.  
 3:5-*di*nitr-, reduction products of (BANKIEWICZ), 1888, A., 1184.  
 3-nitro*exo*chlor- [ $\text{CH}_2\text{Cl.CO-}$ ] (ECKENROTH and DONNER), 1891, A., 195.
- Acetotoluidides** in relation to animal metabolism (JAFFÉ and HILBERT), 1888, A., 735.
- Aceto-*p*-toluidide-*o*-diazodiethylamide** (WALLACH), 1887, A., 137.
- Aceto-*p*-toluidide-*o*-diazonitroethane** (WALLACH), 1887, A., 137.
- Aceto-*p*-toluidide-*o*-diazopiperidide** (WALLACH), 1887, A., 138.
- Aceto-*o*-tolylamidoacetic acid** (BISCHOFF and HAUSDÖRFER), 1892, A., 1334.  
 chlor- (ABENIUS and WIDMAN), 1888, A., 824.
- Aceto-*p*-tolylamidoacetic acid** (PAAL and OTTEN), 1890, A., 1415.
- Aceto-*p*-tolylamidoacetic toluidide, chlor-** (BISCHOFF and HAUSDÖRFER), 1892, A., 1336.
- Aceto-*o*-tolylenediamine** (BOESSNECK), 1886, A., 874; (BANKIEWICZ), 1889, A., 866.
- Aceto-*m*-tolylenediamine** (WALLACH), 1887, A., 41.
- Aceto-*o*- and *p*-tolylhydrazide** (GATTERMANN, JOHNSON, and HÜZLE), 1892, A., 843.
- Aceto-*o*-tolylthiocarbamide** (DIXON), 1889, T., 304; P., 46.
- Acetotrimethylcolehicinamide** (ZEINEL), 1888, A., 614.
- Acetotripiperidide** (BUNZ and KEKULÉ), 1888, A., 302.
- Aceto*iso*vanillic acid** (BERTRAM and GILDEMEISTER), 1889, A., 863.
- Acetovanillone** (TIEMANN), 1892, A., 59.  
 synthesis of, from guaiacol and acetic acid (OTTO), 1892, A., 61.  
 derivatives (NEITZEL), 1892, A., 61.
- Acetovanilloneoxime** (NEITZEL), 1892, A., 61.
- Acetovanillonephenylhydrazide** (NEITZEL), 1892, A., 61.
- Acetovanillonitrile** (MARCUS), 1892, A., 318.
- Acetoveratrone** (NEITZEL), 1892, A., 61.
- Acetoxime**, formula of (MEYER), 1883, A., 569.  
 molecular weight of (ATWERS and MEYER), 1888, A., 646.  
 action of diazobenzene on (MAI), 1892, A., 1080.  
 action of hydrocyanic acid on (v. MILLER and PLÜCHL), 1892, A., 1196.  
 compounds (MEYER), 1891, A., 1181.  
 hydrochloride (JANNY), 1883, A., 581.  
 hypochlorite (MÜHLAU and HOFFMANN), 1887, A., 795.
- Acetoximes** (JANNY), 1883, A., 580, 581; (WEGE), 1892, A., 333.  
 reduction of (GOLDSCHMIDT), 1887, A., 249, 568.  
 action of acetic chloride on (MEYER and WASHINGTON), 1887, T., 683; P., 101.  
 of the fatty series (SPIEGLER), 1884, A., 1115.  
 physiological action of (PASCHEKIN and OBERMAYER), 1892, A., 1506.

- Acetoxime-*β*-naphthylsulphone**(WEGE), 1892, A., 334.
- Acetoximephenylsulphone**(WEGE), 1892, A., 334.
- Acetoxime-*p*-tolylsulphone** (WEGE), 1892, A., 334.
- Acetoximic acids** (TREADWELL and WESTENBERGER), 1883, A., 572; (SCHRAMM), 1883, A., 590.
- Acetoxyacetonitrile** (HENRY), 1886, A., 605.
- Acetoxy*di*bromobenzylidenephénylhydrazine** (RÖSSING), 1886, A., 66.
- Acetoxybutyric trichloride**, tertiary (WILLGERODT and DURR), 1889, A., 690.
- Acetoxychloro- $\alpha$ -naphthaquinonesulphonic acid** (CLAUS and VAN DER CLOET), 1888, A., 603.
- Acetoxyapocinchénine** (COMSTOCK and KOENIGS), 1888, A., 72.
- Acetoxycodeine** (GRIMAUD), 1883, A., 359.
- Aceto-*o*-xylidide** (JACOBSEN), 1884, A., 737.
- Aceto-*m*-xylidide** (KELBE), 1883, A., 916; (GREVINGK), 1885, A., 145.  
nitration of (NOLTING and COLLIN), 1884, A., 1013.  
*p*-brom- (ABENIUS), 1888, A., 854; 1890, A., 269.  
*p*-chlor- (CLAUS), 1892, A., 1202.  
thio- (GUDEMANN), 1888, A., 1282; (JACOBSON and NEY), 1889, A., 771.
- Aceto-*p*-xylidide**, nitr- (NOLTING, WITT, and FOREL), 1886, A., 58; (WITT), 1889, A., 604.
- Acetoxyphenylacridine** (HESSEN and BERNTHSEN), 1885, A., 801.
- $\alpha$ -Acetoxy- $\gamma$ -phenylcrotonic acid** (TIRMANN), 1892, A., 472.
- Acetoxyphenylpivalic acid and anhydride** (OTT), 1885, A., 663.
- Acetoxypropionitrile** (HENRY), 1886, A., 605.
- Acetoxypropylbenzoic acid**, nitr- (WIDMAN), 1884, A., 317.
- Acetoxypyridine** (FISCHER and RENOUF), 1884, A., 1370.
- 2-Acetoxypyridone**, 3:5-*dichloro*- (ZINCKE and FUCHS), 1892, A., 449.
- Acetoxytetramethylenecarboxylic acid** (PERKIN and SINCLAIR), 1891, P., 191; 1892, T., 45.
- Acetic acid**. See Acetoglycoccine.
- Acetyl-**. See also Acet- and Aceto-.
- Acetyl chloride**. See Acetic chloride.
- Acetyl compounds**, investigation of (BENEDIKT and ULZER), 1887, A., 620.
- Acetyl compounds**, magnetic rotation of (PERKIN), 1892, T., 800; P., 100.
- Acetyl group**, substitution of the, for the amido-group by aid of the diazo-reaction (MILDLER), 1888, A., 487.
- Acetyl values**, Benedikt's (LEWKOWITSCH), 1890, P., 72, 91.
- Acetylaccaffeine** (FISCHER), 1883, A., 356.
- Acetyl- $\alpha$ -acetaldoxime** (DUNSTAN and DYMOND), 1892, P., 136.
- Acetylacetone** (COMBES), 1887, A., 127.  
preparation of (CLAISEN and EHRHARDT), 1889, A., 850.  
refractive and dispersive powers of (PERKIN), 1892, T., 846.  
magnetic rotation of (PERKIN), 1892, T., 813, 840, 844.  
action of ethylenediamine and of *m*-tolylenediamine on (COMBES), 1889, A., 851.  
action of hydroxylamine on (ZEDEL), 1888, A., 1051; (COMBES), 1889, A., 57.  
action of phenylhydrazine on (COMBES), 1889, A., 57.  
syntheses in the quinoline series by means of (COMBES), 1888, A., 504.  
metallic derivatives of (COMBES), 1888, A., 128.  
copper compound, action of, on carbonyl chloride (THOMAS-MAMERT and LEFEVRE), 1889, A., 235.  
sodium compound of, action of ethylic chlorocarbonate on (CLAISEN and ZEDEL), 1889, A., 377.  
homologues of (COMBES), 1887, A., 658; (CLAISEN and EHRHARDT), 1889, A., 850.
- Acetylacetone**, *heptabrom*- (ZINCKE and KEGEL), 1890, A., 1110.  
*perbiom*- (ZINCKE and KEGEL), 1890, A., 1108.  
*hexabrom*- and *hexachlor*- (COMBES), 1888, A., 666.  
*chlor*- and *dichlor*- (COMBES), 1890, A., 1394.  
*octochlor*- (ZINCKE and KEGEL), 1890, A., 489.  
*hexachlorodibrom*- (ZINCKE and KEGEL), 1890, A., 489.
- Acetylacetonephenylmethylhydrazine** (KÜHLHAUSCH), 1890, A., 24.
- Acetylacetophenone**. See Benzoylacetone.
- Acetylacrylic acid** (*phenomalic acid*) (PAWLOFF), 1884, A., 41; (WOLFF), 1887, A., 465; 1891, A., 1185.  
*di*brom- (ANGELI and CLAMICIAN), 1891, A., 427; 1892, A., 302.

- Acetylacrylic acid** (*phenomalic acid*), trichlor- (KEKULÉ and STRECKER), 1884, A., 1122; (ANSCHÜTZ), 1890, A., 365.  
 constitution of (ANSCHÜTZ), 1890, A., 365.  
 action of hydroxylamine on (DOLLFUS), 1892, A., 1208.  
*perchlor-* (ZINCKE), 1892, A., 1186.  
*trichlorobrom-* (KEKULÉ and STRECKER), 1884, A., 1122.  
 iod-, and its oxime, and diiod- (ANGELI and CHIUSSI), 1892, A., 1179.
- Acetylacetylacetone** (COMBES), 1887, A., 653.
- Acetylangelicymethane** (CLAISEN and EHRLHARDT), 1889, A., 850.
- Acetylanhydroberberilic acid** (PERKIN), 1890, T., 1041.
- Acetylanhydrocitric acid** (EASTERFIELD and SELL), 1892, T., 1003.  
 action of aniline on (EASTERFIELD and SELL), 1892, T., 1006.  
 conversion of, into aconitic acid (EASTERFIELD and SELL), 1892, T., 1007.
- Acetylanisaldoximes,  $\alpha$ - and  $\beta$ -** (HANTZSCH), 1891, A., 443.
- p*-Acetylanisole** (GATTERMANN, EHRLHARDT, and MAIRCH), 1890, A., 963.
- Acetylation of cellulose** (CROSS and BEVAN), 1889, P., 133; 1890, T., 1.
- Acetylazo-compounds.** See Azo.
- Acetylbarbituric acid** (CONRAD and GUTHZEIT), 1883, A., 314.
- Acetylbenzaldehyde, dithio-** (BONGARTZ), 1886, A., 938.
- Acetylbenzaldoximes,  $\alpha$ - and  $\beta$ -** (HANTZSCH), 1891, A., 443.
- Acetylbenzeneazo-compounds.** See Azo.
- Acetylbenzilic acid** (KLINGER and STANDKE), 1889, A., 885.
- Acetylbenzilmonoximes** (AUWERS and MEYER), 1889, A., 612.
- Acetylbenzoic anhydride.** See Benzoic acetic anhydride.
- Acetylbenzoyl.** See Phenyl methyl diketone.
- Acetylbenzylideneimide** (PINNER), 1889, A., 984.
- Acetylbiacetic acid** (LEVI), 1891, A., 551.
- Acetylbrazelein, dibrom-** (SCHALL and DRALLE), 1890, A., 997.
- Acetylbromosatin** (v. BAeyer and ORCONOMIDES), 1883, A., 201.
- Acetyl- $\alpha$ - and - $\beta$ -bromonaphthalene** (SCHWEITZER), 1891, A., 684.
- Acetylbromothymol** (MAZZARA), 1890, A., 366.
- Acetylbutylchloraldoxime** (SCHIFF and TARUGI), 1892, A., 34.
- Acetylbutylic alcohol** (PERKIN), 1887, T., 718; (COLMAN and PERKIN), 1889, T., 352; P., 80.  
 preparation of (LIPP), 1886, A., 218; (COLMAN and PERKIN), 1889, T., 354; P., 80.  
 anhydride of (PERKIN), 1887, A., 32.
- Acetylbutylic bromide** (PERKIN), 1887, T., 726; (KIPPING and PERKIN), 1889, T., 332.
- Acetylisobutylic alcohol** (PERKIN and STENHOUSE), 1892, T., 71.
- Acetylisobutylic bromide** (PERKIN and STENHOUSE), 1892, T., 72.
- $\gamma$ -Acetylbutyric acid** (WOLFF), 1883, A., 455.
- $\beta$ -Acetylisobutyric acid, derivatives of** (ZANETTI), 1892, A., 74.
- $\omega$ -Acetylisobutyric acid ( $\alpha$ -methyl- $\beta$ -acetylpropionic acid)** (THORNE), 1885, A., 1200.
- Acetylbutyryl and its derivatives** (v. PECHMANN and OTTE), 1888, A., 1052; 1889, A., 1138.
- Acetylisobutyryl** (v. PECHMANN and OTTE), 1888, A., 105; 1889, A., 1138.
- Acetylbutyrylmethane** (CLAISEN and EHRLHARDT), 1889, A., 851.
- Acetylcamphenylcarboxylic acid** (WINZER), 1890, A., 1152.
- Acetylcaproic acid.** See Acetylhexoic acid.
- Acetylcapronyl** (OTTE and v. PECHMANN), 1889, A., 1138.
- Acetylsocapronyl** (v. PECHMANN and OTTE), 1888, A., 1052.
- Acetylcarbinol (*uicetol*)** (PERKIN and TINGLE), 1889, P., 156; (PERKIN), 1891, T., 786, 790; P., 40.  
 preparation of, from monochloracetone (PERKIN), 1891, T., 794; P., 40.  
 reduction of (PERKIN), 1891, T., 796.  
 osazone of (LAURMANN), 1888, A., 366; (PERKIN and TINGLE), 1889, P., 156; (PERKIN), 1891, T., 795.
- Acetylcarbinyl acetate** (PERKIN), 1891, T., 788.
- Acetylcarbinyl ethyl ether** (FITTIG and ERLÉNBAACH), 1888, A., 1269; (ERLÉNBAACH), 1892, A., 954.
- $\psi$ -Acetyl- $\alpha$ -carbopyrrollic acid and its methylic salt** (CIAMICIAN and DENNSTEDT), 1884, A., 1045.
- 3-Acetylcarbostyryl** (FRIEDLÄNDER and GÜHRING), 1883, A., 1149.
- Acetylcarvacrol** (CLAUS and FAHRION), 1889, A., 880.
- Acetyltrichloracetylacrylic acid** (ANSCHÜTZ), 1890, A., 365.

- Acetylchlorhydrase**, action of dipotassium salicylate on (MICHAEL), 1884, A., 439.
- Acetyl-*m*- and *p*-chlorobenzene-*p*-azop-cresol** (GOLDSCHMIDT and POLLAK), 1892, A., 974.
- Acetyl-*m*- and *p*-chlorobenzenehydrazop-cresol** (GOLDSCHMIDT and POLLAK), 1892, A., 974.
- Acetyl-*p*-chlorobenzophenones** (DEMUTH and DITTRICH), 1891, A., 314.
- Acetylpentachlorobutyric acid, tri-chlor- and dichlorobrom-** (ZINCKE and RABINOWITSCH), 1891, A., 691.
- Acetyltrichlorocrotonic acid, dichlor-** (ZINCKE and RABINOWITSCH), 1891, A., 690.
- Acetyltetrachlorocrotonic acid, di- and tri-chlor-** (ZINCKE and FUCHS), 1892, A., 1462.
- Acetylchloroantiglyoxime** (HANTZSCH), 1892, A., 694.
- Acetyltetrachloro-*m*-hydroxybenzoic acid** (ZINCKE and WALBAUM), 1891, A., 710.
- Acetylchloromannose** (FINCHER and HIRSCHBERGER), 1890, A., 226.
- Acetylchlorophenols, isomeric** (DACCOMO), 1892, A., 308.
- Acetyltrichlorophenol** (LAMPERT), 1886, A., 616.
- Acetyltrichlorophenomalic acid.** See Acetyltrichloroacetylacrylic acid.
- Acetyl-*p*-chlorothiophenol** (DACCOMO), 1892, A., 308.
- Acetylcholesterol, brom-** (REINITZER), 1888, A., 1076.
- Acetylcitric acid and its reduction** (EASTFIELD and SELL), 1892, T., 1005.
- Acetylcitric anhydride, and the action of aromatic amines on** (KLINGEMANN), 1889, A., 768.
- Acetylcodeine** (HENNE), 1884, A., 614.
- Acetylcaculignol** (PASTROVICH), 1888, A., 1006.
- Acetylcotarnelactone** (ROSER), 1890, A., 529.
- Acetyl-*m*-coumaric acid** (TIEMANN and LIEDWIG), 1883, A., 159.
- Acetylcresol** (KLINGEL), 1886, A., 61.
- Acetylcrotonyl** (v. PECHMANN and OTTE), 1888, A., 1052; 1889, A., 1139.
- Acetylcumene and its derivatives** (WIDMAN), 1888, A., 1085, 1086.
- Acetyl- $\psi$ -cumenazo- and hydrazophenol** (GOLDSCHMIDT and BRUBACHER), 1891, A., 1210.
- Acetyl- $\psi$ -cumidinesulphonic acid, nitro-** (MAYER), 1887, A., 659.
- Acetylcumylglycollic acid** (*isopropyl-phenylacetylglycollic acid*) (FILETI and AMORETTI), 1891, A., 1060.
- Acetylcurcumin** (JACKSON and MENKE), 1885, A., 271.
- Acetylcyanethine** (v. MEYER), 1885, A., 140.
- Acetylisocyanic acid** (SCHOLL), 1891, A., 282.
- Acetylcytisine** (v. BUCHKA and MAGALHAES), 1891, A., 750.
- Acetyl-*p*-desylphenol** (JAPP and WADSWORTH), 1890, T., 968.
- Acetyl-*m*-diethoxybenzene.** See *m*-Diethoxyacetophenone.
- $\omega$ -Acetyl- $\omega$ -diethylhexoic acid and its oxime** (KIPPING and PERKIN), 1890, T., 36.
- Acetyldigitogenin** (KILIANI), 1891, A., 576.
- Acetyldihydroxydimethylanthrarufin** (v. KOSTANECKI and NIEMENTOWSKI), 1885, A., 1240.
- Acetyldihydroxytetrahydroquinoline** (v. BAERER and HOMOLKA), 1884, A., 78.
- Acetyldihydroxythionaphthalene** (TASSINARI), 1889, A., 246.
- Acetyldiketohexamethylenedicarboxylic acid** (FEIST), 1892, A., 586.
- Acetyldimethoxygentisine** (v. KOSTANECKI and SCHMIDT), 1891, A., 1386.
- Acetyl-*o*-dimethyldihydroxythiobenzene** (TASSINARI), 1889, A., 246.
- Acetyldimethylindole** (DENNSTEDT), 1891, A., 1502.
- Acetyldimethylnaphthol** (CANNIZZARO and CARNELUTTI), 1888, A., 79.
- 5:2:4-Acetyldimethylpyrroline** (MAGNANINI), 1889, A., 57.
- 5:2:4-Acetyldimethylpyrroline-3-carboxylic acid** (MAGNANINI), 1889, A., 57.
- Acetyl-2:5-dimethylthiophen and its derivatives** (MESSINGER), 1885, A., 1205.
- Acetyldiosphenol** (SHIMOYAMA), 1888, A., 1205.
- Acetyldiphenyl** (ADAM), 1888, A., 959.
- Acetyldiphenylenic oxide** (GALEWSKY), 1891, A., 1234.
- Acetyldistearyl glycerol.** See Glyceryl acetate distearate.
- Acetylene, preparation of** (DE FORCAND), 1887, A., 544.
- formation of, from bromoform (CAZENÈVE), 1892, A., 421.
- formation of, from iodoform (CAZENÈVE), 1884, A., 418.
- condensation of, by the silent discharge (SCHUIZENBURGER), 1890, A., 961; (BARTHELOT), 1891, A., 28.

- Acetylene**, explosion of oxygen and, under diminished pressure (MEYER and SEUBERT), 1884, T., 585, 596.  
 origin, formation, and cause of luminosity of, in flames (LEWES), 1892, T., 322; P., 2, 47.  
 action of, on benzene in presence of aluminium chloride (VARET and VIENNE), 1887, A., 806.  
 action of some metals on mixtures of air and (BELLAMY), 1885, A., 951.  
 hydrate of (VILLARD), 1888, A., 1021.  
 derivatives, conversion of, into ethylene derivatives by direct addition of hydrogen (ARONSTEIN and HOLLEMAN), 1889, A., 878.  
 metallic derivatives of (PLIMPTON), 1892, P., 109.  
 silver and copper compounds of (KEISER), 1892, A., 1416.  
 disubstituted, isomeric change of, under the influence of metallic sodium (FAWORSKY), 1888, A., 1168.  
 iod- and diiod- (v. BAeyer), 1885, A., 1199.  
*p*-**Acetyleneanisol**, bromo- (EIGEL), 1887, A., 1110.  
**Acetylenecarboxylic acids**, synthesis of (FAWORSKY), 1888, A., 1168.  
**Acetylenedicarbamide** (WIDMAN), 1887, A., 84; (FRANCHIMONT and KLOBBE), 1888, A., 1180.  
**Acetylenedicarboxylic acid** and its dimethyl derivative (v. BANDROWSKI), 1888, A., 313.  
 reduction of (ARONSTEIN and HOLLEMAN), 1889, A., 878.  
 action of phenylhydrazine on ethereal salts of (BUCHNER), 1890, A., 156.  
 synthesis of acetic acid from (LOVIN), 1890, A., 237.  
**Acetylenedicarboxylic acid diiodide** (BRUCK), 1892, A., 431.  
**Acetylenedicarboxyldiazoacetic acid** (BUCHNER), 1889, A., 694.  
**Acetylene-grouping**, refractive equivalent of (BRUH), 1887, A., 193.  
**Acetylenemercury** and its oxychloride (POLACK and THUMMEL), 1890, A., 119.  
**Acetylenetetracarboxylic acid**. See Ethanetetracarboxylic acid.  
**Acetylenetetramethyldiureine** (FRANCHIMONT and KLOBBE), 1889, A., 126.  
**Acetylenetrimethylnitrodiureine** (FRANCHIMONT and KLOBBE), 1889, A., 126.  
**Acetylenic dibromide**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
**Acetylenic diiodide**, isomeric varieties of (KEISER), 1890, A., 594; (PATERNO and PERATONER), 1890, A., 1219; 1891, A., 654.  
**Acetylenic hydrocarbons**, isomeric change of, by heating with potash (FAWORSKY), 1888, A., 789.  
 action of, on mercuric salts (KUTSCHEROFF), 1884, A., 572.  
 action of organic acids on (BÉHAL and DESGREZ), 1892, A., 1064.  
 alcoholic silver nitrate as a reagent for (BÉHAL), 1888, A., 930.  
 higher members of (KRAFFT), 1884, A., 1108; (KRAFFT and REUTER), 1892, A., 1163.  
**Acetylenylamidolizarin** (ROEMER), 1885, A., 1068.  
**Acetyl- $\alpha$ - and - $\beta$ -ethoxynaphthalenes** (GATTERMANN, EHRHARDT and MAISON), 1890, A., 964.  
**Acetylenylpyromecanamic acid** (MENNELL), 1885, A., 1204.  
**Acetyl- $\beta$ -ethylthiophen** (GERLACH), 1892, A., 830.  
**Acetylisoeugenol** (TIEMANN), 1892, A., 46.  
**Acetyloxanthone ethyl ether** (HERZIG), 1891, A., 1349.  
**Acetylflavonol** (BESTHORN and FISCHER), 1888, A., 600.  
**Acetylfluorescin** (HERZIG), 1892, A., 1319.  
**Acetylformoxime**, action of hydroxylamine on (SCHOLL), 1891, A., 287.  
**Acetylformylcamphor** (CLAISEN), 1891, A., 574.  
**Acetylfurfurine** (BAHMANN), 1883, A., 799.  
**Acetylglutaric acid** (CONRAD and TUTT-ZEIT), 1886, A., 337.  
**Acetylglutazine** (STOKES and v. PERLMANN), 1887, A., 155.  
**Acetylglycerol**. See Glycerol acetate.  
**Acetylglyoxylic acid phenylhydrazones**, action of phenylhydrazine on (JAPP and KLINGEMANN), 1888, T., 530.  
**Acetylguvacine** (JAHNS), 1892, A., 740.  
**Acetylheptoylmethane** (CLAISEN and EHRHARDT), 1889, A., 851.  
 $\omega$ -**Acetylhexoic acid** (KIPPING and PERKIN), 1889, T., 338; P., 79.  
 anhydride of (AUTENRIETH), 1888, A., 251.  
**Acetylhomosalicyl-**. See Acetylhydroxytolenyl-.  
**Acetylhydrastine** (SCHMIDT and KRISTIAN), 1890, A., 649.  
**Acetylhydrastineoxime** (FREUND), 1889, A., 908.  
**Acetylhydrindigotin** (LIEBERMANN and DICKHUTH), 1892, A., 430.

- Acetylhydrocotarnineacetic acid** (BOWMAN), 1887, A., 1056.  
**Acetylhydrojuglone** (BERNTSEN and SEMPER), 1885, A., 548.  
**Acetylhydroquinine** (HESSE), 1888, A., 70.  
**Acetylhydroxybenzenesulphone** (TASSINARI), 1889, A., 245.  
**Acetyl-*m*-hydroxybenzenylamidoxime** (CLEMM), 1891, A., 699.  
**Acetyl-*p*-hydroxybenzenylamidoxime** (KRONE), 1891, A., 700.  
**Acetyl-*m*-hydroxybenzonitrile** (CLEMM), 1891, A., 699.  
**Acetyl-1-hydroxy-1'-ethyltetrahydroquinoline** (*acetylthairin*) (KOHN), 1886, T., 507; P., 210.  
**Acetylhydroxyhydrazobenzene** (GOLD-SCHMIDT and BRUBACHER), 1891, A., 1210.  
**Acetylhydroxypæonol** (NAGAI), 1892, A., 846.  
**Acetylhydroxypiperidine, dichlor-** (BALIX), 1888, A., 965.  
***p*-Acetylhydroxythiocarbanilide** (KALCKHOFF), 1888, A., 1110.  
**Acetylhydroxythiophenylcarbimide** (KALCKHOFF), 1888, A., 1110.  
**Acetyl-*o*-hydroxy-*p*-tolenylamidoxime** (*acetyl-*p*-homosalicylaminidoxime*) (GOLDBECK), 1892, A., 319.  
**Acetyl-*o*-hydroxy-*p*-toluonitrile** (GOLDBECK), 1892, A., 318.  
**Acetyl-*p*-hydroxy-*o*-toluonitrile** (PASCHEN), 1892, A., 320.  
 **$\beta$ -Acetylhydroxy- $\alpha$ -truxillic acid** (HOMANN, STELTZNER, and SUKOW), 1891, A., 1496.  
 **$\gamma$ -Acetyl- $\beta$ -hydroxyisovaleric acid** (OBREGIA), 1892, A., 325.  
**Acetylin digotin** (LIEBERMANN and DICKHUTH), 1892, A., 480.  
**Acetylin digin - white** (LIEBERMANN), 1888, A., 494.  
**1'-Acetylin dolo** (ZATTI and FERRATINI), 1890, A., 988.  
**3'-Acetylin dolo** (ZATTI), 1889, A., 712.  
**Acetyl diiodophenol** (SCHILD), 1883, A., 1109.  
**Acetylisatic acid, chemical constitution of** (KOLBE), 1884, A., 78.  
**Acetylisatin, chemical constitution of** (KOLBE), 1884, A., 78.  
**Acetyllactic acid** (SINGFRIED), 1890, A., 128.  
**Acetyllevulinic acid and its derivatives** (BREDT), 1887, A., 126; 1890, A., 863.  
**Acetylmaleic acid** (HAZURA), 1888, A., 816.  
**Acetylmalanil** (BISCHOFF), 1891, A., 1231.  
**Acetylmaleic acid** (ANSCHÜTZ and BENNERT), 1890, A., 363.  
**Acetylmaleic- $\alpha$ -dinaphthalide** (BISCHOFF), 1891, A., 1220.  
**Acetylmaleic- $\beta$ -naphthil** (BISCHOFF), 1891, A., 1221.  
**Acetylmesitylene, action of hydroxylamine hydrochloride on** (FEITH and DAVIES), 1892, A., 314.  
**Acetylmesitylic oxide** (CLAISEN and EHRLHARDT), 1889, A., 850.  
**Acetyl- $\alpha$ - and  $\beta$ -methoxynaphthalene** (GATTERMANN, EHRLHARDT, and MAISCH), 1890, A., 964.  
**Acetylmethyl cyanide, imido-** (HOLTZWART), 1889, A., 683.  
**2-Acetyl-3'-methylindazole** (AUWERS and v. MEYENBURG), 1891, A., 1377.  
**1'-Acetyl-3'-methylisindazole** (AUWERS and v. MEYENBURG), 1891, A., 1376.  
**1'-Acetyl-2'-methylindole** (MAGNANINI), 1888, A., 957.  
**2'-Acetyl-1'-methylindole** (MAGNANINI), 1888, A., 957.  
**2'-Acetyl-3'-methylindole** (CIAMICIAN and MAGNANINI), 1888, A., 483; (MAGNANINI), 1888, A., 957.  
**Acetylmethylloximidooacetic acid** (HANTZSCH), 1891, A., 445.  
**Acetylmethylpyrrolone** (CIAMICIAN and SILBER), 1886, A., 719.  
**dibrom-** (CIAMICIAN and SILBER), 1888, A., 62.  
 **$\psi$ -Acetylmethylpyrrolone.** See Methylpyrrol methyl ketone.  
**3-Acetyl-2'-methylquinoline** (*p-acetylquinolindine*) (BEREND and THOMAS), 1892, A., 1488.  
**8'-Acetyl-3'-methylquinoline** (ELLASBERG and FRIEDLÄNDER), 1892, A., 1107.  
**Acetyl-*o*-methyltetrahydrobenzene** (KIPPING and PERKIN), 1889, P., 144.  
**Acetyl- $\beta$ -methylthiophen** (GERLACH), 1892, A., 830.  
**brom-** (GERLACH), 1892, A., 830.  
**Acetylmethyltrimethylene** (PERKIN), 1885, T., 852.  
**Acetylmethyltrimethylenecarboxylic acid** (PERKIN), 1884, A., 1155; 1885, T., 851.  
**preparation of** (PERKIN and STENHOUSE), 1892, T., 69.  
**oxime of** (PERKIN and STENHOUSE), 1892, T., 70.  
**Acetylnaphthastyril and dibrom-** (EKSPRAND), 1886, A., 715.  
**Acetyl- $\alpha$ - and  $\beta$ -naphthenylamidoximes** (RICHTER), 1890, A., 62.

- $\alpha$ -Acetylnaphthol (ERDMANN), 1888, A., 488; 1890, A., 376.
- $\beta$ -Acetylnaphthol,  $\alpha$ -nitro-, molecular transformation of (BÖTTCHER), 1883, A., 1113.
- 6-Acetylnaphthylglycollic acid (SCHWEITZER), 1891, A., 729.
- Acetyl- $\alpha$ -naphthylthiocarbazine (FREUND), 1892, A., 510.
- Acetylnicotenylamidoxime (MICHAELIS), 1892, A., 207.
- Acetyl-*m*-nitrobenzoic anhydride. See Benzoic acetic anhydride.
- Acetyldinitrocarvacrol (MAZZARA and PLANCHER), 1892, A., 309.
- Acetylnitroethyl alcohol (DEMUTH and MEYER), 1890, A., 858.
- Acetyl-*o*-nitrohydroxyazobenzene (GOLDSCHMIDT and BRUBACHER), 1891, A., 1261.
- Acetyldinitromethylquinol (KEHRMANN and BRASCH), 1889, A., 970.
- Acetylnitro-opianic acid (LIEBERMANN and KLEEMANN), 1887, A., 47.
- Acetyloctylthiophen (v. SCHWEINITZ), 1886, A., 535.
- Acetylopianic acid (LIEBERMANN and KLEEMANN), 1887, A., 47.
- Acetylpaenol (NAGAI), 1892, A., 59, 845.
- Acetylpentamethyl-*p*-leucaniline (FISCHER and KOEHLER), 1884, A., 607.
- Acetylphenanthraquinol (JAPP and KLINGEMANN), 1890, P., 31.
- p*-Acetylphenetidine. See Phenacetin.
- p*-Acetylphenetol (GATTERMANN, EHRHARDT, and MAISCH), 1890, A., 963.
- Acetylphenol, *o*-nitro- (BÖTTCHER), 1883, A., 1113.
- $\epsilon$ -Nitramido- (SCHIFF), 1886, A., 613.
- 1:2:4-Acetylphenolbisacetoluenes (GOLDSCHMIDT and POLLAK), 1892, A., 976.
- Acetyl- $\alpha$ -phenoldichroin (BRUNNER and CHITT), 1888, A., 363.
- Acetylphenoloxychroin (BRUNNER and CHITT), 1888, A., 363.
- $\alpha\alpha'$ -Acetylphenoxymethane (VLADENCO), 1892, A., 811.
- Acetylphenylcarbazine (FREUND and GOLDSMITH), 1888, A., 1187.
- Acetylphenyldichlorohydroxypyridone (ZINCKE), 1890, A., 965.
- Acetylphenyl-*p*-coumaric acid, synthesis of (OGIHALORO TODARO), 1884, A., 176.
- $\beta$ -Acetyl- $\gamma$ -phenylisocrotonic acid (ERDMANN), 1890, A., 375.
- Acetylphenylegonine (EINHORN and KLEIN), 1889, A., 283.
- Acetylphenyl-*p*-hydantoin (PINNER and SPILKER), 1889, A., 707.
- Acetylphenylhydrouracil (HOOGWERFF and VAN DORP), 1891, A., 197.
- 1:3'-Acetylphenylisindazole (AUWERS and v. MEYENBURG), 1891, A., 1378.
- 2-Acetyl-1-phenyl-5-methylhydroisopyrazolone (LEDERER), 1892, A., 635.
- 3'-Acetyl-2'-phenyl-1'-methylindole (KOHLEBAUSCH), 1890, A., 24.
- Acetylphenylmethyltetrahydroquinazoline (PAUL and KRECKE), 1892, A., 81.
- Acetyl-1-phenylpyrazole and its oxime and phenylhydrazones (BALBIANO), 1890, A., 798.
- Acetylphenylsuccinic acid, phenylhydrazine derivatives of (WEITNER), 1885, A., 793.
- Acetylphenylthiocarbazine (FREUND and GOLDSMITH), 1888, A., 1188.
- Acetylphenyltropeine (LADENBURG), 1883, A., 671.
- Acetylpicamar (NIEDERHIT), 1883, A., 1005.
- Acetylpiperidine (LEHMANN and SCHWADERER), 1889, A., 903.
- Acetylpiperidine, trichloro- (BALIX), 1888, A., 965.
- Acetylpiperone (CIAMICIAN and SILBER), 1892, A., 873.
- $\beta$ -Acetylpropionic acid. See Levulinic acid.
- Acetylpropionyl and its derivatives (v. PECHMANN), 1888, A., 812.
- preparation of (v. PECHMANN), 1892, A., 426.
- Acetylpropionylhydrazones (OTTE and v. PECHMANN), 1889, A., 1137.
- Acetylpropionylhydrazoximes (OTTE and v. PECHMANN), 1889, A., 1138.
- Acetylpropionylmethane (CHAIKEN and EHRHARDT), 1889, A., 851.
- Acetylpropionyl- $\alpha\beta$ -phenylhydrazacetoxime (BALTZER and v. PECHMANN), 1891, A., 1116.
- p*-Acetylpropylbenzene and its derivatives (WIDMAN), 1888, A., 1085, 1086.
- Acetylpropylic acetate (LIPP), 1889, A., 814.
- Acetylpropylic alcohol (FREER and PERKIN), 1887, T., 820, 831; P., 95; A., 33; (COLMAN and PERKIN), 1889, T., 352, 357; P., 89; (LIPP), 1889, A., 813.
- constitution of (COLMAN and PERKIN), 1888, T., 189.
- oxime of and its anhydride (MARSHALL and PERKIN), 1891, T., 860.
- Acetylpropylic benzoate (LIPP), 1889, A., 844.

- Acetylpropylic bromide** (COLMAN and PERKIN), 1889, T., 357.
- Acetylisopropylic alcohol** (FITTIG and ERLÉNBAUGH), 1888, A., 1053, 1269.
- Acetylisopropylpyrroline** and its derivatives (DENNSTEDT and ZIMMERMANN), 1887, A., 698.
- Acetylprotocatechone** (NEITZEL), 1892, A., 61.
- $\alpha$ -Acetylpyrroline** (CIAMICIAN and DENNSTEDT), 1884, A., 289; (CIAMICIAN and SILBER), 1885, A., 808.  
molecular weight of (MAGNANINI), 1890, A., 906.  
action of heat on (CIAMICIAN and MAGNAGHI), 1885, A., 1143.  
condensation products of benzil and (ANGELI), 1890, A., 1000.  
derivatives of (CIAMICIAN and DENNSTEDT), 1884, A., 289.
- Acetylpyrroline**, *tri-* and *pentu-*brom- (CIAMICIAN and SILBER), 1885, A., 1078.  
*tetraiod-* (CIAMICIAN and DENNSTEDT), 1883, A., 350; (CIAMICIAN and SILBER), 1885, A., 1078.
- Acetylpyrrolines**, *di*bromonitr- [m.p. 206°, 175°] (CIAMICIAN and SILBER), 1887, A., 597; 1888, A., 61.
- Acetylpyrrolinecarboxylic acid** (CIAMICIAN and DENNSTEDT), 1884, A., 290.
- $\gamma$ -Acetylpyrroline**. See Methyl pyrryl ketone.
- Acetylpyruvaldephenylhydrazone** (JAPP and KLINGEMANN), 1888, T., 526.
- Acetylpyruvic acid** (CLAISEN and STYLOS), 1887, A., 918.
- Acetylquinol**, thio- (LEUCKART), 1890, A., 604.
- Acetylquinoline**, bromamido- (LA COSTE), 1883, A., 91.
- Acetylquinovite** (LIEBERMANN), 1884, A., 1191.
- Acetylscopoletin** (TAKAHASHI), 1889, A., 255.
- Acetylstyrylhydantoin** (PINNER and SPILKER), 1889, A., 705.
- Acetyltetrahydroquinoline** (HOFFMANN and KOENIGS), 1883, A., 1144.
- Acetyltetramethylenecarboxylic acid** (PERKIN), 1883, A., 1083.
- Acetyltetramethyl-*p*-leucaniline** and *-p*-rosaniline (FISCHER and GERMAN), 1883, A., 1098.
- Acetyltetraphenylpyrroline** (FEHLIN), 1889, A., 623.
- Acetylthallin** (SKRAUP), 1886, A., 80.
- Acetylthiocarbamidophenol** (KALCKHOFF), 1888, A., 1110.
- Acetyl- $\beta$ -thioethylcrotonic anhydride** (AUTENRIETH), 1888, A., 251.
- Acetyl- $\alpha$ -*n*ithionaphthol** (GROSJEAN), 1890, A., 1306.
- Acetylthiophen**. See Acetothienone.
- m*-Acetyltoluene** (ESSNER and GOSSIN), 1885, A., 252.  
*o*-amido-, and some of its derivatives (KLINGEL), 1884, A., 1343; 1886, A., 60.
- Acetyl-*p*-tolueneazo-*p*-cresol** (GOLDSCHMIDT and POLLAK), 1892, A., 974.
- Acetyl-*p*-tolueneazo- and hydrazophenol** (GOLDSCHMIDT and BRUBACHER), 1891, A., 1210.
- Acetyltricarballic anhydride** (DAUMICHEN), 1889, A., 238.
- Acetyltrimethylene** (PERKIN). 1884, A., 1155; 1885, T., 831; (LIPP), 1889, A., 845.  
magnetic rotation of (PERKIN), 1887, T., 832.  
hydrolysis and reduction of (MARSHALL and PERKIN), 1891, T., 871.  
action of hydrogen bromide on (MARSHALL and PERKIN), 1891, T., 876.
- Acetyltrimethylenecarboxylic acid** (PERKIN), 1884, A., 64; 1885, T., 831; (MARSHALL and PERKIN), 1890, P., 137.  
preparation and reduction of (MARSHALL and PERKIN), 1891, T., 863.  
decomposition of, by heat (FREER), 1887, T., 831.  
action of water on (FREER and PERKIN), 1887, T., 829.  
salts of (PERKIN), 1885, T., 831.  
ethylic salt of (PERKIN), 1884, A., 64.  
oxime of (MARSHALL and PERKIN), 1891, T., 865.
- Acetyltrimethylenedicarboxylic acid** (FREER and PERKIN), 1887, T., 847.
- Acetyltriphenylmethylamine** (V. HEMILIAN and SILBERSTEIN), 1884, A., 1033.
- Acetylundecylmelitriose** (SCHREIBLER and MITTELMEIER), 1890, A., 1085.
- Acetylurethane**, action of phenylhydrazine on (ANDREOCCI), 1890, A., 889.
- Acetylvaleric acid** (PERKIN), 1889, P., 142; 1890, T., 230.  
anhydride of (AUTENRIETH), 1888, A., 251.
- Acetylisovaleryl** (V. PRECHMANN and OTTE), 1888, A., 1052; 1889, A., 1138.
- 1:2:4-Acetyl-*o*-xylene**, production of, from camphor (ARMSTRONG and KIRPING), 1892, P., 54.
- Acetylxenylenamidoxime** (OPPENHEIMER), 1890, A., 50.

*Acherontia atropos*, blood of (GRIF-  
FITHS), 1892, A., 648.  
**Acid** of the series  $C_nH_{2n-1}O_6$  (BAUER),  
1883, A., 970.  
**Acid amides** from the decomposition of  
albumin (SCHULZE), 1885, A., 581.  
action of, on aromatic amines  
(KEILBE), 1883, A., 915.  
action of acid chlorides on (POTET),  
1891, A., 57.  
action of phosphorus pentachloride  
on (WALLACH), 1883, A., 48.  
mixed (PINNER), 1892, A., 982.  
**Acid anhydrides**, preparation of (LACHO-  
WICZ), 1884, A., 990; (HEINTSCHKE),  
1884, A., 991.  
"Acid brown," spectrum of (HARTLEY),  
1887, T., 198.  
**Acid chlorides**, formation of, by the  
action of sulphonic chloride (CAR-  
RARA), 1890, A., 1288.  
action of arsenious sulphide on (RAY-  
MAN), 1887, A., 950.  
action of, on inorganic compounds  
(LACHOWICZ), 1886, A., 222.  
"Acid green," preparation of (MÜHL-  
HÄUSER), 1887, A., 579.  
**Acid secretion**, precise relations of  
(DREHER), 1885, A., 923.  
"Acid yellow" (EGGER), 1889, A., 709.  
**Acidamines** (ENGEL), 1884, A., 725.  
**Acidammonium bases** (FRIEIS), 1885,  
A., 1220.  
**Acidimetric solutions**, standardising  
(HART and CROASDALE), 1891, A.,  
959.  
**Acidimetry**, potassium iodate as original  
standard for (GRÖGER), 1891, A., 614.  
**Acidity** of drawing papers (HARTLEY),  
1892, P., 19; (BEADLER), 1892, P., 34.  
**Acidoximes** (PINNER), 1884, A., 739.  
**Acids**, affinity coefficients of. See  
Affinity.  
the magnetic rotation and the re-  
fraction and dispersion of light  
by, correspondence between (GLAD-  
STONE and PERKIN), 1889, T., 751.  
electrical conductivity of (OSTWALD),  
1885, A., 3, 323, 1029; (KOHLE-  
RAUSCH), 1886, A., 114.  
influence of the constitution of, on  
their electrical conductivity (OST-  
WALD), 1886, A., 294.  
basicity of, deduced from their electrical  
conductivity (BERTHELOT), 1891, A.,  
631, 632; 1892, A., 2.  
basicity of, determination of the, from  
the conductivity of their sodium  
salts (OSTWALD), 1889, A., 327.  
basicity of, method of estimating the  
(FUCHS), 1889, A., 463.

**Acids**, molecular conductivity of, in dilute  
solutions (ARRHENIUS), 1887, A.,  
415; (BOUVE), 1887, A., 758; (HART-  
WIG), 1891, A., 1308.  
reciprocal displacement of (CHRIST-  
SCHOFF), 1889, A., 808.  
boiling-points of, mechanical de-  
termination of the (HENRICH),  
1892, A., 1039.  
diffusion of bases and, into one  
another (STEFAN), 1889, A., 1046.  
isohydric solutions of (ARRHENIUS),  
1887, A., 416.  
velocity of reaction in mixtures of  
isohydric and non-isohydric solu-  
tions of (MOORE), 1892, A.,  
936.  
influence of, on the velocity of the  
hydrolytic action of yeast (O'SULLI-  
VAN), 1892, T., 910.  
absorption of different acids by wool  
and silk from mixtures of (MILLS  
and TAKAMINE), 1883, T., 149.  
interaction of metals and (VELLE),  
1889, T., 361; P., 66.  
action of, on zinc containing lead  
(SPRING and VAN AUBEL), 1887, A.,  
1074.  
apparent influence of temperature,  
time, dilution, and other conditions  
on the reaction between zinc and  
(DYERS and SHIMIZU), 1885, T.,  
619.  
action of phenylhydrazine on (HODG-  
KINSON and COOTE), 1892, P.,  
219.  
from butter (REICHART), 1881, A.,  
1219; (SCHMITT), 1881, A., 1134;  
(WOLFF), 1889, A., 1037; (JOHN-  
STONE), 1890, A., 93; 1891, A.,  
808; (KORFORD), 1892, A., 1113;  
(BESANA), 1892, A., 924.  
from rancid butter (CORRIGIA), 1891,  
A., 130.  
from fodder (LOCH and GLAFKENS),  
1891, A., 770.  
from lycopodium (LANGER), 1889, A.,  
1059.  
from oak-bark (MUSSET), 1884, A.,  
1439.  
from oils (HAZURA), 1887, A., 359,  
913; 1888, A., 816; (HAZURA and  
FRIMMERICH), 1887, A., 798; (HA-  
ZURA and GRÜSSNER), 1888, A.,  
1270; (NOERDLINGER), 1889, A.,  
799.  
from cod-liver oil (GAUTIER and  
MOURGUES), 1888, A., 1315; 1889,  
A., 170.  
from cotton-seed oil (HAZURA and  
GRÜSSNER), 1888, A., 817.

**Acids** from earth-nut oil, oxidation of (HAZUBA and KRUSCHNER), 1889, A., 1058.

from peat (DURIN), 1883, A., 652.

from pig's bile (JOLIN), 1887, A., 742; 1888, A., 1213; 1889, A., 422; (BERGHEAT), 1889, A., 1231.

from spirits (BELL), 1892, A., 387. (astringent) in wine (JEAN), 1892, A., 246.

from tallow, oxidation of, by potassium permanganate in alkaline solution (GRÖGER), 1885, A., 883.

use of potassium hydrogen tartrate for titrating standard (BORTRAGER), 1892, A., 525.

estimation of free (BAUMANN), 1892, A., 539.

estimation, iodometric, of (GRÖGER), 1891, A., 360.

estimation, volumetric, of (ENGEL), 1889, A., 306; (LINOSHER), 1889, A., 75, 795.

estimation, volumetric, of, in salts of the alkaloids (PLUGER), 1887, A., 621.

separation of (LINOSHER), 1889, A., 75.

**Acids, amido-**. See Amido-acids.

**Acids, aromatic**, synthesis of (FATTERMAN and SCHMIDT), 1887, A., 569.

heats of solution, and of neutralisation of (BERTHELOT), 1886, A., 8.

action of ethylic chlorocarbonate on (R. and W. OTTO), 1888, A., 813.

as dyo-forming substances (ZULKOWSKI), 1884, A., 1169.

reduction of the thianides of (BAMBERGER and LÖPSTER), 1888, A., 376.

carboxylic, new method of obtaining (FREY and HOROWITZ), 1891, A., 565.

unsaturated, preparation of (EDMELMAN and BUDISTMAN), 1890, A., 891; (EDMELMAN), 1891, A., 1225.

**Acids, monobasic**, synthesis of, from ketones (REFORMATSKY), 1887, A., 717; 1888, A., 819.

electrical conductivity of (OSTWALD), 1888, A., 331.

etherification of (MENSCHUTKIN), 1884, A., 726.

existence of acid or basic salts of, in very dilute solution (BERTHELOT), 1892, A., 110.

**Acids, dibasic**, electrolytic synthesis of (BROWN and WALKER), 1891, A., 1192.

magnetic rotatory power of (PERKIN), 1887, P., 93; 1888, T., 561.

thermochemistry of (MASSOL), 1891, A., 968; 1892, A., 395, 1140.

**Acids, dibasic**, relations of the heats of combustion of solid, to those of the gaseous hydrocarbons (STOHMANN), 1891, A., 252.

condensation of acetoacetates and of aldehydes with (FITTIG), 1886, A., 47.

action of nitric acid on (FRANCHIMONT), 1885, A., 964; 1887, A., 466.

anhydrides of, formation of (ANSCHUTZ), 1885, A., 243.

anhydrides of, action of phenylhydrazine on (HÖTTE), 1887, A., 669.

anhydrides of, formation of phenylhydrazide from (ANSCHUTZ), 1888, A., 367.

chlorides of (AUGER), 1888, A., 952.

imides of (LANDSBERG), 1883, A., 475.

**Acids, polybasic**, electrolytic conductivity of (OSTWALD), 1892, A., 1145.

relative energies of, indicators of the (ENGEL), 1886, A., 420.

etherification of (MENSCHUTKIN), 1884, A., 726.

unsaturated, constitution of (MICHAEL), 1886, A., 697.

unsaturated, formation of anilides of (PALMER), 1888, A., 461.

**Acids, fatty**, synthesis of polybasic (BISCHOFF), 1888, A., 1061; (AUWERS, KÜBNER, and v. MEYENBURG), 1892, A., 41.

constitution of (SCHMITT and COHENZI), 1884, A., 1125; (BISCHOFF), 1890, A., 741; (AUWERS and JACKSON), 1890, A., 1098.

dispersion of the acetic series of (BARBIER and ROUX), 1890, A., 1353.

electrical conductivity of solutions of in water and in alcohols (HARTWIG), 1888, A., 399.

boil'  $\mu$ -points of the  $C_2H_4O_2$ - $O_2$  series of (KAHLBAUM), 1891, A., 207.

specific gravity and specific heat of the acetic series of (LUEDEKING), 1886, A., 439.

vapour pressure of the acetic series of (SCHMIDT), 1891, A., 969.

thermochemistry of (STOHMANN), 1886, A., 296; (STOHMANN and LANGBEIN), 1891, A., 11.

heats of combustion of (STOHMANN and RODATZ), 1885, A., 1177; 1886, A., 296; (LUGININ), 1886, A., 757; (STOHMANN and LANGBEIN), 1891, A., 11.

- Acids, fatty**, heats of combustion of derivatives of (LUGNIN), 1886, A., 192, 757.  
 heats of neutralisation of homologous and isomeric (GAL and WERNER), 1887, A., 95.  
 dissociation of the salts of, in solution (MULLER), 1890, A., 684.  
 diffusion of (WINKELMANN), 1886, A., 11.  
 size of the maximum drops of, and of their aqueous solutions (TRAUBE), 1886, A., 844.  
 specific volume and rate of expansion of normal (ZANDER), 1884, A., 1278.  
 iodine absorptions, combining weights and melting-points of (WILLIAMS), 1889, A., 318.  
 absorption of bromine by (HALPHEN), 1890, A., 88.  
 action of ammonia on alkyl salts of (RUTHEMANN), 1888, A., 255.  
 action of bromine on higher (KRAFFT and BRIDGES), 1892, A., 695.  
 action of ethylic chlorocarbonate on (R. and W. OTTO), 1888, A., 813.  
 action of iodine on the silver salts of (SIMONINI), 1892, A., 1301.  
 containing the *isopropyl*-group, action of nitric acid on (BRENT), 1883, A., 176.  
 action of, on olefines (BÉHAL and DESGREZ), 1892, A., 1163.  
 action of phosphoric anhydride on (KIPPING), 1890, T., 532, 980; P., 67, 115.  
 action of sodium on the ethylic salts of higher (WOLLBRUCK), 1887, A., 1099.  
 elimination of carbonic anhydride from, by aid of sodium methoxide (MAI), 1889, A., 1126.  
 sulpho-derivatives of (LOVIN), 1885, A., 241.  
 synthesis of, in the animal organism (WALTHER), 1891, A., 757.  
 influence of, on gaseous metabolism (MUNK), 1891, A., 345.  
 formation of neutral fat from, in the animal system (MUNK), 1884, A., 852.  
 estimation of, in soap (SCHULZE), 1887, A., 307; (BAUR), 1887, A., 401; (SAUPE), 1890, A., 1475.  
 estimation of rosin in admixture with (TWITCHELL), 1892, A., 389; (WILSON), 1892, A., 546.  
 acetyl value of (LEWKOWITSON), 1890, P., 72.  
 dry distillation of silver salts of (KORNIEN), 1892, A., 37; (KACHLER), 1892, A., 293; (LUBEN), 1892, A., 811.  
**Acids, fatty, amido-**, general reaction for (CURTIUS), 1881, A., 994.  
**Acids, fatty, bromo-**, method of preparing (MICHAEL), 1887, A., 358.  
 separation of (VOLHARD), 1888, A., 129.  
**Acids, fatty, unsaturated**, oxidation of (HAZURA), 1888, A., 1270; (HAZURA and GRÖSSNER), 1889, A., 375, 956.  
**Acids, fatty, volatile**, amount of, in the excrements of ruminants (WILLIAMS), 1886, A., 87.  
 of suint (BUISSIN), 1888, A., 673.  
 formation of, in the ammoniacal fermentation of urine (SALKOWSKI), 1889, A., 431.  
 in urine (V. JAKSCH), 1886, A., 384.  
**Acids of the fumaric series** (BISCHOFF), 1891, A., 1220.  
**Acids,  $\alpha$ -halogenised**, dehalogenisation of ethyl salts of (MICHAEL and SCHULTHEISS), 1891, A., 1184.  
**Acids, inorganic**, constitution of (DIXON), 1887, A., 443.  
 liquid, process for converting into a solid form by the addition of kieselguhr (ANON.), 1884, A., 783.  
**Acids, inorganic, complex** (GIBBS), 1885, A., 875; 1886, A., 206; 1887, A., 113; (DRECHSEL), 1887, A., 703.  
 constitution of (KEHRMANN), 1887, A., 777.  
 containing niobylidonium (GIBBS), 1884, A., 161, 560, 713; (PUFALL), 1884, A., 715.  
 containing vanadium (ANDRÉ), 1881, A., 714, 715.  
**Acids, isodynamic** (ARMSTRONG), 1892, P., 103.  
**Acids, ketonic**, synthesis of, by the action of acid chlorides on propionitrile (OTTO and TRÜBER), 1889, A., 957.  
 condensation of, with dibasic acids (FRITZ and PARKER), 1889, A., 1146.  
 action of phenylhydrazine and hydroxylamine on (GARELLI), 1891, A., 711.  
 behaviour of, towards sodium hydrogen sulphide (HINSBERG), 1892, A., 148.  
**Acids,  $\beta$ -ketonic**, action of hydroxylamine on (HANTZSCH), 1891, A., 739.  
 preparation of ethereal salts of (HAMONET), 1891, A., 1185.  
**Acids of the lactic series**, oxidation of (ARISTOFF), 1885, A., 752.  
**Acids, organic**, affinity coefficients of. See Affinity.

**Acids, organic**, electrical conductivity of isomeric (OSTWALD and BERTHELOT), 1891, A., 517.  
 electrical conductivities of isomeric, and their salts (BERTHELOT), 1891, A., 375.  
 heats of dissolution and solubility of, in various alcohols (TIMOFFEEFF), 1891, A., 1314.  
 influence of boric acid on the electrical conductivity of aqueous solutions of (MAGNANINI), 1892, A., 256, 1265.  
 decomposition of, under the influence of light (DE VRIES), 1885, A., 964.  
 pyrogenic decomposition of (HARRIOT), 1886, A., 224.  
 dissociation constants of. See Affinity.  
 action of ammonia on the ethereal salts of (RUEHMANN and MORRELL), 1891, T., 743; P., 123.  
 action of nitriles on (COLBY and DODGE), 1891, A., 409.  
 action of phosphorus trichloride on (BOTHAMLEY and THOMPSON), 1891, A., 170.  
 bromination of (HILL), 1888, A., 814.  
 biological significance of (WARBURG), 1886, A., 905.  
 action of, on salivary digestion (JOHN), 1891, A., 592.  
 effect of, on the digestion of proteids (SPITZER), 1891, A., 751.  
 saving effect on albumin of, in vegetable foods (WEISKAND FLEHSTIG), 1890, A., 538.  
 formation of, in growing plants (PALADIN), 1888, A., 1126.  
 test for, in phenol (BACHMEYER), 1888, A., 385.  
**Acids of the oxalic series**, solubility and fusibility of (HENRY), 1885, A., 335.  
**Acids of the sugar group** (FISCHER), 1890, A., 1398.  
 reduction of (FISCHER), 1889, A., 1140; 1890, A., 597.  
**Acids, unsaturated** (FITTIG), 1883, A., 454; 1890, A., 583; 1892, A., 812, 956.  
 intramolecular change in (FITTIG), 1891, A., 452.  
 action of methylic diazoacetate on (BUCHNER), 1889, A., 694.  
 action of methylic diazoacetate on the ethereal salts of (BUCHNER), 1890, A., 736.  
 oxidation of (FITTIG), 1888, A., 595; 1892, A., 956.  
 addition of the elements of alcohol to the ethereal salts of (PUNDIE and MARSHALL), 1891, T., 468; P., 82.

**Acids, unsaturated**, regularities of the addition of halogen compounds to (MICHAEL), 1889, A., 1140.  
 conversion of, into the isomeric lactones (FITTIG), 1883, A., 730.  
 conversion of, into their stereochemical isomerides by soda (DUBSLIN), 1892, A., 297.  
 decomposition of the dibromides of, by warm water and dilute alkalis (FITTIG), 1892, A., 959.  
 formation of iacenic acid by the oxidation of (DOBNER), 1890, A., 1274.  
**Acids, vegetable**, action of, on lead and tin (HALL), 1883, A., 1038.  
 part played by, in causing the turgescence of cells (DE VRIES), 1884, A., 1061.  
**Acidyl sulphides** (DAVIES), 1892, A., 300, 581.  
**Acolytine** (DRAGENDORFF and SPOHN), 1885, A., 403.  
**Aconic acid** (BLER), 1883, A., 457.  
**Aconine and aconite**. See Alkaloids.  
**Aconitic acid** (HENTSCHEL), 1887, A., 467; (SKINNER and RUEHMANN), 1889, T., 235; P., 51.  
 preparation of, from citric acid (ANSCHUTZ and KLINGERMANN), 1885, A., 1050; (SKINNER and RUEHMANN), 1889, T., 235; P., 54.  
 conversion of acetylanhydrocitric acid into (EASTERTFIELD and SELL), 1892, T., 1007.  
 synthesis of (CLAISEN and HORI), 1891, A., 424.  
 synthesis of, from acetylenedicarboxylic acid (LOVEN), 1890, A., 237.  
 constitution of (MICHAEL), 1886, A., 688.  
 dissociation constant of (WALKER), 1892, T., 707.  
 action of bromine on (QUINQUET), 1889, A., 538.  
 action of phosphorus pentachloride on (KLIMENKO and BUCHNAN), 1891, A., 178.  
 ethereal salts of (ANSCHUTZ and KLINGERMANN), 1885, A., 1050.  
 $\psi$ -**Aconitic acid**, synthesis of (SCHACHTEL), 1885, A., 1125.  
**Aconitic anhydride** and its derivatives (EASTERTFIELD and SELL), 1892, T., 1009.  
 action of ammonia on (EASTERTFIELD and SELL), 1892, T., 1010.  
**Aconitic triamide** (HORTER), 1889, A., 861.  
**Aconitine** and its derivatives. See Alkaloids.

- Acoretin** (THOMAS), 1886, A., 896.
- Acorin** and its derivatives (THOMAS), 1886, A., 895; 1888, A., 984.
- Acorns**, carbohydrate from (VINCENT and DELACHANAT), 1887, A., 909.  
storage of (LODEMAN), 1884, A., 100.
- Acornus Culamnis**, constituents of (KUNZ), 1888, A., 1221.
- Acraldehyde** (*acrolein*), action of alcohol on (NEWBURY and CHAMOT), 1891, A., 285.  
condensation of, with ethylic acetate (MATTHEWS), 1883, T., 204.  
compound of phenylhydrazine with (FISCHER and KNOEVENAGEL), 1887, A., 932.
- Acraldehydophenoxyacetic acids**, *o*-, *m*-, and *p*- (ELKAN), 1887, A., 259.
- Acraldehydouride** and condensed ureides (LEWIS), 1883, A., 664.
- Acralxylidine**, dry distillation of (LEEDS), 1883, A., 669.
- Acridaldehyde** (BERNTSEN and MUHLERT), 1887, A., 850.
- Acridine** (FISCHER), 1883, A., 1134; (GRAEBE), 1884, A., 608; (BERNTSEN), 1884, A., 1356; (WALTER), 1886, A., 1033.  
production of (FISCHER and KÜRNER), 1884, A., 748.  
synthesis of (MÜHLAU), 1886, A., 1033.  
crystallography of (BERNTSEN and OSANN), 1886, A., 471.  
ammonium bases derived from (BERNTSEN), 1884, A., 1357.  
derivatives (GRAEBE), 1884, A., 608.  
homologues of (VOLPE), 1892, A., 342.  
nitrite (MEDICUS), 1884, A., 748.  
picrate (ANSCHÜTZ), 1884, A., 908.
- Acridines** (BIZZARRI), 1891, A., 210.  
synthesis of (BERNTSEN and BENDER), 1883, A., 1133; (GRAEBE), 1884, A., 1182; (FOURDAN), 1885, A., 987.  
action of alkalis on the alkylid iodides of (DRECKEN), 1892, A., 879.
- Acridinecarboxylic acid** (BERNTSEN and MUHLERT), 1887, A., 850.
- Acridinemethylum hydroxide** (DECKER), 1892, A., 881.
- Acridone** (GRAEBE and LAGODZINSKI), 1892, A., 1086.  
derivatives of (SCHÜPF), 1892, A., 1223.
- 3-Acridonesulphonic acid** (SCHÜPF), 1892, A., 1223.
- Acridylacrylic acid** (BERNTSEN and MUHLERT), 1887, A., 849.
- Acridylbenzoic acid** and its derivatives (BERNTSEN and TRAUER), 1884, A., 1183.
- Acritol** (FISCHER and TAFEL), 1889, A., 485.
- $\alpha$ -Acritol** (FISCHER), 1890, A., 468.
- Acrolein**. See *Acraldehyde*.
- $\alpha$ -Acrosamine** (FISCHER and TAFEL), 1888, A., 39.
- $\alpha$ -Acrosazone** (FISCHER and TAFEL), 1888, A., 358; (FISCHER), 1890, A., 468.  
preparation of (FISCHER and PASSMORE), 1889, A., 483.
- $\beta$ -Acrosazone** (FISCHER and TAFEL), 1888, A., 358.
- $\alpha$ -Acrose** (FISCHER and TAFEL), 1888, A., 40; 1889, A., 485.  
formation of, from formaldehyde (FISCHER and PASSMORE), 1889, A., 483.
- $\alpha$ -Acrosone** (FISCHER and TAFEL), 1889, A., 484.
- Acrylactic acid**. See *Tetric acid*.
- Acrylbenzoic acid**, *o*-trichlor- (ZINCKE and COOKSLEY), 1890, A., 785.
- Acrylic acid**,  $\beta$ -brom- (STOLZ), 1886, A., 531.  
*di*brom- (HILL), 1886, A., 687.  
*tribrom*-, crystalline form of (MIRVILLE), 1883, A., 310.  
 $\beta$ -bromiod- (HOMOLKA and STOLZ), 1885, A., 1198; (STOLZ), 1886, A., 530.  
bromodiod-, and *di*-bromiod- (HOMOLKA and STOLZ), 1885, A., 1198.  
*trichlor*- (MABERY), 1887, A., 570.  
 $\beta$ -*trichlorobrom*-, and its salts (MABERY and NICHOLSON), 1885, A., 507.  
 $\alpha$ - and  $\beta$ -chlorodibrom-, and their salts (MABERY and LLOYD), 1885, A., 510.  
chlorobromiod-, chloriod-, and chlorodiod- (STOLZ), 1886, A., 531.  
*di*iod- (HOMOLKA and STOLZ), 1885, A., 1198; (BRUCK), 1892, A., 481.  
*tri*iod- (HOMOLKA and STOLZ), 1885, A., 1198.  
monohalogen-derivatives of (OTTO and BECKERTS), 1885, A., 509.
- Paracrylic acid** (KLIMENKO), 1891, A., 170.
- Acrylic acids**, substituted (MABERY and ROBINSON), 1884, A., 663; (MABERY), 1887, A., 570; (MABERY and SMITH), 1890, A., 27.  
constitution of (HILL), 1888, A., 310.  
action of aromatic amines on (MABERY and KRAUSS), 1890, A., 371.

- Actinise**, chromatology of (MACMUNN), 1885, A., 1251.
- Actinohæmatin** (MACMUNN), 1885, A., 1251.
- Actinoelectricity** (HANKEL), 1883, A., 412.
- Actinolite** (CATHERIN), 1885, A., 27.  
chemical composition of (BERWERTH), 1886, A., 28.  
rock from Dalecarlia (MEYER), 1886, A., 990.
- Actinometer** (PHIPSON), 1884, A., 202.  
electrochemical (GOUY and RIGOLIOT), 1888, A., 883.
- Actinometry** (DUCLAUX), 1887, A., 189.
- Actinosphærium**, digestion in (GREENWOOD), 1886, A., 1053.
- Action**, chemical. See Chemical action.  
contact (MENDELÉEFF), 1886, A., 415.  
molecular, the radius of (RUCKER), 1888, T., 226.  
nascent (SWINBURNE), 1892, A., 257.  
physiological. See Physiological action.
- Adapter** for fractional distillation in a vacuum (LEWKOWITZSCH), 1889, T., 359; P., 90.
- Address, congratulatory**, to Prof. Bunsen, 1892, P., 37. Reply thereto, 1892, P., 89.  
to the Deutsche chemische Gesellschaft, 1892, P., 159.  
to Professor Kekulé on the twenty-fifth anniversary of his Benzene Theory, 1890, P., 29.  
to Her Majesty the Queen, 1887, P., 89.  
to Professor Stas, 1891, P., 75.
- Address, presidential**, of Sir J. H. Gilbort, 1883, T., 224. Dr. W. H. Perkin, 1884, T., 209; 1885, T., 300; P., 43. Dr. Hugo Müller, 1886, T., 329; P., 179; 1887, T., 442; P., 47. Mr. W. Crookes, 1888, T., 474; P., 41; 1889, T., 250; P., 55. Dr. W. J. Russell, 1890, T., 426; P., 41; 1891, T., 434; P., 53. Prof. A. Crum Brown, 1892, T., 474; P., 59.
- Adenine** (KOSSEL), 1885, A., 566, 1080; 1886, A., 567; (BRUHNS), 1890, A., 534; (KRUGER), 1892, A., 219, 890; (BRUHNS and KOSSEL), 1892, A., 220.  
constitution of (THOISS), 1889, A., 786.  
bromination of (BRUHNS and KOSSEL), 1892, A., 221; (KRUGER), 1892, A., 890.  
derivatives (KOSSEL), 1885, A., 566; 1888, A., 303.
- Adenine**, amount of, in various organs, and in fresh and fermented yeast (SCHINDLER), 1889, A., 791.  
estimation of (SCHINDLER), 1889, A., 790; (BRUHNS), 1890, A., 534.  
brom- (BRUHNS), 1890, A., 535; (KRUGER), 1892, A., 890.
- Adhesion** at the freezing-point (WALD), 1891, A., 969.  
of mercury to glass in the presence of halogens (SIENSTONE), 1892, T., 452; P., 70.
- Adipamide** (HENRY), 1885, A., 887.
- Adipic acid** (*butane dicarboxylic acid*) (DIETERLE and HELL), 1885, A., 43.  
thermochemistry of (STOHMANN, KLEBER and LANGREIN), 1889, A., 1097.  
boiling-points of (KRAFFT and NOERDLINGER), 1889, A., 691.  
pyrogenic decomposition of (HANNIOT), 1886, A., 224.  
salts of (DIETERLE and HELL), 1885, A., 43.  
*di*brom- (RUHEMANN and BLACKMAN), 1890, T., 371; P., 38.  
*dichlor*- (OTTO and BECKURTS), 1885, A., 753; (RUHEMANN), 1890, T., 939.
- Adipocere** (ERMAN), 1883, A., 818; (ZILLNER), 1886, A., 89; (LEHMANN), 1889, A., 433.
- Adipomalic acid** (TANATAR), 1890, A., 1239; 1891, A., 174, 175.
- Adonidin** (MORDAGNE), 1886, A., 94.
- Adonin** (TAHARA), 1891, A., 1501.
- Adoninidine** (CERVELLO), 1885, A., 833.
- Adonis amurensis**, glucoside from (TAHARA), 1891, A., 1501.
- Adonis Cupaniana** (CERVELLO), 1885, A., 833.
- Adonis vernalis**, a glucoside (*adonidin*) obtained from (MORDAGNE), 1886, A., 94.
- Ægyrite** (*ægirine*) from Brazil (MACHADO), 1890, A., 844.
- Æirinite**, occurrence of (MACPHERSON), 1883, A., 562.
- Ærolite** from Rensselaer Co., New York (BAILEY), 1888, A., 121.
- Ærorthometer** (HARCOURT), 1883, A., 378.
- Æschynite** from N. Carolina (HIDDEN), 1883, A., 1064.  
supposed, from Ray's mine, Yancey Co. (HIDDEN), 1883, A., 163.
- Æsculetic acids**,  $\alpha$ - and  $\beta$ - (WILL), 1884, A., 67.
- Æsculetin** (WILL), 1884, A., 67; (v. PROHMANN and WELSH), 1884, A., 1347.  
constitution of (TIEMANN and WILL), 1883, A., 199.

**Æsculin**, diathermancy of (WESSENDONCK), 1885, A., 213.

reactions of (RABY), 1885, A., 302.

*Æsculus Hippocistinum*, leaves of (RAY), 1886, A., 1065.

#### AFFINITY, CHEMICAL.—

**Action, chemical**, of direct addition, laws governing (KABLUKOFF), 1888, A., 1154.

produced by sunlight (DUGLAUX), 1887, A., 93.

use of the electric light to influence (ARMSTRONG), 1886, P., 182.

influence of light on the course of, in the bromination of aromatic compounds (SCHRAMM), 1885, A., 518, 888.

application of the electrometer to the study of (BOURY), 1887, A., 882.

relation of, to electrical energy (BRAUN), 1883, A., 413.

effect of magnetism on (ROWLAND and BELL), 1889, A., 9; (LOEB), 1891, A., 1145.

influence of temperature on the direction of (POTILIZIN), 1889, A., 385.

influence of mass on (KEHRMANN), 1891, A., 257.

influence of neutral salts on (SPOHR), 1888, A., 1025.

influence of strain on (CARNELLEY and SCHLENNMANN), 1885, P., 89.

accelerating and retarding influences in (MEYERHOFFER), 1889, A., 9.

conditions of, between nitric acid and certain metals (VILLEY), 1891, A., 525.

between solids (SPRING), 1888, A., 1243; (HALLOCK), 1889, A., 817.

under great pressure, evidence of, afforded by petrographical research (JUD), 1890, T., 404; P., 35.

non-reversible, nitration of benzene as a (GIESSBACH and KESSELN), 1889, A., 10.

at a distance (OSTWALD), 1892, A., 268; (PICKERING), 1892, A., 269; (BEYERINCK), 1892, A., 936; (LEHMANN), 1892, A., 1119.

the dead space in (LINDBRICH), 1888, A., 1242; 1890, A., 1207; 1891, A., 1150; (WATSON), 1889, A., 835.

gradual (PENDLEBURY and SEWARD), 1889, A., 462.

lines of no (MILLS and MACKAY), 1885, A., 341.

#### AFFINITY, CHEMICAL.—

**Action, chemical**, retardation of (Hoon), 1886, A., 502.

velocity of (URICH), 1886, A., 846; 1887, A., 697; (GORE), 1890, A., 327.

rate of, as a function of temperature (Hoon), 1886, A., 301.

rate of, thermodynamical expression of the influence of temperature on the (URICH), 1888, A., 338.

influence of dilution on the rate of (DE LA CROIX), 1884, A., 1090.

influence of the diluent, and the action of excess of the ingredients, on the rate of (URICH), 1885, A., 480.

rate of, between iodic and sulphurous acids (LANDOLT), 1886, A., 658.

rate of, in the inversion of cane sugar by acids (ARRHENIUS), 1889, A., 1103.

in relation to micro-organisms (FRANKLAND), 1885, T., 159; P., 9.

**Affinity, chemical**, nature of (OSTWALD), 1888, A., 338.

dependence of, on temperature (MULLER-KIRZBACH), 1887, A., 628.

in absolute measure and Ostwald's constants of affinity, relations between (VANT HOFF), 1889, A., 932.

relation of, to atomic volume, atomic weight, and specific gravity (DONATH and MAYRHOFER), 1888, A., 1048.

connection between magnetism and (LOEB), 1891, A., 1146.

of elements in various allotropic modifications (MULLER-KIRZBACH), 1883, A., 779.

residual (PICKERING), 1887, T., 593; P., 77; 1892, A., 559.

residual, of inorganic salts (LACHOWICZ), 1890, A., 444.

selective (BEKETOFF), 1889, A., 332.

determination of (OSTWALD), 1884, A., 812.

determination of, in terms of electromotive force (WRIGHT and THOMPSON), 1884, A., 246; 1885, A., 325, 721.

**Affinity and partition coefficients** in immiscible solvents (AULICH), 1891, A., 1148.

**Affinity-coefficients** in ether formation, etc. (HECHT and CONRAD), 1889, A., 931; (HECHT, CONRAD, and BRUCKNER), 1890, A., 4, 1046; (CONRAD and BRUCKNER), 1890, A., 327; 1891, A., 796.

## AFFINITY, CHEMICAL.—

**Affinity-coefficients** in precipitation (CHRUSTSCHOFF and MARTINOFF), 1887, A., 548.

of alkylie bromides and iodides (MENSCHUTKIN and WASSILIEFF), 1892, A., 1289.

of alkylie haloids and of amines (MENSCHUTKIN), 1890, A., 1366.

of bases (OSTWALD), 1887, A., 324.

of organic acids (CHARPY), 1889, A., 1103; (RÜHMANN and SPITZER), 1892, A., 37; (LELLMANN and SCHLIEMANN), 1892, A., 1269.

of organic acids and bases (LELLMANN), 1889, A., 1104.

of organic bases (WALKER), 1890, A., 5; (LELLMANN and GROSS), 1891, A., 638, 1149.

**Affinity-constants** (dissociation constants) of acids (OSTWALD), 1889, A., 266; (BERGMANN), 1890, A., 1209; (BADER), 1891, A., 257; (WALKER), 1892, T., 696; P., 137; (WALDEN), 1892, A., 266.

(dissociation constants) of acids and their relation to affinity in absolute measure (VAN'T HOFF), 1889, A., 932.

**Attraction, chemical**, apparent manifestation of, as mechanical attraction (LANGLEY), 1888, A., 1009; (KALISCHER), 1888, A., 1242.

**Combination, chemical** (DE LANDERO and PRIETO), 1887, A., 99.

**Decomposition, chemical**, the critical point in (VAN'T HOFF), 1885, A., 1181.

temperature of transformation in double (VAN'T HOFF and REICHER), 1889, A., 930.

transition temperature in (VAN'T HOFF and VAN DEVENTER), 1886, A., 968.

produced by pressure (SPRING and VAN'T HOFF), 1888, A., 341.

**Dynamics, chemical**, an explanation of (Hadstone and Tribe's "2-3 law" in (LANGLEY), 1884, T., 633.

studies in (OSTWALD), 1888, A., 1024; 1892, A., 1149.

**Energy, chemical**, equivalence of electrical energy and (JAHN), 1886, A., 840.

relation between electrical energy and, in galvanic cells (LÉVAY), 1891, A., 513.

increase of, at the free surface of liquids (SPRING), 1890, A., 328.

## AFFINITY, CHEMICAL.—

**Energy, chemical**, of compounds (BEKETOFF), 1888, A., 1244.

**Equilibrium, chemical**, different forms of (ROOZEBOOM), 1889, A., 1147.

between hydrogen chloride and hydrogen in conjunction with metals (RUBALKIN), 1890, A., 685.

in dilute solutions (PLANCK), 1888, A., 780.

in solutions (CHARPY), 1892, A., 1146.

laws of (LE CHATELIER), 1885, A., 117; 1886, A., 196; 1888, A., 548, 549, 782; (DUHEM), 1888, A., 548, 646.

principle of equivalence in phenomena of (LE CHATELIER), 1886, A., 762.

Influence of molecular contiguity on the, of homogeneous gaseous systems (SARRAU and VIEILLE), 1888, A., 339.

rôle of solid substances in (HORSTMANN), 1890, A., 1365.

**Forces, chemical** (PEARSON), 1888, A., 906.

**Phenomena, chemical**, application of the second law of thermodynamics to (LE CHATELIER), 1892, A., 3.

at very low temperatures (PICTET), 1892, A., 1138.

**Agalite** (MACADAM), 1887, A., 452.

**Agar jelly**, diffusion in (VOIGTLÄNDER), 1889, A., 817.

**Agaricic acid** (JAHNS), 1884, A., 354.

**Agarythrine** in *Agaricus ruber* (THIRSON), 1833, A., 100.

*Ageratum mexicanum*, coumarin in (MOLISCH and ZRISSEL), 1889, A., 644.

**Agitating**, apparatus for (TAFEL), 1889, A., 984.

*Agrostemma Githago*, poison of the seeds of (LEHMANN and MORI), 1890, A., 1458.

apoptoxin from (KRUSKAL; KOBERT), 1892, A., 350.

*Agrostis stolonifera* and *A. laifolia*, analyses of (WILSON), 1889, A., 1078—1082.

**Aguilarite** (GENTII), 1891, A., 1327.

**Air**. See Atmospheric air.

**Air-baths** (MEYER), 1883, A., 900; 1889, A., 754; (ADAMS), 1890, A., 546.

for drying substances in a current of air (ANSCHUTZ and KERULE), 1885, A., 1035.

**Air-pump**, automatic mercury (STUMI), 1891, A., 640.

**Air-pump**, glass (STUHL), 1891, A., 1414.  
 regulator (v. KLOBUKOFF), 1886, A., 118.  
**Alabandite** (*alabandine*, *manganesc-bonite*), artificial formation of (DOELTER), 1886, A., 208; (BAUBIGNY), 1887, A., 781.  
 **$\alpha$ -Alanine** ( *$\alpha$ -amidopropionic acid*) (BISCHOFF and HAUSDORFER), 1892, A., 1836.  
 heats of combustion and formation of (BERTHELOT and ANDRÉ), 1890, A., 936.  
 condensation of, with benzenesulphonic chloride (ILLDIN), 1891, A., 202.  
 action of cyanogen chloride on (TRAUBE), 1883, A., 192.  
 action of ethylic oxalate on (SCHIFF), 1884, A., 995; 1885, A., 760.  
 aniline derivatives of, formation of (SCHIFF), 1885, A., 760.  
 **$\beta$ -Alanine**, conversion of ethylic acrylate into (WENDRI), 1890, A., 862.  
**Alantio acid** (MARPMANN), 1888, A., 378.  
**Alantole** (MARPMANN), 1888, A., 378.  
**Alaskaite**, a new bismuth mineral (KÖNIG), 1883, A., 429; 1886, A., 515; (LEIVEN), 1886, A., 21.  
**Albertite** from Strathpeffer, Ross-shire (MURKINSON), 1886, A., 311.  
**Albinism**, vegetable, in the leaves of *Quercus rubra* (CHURCH), 1886, T., 839; P., 236.  
**Albite**, new formation of, in granitic orthoclase (SARGENT), 1889, A., 109.  
 formation of, in the wet way (FRIEDEL and SARASIN), 1884, A., 163.  
 formation of, from orthoclase (GENTIL), 1884, A., 273.  
 formation of, from spodumene (BRUSH and DANA), 1883, A., 439.  
 optical properties of (DEICLOZEAUX), 1886, A., 210.  
 from Amelia Co., analysis of (MUSGRAVE), 1883, A., 34; (ROBERTSON), 1885, A., 130.  
 from Kaltenege (HATLE and TAUSCH), 1888, A., 429.  
 from the Kásbek (SCHUSTER), 1888, A., 432.  
 from Mt. Blanc, analysis of (BRUN), 1884, A., 402.  
 in Norwegian pegmatites (LACROIX), 1888, A., 236.  
 from Pouzac, Hauts-Pyrénées (LACROIX), 1891, A., 408.  
 from Sigtero (TENNÉ), 1891, A., 1138.

**Albite** in the calcareous rocks of the Western Alps (LORV), 1887, A., 1023.  
 See also Felspar.  
**Albumin** (ZACHARIAS), 1881, A., 90; (LOEW), 1885, A., 823.  
 in cell-fluid (LOEW and BOKORNY), 1888, A., 983.  
 from protoplasm (DEMME), 1892, A., 86.  
 from peptone, seat of the regeneration of (NEUMENSTER), 1891, A., 231.  
 of the splenic fever bacillus (NENCKI), 1885, A., 177.  
 from urine, coagulated by nitric acid and soluble in alcohol (HARNACK), 1883, A., 247.  
 in normal urine (POWNER), 1887, A., 390.  
 ash-free (HARNACK), 1891, A., 477; 1892, A., 645; (WEINIG), 1891, A., 1268.  
 filtration of (RUNEBERG), 1883, A., 1160; 1885, A., 567.  
 preparation of (MICHAÏLOFF), 1885, A., 69.  
 preparation and properties of (HARNACK), 1890, A., 272.  
 chemical formation of (KRUKENBERG), 1888, A., 73.  
 composition of (LATHAM), 1886, A., 635; (HARNACK), 1890, A., 892.  
 absorption spectrum of (HARTLEY), 1887, T., 59.  
 heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.  
 diffusion of solutions of (v. KMOŁCZY), 1885, A., 405.  
 behaviour of, when heated with water or acids under pressure (DENAEYER), 1891, A., 1269.  
 action of bile acids on (MALV and EMICH), 1883, A., 673.  
 action of bromine on (LOEW), 1885, A., 823.  
 action of hydrogen peroxide on (WURSTER), 1887, A., 607.  
 action of potash on (JOHNSON), 1883, A., 671.  
 oxidation of (LOEW), 1885, A., 823.  
 oxidation of, in presence of sulphur (KOSING), 1892, A., 741.  
 oxidation of, with permanganate (MALV), 1885, A., 824; 1888, A., 1120.  
 saving effect on, of organic acids in vegetable foods (WEISSE and FLECHING), 1890, A., 538.  
 decomposition of (DRECHSEL), 1892, A., 515.  
 decomposition of, by anaerobic ferments (NENCKI), 1890, A., 78.

- Albumin**, decomposition of, by the bacillus of malignant oedema (KERRY), 1890, A., 542.  
 decomposition of, in fasting (MUNK), 1891, A., 1524.  
 influence of asparagine on the decomposition of (MUNK; v. VOIT), 1885, A., 412.  
 decomposition of, effect of increased muscle activity on the (HIRSCHFELD), 1891, A., 1524.  
 decomposition products of (KUHN and CHITTENDEN), 1884, A., 849.  
 putrefaction of, and formation of scatole and indole from (E. and H. SALKOWSKI), 1885, A., 567.  
 putrefaction of, in the alimentary canal of Herbivora (BÖHM and SCHWENK), 1885, A., 284.  
 coagulation of (VARENNE), 1886, A., 373; (MICHAÏLOFF), 1888, A., 73.  
 formation of, in plants (EMMERLING), 1885, A., 289; 1887, A., 615.  
 synthesis of, in chlorophyll-containing plants (CHRAPOWITZKI), 1888, A., 868.  
 nutritive value of (POLLITZER and ZUNTZ), 1886, A., 901.  
 nutritive value of some digestion products of (POLLITZER), 1886, A., 377.  
 digestible, of fodders, action of hydrochloric acid and pepsin on (STUTZER), 1890, A., 661.  
 digestion of (BOAS), 1888, A., 733.  
 intestinal digestion of (WENZ), 1886, A., 376.  
 cutaneous excretion of, by the horse (LEGLERC), 1888, A., 1320.  
 acid amides from the decomposition of (SCHULZE), 1885, A., 581.  
 formation of carbamide from (DRECHSEL), 1891, A., 95.  
 formation of furfuraldehyde from (GÜNTHER, DE CHALMOT, and TOLLENS), 1892, A., 1433.  
 metallic compounds of (CHITTENDEN and WHITTHOUSE), 1888, A., 74.  
 detection of (GRIMAUD), 1884, A., 910; (AXENFELD), 1886, A., 183; (PRUNIER), 1886, A., 748; (KRASNER), 1887, A., 407; (POSNER), 1888, A., 1140.  
 detection of traces of (PALM), 1887, A., 407.  
 error in the detection of (PATEIN), 1889, A., 1252.  
 trichloroacetic acid as a test for (BOYMOND), 1890, A., 312.  
 uranyl acetate as a reagent for (KOWALEWSKY), 1886, A., 285.
- Albumin**, detection of, in bacterial urines (JOLLES), 1891, A., 136.  
 detection of, in urine (HASLAM), 1883, A., 885; (BLUM), 1887, A., 1003; (LIEBERMANN), 1887, A., 1150; (MARTIN), 1888, A., 763; (GROCCO), 1892, A., 667; (SPIEGLER), 1892, A., 928.  
 detection of, in new and old urine (JOHNSON), 1883, A., 1176; 1885, A., 845.  
 Tanret's reaction for, in urine (BRASSE), 1888, A., 204.  
 estimation of, in urine (SCHAUMANN), 1889, A., 58; (CHRISTENSEN), 1889, A., 452; (VAN NUYS and LYONS), 1890, A., 1199.  
 estimation, densimetric, of, in urine (ZÁHOŘ), 1888, A., 1227.  
 estimation, optical, of, in urine (ELLINGER), 1891, A., 1403.  
 estimation, volumetric, of, in urine (VENTURIOLI), 1891, A., 627.  
 separation of, from peptones (WEISKE), 1886, A., 1087; 1888, A., 972.  
 separation of casein from, in human milk (HORTE-SEYLER), 1885, A., 1015.  
 separation of globulin from, in urine (OTT), 1887, A., 406.
- Albumin**, alkali-albuminate, and acid-albumin, comparative experiments with (ROSENBERG), 1885, A., 405.
- Albumin**, atmid- (NEUMEISTER), 1889, A., 910.
- Albumin**, egg- crystalline (HOFMEISTER), 1890, A., 782; 1892, A., 515; (GABRIEL), 1891, A., 1122.  
 molecular weight of (SABANÉEFF), 1890, A., 1216.  
 action of glycerol on (GRANDIS), 1891, A., 589.  
 action of oxidising agents on (WURSTER), 1887, A., 833.  
 action of resorcinol on (ANDER), 1890, A., 801.  
 action of sodium nitrile on (WURSTER), 1887, A., 628.  
 albumoses from (CHITTENDEN and BOLTON), 1888, A., 74.  
 sulphur in (HAMMARSTEN), 1885, A., 915.
- Albumin**, met-, and par-, a contribution to the chemistry of encysted fluids (HAMMARSTEN), 1883, A., 874.
- Albumin**, serum-, preparation of, and action of acids and neutral salts on (JOHANSSON), 1885, A., 913.  
 formation of, in the alimentary canal (POPOFF), 1889, A., 632.

- Albumin, serum-**, gases evolved in the putrefaction of (NEUMCKI and STERNER), 1890, A., 78.  
separation and estimation of globulin and, by means of magnesium sulphate (HAMMARSTEN), 1885, A., 611.
- Albumin, vegetable-**, carbohydrates as oxidation products of (PALLADIN), 1889, A., 1285.  
in fodder, influence of sodium chloride on the digestion of (SIEWERT), 1888, A., 859.
- Albumins, acid and alkali** (SAVIN), 1888, A., 858.  
action of alcohols and aldehydes on (BRUNTON and MARTIN), 1891, A., 947.  
transformations of (PATEIN), 1892, A., 362.  
new reactions of (REICHL), 1890, A., 1350.  
new method of separating globulins from (MICHAŁOFF), 1886, A., 164.
- Albuminoid.** See Protoid.
- Albumoid** (MÜNNER), 1889, A., 737.
- Albumone** (CHABRIÉ), 1892, A., 225.
- Albumose** as a pyrexial agent (OTT and COLLMAR), 1888, A., 1325.  
examination of urine for (MÉHU), 1885, A., 451.  
isolated from anthrax cultures (HANKIN), 1889, A., 1234.  
toxic action of, from jequirity seeds (MARTIN), 1890, A., 398.
- Amphodeuteroalbumose** (NEUMEISTER), 1887, A., 286.
- Atmidalbumose** (NEUMEISTER), 1889, A., 911.
- Hemialbumose** (KÜHN and CHITTENDEN), 1884, A., 819; 1886, A., 819; (HIRTU), 1884, A., 1388; 1886, A., 567; (AXENFELD), 1887, A., 1127.  
preparation of, from vegetable albumin (SZYMANSKI), 1885, A., 997.  
in urine (KÜHN), 1884, A., 854.
- Heteroalbumose** (KÜHN and CHITTENDEN), 1884, A., 1389; 1886, A., 277; 1886, A., 819; (NEUMEISTER), 1887, A., 285.
- Myoalbumose** (HALIBURTON), 1887, A., 981.
- Albumoses** (KÜHN and CHITTENDEN), 1884, A., 1389; 1885, A., 277; (NEUMEISTER), 1887, A., 285; 1888, A., 508.  
from egg-albumin (CHITTENDEN and BOLTON), 1888, A., 74.
- Albumoses**, action of alcohols and aldehydes on (BRUNTON and MARTIN), 1891, A., 947.  
benzoyl derivatives of (SCHROETER), 1889, A., 1221.  
pathological significance of (MARTIN), 1891, A., 761.  
physiological action of (NEUMEISTER), 1888, A., 516.  
detection of (NEUMEISTER), 1890, A., 804.  
detection of, in urine (MARTIN), 1888, A., 764.  
salicylsulphonic acid as a test for (MACWILLIAM), 1892, A., 552.
- Alcapton** (KIRK), 1888, A., 1121.
- Alcaptonuria** (KIRK), 1888, A., 1121; (WOLKOW and BAUMANN), 1891, A., 1128.
- Alcaptonuria** and uroleucic acid (KIRK), 1890, A., 188.
- Alcohol.** See Ethylic alcohol.
- Alcoholates**, heat of formation of (DE FORCRAND), 1884, A., 516; 1885, A., 1102.
- Alcoholic fermentation.** See Fermentation.
- Alcoholic function**, primary and tertiary, value of the (DE FORCRAND), 1892, A., 799, 1066.
- Alcohols, fatty**, dispersive power of (BARBIER and ROUX), 1890, A., 1034.  
thermochemical relations of (STOIMANN), 1886, A., 295.  
boiling-point of, mechanical determination of (HINRICHS), 1892, A., 1039.  
size of the maximum drops of, and of their aqueous solutions (TRAUBE), 1886, A., 814.  
diffusion of (WINKELMANN), 1886, A., 11.  
action of acetals on, at a high temperature (BACHMANN), 1883, A., 726.  
action of aluminium chloride on a mixture of, with ethylic chlorocarbonate (PAWLEWSKI), 1884, A., 1279.  
action of *Bacterium aceti* on (BROWN), 1886, T., 175.  
action of, on ethereal salts (PURDIE and MARSHALL), 1888, T., 391; P., 25.  
action of hydrogen chloride on a mixture of, with aldehyde (CLAUS and TRAINER), 1887, A., 231.  
action of iodine on (TRAUBE and NEUBERG), 1891, A., 656.  
action of propylaldehyde on (NEWBURY and BARNUM), 1891, A., 284.

- Alcohols, fatty.** metallic derivatives of (BRUHL and BILTZ), 1891, A., 656.  
 of the allylic series, oxidation of (WAGNER), 1888, A., 665.  
 of the ethylic series, direct conversion of, into amines (MERZ and GASIOROWSKI), 1884, A., 981.  
 action of, on animals (GIBBS and REICHERT), 1891, A., 1393.  
 detection of certain hydrocarbons in (WARREN), 1887, A., 1088.  
 higher, method for the determination of the molecular weight and atomicity of (HELL), 1884, A., 1433.
- Alcohols, monohydric.** origin of, in commercial spirits (LANDER), 1891, A., 813.  
 influence of temperature on the production of, by fermentation (LINERT), 1888, A., 1263; 1891, A., 411.  
 relations between the boiling-points and constitution of (FLAWITZKY), 1887, A., 879.  
 dehydration of (WOLKOFF), 1890, A., 354.  
 action of phenylic cyanate on (SNAPPE), 1885, T., 770.  
 etherification of (MENSCHUTKIN), 1884, A., 726.  
 detection of, in spirits of wine (BARDY), 1892, A., 1379.  
 estimation of, in spirits (MOHLER), 1891, A., 503; (BELI), 1892, A., 387.
- Alcohols, dihydric.** derived from *isobutaldehyde* (SWOBODA and FOSSEK), 1891, A., 31.  
 synthesis of, from mixtures of aldehydes (FOSSEK), 1884, A., 832.  
 carbonates of (WALLACH), 1885, A., 254.
- Alcohols, hexahydric.** reduction of (LIEBIG and WASSERMANN), 1885, A., 1046.
- Alcohols, polyhydric.** and their derivatives, preparation of, by means of hypochlorous acid (REIFORMATSKY), 1885, A., 882.  
 synthesis of (COMBES), 1888, A., 666.  
 thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 763.  
 action of, on borax (DUNSTAN), 1884, A., 278.  
 action of, on solutions of boric acid and sodium hydrogen carbonate (JOHN), 1887, A., 790; 1888, A., 1172.  
 action of phenylic cyanate on (SNAPE), 1885, T., 770; (TESMER), 1886, A., 49.  
 etherification of (MENSCHUTKIN), 1884, A., 726.
- Alcohols, polyhydric.** oxidation of (FISCHER and TAFEL), 1887, A., 651.  
 combinations of benzaldehyde with (MAQUINNE), 1889, A., 116.  
 benzoyl compounds of (SKRAUP), 1889, A., 1152.  
 metallic derivatives of (BRUHL and BILTZ), 1891, A., 656.  
 general reaction for, in presence of borax and paratungstates (KLEIN), 1881, A., 1284.
- Alcohols, normal.** specific volumes, and rate of expansion of (ZANDER), 1884, A., 1278.
- Alcohols, primary.** synthesis of (TISCHENKO), 1888, A., 804; (HENRY), 1892, A., 27.  
 decomposition of, by heat (WOLKOFF and BUGAIEFF), 1886, A., 137.  
 action of hydrogen bromide and sulphuric acid on (NIEMILOWICZ), 1890, A., 465.
- Alcohols, secondary.** characteristic reaction of (CHANCEL), 1885, A., 646.  
 decomposition of, by heat (WOLKOFF and BUGAIEFF), 1886, A., 137.  
 closed chain (BAMBERGER and LOUNTER), 1890, A., 506.  
 with secondary radicles, boiling-points of (POLETTEFF), 1889, A., 477.
- Alcohols, tertiary.** synthesis of, from ketones (SAYTZEFF), 1885, A., 881.  
 decomposition of, by heat (WOLKOFF and BUGAIEFF), 1886, A., 137.  
 oxidation of (WAGNER), 1892, A., 28.  
 physiological action of (THIEFFELDER and v. MERING), 1885, A., 1002; (SCHAPIROFF), 1887, A., 857.
- Aldehydes** (WANKLYN and JOHNSTONE), 1892, A., 698.
- Aldehyde,  $C_{10}H_{18}O_4$**  (PERKIN), 1883, T., 96, 97.  
 See Acetaldehyde.
- Aldehydes.** conversion of hydrocarbons into, by the action of chromyl chloride (ETARD), 1884, A., 812.  
 action of *p*-amidodimethylaniline on (NUTH), 1885, A., 784.  
 action of, on *o*-amidophenols (MAZZARA and LEONARDI), 1891, A., 1363.  
 action of ammonia and, on benzil (JAPP and HOOKER), 1884, T., 672; (JAPP and WYNN), 1886, T., 462; P., 201.  
 action of ammonia and, on  $\alpha$ -diketones (WADSWORTH), 1889, P., 161; 1890 T., 8.  
 action of, on ammonium thiocyanate (BRODSKY), 1887, A., 580.  
 action of anhydrides on (FRANCHIMONT), 1883, A., 452.

- Aldehydes**, condensation of, with aromatic diamines (CLAISEN), 1887, A., 494.  
 condensation of, with azo-compounds (BARSILOWSKY), 1892, A., 854.  
 condensation of, with benzoylpiperidine (RÜGHEIMER), 1892, A., 1364.  
 condensation of, with dibasic acids (FITTING), 1886, A., 47.  
 condensation of, with ethylaniline (MOOS), 1887, A., 577.  
 condensation of, with ethylic acetoacetate and with substituted ethylic acetoacetates (MATTHEWS), 1883, T., 200; (CLAISEN and MATTHEWS), 1884, A., 443.  
 condensation of, with hydrazines (CURTIUS and JAY), 1889, A., 393.  
 action of hydrogen phosphide on (MESSINGER and ENGELS), 1888, A., 441; 1889, A., 35.  
 action of hydrogen sulphide on (BAUMANN), 1890, A., 1092.  
 action of, on ketones, ketonic acids, and malonic acid (CLAISEN), 1884, A., 445.  
 action of, on phenanthraquinone, &c., under the influence of sunlight (KLINGER), 1889, A., 405.  
 action of, on phenols (MICHAEL), 1884, A., 597; 1887, A., 825; (MICHAEL and COMEY), 1884, A., 598; (MICHAEL and RYDER), 1886, A., 695; (CLAISEN), 1887, A., 494.  
 action of phosphorus trichloride on (WOSSEK), 1884, A., 833.  
 action of sodium on (BECKMANN), 1889, A., 781; (BECKMANN and PAUL), 1892, A., 169.  
 action of sulphur on (BARNAGLIA), 1887, A., 462.  
 action of, on thiamides (EPHRAIM), 1891, A., 831.  
 action of zinc and ethylic chloracetate on (REFORMATSKY), 1891, A., 169; 1892, A., 1300.  
 action of zinc ethyl on (DELAURE), 1888, A., 663.  
 action of zinc organo-metallic compounds on (WAGNER), 1885, A., 370.  
 condensation with (LIEBEN and ZEISEL), 1883, A., 570; (CALM), 1885, A., 387.  
 conversion of, into acids and acid amides by means of ammonium sulphide (WILLGERODT), 1888, A., 476.  
 compounds of camphor with (HALLER), 1891, A., 1498.
- Aldehydes**, compounds of glycol with (LOCHERT), 1888, A., 670.  
 compounds of mercaptan with (BAUMANN), 1887, A., 126; (FASBENDER), 1887, A., 462.  
 compounds of sugars with (SCHIFF), 1888, A., 572.  
 oximes of (HANTZSCH), 1891, A., 113.  
 phosphine derivatives of (DECHARD), 1884, A., 1118.  
 acetyl derivatives in the urine of animals after ingestion of (JOHN), 1892, A., 1504.  
 toxic action of (LABORDE and MAGNAN), 1888, A., 737.  
 detection of (PENZOLDT and FISCHER), 1883, A., 829.  
 colour reaction of, with aromatic nitro-compounds (v. BITTÖ), 1892, A., 1263.  
 Gayon's reaction for (BOHNTRÄGER), 1891, A., 1142.  
 phenylhydrazine as a reagent for (FISCHER), 1884, A., 1150.  
 potassium mercurio-iodide as a reagent for (GRISMER), 1891, A., 624.  
 sodium nitroprusside as a reagent for (v. BITTÖ), 1892, A., 924.  
 detection and estimation of, in commercial alcohols (GAYON), 1888, A., 326.  
 estimation of, in brandy and spirits (MOHLER), 1891, A., 503.
- Aldehydes**, brom-, formation of, by the action of bromine on alcohols of the ethylic series (ETARD), 1892, A., 809.
- Aldehydes**, chlorinated, action of zinc methyl and zinc ethyl on (v. GARZAROLI-THURNLACKH), 1884, A., 1118.
- Aldehydes**, thio- (BAUMANN and FROMM), 1890, A., 25; 1891, A., 1008; (BAUMANN), 1890, A., 477; (BAUMANN and CAMPS), 1890, A., 478.
- Aldehydes**, aromatic, Murd's reaction for the preparation of (BORNE-MANN), 1884, A., 1161.  
 reduction of (TREMANN), 1892, A., 167.  
 condensation of, with aromatic amines (HANTZSCH), 1891, A., 50.  
 condensation of, with phenols (TIZZON-SKI), 1884, A., 596.  
 thio- (BAUMANN and FROMM), 1891, A., 1050.
- Aldehydes**, fatty, action of aniline on mixtures of (v. MILLER), 1887, A., 974.  
 condensation of, with diacyanophenylhydrazine (BLADIN), 1892, A., 596.

- Aldehydes, unsaturated**, action of hydrocyanic acid on (JOHANNY), 1891, A., 37.
- Aldehyde acids**. See Aldehydo-acids.
- Aldehyde-ammonia**, action of, on animals (GIBBS and REICHERT), 1891, A., 1393.
- action of silver nitrate on (REYCHLER), 1884, A., 722.
- pyridine and piperidine bases from (DUNKOFF), 1888, A., 1313.
- Aldehyde-ammonias**, action of *isothiocyanates* on (DIXON), 1888, T., 411; P., 38.
- compounds of thiourea and thiocarbamides with (DIXON), 1892, T., 509; P., 73.
- Aldehyde-ammonium bases** (MEYER), 1883, A., 568, 1090.
- Aldehyde-blue** (GATTERMANN and WICHMANN), 1889, A., 503; (V. MILLER and PLOCH), 1891, A., 1071.
- Aldehydecollidine**. See 2-Methyl-5-ethyl pyridine.
- Aldehyde-green** (V. MILLER and PLOCH), 1891, A., 1070, 1072.
- Aldehyde-gum** (TOLLENS), 1881, A., 989.
- Aldehyde-resin** (PUCHER), 1887, A., 1090.
- Aldehyde-ethyl chloride** (*chloroethyl ether*) (BACHMANN), 1883, A., 726.
- Aldehydic oxygen**, estimation of (STRACHE), 1892, A., 546, 1530.
- Aldehydic sulphites** of organic bases (SCHIFF), 1889, A., 234.
- Aldehydines**, constitution of (HINSBERG), 1886, A., 913.
- Aldehydo-acids**, ethereal salts of (WISLIZENUN), 1888, A., 129.
- o*-Aldehydobenzoic acid**. See Phthalaldehydic acid.
- Aldehydobenzoic acids**, *m*- and *p*- (REINGLASS), 1891, A., 1346.
- p*-Aldehydocinnamic acid** and *o*-nitro- (LÖW), 1886, A., 461.
- Aldehydogalactonic acid** and its lactone (KILIAN), 1889, A., 857.
- o*-Aldehydophenoxyacetic acid** and its derivatives (ROSSING), 1885, A., 388; 1886, A., 65.
- compound of, with phenylhydrazine (ROSSING), 1886, A., 66.
- Aldehydophenoxyacetic acids**, *m*- and *p*- (ELKAN), 1887, A., 258.
- Aldehydrazone**. See Acetaldehydophenylhydrazone.
- Aldine formation** (BRAUN and MEYER), 1888, A., 1093; (BRAUN), 1889, A., 613.
- Aldines** (BRAUN and MEYER), 1888, A., 366, 700.
- Aldol** (MAGNANINI), 1890, A., 861.
- Aldol**, preparation of (ORADORFF and NEWBURY), 1892, A., 1423.
- action of heat on (WURTZ), 1884, A., 579.
- action of hydrocyanic acid and of dilute sulphuric acid on (LOBBY DE BRUYN), 1885, A., 240.
- Paraldol**, action of heat on (WURTZ), 1884, A., 579.
- molecular weight of (MAGNANINI), 1890, A., 862.
- Aldoxime**, chlor-. See Chloral, oxime of.
- iso*Aldoxime derivatives**, intramolecular change of (BEHREND), 1892, A., 50.
- Aldoximeacetic acids**, configuration of (HANTZSCH), 1892, A., 1069.
- Aldoximesalicylic acids**, *o*- and *p*- (FÜRTH), 1884, A., 42.
- Aldoximes**. (PETRACZEK), 1883, A., 569; (LACH), 1883, A., 1104; (BECKMANN), 1891, A., 193.
- configuration of (DOLLFUS), 1892, A., 1174.
- configuration of stereoisomeric (HANTZSCH), 1891, A., 439.
- constitution of (HANTZSCH and WERNER), 1890, A., 970.
- isomerism of (BECKMANN), 1890, A., 1121.
- molecular transformations of (BEHREND), 1892, A., 163.
- action of acetic anhydride on (LACH), 1884, A., 1154; (DOLLFUS), 1892, A., 1174.
- action of acetic chloride on (LACH), 1884, A., 1154.
- action of nitric peroxide on (SCHOLL), 1891, A., 316.
- conversion of, into nitriles (DOLLFUS), 1892, A., 1174.
- reduction of (GOLDSCHMIDT), 1887, A., 249, 568.
- bases from (MEYER and WARRINGTON), 1886, A., 783.
- derivatives of (PETRACZEK), 1883, A., 569; (LACH), 1883, A., 1104.
- p*-Aldylhydrazine** (CURTIUS and JAY), 1890, A., 735.
- Aleurone-grains** in the seed of *Myristica surinamensis* (TACHIROH), 1887, A., 1061.
- Algae**, chemico-physiological study of (LOEW and BOKORNY), 1888, A., 315.
- manurial value of (MAYER), 1869, A., 1085.
- fresh water, microscopic (BRÉAL), 1886, A., 1060.
- marine, substance obtained from some of the commoner species of (STANFORD), 1883, A., 943.

- Algae**, unicellular, cultivations of (JODIN), 1888, A., 1124.
- Algarovilla**, tannin of (ILURST), 1887, A., 498; (ZÜLFEL), 1891, A., 918.
- Algin** (STANFORD), 1883, A., 943.
- Alicyclic homology** (BAMBERGER), 1891, A., 1097.
- Alimentary canal**, absorption of different fats by the (ARNSCHINK), 1890, A., 811.  
absorption of water from the (BINKINS), 1892, A., 1258.  
decomposition of ethereal salts in the (BAAS), 1890, A., 1013.  
disinfection of the (ROVIGHT), 1892, A., 226.  
human, digestion of beans in the (PRAUSNITZ), 1889, A., 1226.  
of Herbivora, gases of the (TAPPEINER), 1884, A., 852.
- Alimentary principles**, chief organic, in the animal body, substitute and calorific values of (KUBNER), 1884, A., 189.
- Alimentation** of animals, influence of the consumption of water on (HENNEBERG), 1889, A., 287.
- Alisonite**, artificial (GENTH), 1884, A., 266.
- Alizarin** (1:2-dihydroxyanthraquinone) (LIPSCHÜTZ), 1884, A., 1188; (LIEBERMANN), 1888, A., 1203.  
dyeing with, on indigo (SCHEURER), 1885, A., 711.
- Alizarin**,  $\alpha$ -amido- (BRASCH), 1891, A., 1077.  
 $\beta$ -amido- (BRUNNER and CHUARD), 1885, A., 806.  
preparation of (LAUTH), 1892, A., 864.  
constitution, and derivatives of (KOEHLER), 1885, A., 1068.  
 $\alpha$ -nitro- (BRASCH), 1891, A., 1077.
- Alizarin-blue** (ANON.), 1883, A., 635; (BRUNNER and CHUARD), 1885, A., 806.  
history of (SCHEURER), 1885, A., 106.  
soluble (BRUNCK and GRAEBE), 1883, A., 74.  
oxidation of (GRAEBE and PHILIPS), 1891, A., 1240.  
hydroxy-derivatives of (SCHMIDT and GATTERMANN), 1891, A., 1382.
- Alizarin-blue-green** (SCHMIDT and GATTERMANN), 1891, A., 1382.
- Alizarin-bordeaux** (SCHMIDT; GATTERMANN), 1891, A., 935.
- Alizarineyanin** (R) (SCHMIDT; GATTERMANN), 1891, A., 935.
- Alizarin-green** (SCHMIDT and GATTERMANN), 1891, A., 1383.  
oxidation of (GRAEBE and PHILIPS), 1891, A., 1240.
- Alizarin-indigo-blue** (SCHMIDT and GATTERMANN), 1891, A., 1383.
- Alizarinsulphonic acids** (SCHMIDT), 1891, A., 934.
- Alkali aluminates** (BAYER), 1889, A., 213.
- Alkali carbonate**, normal, detection of, in alkali hydrogen carbonate (PATERN), 1892, A., 1130.
- Alkali ferrocyanides** and their compounds with ammonium chloride (ETARD and BÉMONT), 1885, A., 364.
- Alkali haloids**, action of, on oxides of the heavy metals (BERSCH), 1891, A., 1413.
- Alkali peroxides**, estimation of (KASSNER), 1891, A., 215.
- Alkali polysulphides**, constitution of (BÜTCHER), 1884, A., 1260.
- Alkali salts**, freezing point of solutions of (RAOULT), 1884, A., 701.  
influence of the hydroxides on the solubility of (ENGEL), 1891, A., 1318.
- Alkali silicofluorides**, thermochemistry of (TRUCHOT), 1884, A., 884.
- Alkali stannites**, imaction of, with nitrites and nitrates (DIVERS and HAGA), 1885, T., 303.
- Alkali sulphites**, thermochemical researches on (BERTHELOT), 1888, A., 704.
- Alkali tetrathionates**, preparation of (v. KLOBUKOFF), 1885, A., 1110.
- Alkali thiosulphates** (BERTHELOT), 1883, A., 707.
- Alkali vanadates** (DITTE), 1887, A., 639, 705.
- Alkali-albuminate**, comparative experiments of, with acid-albumin and albumin (ROSENBERG), 1885, A., 405.
- Alkali-albumins** See Albumins.
- Alkalimetric solutions**, standardising (HART and ROASDALE), 1891, A., 959.
- Alkalimetry**, potassium iodate as original standard for (GRÜNER), 1891, A., 614.  
use of boric acid and hematin in (GUYARD), 1884, A., 638.
- Alkaline earths**, characteristics of (BRÜGELMANN), 1892, A., 17.  
heats of solution and hydration of (THOMSEN), 1884, A., 250.  
action of dry carbonic anhydride on (SCHIEBLER), 1886, A., 927.  
action of nitrogen on (MAQUENNE), 1892, A., 566.

- Alkaline earths**, action of sulphur and water on (SENDERENS), 1892, A., 770.  
 physiological action of (BRUNTON and CASH), 1881, A., 348; (RICHER), 1886, A., 385; (CURRIE), 1888, A., 621.  
 estimation, volumetric, of (KNÜPFER), 1886, A., 180.
- Alkaline solutions**, freezing point of (RAOULT), 1884, A., 254.
- Alkali-proof vessels**, nickel (DITTMAR), 1884, A., 1071.
- Alkalis**, preparation of (ANON.), 1883, A., 528.  
 heats of solution and hydration of (THOMSEN), 1884, A., 250.  
 conductivity of (KOHLENSCH), 1886, A., 114.  
 crystallisation of, from alcohol (GOTTIG), 1887, A., 889.  
 decomposition of nitroethane by (DUNSTAN and DYMOND), 1888, P., 117.  
 interaction of nitroparaffins and (DUNSTAN and DYMOND), 1891, T., 410; P., 77.  
 action of sulphur on (SENDERENS), 1892, A., 770.  
 influence of, on the action of invertase on cane-sugar (O'SULLIVAN and TOMPSON), 1890, T., 852.  
 influence of, on the hydrolytic action of yeast (O'SULLIVAN), 1892, T., 936.  
 caustic, detection of poisoning by (VITALI), 1888, A., 1224.  
 estimation of, in presence of alkaline carbonates (LUNGE), 1883, A., 828; (PHILLIPS), 1886, A., 920.  
 standard, use of potassium hydrogen tartrate for titrating (BORNTÄGER), 1892, A., 525.  
 physiological action of (BRUNTON and CASH), 1884, A., 348; (CURRIE), 1888, A., 621.  
 lakinoid and carminic acid as reagents for (DRAPER), 1885, A., 931.  
 estimation of small quantities of (MYLIUS and FORSTER), 1891, A., 1136.  
 estimation, iodometric, of (GRÜGER), 1891, A., 360.  
 estimation of, in soap (WILSON), 1892, A., 384.  
 estimation of, in presence of sulphites (GRANT and COHEN), 1890, A., 1468.
- Alkali-waste**, recovery of hydrogen sulphide from (v. MILLER and OPL), 1884, A., 1442.
- Alkali-waste**, recovery of sulphur from (ANON.), 1885, A., 1017.  
 utilization of (PARNELL and SIMPSON), 1886, A., 238.
- Alkaloid or alkaloids** (OETTINGER DE CONINCK), 1886, A., 476; 1887, A., 603, 851.  
 artificial and natural (COLSON), 1889, A., 729.  
 formation of, by the action of ammonia on glucose (TANRET), 1885, A., 1047.  
 formation of, from normal human fluids (GAUTIER), 1883, A., 101.  
 formation of, in diseases (VILLIERS), 1885, A., 926.  
 absorption-spectra of (HARTLEY), 1885, A., 1174.  
 laws of variation of the specific rotatory power of, under the influence of acids (OUDEMANS), 1883, A., 81.  
 molecular weight of (CHRISTENSEN), 1892, A., 666.  
 action of, in the animal and vegetable kingdom (MARCACT), 1887, A., 859.  
 action of iodine chloride on (OSTERMAYER), 1885, A., 672.  
 action of zinc ethyl on (GAL), 1883, A., 653; 1884, A., 985.  
 influence of, on the germination of seeds (CORNEVIN), 1892, A., 228.  
 utilisation\* and transformation of, during the germination of seeds (HECKEL), 1890, A., 543.  
 ferrocyanides of (BECKURTS), 1890, A., 1318.  
 from *Acacia tenerrima* (GRESHOFF), 1891, A., 336.  
 from *Aconitum Lycoctonum* (DRAGENDORFF and SPOHN), 1885, A., 403.  
 from *Aconitum Napellus* (DUNSTAN and INCER), 1891, T., 271; P., 36; (DUNSTAN and UMNEY), 1892, T., 385; P., 42; (DUNSTAN and PASSMORE), 1892, T., 395.  
 from *Agaveus ruber* (PHIPSON), 1883, A., 100.  
 from *Amaryllis Belladonna* and from *A. formosissima* (FRAGNER), 1891, A., 1122.  
 from Angostura bark (KÜRNER and BÜHRINGER), 1884, A., 341; (BECKURTS and NEHRING), 1892, A., 642.  
 from *Anisodus luridus* (SIEBERT), 1890, A., 658; (SCHUTTE), 1892, A., 232.  
 from the Apocynæ (GRESHOFF), 1891, A., 336.

**Alkaloid or alkaloids** from the *Areca nut* (JAHNS), 1889, A., 420; 1891, A., 94, 1520; 1892, A., 737.  
 from *Atropa Belladonna* (HESSE), 1891, A., 718; 1892, A., 1498; (SCHÜTTE), 1892, A., 231; (MERCK), 1892, A., 1255.  
 from *Atropa Belladonna* leaves, estimation of (DUNSTAN and RANSOM), 1886, A., 105.  
 from *Atropa Belladonna* root, estimation of (DUNSTAN and RANSOM), 1885, A., 448.  
 from *Berberidea* (HESSE), 1887, A., 283.  
 from *Berberis* (SCHMIDT and WILHELM), 1888, A., 1212; (SCHMIDT and KERSTEIN), 1890, A., 648; (RÜDEL), 1892, A., 641; (SCHMIDT), 1892, A., 1498.  
 from *Berberis Aquifolium* and *B. vulgaris* (RÜDEL), 1892, A., 641.  
 from *Boletus* (DUPETIT), 1884, A., 204.  
 from *Brucea sempervirens* (BARBAGLIA), 1884, A., 188; 1885, A., 177.  
 from *Calycanthus glaucus* (WILEY), 1890, A., 403.  
 from *Cannabis indica* or Indian hemp (HAY), 1883, A., 1155.  
 from *Carica papaya* (GRESHOFF), 1891, A., 334.  
 from *Cephaelis Ipecacuanha* (ARNI), 1889, A., 918.  
 from *Chelidonium majus* (SELLE), 1891, A., 229; (KÖNIG), 1891, A., 843.  
 from *China bicolor* (HESSE), 1887, A., 76.  
 from *Cinchona* (WOOD and BARRETT), 1883, A., 1018; (COMSTOCK and KÖNIG), 1884, A., 1382; 1885, A., 910, 1248; 1887, A., 281, 1122; (HESSE), 1888, A., 379; (CLAUS), 1892, A., 1249.  
 from *Cinchona* barks, quantitative estimation of (MEYER), 1883, A., 388.  
 from *Cinchona* barks, total, estimation of (SHIMOMYAMA), 1885, A., 845; (FAWSETT), 1890, A., 309; (HAUBENSACK), 1891, A., 1102.  
 from *Cinchona succirubra* bark, effect of altitude on (HOWARD), 1883, A., 1165.  
 from *Chonemorpha macrophylla* (GRESHOFF), 1891, A., 337.  
 from *Chrysanthemum cinerariaefolium* (MARINO-ZUCO), 1891, A., 333; 1892, A., 84.

**Alkaloid or alkaloids** from *Coca leaves* (BIGGON), 1886, A., 388; (HESSE), 1887, A., 1125; 1889, A., 731; (LIEBERMANN), 1889, A., 732; (VAN DER MARCK), 1890, A., 310.  
 from *Javan Coca leaves* (HESSE), 1887, A., 1125; (LIEBERMANN), 1891, A., 1265; (HESSE), 1892, A., 361.  
 occurring with cocaine (EINHORN), 1889, A., 628.  
 from cod liver oil (GAUTIER and MOURGUES), 1888, A., 1315; 1889, A., 63.  
 from *Conium maculatum* (LADENBURG and ADAM), 1891, A., 1119.  
 from *Conium*, estimation of (TRIPPS), 1888, A., 540.  
 from *Coptis trifolia* (SCHULTZ), 1885, A., 403.  
 from corpses (SEYDA), 1891, A., 119.  
 from corpses, behaving like strychnine (AMTHOR), 1888, A., 731.  
 from *Corydalis cava* root (ADERMANN), 1891, A., 1266; (FRIEND and JOSEPH), 1892, A., 1366.  
 from *Corydalis tuberosa* (DOBIE and LAUDER), 1892, T., 211, 605; P., 13, 123.  
 from *Crotalaria retusa* and *C. striata* (GRESHOFF), 1891, A., 335.  
 from cuprea bark (HESSE), 1883, A., 601; (PAUL and COWNLEY), 1885, A., 563.  
 from the cuttle fish (ORCHNER DE CONINCK), 1889, A., 421.  
 from *Datura Stramonium* (SCHÜTTE), 1892, A., 232.  
 from *Delphinium Staphisagria* seeds (CHARALAMPI), 1891, A., 842.  
 from *Ephedra monostachya* (SPREHR), 1892, A., 893.  
 from *Ephedra vulgaris* (LADENBURG and OELSCHLÄGER), 1889, A., 1020.  
 from *Erythrina Stenotaphis Braterot* (GRESHOFF), 1891, A., 335.  
 from *Erythrina (Hypaphorus) subumbra* (GRESHOFF), 1891, A., 335.  
 from *Erythroxylon* (BENDER), 1886, A., 85.  
 from Fenugreek seeds (JAHNS), 1886, A., 85.  
 from old flour (BALLAND), 1886, A., 161.  
 from *Gelsemium* root (THOMPSON), 1887, A., 981.  
 from human urine (CHIBRET and IZARN), 1886, A., 748; (BRASSE), 1888, A., 204; (THUDICHUM), 1888, A., 1119.  
 from *Hernandia sonora* and *H. ovigera* (GRESHOFF), 1891, A., 338.

Alkaloid or alkaloids from *Funteria corymbosa* (GRESHOFF), 1891, A., 336.  
 from *Hydrastis canadensis* (FREUND and WILK), 1887, A., 174.  
 from *Uligera pulchra* (GRESHOFF), 1891, A., 338.  
 from Koch's cultivating fluids (POUCHET), 1885, A., 1250.  
 from Kopsia (GRESHOFF), 1891, A., 337.  
 from certain Lauraceae (GRESHOFF), 1891, A., 337.  
 from *Leuconotis Eugenifolius* (GRESHOFF), 1891, A., 336.  
 from *Litsea chrysocoma* (GRESHOFF), 1891, A., 337.  
 from Lobelia (DRAGENDORFF and V. ROSEN), 1887, A., 854.  
 from *Lupinus albus* (SOLDANI), 1892, A., 892.  
 from *Lupinus luteus* (liquid) (BAUMERT), 1884, A., 1387.  
 from different lupines, percentage of (HILLER), 1885, A., 832.  
 from *Lycium barbarum* (SCHÜTTE), 1892, A., 232.  
 from *Lycopodium Scuturum* (ARATA and CANZONERI), 1892, A., 894.  
 from *Macleaya cordata* (ELIKMAN), 1885, A., 404.  
 from Mandragora (AHRENS), 1889, A., 1074, 1222.  
 from *Melodinus laevigatus* (GRESHOFF), 1891, A., 336.  
 from mushrooms (DUPRETT), 1883, A., 612.  
 from *Nicotiana Tabacum* (SCHÜTTE), 1892, A., 232.  
 from *Nigella damascena* (SCHNEIDER), 1890, A., 1317.  
 from *Nux vomica* (SIENSTONER), 1883, T., 101; 1885, T., 139; P., 5.  
 from *Ochrosia (Lactoria) acuminata*, (*O. Akerlingae*, *O. coccinea*, and *O. (Blackaria) entocarpa* (GRESHOFF), 1891, A., 337.  
 from opium (PLUGGER), 1887, A., 280.  
 from opium, reactions of the (PLUGGER), 1888, A., 379.  
 from opium, separation of the (PLUGGER), 1887, A., 851.  
 from the Papaveraceae (SCHMIDT), 1889, A., 62.  
 from *Pithecolobium bigeminum* and *P. Sannan* (GRESHOFF), 1891, A., 336.  
 from plants growing in the Dutch Indies (GRESHOFF), 1891, A., 334.  
 from *Pseudochrosia glomerata* (GRESHOFF), 1891, A., 336.

Alkaloid or alkaloids from putrid animal matter (GAUTIER and ETARD), 1883, A., 100, 224; (BRIEGER), 1883, A., 924; 1884, A., 1202; (E. and H. SALKOWSKI), 1883, A., 925.  
 from pyridine (OECHSNER DE CONINCK), 1886, A., 476.  
 from *Ranuncolia (Ophiocylon) serpentina* and *R. (Cyrtostiphonia) spectabilis* and *madurensis* (GRESHOFF), 1891, A., 336.  
 from *Remijia Purdieana* bark (HESSE), 1885, A., 64.  
 from *Rhynchosia (Cercocoma) macrantha* (GRESHOFF), 1891, A., 337.  
 from sabadilla seeds (MERCK), 1891, A., 844.  
 from *Sanguinaria canadensis* and *Chelidonium majus* roots (KÖNIG), 1891, A., 843.  
 from *Scopolia Harnackiana (Hladnikiana)* (SCHMIDT), 1888, A., 856.  
 from *Scopolia japonica* (SCHMIDT and HENSCHKE), 1888, A., 856.  
 from the Solanaceae (SCHÜTTE), 1892, A., 231.  
 from *Solanum grandiflora* (FREIRE), 1888, A., 166.  
 from *Sophora tomentosa* (GRESHOFF), 1891, A., 335.  
 from *Stylophorum diphyllum* root (SELLER), 1890, A., 649.  
 formed in the cultivation of the swine-fever bacillus (*v. SCHWEINITZ*), 1891, A., 478.  
 from *Tabernaemontana sphaerocarpa* (GRESHOFF), 1891, A., 337.  
 from tea (PAUL and COWNLEY), 1889, A., 416.  
 from *Tristolia argentina* (HESSE), 1892, A., 894.  
 from *Tylophora asthmatica* (HOOPER), 1891, A., 1266.  
 from *Veratrum album* (PEIKERICHEN), 1891, A., 87.  
 from *Veratrum album* rhizome (SALZBERGER), 1891, A., 280.  
 from *Voacanga (Orchipeda) fatida* (GRESHOFF), 1891, A., 337.  
 volatile (OECHSNER DE CONINCK), 1888, A., 328.  
 volatile, in breath or in blood (WURTZ), 1888, A., 616.  
 volatile, of pepper (JOHNSTONE), 1889, A., 298.  
 from *Xanthoxylon (Zanthoxylum senegalense* bark (GIACOSA and MONARI), 1888, A., 167; (GIACOSA and SOAVE), 1890, A., 918.

**Alkaloid or alkaloids**, reactions of (PALM), 1884, A., 120; (OECHSNER DE CONINCK), 1885, A., 818; (LUCHINI), 1886, A., 182; (VAN DER MARCK), 1890, A., 310.  
 colour reactions of (ARNOLD), 1883, A., 386; (LENZ), 1886, A., 584; (OECHSNER DE CONINCK), 1887, A., 58; 1888, A., 539; (BLOXAM), 1887, A., 752.  
 reactions of, with ammonium selenite (FERREIRA DA SILVA), 1891, A., 1562.  
 reactions of, with bromine (BLOXAM), 1883, A., 1175.  
 reactions of, with iodine chloride (DITTMAR), 1886, A., 158.  
 reactions of, with potassium platinothiocyanates (GUARFENCHT), 1892, A., 287.  
 detection of, in cases of poisoning (CHANDLON), 1885, A., 605.  
 estimation of free (CHRISTENSEN), 1892, A., 666.  
 volumetric, estimation, of, by Mayer's reagent (HERETH), 1888, A., 203.  
 filter tube for use in the estimation of, by Mayer's reagent (BIRD), 1887, A., 1002.  
 volumetric, estimation, of acids in the salts of the (PLUGGE), 1887, A., 621.  
 separation of, in forensic analysis (BECKURTS), 1885, A., 701.

## ALKALOIDS—

**Acocaffeine** (FISCHER), 1883, A., 356.  
**Acetoneberberine** (GAZE), 1890, A., 1011.  
**Acetoxypapocinchene** (COMSTOCK and KOENIGS), 1888, A., 72.  
**Acetoxycodine** (GRIMAUX), 1883, A., 359.  
**Acetylaccaffine** (FISCHER), 1883, A., 356.  
**Acetylcodeine** (HESSE), 1884, A., 614.  
**Acetylcytisine** (v. BUCHKA and MALHAES), 1891, A., 750.  
**Acetylhydrastine** (SCHMIDT and KERSTEN), 1890, A., 649.  
**Acetylhydrocotarnineacetic acid** (BOWMAN), 1887, A., 1056.  
**Acetylhydroquinine** (HESSE), 1888, A., 70.  
**Acetylphenylecgonine** (EINHORN and KILIN), 1889, A., 283.  
**Acetylphenyltropine** (LADENBURG), 1888, A., 671.  
**Acelyctine** (DRAGENDORFF and SCHOEN), 1885, A., 403.  
**Aconine** (DUNSTAN and INCE), 1891, T., 286; (DUNSTAN and UMNEY), 1892, T., 393; P., 44.

## ALKALOIDS—

**Aconine**, properties of (DUNSTAN and PASSMORE), 1892, T., 400.  
 distillation of, with baryta (EHRENBERG and PURFURST), 1892, A., 1255.  
 action of methylic iodide on, and conversion of, into aconitine (DUNSTAN and PASSMORE), 1892, T., 401; P., 44.  
 decomposition products of (DUNSTAN and PASSMORE), 1892, T., 402.  
 salts of, crystalline (DUNSTAN and PASSMORE), 1892, T., 399.  
**Aconite**, alkaloids of (DUNSTAN and INCE), 1891, T., 271; P., 36; (DUNSTAN and UMNEY), 1892, T., 385; P., 42; (DUNSTAN and PASSMORE), 1892, T., 395; P., 41.  
**Aconite preparations**, assay of (ALLEN; UMNEY), 1892, T., 392.  
**Aconitine** (MANDELIN), 1885, A., 911; (JURGENSEN), 1886, A., 565; (LUNBE), 1891, A., 91; (DUNSTAN and UMNEY), 1892, T., 390; P., 42; (EHRENBERG and PURFURST), 1892, A., 1254.  
 preparation of (WILLIAMS), 1887, A., 1125.  
 conversion of aconine into (DUNSTAN and PASSMORE), 1892, T., 401; P., 44.  
 properties of crystalline (DUNSTAN and INCE), 1891, T., 276.  
 specification of and effect of heat on (DUNSTAN and INCE), 1891, T., 281.  
 crystallographical characters of (TUTTON), 1891, T., 288; P., 39.  
 hydrolysis of (DUNSTAN and PASSMORE), 1892, T., 396.  
 anurochloride (DUNSTAN and INCE), 1891, T., 278, 279.  
 methyldioxide and methiodide (DUNSTAN and PASSMORE), 1892, T., 403.  
 detection of (MANDELIN), 1885, A., 911; (FERREIRA DA SILVA), 1891, A., 1562; (VITALI), 1892, A., 756.  
**apoAconitine**, formation and properties of (DUNSTAN and INCE), 1891, T., 283.  
**Aconitylanilamide** (SKINNER and RUHMANN), 1889, T., 238; P., 54.  
**Aconityltoluidotoluidine** (SKINNER and RUHMANN), 1889, T., 239.  
**Adoninidine** (CERVELLO), 1885, A., 833.  
**Alkylhydrastines and their derivatives** (SCHMIDT), 1890, A., 1167; (FREUND and PHILLIPS), 1891, A., 93.

## ALKALOIDS—

**Allocaffeine** (FISCHER), 1883, A., 355; (SCHILLING), 1885, A., 674.

**Amarylline** (FRAGNER), 1891, A., 1122.

**Anagyrine** and its derivatives (REALE), 1888, A., 188; (HARDY and GALLOIS), 1888, A., 1317.

**Anhydroaconitine**, formation and properties of (DUNSTAN and INCE), 1891, T., 283.

gold chloride (DUNSTAN and INCE), 1891, T., 285.

**Anhydroecgonine** (EINHORN), 1887, A., 741; 1889, A., 169; (LIEBERMANN and GIESSEL), 1889, A., 168. constitution of (MERLING), 1892, A., 360.

conversion of, into pyridine (EINHORN), 1889, A., 909.

derivatives (EINHORN), 1887, A., 741.

Urbomide, derivatives of (EICHENGRÜN and EINHORN), 1891, A., 65.

hydrobrom.-hydrobromide (EICHENGRÜN and EINHORN), 1891, A., 94.

hydrochloride, specific rotatory power of (EINHORN), 1889, A., 1018.

action of hydrogen bromide on (EICHENGRÜN and EINHORN), 1891, A., 94.

**Anhydrolupinine** (BAUMERT), 1883, A., 100.

**Anisoylcocaine** (LIEBERMANN), 1889, A., 419.

**Anisoylcegonine** (LIEBERMANN), 1889, A., 419.

**Arecaidine** (JAHNS), 1891, A., 94; 1892, A., 739.

**Arecaine** (JAHNS), 1889, A., 421.

**Arecoline** (JAHNS), 1889, A., 420; 1891, A., 94; 1892, A., 739.

**Aricine** (MOISSAN and LANDRIN), 1890, A., 803.

**Aristolochine** (POHL), 1892, A., 874; (HIESKE), 1892, A., 891.

**Artarine** (GIACOSA and SOAVE), 1890, A., 918.

**Aselline** (GAUTHIER and MOURGUES), 1888, A., 1315.

**Asiminine** (LLOYD), 1887, A., 981.

**Atropine** (LADENBURG), 1883, A., 671; (GERHARD; FLÜCKIGER), 1886, A., 632.

constitution of (LADENBURG), 1883, A., 670.

conversion of hyoscyamine into (WILL), 1888, A., 855; (SCHMITT), 1888, A., 970; (WILL and BREIDIG), 1888, A., 1316.

## ALKALOIDS—

**Atropine**, action of, on mercurous salts (GERHARD), 1886, A., 632.

relation between cocaine and (EINHORN), 1890, A., 1010.

relations between hyoscyamine and (LADENBURG), 1889, A., 167.

ferrocyanide (BECKHITS), 1890, A., 1313.

influence of, on lactation (HAMMERDACHEN), 1884, A., 1396.

influence of, on the salivary solution (LANGLEY), 1888, A., 1216; 1890, A., 397.

detection of (SCHWEISSINGER), 1885, A., 418; (GERHARD), 1886, A., 286; (FLÜCKIGER), 1886, A., 397; (BECKMANN), 1886, A., 955; (LOTTO and SPICA), 1891, A., 772; (FABRIS), 1892, A., 1534.

**Atropine**, nitr- (EINHORN and FISCHER), 1892, A., 1014.

**Atropine**, *d*- and *l*- (LADENBURG and HUNDT), 1890, A., 75.

**$\psi$ -Atropine** (LADENBURG), 1883, A., 671; (LIEBERMANN and LIMPAU), 1892, A., 891.

**apoAtropine** (LADENBURG), 1883, A., 672; (MERCK), 1892, A., 1255.

**Atropyltropine** (LADENBURG), 1883, A., 672; (MERCK), 1892, A., 1255.

**isoAtropylcocaines** (LIEBERMANN), 1888, A., 1210; (HESKE), 1889, A., 732; (LIEBERMANN and DROBY), 1889, A., 733.

**isoAtropylcegonines** (LIEBERMANN and DROBY), 1889, A., 733.

**Avenine** (SANTON), 1884, A., 915; (WILHELMSTEDT), 1889, A., 1223.

**Belladonine** and its derivatives (LADENBURG and ROTH), 1884, A., 761; (MERLING), 1884, A., 1055; (DUNKOFF), 1890, A., 271.

**Bellamarine** (FRAGNER), 1891, A., 1122.

**Benzoylcegonine**, formation of (DUNSTAN and PASSMORE), 1892, T., 401.

**Benzoylamyl-*d*-ecgonine hydrochloride** (EINHORN and MARQUARDT), 1890, A., 913.

**Benzoyldihydroxyanhydroecgonine**, derivatives of (EINHORN and RASOW), 1892, A., 1016.

**Benzoylcegonine** (MERCK), 1885, A., 997; (SKRAUP), 1885, A., 1249. preparation of (LIEBERMANN and GIESSEL), 1889, A., 168.

**Benzoyltropine** (LADENBURG), 1883, A., 671.

**Benzoyl- $\psi$ -tropine** (LIEBERMANN), 1891, A., 1265.

## ALKALOIDS—

- Benzylmarseine** and its salts (CLAUS and RITZFIELD), 1885, A., 997.
- Berberamine** (HESSEL), 1887, A., 284; (RÜDEL), 1892, A., 641.
- Berberine** (SCHMIDT), 1884, A., 339; 1892, A., 1498; (BERNHEIMER), 1884, A., 340; (PERKIN), 1888, P., 111; 1889, T., 63; 1890, T., 992; P., 117; (MARFOT), 1889, A., 627; (GAZE), 1890, A., 1011; 1891, A., 332; (LINK), 1892, A., 1498.
- constitution of (HOOGWERFF and VAN DORP), 1889, A., 168; (PERKIN), 1890, T., 1003.
- properties of (PERKIN), 1889, T., 68.
- action of bromine on (LINK), 1892, A., 1498.
- action of hydrogen iodide on (PERKIN), 1889, T., 86.
- action of fused potash on (PERKIN), 1889, T., 88.
- oxidation of, with potassium permanganate (SCHMIDT and SCHILBACH), 1887, A., 604; (PERKIN), 1889, T., 71; 1890, T., 1010.
- derivatives of (SCHMIDT), 1884, A., 339; (BERNHEIMER), 1884, A., 340.
- salts (SCHILBACH), 1887, A., 604; (PERKIN), 1889, T., 65; 1890, T., 1097; (RÜDEL), 1892, A., 642.
- hydrobromide, tetrabromo- (GAZE), 1890, A., 1012.
- detection of (v. HIRSCHHAUSEN), 1885, A., 606; (FERREIRA DA SILVA), 1891, A., 1562.
- Bilganine** (ADRIAN), 1886, A., 816; (ARATA and CANZONERI), 1892, A., 891.
- Bromoformberberine** (GAZE), 1890, A., 1012.
- Brucine** (SHENSTONE), 1883, T., 101; (OROSNER DE CONINCK), 1885, A., 564; (HANSSEN), 1885, A., 565.
- constitution of (HANSSEN), 1887, A., 505.
- specific rotatory and refractive powers of (KANONNIKOFF), 1889, A., 453.
- rotatory dispersion of (GRIMBERT), 1885, A., 330.
- action of chromic mixture, and of phosphorus pentachloride on (HANSSEN), 1885, A., 276.
- action of hydriodic acid on (SHENSTONE), 1883, T., 104.
- action of hydrochloric acid on (SHENSTONE), 1883, T., 102; (HANSSEN), 1885, A., 63.
- bromination of (BECKURTS), 1890, A., 1330.

## ALKALOIDS—

- Brucine**, distillation of, with lime and with potash (BUREND and STORIE), 1891, A., 87.
- distillation of, with zinc (LOEBSCHE and SCHOOP), 1887, A., 282.
- oxidation-product of (HANSSEN), 1885, A., 819.
- conversion of, into strychnine (HANNOT), 1884, A., 88.
- relation of, to strychnine (HANSSEN), 1885, A., 1146.
- ferricyanide (HOIST and BECKURTS), 1887, A., 852.
- ferricyanide (HOIST and BECKURTS), 1887, A., 852; (BECKURTS), 1890, A., 1318.
- hydrobromide, action of bromine on (BECKURTS), 1885, A., 911.
- physiological action of (BRUNTON), 1885, T., 113; P., 5; (MAYN), 1888, A., 312.
- as a test for tin (DRYER), 1881, A., 498.
- detection of (FERREIRA DA SILVA), 1891, A., 1562.
- microchemical test for (LINDT), 1885, A., 449.
- estimation of strychnine and (HOIST and BECKURTS), 1887, A., 853.
- separation of, from strychnine (GEROCK), 1889, A., 748.
- Brucine**, dichloro- (BECKURTS), 1890, A., 1330.
- nitro- and amido-derivatives of (HANSSEN), 1886, A., 564.
- Bulbocapnine** (FRIED and JOSEPH), 1892, A., 1366.
- iso*Butoxyhydrocotarnine methiodide (ROSEN), 1890, A., 532.
- iso*Butylbenzoylcegonine (NOVY), 1887, A., 1126.
- iso*Butylcegonine hydrochloride (KINHORN and MARQUARDT), 1890, A., 913.
- Buxine** (BARBAGLIA), 1881, A., 188.
- Buxidine** (BARBAGLIA), 1881, A., 188.
- Parabuxinidine**, a fourth alkaloid from the box tree, *Buxus sempervirens* (BARBAGLIA), 1885, A., 177.
- Caffeidine** (MALY and ANDREASCH), 1883, A., 1016; (SCHMIDT and WERNECKE), 1891, A., 331.
- oxidation of, with chromic acid (MALY and ANDREASCH), 1883, A., 1017.
- salts of (SCHMIDT and WERNECKE), 1891, A., 331.
- reactions of (WERNECKE), 1888, A., 68.

## ALKALOIDS—

- Caffeine** (*theine*) (TANRET), 1883, A., 97; (BIEDERMANN), 1884, A., 185.  
 in cacao (SCHMIDT), 1883, A., 873.  
 in guarana (FERMSTER), 1883, A., 232.  
 in tea (PAUL and COWNLEY), 1891, A., 358.  
 constitution of (FISCHER), 1883, A., 357.  
 action of dilute alkalis on (MALY and ANDREASCH), 1883, A., 1016.  
 action of hydrochloric acid on (SCHMIDT), 1883, A., 873.  
 oxidation of, with ozone (LEIPEN), 1889, A., 1017.  
 derivatives (FISCHER), 1883, A., 354; (FISCHER and REESE), 1884, A., 466; (SCHMIDT and SCHILLING), 1885, A., 995.  
 salts (TANRET), 1883, A., 97; (BIEDERMANN), 1884, A., 185.  
 salts of artificial (SCHMIDT), 1883, A., 873.  
 chloridide (WERNECKE), 1888, A., 68.  
 chloridide and its hydrochloride (OSTERMAYER), 1885, A., 1250.  
 hydroxide, products of decomposition of (SCHILLING), 1885, A., 674.  
 methhydroxide and its derivatives (SCHMIDT), 1884, A., 338; 1886, A., 899.  
 oxalate (LEIPEN), 1889, A., 1018.  
 physiological action of (COPPOLA), 1888, A., 312.  
 action of, on voluntary muscle (BRUNTON and CASIR), 1887, A., 985; 1888, A., 1217.  
 behaviour of, in the animal organism (MALY and ANDREASCH), 1883, A., 1018.  
 influence of, on digestion (CHITTENDEN and STEWART), 1889, A., 534.  
 detection of (WERNECKE), 1888, A., 68; (FERREIRA DA SILVA), 1891, A., 1562.  
 estimation of (PAUL and COWNLEY), 1887, A., 1002; (PAUL), 1891, A., 1403.  
 estimation of, in coffee (SMITH), 1888, A., 539.  
 estimation of, in guarana (KIEMEL), 1888, A., 876.  
 estimation of, in tea (PAUL and COWNLEY), 1888, A., 539; (SPENCER), 1891, A., 134, 964; (VITÉ), 1891, A., 372; (DYBKOVITSCHE), 1891, A., 1302.

## ALKALOIDS—

- Caffeine.** See also Allocaffeine and Hypocaffeine.  
**Caffeine**, chloro- (FISCHER and REESE), 1884, A., 466.  
**Caffoline** (FISCHER), 1883, A., 356.  
**Calycanthine** (WILEY), 1890, A., 403.  
**Canadine** (SCHMIDT and WILHELM), 1888, A., 1212.  
**Carpaine**, the alkaloid of *Carica papaya* (GREENHOFF), 1891, A., 334.  
**Chairamidine** and its salts (HEESE), 1885, A., 64, 68.  
**Chairamine** and its salts (HEESE), 1885, A., 64, 67.  
**Chelerythrine** (HENSCHKE), 1887, A., 854; (KÖNIG), 1891, A., 844.  
**Chelidonine** (HENSCHKE), 1887, A., 854; 1889, A., 62.  
 detection of (v. KÜGELGEN), 1885, A., 608; (BROUINER), 1890, A., 310.  
**Chinine.** See Quinine.  
**Chloroformberberine** (GAZE), 1890, A., 1012; 1891, A., 332.  
**Choline** from the areca-nut (JAINES), 1891, A., 94.  
 in cotton-seed foods (MAXWELL), 1892, A., 380.  
 in germinating plants (SCHULZE), 1887, A., 747.  
 in hops (GREENS and HARROW), 1885, T., 298.  
 in seeds (SCHULZE), 1891, A., 490.  
 in the seeds of *Vicia sativa* (SCHULZE), 1889, A., 1029.  
 action of hydriodic and hydrobromic acids on (SCHMIDT), 1892, A., 808.  
 relation of, to neurine (SCHMIDT), 1892, A., 219.  
 analogues of (NIEMLOWITZ), 1886, A., 933.  
 derivatives of (BODE), 1892, A., 806; (SCHMIDT), 1892, A., 905.  
**isoCholine** and its salts (MEYER), 1883, A., 568.  
**Chrysanthemine** (MARINO-ZUCO), 1891, A., 334; 1892, A., 84.  
**Cinchene** (*cinchone*) (COMSTOCK and KORNIG), 1885, A., 910.  
 action of bromine on (COMSTOCK and KORNIG), 1887, A., 1122.  
 oxidation products of (COMSTOCK and KORNIG), 1884, A., 1383.  
 salts (COMSTOCK and KORNIG), 1885, A., 910.  
 dibromide (COMSTOCK and KORNIG), 1887, A., 282, 1122.  
 hydrobromo- (COMSTOCK and KORNIG), 1887, A., 1124.

## ALKALOIDS—

**Cinchenine** (*cinchine*), lepidine derivatives from (KÖNIGS), 1890, A., 1433.

*apo***Cinchenine**, brom- and its derivatives (COMSTOCK and KÖNIGS), 1888, A., 71.

**Cincholine** (HESSE), 1892, A., 1492.

**Cinchonamine** (ARNAUD), 1884, A., 87; (HESSE), 1885, A., 64; (FRIEDEL), 1888, A., 165.

derivatives (HESSE), 1885, A., 64.

salts (ARNAUD), 1884, A., 87.

physiological action of (SÉE and BOCHERFONTAINE), 1885, A., 571, 682.

as a test for nitrates (ARNAUD), 1891, A., 362.

**Cinchonibine** and its derivatives (JUNGFLEISCH and LÉGER), 1888, A., 380, 507, 969.

**Cinchonidine**, constitution of (SCHNIDERSCHITSCH), 1889, A., 626.  
melting-point of (HESSE), 1890, A., 1166.

oxidation of (SKRAUP; SCHNIDERSCHITSCH), 1889, A., 626.

benzyl salts (CLAUS), 1892, A., 1251.

chloride (COMSTOCK and KÖNIGS), 1884, A., 1383.

compounds of, with hydriodic acid (SKRAUP), 1892, A., 83.

ethiodides and methiodides (CLAUS), 1892, A., 1251.

ethylic cyanide (CLAUS and MERCK), 1884, A., 338.

ferrocyanide (BECKURTS), 1890, A., 1318.

quinol and resorcinol sulphate (HESSE), 1889, A., 908.

detection of, in quinine (WOOD and BARRER), 1883, A., 1019.

estimation of, in quinine sulphate (JOWNLEY), 1886, A., 632; (HESSE), 1886, A., 813; (SOLLNER), 1887, A., 623; 1888, A., 636.

*iso***Cinchonidine** (HESSE), 1888, A., 380.

**Cinchonidinesulphonic acid** (HESSE), 1892, A., 515.

*iso***Cinchonidinesulphonic acid** (HESSE), 1892, A., 514.

**Cinchonifine** (JUNGFLEISCH and LÉGER), 1888, A., 380, 507.

**Cinchonigine** and its derivatives (JUNGFLEISCH and LÉGER), 1888, A., 380, 507, 612.

**Cinchoniline** and its derivatives (JUNGFLEISCH and LÉGER), 1888, A., 380, 507, 729.

## ALKALOIDS—

**Cinchonine** (FREUND and ROSENSTEIN), 1892, A., 892.

constitution of (SKRAUP), 1887, A., 161; 1889, A., 281.

rotatory dispersion of (GRIMBERT), 1888, A., 330.

optical isomerides of (JUNGFLEISCH and LÉGER), 1888, A., 380.

action of caustic alkalis on (KRAKAU), 1885, A., 1081; 1886, A., 161.

action of hydriodic acid on (LIPPMANN and FLEISSNER), 1891, A., 1517; 1892, A., 639; (PUM), 1892, A., 514.

action of oxalic acid on, in presence of sulphuric acid (CAYENFOW and GUARD), 1888, A., 507.

bromination of (COMSTOCK and KÖNIGS), 1887, A., 1123.

decomposition of, by sodium ethoxide (MICHAEL), 1886, A., 162.

oxidation of (SKRAUP; SCHNIDERSCHITSCH), 1889, A., 626.

oxidation of, to cinchoninic acid (CLAUS), 1885, A., 560.

oxidation-products of (WEINDEL and ILAZURA), 1888, A., 222; (COMSTOCK and KÖNIGS), 1884, A., 1383.

derivatives of (JUNGFLEISCH and LÉGER), 1888, A., 507.

*di*bromide (COMSTOCK and KÖNIGS), 1887, A., 281.

chloride (COMSTOCK and KÖNIGS), 1892, A., 1011.

compounds of, with hydriodic acid (SKRAUP), 1892, A., 83.

diethyl salts (CLAUS), 1892, A., 1252.

ethocyanide (CLAUS), 1892, A., 1251.

ferrocyanide (BECKURTS), 1890, A., 1318.

hydriodo- salts of (LIPPMANN and FLEISSNER), 1891, A., 1517; 1892, A., 1368.

hydrobromo- and hydrochloro- (COMSTOCK and KÖNIGS), 1887, A., 1124.

muente (RUHEMANN and DUFFON), 1891, T., 754.

**Cinchonine**, bromo-, chloride (COMSTOCK and KÖNIGS), 1892, A., 1011.

*di*chloro- (COMSTOCK and KÖNIGS), 1892, A., 1011.

*iso***Cinchonine** and its derivatives (COMSTOCK and KÖNIGS), 1887, A., 1124; 1888, A., 380; (HESSE), 1891, A., 583; 1892, A., 222;

## ALKALOIDS—

*isoCinchonine* and its derivatives (*con.*) (JUNGFLEISCH and LÉGER), 1891, A., 1121; 1892, A., 222.

*isoCinchoninesulphonic acid* (HESSE), 1892, A., 515.

*apoCinchonine* (JUNGFLEISCH and LÉGER), 1892, A., 1253.

and hydrochloro-, specific rotatory power of, under the influence of acids (OUDEMANS), 1883, A., 359.

**Cocaicine** (BENDER), 1886, A., 85.

**Cocaine** (*benzoylmethylecgonine*)

(MERCK), 1885, A., 565; (PAUL), 1886, A., 84; 1888, A., 1118; (BIGNON), 1886, A., 388, 951; (LYONS), 1886, A., 479; (FLUCKIGER), 1886, A., 632; (EINHORN), 1887, A., 742; 1888, A., 381; 1889, A., 168; (LIEBERMANN), 1889, A., 419.

amorphous (STOCKMAN), 1887, A., 980.

preparation of (SQUIBB), 1886, A., 371.

artificial preparation of (MERCK), 1885, A., 1249; 1886, A., 163.

commercial preparation and partial synthesis of (LIEBERMANN and GIESSEL), 1889, A., 168.

bye-product from the commercial synthesis of (LIEBERMANN and GIESSEL), 1890, A., 647, 803.

constitution of (CALMELS and GOSSIN), 1885, A., 912.

specific rotatory power of (ANTHICK), 1887, A., 506.

relation of, to atropine (EINHORN), 1890, A., 1010.

alkaloids occurring with (EINHORN), 1889, A., 628.

metameric, and its homologues (EINHORN), 1889, A., 420.

homologues of, artificial preparation of (MERCK), 1886, A., 163.

higher homologues of (NOVY), 1887, A., 1126.

salts (PAUL), 1886, A., 84; 1888, A., 1118; (LYONS), 1886, A., 479.

benzoate (PAUL), 1886, A., 633; (BIGNON), 1886, A., 951.

chromate (MEZGER), 1890, A., 839; (MÜLLER), 1891, A., 585.

cinnamic acid in the products of decomposition of crude (FRANKFELD), 1889, A., 419.

*isocinnamic acid* in the alkaloids of (LIEBERMANN), 1890, A., 494.

ferrocyanide (BECKURTS), 1890, A., 1318.

hydrochloride (LIEBERMANN and GIESSEL), 1890, A., 647.

## ALKALOIDS—

**Cocaine** (*benzoylmethylecgonine*), hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1001.

mercurchloride (MÜLLER), 1891, A., 585.

methiodide and methochloride (EINHORN), 1889, A., 170.

physiological action of (GRASSET and JEANNEL), 1885, A., 571; (SIGNICELLI), 1888, A., 312; (MOSSO), 1888, A., 864; 1891, A., 486.

anesthetic action of (GRASSET), 1885, A., 285, 415.

action of, on the invertebrates (RICHARD), 1885, A., 1002.

detection of (GOELDNER), 1890, A., 96; (MEZGER), 1890, A., 831;

(FERREIRA DA SILVA), 1891, A., 134, 1562; (VITALI), 1891, A., 1561.

estimation of (LYONS), 1886, A., 1087.

valuation of crude, from Peru (SQUIBB), 1890, A., 838.

separation of, from hygrine (HOWARD), 1887, A., 1126.

*Δ-Cocaine* (EINHORN and MARQUARDT), 1890, A., 647, 913; (DECKERS and EINHORN), 1891, A., 475.

**Cocryleogonine** (HESSE), 1889, A., 732.

**Codeine** (*methylmorphine*) (v. GERICHTEN and SCHRÖTTER), 1883, A., 221; (GRIMAUD), 1883, A., 358; (PLUGGE), 1887, A., 280; (KNOLL), 1889, A., 625.

rotatory dispersion of (GRIMBERT), 1888, A., 330.

non-nitrogenous compounds from (v. GERICHTEN and SCHRÖTTER), 1883, A., 221.

derivatives of (HESSE), 1884, A., 614; (FISCHER and v. GERICHTEN), 1886, A., 563.

carbonate (OTTO and HOLST), 1892, A., 688.

methiodide (SKRAUP and WIEGMANN), 1890, A., 179.

*β*-methiodide and methochloride and their derivatives (HESSE), 1884, A., 614.

reactions of (RABY), 1885, A., 302; (LAFON), 1885, A., 1095;

(BROCIEN), 1890, A., 311; (VITALI), 1892, A., 756.

estimation of (CLAASSEN), 1890, A., 1198.

## ALKALOIDS—

**Codeine**, bromo-, non-nitrogenous compounds from (v. GERICHTEN and SCHROETER), 1883, A., 221.

$\psi$ -**Codeine** (MERCK), 1891, A., 1121.

**Codethyline** (GRIMAUD), 1883, A., 358.

non-nitrogenous compounds from (v. GERICHTEN and SCHROETER), 1883, A., 221.

**Codomethine** (*methylmorphinethine*) and its derivatives (HESSE), 1881, A., 611; (KNORR), 1889, A., 117.

**Codomethyline** (GRIMAUD), 1883, A., 358.

**Colchicine** (ZEISEL), 1883, A., 672; 1884, A., 1387; 1887, A., 281.

*apo*-**Colchicine** (ZEISEL), 1883, A., 673; 1884, A., 1387.

**Colchicine** (ZEISEL), 1883, A., 672; 1884, A., 1387; 1887, A., 281; 1888, A., 613; (JOHANNY and ZEISEL), 1889, A., 282.

crystallised (HOUDER), 1884, A., 1055.

therapeutic action of (MAIRET and COMBEMALE), 1887, A., 614.

toxic action of (MAIRET and COMBEMALE), 1887, A., 515.

detection of, in corpses (OBOLONSKI), 1891, A., 135.

estimation of, in colchicum seeds (KIMMEL), 1891, A., 512.

**Colchicine-like** decomposition product in a case of suspected poisoning (BAUMERT), 1888, A., 636.

**Conchairamidine** and its salts (HESSE), 1885, A., 61, 67, 68.

**Concuseonidine** (HESSE), 1883, A., 602; 1885, A., 60.

**Concuseonine** and its salts (HESSE), 1883, A., 602; 1885, A., 61, 66.

**Conessine** (*wrightine*) (WARNECKE), 1886, A., 372; 1888, A., 855; (POLSGORFF and SCHIRMER), 1886, A., 372; (POLSGORFF), 1886, A., 901.

**Conhydrine** (*oryzantine*) and its derivatives (v. HOFMANN), 1885, A., 401, 563.

attempt to synthesise (ALEXANDER), 1890, A., 1447.

action of dehydrating agents on (v. HOFMANN), 1883, A., 220.

$\psi$ -**Conhydrine** (LADENBURG), 1891, A., 1119.

formation of, from  $\alpha$ -pyridyl ethyl ketone (ENGEL and BAUER), 1891, A., 1505.

**Conicidine** (v. HOFMANN), 1885, A., 568.

## ALKALOIDS—

$\alpha$ -**Coniceine** and its derivatives (v. HOFMANN), 1885, A., 101.

preparation of (v. HOFMANN), 1885, A., 562.

$\beta$ -**Coniceine** and its derivatives (v. HOFMANN), 1885, A., 101.

$\gamma$ -**Coniceine** and its derivatives (v. HOFMANN), 1885, A., 562; (LELLMANN and MULLER), 1890, A., 502.

**Coniceines** (LELLMANN), 1889, A., 901; 1890, A., 1328.

**Coniine** (LADENBURG and SCHRAEDER), 1884, A., 1018; (LELLMANN and MULLER), 1890, A., 802.

synthesis of (v. HOFMANN), 1881, A., 1201; (LADENBURG), 1886, A., 478.

synthesis of active (LADENBURG), 1887, A., 160.

constitution of (BAUM), 1886, A., 563.

specific rotatory and refractive powers of (KANONIKOFF), 1889, A., 453.

action of bromine on, in alkaline solution (v. HOFMANN), 1883, A., 789.

oxidation products of (SCHOTTEN and BAUM), 1885, A., 176; (BAUM), 1886, A., 562.

derivatives (SCHOTTEN), 1883, A., 220; (v. HOFMANN), 1884, A., 1200; 1885, A., 102.

ferrocyanide (BECKURTS), 1890, A., 1318.

group (v. HOFMANN), 1885, A., 562.

detection of, in a case of poisoning (ANDREWS), 1891, A., 871.

**Coryoavine** (FREUND and JOSEPHI), 1892, A., 1367.

**Corydaline** (ADERMAN), 1891, A., 1266; (DOBIE and LAUDER), 1892, T., 241, 605; P., 13, 123;

(FREUND and JOSEPHI), 1892, A., 1366.

allyl iodide (DOBIE and LAUDER), 1892, T., 219.

ethyl sulphate (DOBIE and LAUDER), 1892, T., 607.

hydriodide (DOBIE and LAUDER), 1892, T., 246.

hydrobromide (DOBIE and LAUDER), 1892, T., 607.

methiodide (DOBIE and LAUDER), 1892, T., 218.

platinochloride (DOBIE and LAUDER), 1892, T., 247.

**Cotarnine** and its derivatives, constitution of (ROSEN), 1889, A., 418; 1890, A., 530.

## ALKALOIDS—

- Cotarnine hydriodide** (ROSER), 1889, A., 17.  
 oxime (ROSER), 1890, A., 528.  
 physiological action of (STOCKMAN and DOTT), 1891, A., 762.
- Cryptopine and its derivatives** (KAUDER), 1887, A., 1122; (BROWN and PERKIN), 1891, P., 166.
- Cupreine** (HESSE), 1885, A., 276; 1886, A., 83; (PAUL and COWNLEY), 1885, A., 564, 997; (OUDEMANS), 1889, A., 1018; (GRIMAUD and ARNAUD), 1892, A., 1253.  
 behaviour of, with methylic iodide (HESSE), 1892, A., 221; (GRIMAUD and ARNAUD), 1892, A., 892.  
 conversion of, into quinine (GRIMAUD and ARNAUD), 1891, A., 1121; 1892, A., 892; (HESSE), 1892, A., 1010.  
 metallic derivatives of (OUDEMANS), 1891, A., 474.  
 salts of (HESSE), 1886, A., 83.  
 solubility and specific rotatory powers of (OUDEMANS), 1889, A., 1019.
- Curarine from *Strychnos toxicaria*** (VILLIERS), 1885, A., 997.  
 reaction of (FERREIRA DA SILVA), 1891, A., 1582.
- Curine** (BOEHM), 1887, A., 1125.
- Cusparidine** (BECKURTS and NEHRING), 1892, A., 618.
- Cusparine and its salts** (KÜNNER and BÜHLINGER), 1884, A., 341; (BECKURTS and NEHRING), 1892, A., 643.
- Cyanoconiine and its derivatives** (v. MEYER), 1883, A., 352.
- Cytisine** (VAN DE MOER), 1891, A., 231; (v. BUCHKA and MAGALHÃES), 1891, A., 587; (PARTHEIL), 1891, A., 750, 946.  
 differences between ulexine and (GERRARD and SYMONS), 1891, A., 334.
- Damascenine** (SCHNEIDER), 1890, A., 1317.
- Daturine**, preparation of, from *Stramonium* seeds (HAETZ), 1885, A., 820.
- Dehydrocinchenine** (COMSTOCK and KOENIGS), 1887, A., 282.  
*di*bromide (COMSTOCK and KOENIGS), 1892, A., 1012.
- Dehydrocinchonine and its chloride** (COMSTOCK and KOENIGS), 1887, A., 281, 282.  
*di*bromide (COMSTOCK and KOENIGS), 1892, A., 1012.

## ALKALOIDS—

- Dehydrocinchonine**, hydrobromide (COMSTOCK and KOENIGS), 1887, A., 1125.
- Dehydroquinine** (COMSTOCK and KOENIGS), 1887, A., 1123.
- Delphine**, reaction of (FERREIRA DA SILVA), 1891, A., 1562.
- Delphinine**, composition and properties of (CHAILALAMPI), 1891, A., 843.
- Diacyllupinine** (BAUMERT), 1884, A., 1387.
- Diacylmorphine and its derivatives** (HESSE), 1884, A., 613.
- Dicinchonine** (HESSE), 1885, A., 675.
- Diapocinchonine** (JUNGLEIN and LÉGER), 1892, A., 1253.
- Dihydrocinchonine** (COMSTOCK and KOENIGS), 1884, A., 1384.
- Dihydroxyanhydroecgonine** (EINHORN and RASOW), 1892, A., 1015.
- Dimethoxyconiine** (v. HOFMANN), 1885, A., 563.
- Dimethyleinchonine** (FREUND and ROSENSTEIN), 1892, A., 892.
- Dioxyberberine** (PERKIN), 1890, T., 1003, 1087.
- Dioxydehydronicotine, dibromo- (PINNER), 1892, A., 1497.**
- Ecgonine** (CALMELS and GOSNIN), 1885, A., 912; (MERCK), 1887, A., 234; (GINTL and STORCH), 1887, A., 682; (EINHORN), 1887, A., 741; (MUSSI), 1891, A., 333.  
 constitution of (STOEHR), 1889, A., 908; (LIEBERMANN), 1891, A., 750; (MERLING), 1892, A., 360.  
 oxidation of (LIEBERMANN), 1890, A., 1449.  
 salts (CALMELS and GOSNIN), 1885, A., 912; (MUSSI), 1891, A., 333.  
 hydrochloride, specific rotatory power of (EINHORN), 1889, A., 1018.  
 methylic salt of, action of acid chlorides on (EINHORN and KLEIN), 1889, A., 283.  
 reactions of (VITALI), 1891, A., 1561.
- d-Ecgonine** (EINHORN and MARQUARDT), 1890, A., 646, 913.
- Ecgonines, d- and l-**, oxidation products of (LIEBERMANN), 1891, A., 749.
- Emetine** (KUNZ), 1887, A., 980.  
 assay of, in *ipocacuanha* wine (BLUNT), 1890, A., 310, 548.  
 estimation of (JONES), 1886, A., 1086; (KLEMMEL), 1888, A., 1851.

## ALKALOIDS—

$\psi$ -**Ephedrine** and its derivatives  
(LADENBURG and OELSCHLÄGER),  
1889, A., 1020.

constitution of (FLEISCH), 1891, A.,  
1264.

**Ergotinine** (TANRET), 1885, A., 84;  
(BOMBELON), 1888, A., 970.

**Eserine**, reaction for (FERREIRA DA  
SILVA), 1891, A., 1562.

**Ethylbenzoylcegonine** (NOVY), 1887,  
A., 1126.

**Ethylbenzoyl- $\alpha$ -ecgonine** (EINHORN  
and MARQUARDT), 1890, A., 913.

**Ethylapocinchonine** (COMSTOCK and  
KOENIGS), 1885, A., 1249.

$\alpha$ -Brom- (COMSTOCK and KOENIGS),  
1888, A., 72.

**Ethyleinchonamine** (HESSE), 1885,  
A., 66.

**Ethyl- $\alpha$ -cocaine aurochloride** (EIN-  
HORN and MARQUARDT), 1890, A.,  
913.

**Ethylenedimorphine** (*Nicodethine*)  
(GRIMAUD), 1883, A., 359.

**Ethylhydrastamide** (FREUND and  
HEIM), 1891, A., 92.

**Ethylhydrastine** (FREUND and RO-  
SENBERG), 1890, A., 533.

**Ethylhydrastine** (POWER), 1885, A.,  
675; (KERSTEIN), 1890, A., 74;  
(SCHMIDT and KERSTEIN), 1890,  
A., 649.

ethiodide (FREUND and ROSEN-  
BERG), 1890, A., 533.

hydroxide (SCHMIDT), 1890, A.,  
1169.

**Ethylhydroberberine** (GAZE), 1890,  
A., 1012.

derivatives (LINK), 1892, A., 1490.

**Fagine** (HABERMANN), 1885, A., 676.

**Fumarine** (REICHWALD), 1890, A.,  
272.

**Galipeine** and its salts (KÖRNER and  
BOHRINGER), 1881, A., 311.

**Galipidine** and **galipine** (BECKURTS  
and NEHRING), 1892, A., 642, 643.

**Gelseminine** (THOMPSON), 1887, A., 981.

**Gerontine** (GRANUS), 1891, A., 588.

**Glauine** (BATTANDIER), 1892, A., 893.

**Harmaline**, **harmalol** and **harmine**  
(FISCHER and TAUBER), 1885, A.,  
820; (FISCHER), 1889, A., 730.

**apoHarmine** (FISCHER), 1889, A.,  
731.

**Hexahydronicotine** (BLAU), 1891,  
A., 588; 1892, A., 1365.

$\psi$ -**Homostropine** (LIEBERMANN and  
LIMPACH), 1892, A., 891.

**Homochelidonine**,  $\alpha$ - and  $\beta$ - (SELLE),  
1891, A., 229.

## ALKALOIDS—

$\gamma$ -**Homochelidonine** (KÖNIG), 1891,  
A., 811.

**Homopocinchonine** and its deriva-  
tives (COMSTOCK and KOENIGS),  
1888, A., 72.

$\beta$ -**Homocinchonidine** (HESSE), 1890,  
A., 1166.

**Homonapelline** (DUNSTAN and UM-  
NEY), 1892, T., 393.

**Homoquinine** (PAUL and COWNLEY),  
1885, A., 563, 997; (HESSE),  
1884, A., 1381; 1886, A., 83;  
1890, A., 1166.

synthesis of (HESSE), 1885, A., 276.  
salts (HESSE), 1884, A., 1381.

**Hopeine** (LADENBURG), 1886, A., 269,  
563; (WILLIAMSON), 1886, A., 724.

**Hydrastaldehyde** (FREUND), 1889,  
A., 1221.

**Hydrastine**, constitution of (FRE-  
UND and ROSENBERG), 1890, A.,  
531.

**Hydrastine** (POWER), 1885, A., 675;  
(LYONS), 1886, A., 633; (HINK-  
MAN), 1887, A., 505; (FREUND

and WILL), 1887, A., 171, 383;  
(FREUND), 1889, A., 627, 908,

1221; 1890, A., 534; (FREUND  
and LACHMANN), 1889, A., 1220;

(KERSTEIN), 1890, A., 74;  
(FREUND and ROSENBERG), 1890,

A., 532; (HEIM), 1890, A., 1333;  
(FREUND and HEIM), 1891, A., 92;

(FREUND and PHILIPS), 1891, A.,  
93; (FREUND and DORMEYER),

1891, A., 1518; 1892, A., 223.

constitution of (FREUND), 1889, A.,  
1222; 1890, A., 534.

derivatives (POWER), 1885, A., 675;  
(FREUND and WILL), 1887, A.,

1057; (SCHMIDT and WILHELM),  
1888, A., 1212; (SCHMIDT and

KERSTEIN), 1890, A., 648.

alkyl derivatives of (SCHMIDT),  
1890, A., 1167; (FREUND and

HEIM), 1891, A., 92; (FREUND  
and PHILIPS), 1891, A., 93.

allylic iodide (FREUND and  
PHILIPS), 1891, A., 93.

ferrocyanide (BECKURTS), 1890, A.,  
1318.

methhydroxide and methochloride  
(FREUND and ROSENBERG), 1890,

A., 532.

methiodide (FREUND and ROSEN-  
BERG), 1890, A., 532; (SCHMIDT),

1890, A., 1167.

reactions of ( $\gamma$ -HIRSCHHAUSEN),  
1885, A., 606; (LYONS), 1886, A.,  
633; (VITALI), 1892, A., 755.

## ALKALOIDS—

- Hydrastine-ethylammonium hydr-oxide** (WILHELM), 1888, A., 1212.
- Hydrastine-methylammonium hydr-oxide** (SCHMIDT), 1890, A., 1167.
- Hydrastinine** (FREUND and WILL), 1887, A., 383.  
 constitution of (FREUND), 1889, A., 1222.  
 oxidation of (FREUND), 1889, A., 627.  
 derivatives of (FREUND and WILL), 1887, A., 383.
- Hydrastophthalimidine** (FREUND and PHILIPS), 1891, A., 94.
- Hydroberberine** (SCHMIDT), 1884, A., 339; (BERNHHEIMER), 1884, A., 340; (GAZE), 1890, A., 1011; 1891, A., 332; (LINK), 1892, A., 1498.  
 derivatives (SCHMIDT), 1884, A., 339; (BERNHHEIMER), 1884, A., 340.  
 ethiodide and related compounds (GAZE), 1890, A., 1012; (LINK), 1892, A., 1499.
- Hydrocinchonidine** and its salts (HESSE), 1883, A., 97.
- Hydrocotarnine**, physiological action of (STOCKMAN and DOTT), 1891, A., 762.
- Hydrocupreine** (HESSE), 1888, A., 71.
- Hydrohydrastine** (POWER), 1885, A., 675.
- Hydrohydrastinine** (FREUND and WILL), 1887, A., 384.  
 preparation of (FREUND and DORMEYER), 1891, A., 1518.  
 constitution of (FREUND), 1889, A., 1222.  
 derivatives of (FREUND and WILL), 1887, A., 1057.  
 methochloride (FREUND and DORMEYER), 1891, A., 1519.
- Hydronicotine** (ETARD), 1884, A., 464.
- Hydroquinicine** (HESSE), 1888, A., 70.
- Hydroquinidine** and its sulphate (HESSE), 1883, A., 602.
- Hydroquinine** and its derivatives (HESSE), 1888, A., 69.  
 methhydroxide (HESSE), 1888, A., 70.
- Hydroquininesulphonic acid** (HESSE), 1888, A., 71.
- Hydrotropidine** and its salts (LADENBURG), 1883, A., 1155.
- Hydrotropine iodide** (LADENBURG), 1883, A., 672.
- Hydroxybenzotropeine** and its salts (LADENBURG), 1883, A., 671.

## ALKALOIDS—

- $\alpha$ -Hydroxycinchonine** and its derivatives (JUNGFLAISCH and LÉGER), 1888, A., 380, 507; 1889, A., 906.
- $\beta$ -Hydroxycinchonine** (JUNGFLAISCH and LÉGER), 1888, A., 380, 507.
- Hydroxycyanoconiine** and its derivatives (V. MEYER), 1883, A., 352, 354; (RIESS), 1885, A., 235.
- Hydroxyhydrastinine** and its derivatives (FREUND and WILL), 1887, A., 1057.
- Hydroxymethylhydrohydrastinine methiodide**, bromo- (FREUND and DORMEYER), 1891, A., 1520.
- Hygrine** (BIGNON), 1886, A., 388; (STOCKMAN), 1888, A., 508; (LIEBERMANN), 1889, A., 732; (LIEBERMANN and KÜHLING), 1891, A., 586.  
 separation of, from cocaine (HOWARD), 1887, A., 1126.
- Hymenodictyonine**, the bitter principle of *Hymenodictyon excelsum* (NAYLOR), 1883, A., 1141; 1885, A., 565.
- Hyosaine** (LADENBURG), 1884, A., 761; 1892, A., 1366; (SCHMIDT), 1892, A., 1255, 1498; (HESSE), 1892, A., 1498.  
 hydrochloride, physiological action of (GLEY and RONDEAU), 1888, A., 182; (PAWLOFF), 1890, A., 1019.
- Hyoscyamine**, existence of, in the lettuce (DYMOND), 1891, P., 165; 1892, T., 90.  
 conversion of, into atropine (WILL), 1888, A., 855; (SCHMIDT), 1888, A., 970; (WILL and BREDIG), 1888, A., 1316.  
 salts (WILL), 1888, A., 855.  
 relation of, to atropine (LADENBURG), 1889, A., 167.
- Hypocaffeine** and its salts (FISCHER), 1883, A., 356.
- Imperatorine** (*puscedanine*), reactions of (BROCIENER), 1890, A., 310.
- Imperialine** and its derivatives (FRAGNER), 1889, A., 284; (JAS- SOY), 1890, A., 1154.
- Jaboridine** (HARNACK), 1886, A., 85.
- Jaborine** (HARDY and CALMELS), 1886, A., 815.
- Japaconitine** (MANDELIN), 1885, A., 911.
- Jervine** and  $\psi$ -jervine (PEHKSCHEN), 1891, A., 88.
- Laserpitine** and its derivatives (KÜLZ), 1884, A., 182.
- Laudanine** (HESSE), 1884, A., 616.

## ALKALOIDS—

**Laurotetanine**, the active principle of certain Lauraceae (GRESHOFF), 1891, A., 337.

**Lobeline** (PASCHKIN and SMIT<sup>1</sup>), 1890, A., 1169.

**Lupanine** (HAGEN), 1886, A., 163; (SIEBERT), 1892, A., 223.

**Lupinidine** from *Lupinus luteus*, and its derivatives (BAUMERT), 1885, A., 177.

from white lupins (CAMPANI and GRIMALDI), 1891, A., 1521.

behaviour of, with ethylic iodide (BAUMERT), 1885, A., 676.

**Lupinindine** (BAUMERT), 1884, A., 1387.

**Lupinine**, action of acetic chloride and anhydride on (BAUMERT), 1884, A., 1387.

action of dehydrating agents on (BAUMERT), 1883, A., 100.

hydrochloride, from lupinine residues, preparation of (BAUMERT), 1883, A., 224.

**Lycaconine**, lycaconitine, and lycocotonine (DRAGENDORFF and STÖHN), 1885, A., 403.

**Macleynine** (ELJKMAN), 1885, A., 404.

**Mandelic  $\psi$ -tropine** ( $\psi$ -homatropine) (LIEBERMANN and LIMPACH), 1892, A., 891.

**Mandragorine** (AURENS), 1889, A., 1074, 1222.

**Mannitine** (SCHILLONE and DENARO), 1883, A., 50.

**Meconarceine** (MERCK), 1889, A., 906.

**Meconine** (WEGSCHEIDER), 1883, A., 996.

action of potassium cyanide on (BOWMAN), 1887, A., 586.

$\psi$ -**Meconine** and its derivatives (SALOMON), 1887, A., 585; (PERKIN), 1890, T., 1072.

**Methoxyhydrocotarnine methiodide** (ROSER), 1890, A., 531.

**Methoxyquinine methiodide** (GRIMAUX), 1892, A., 1363.

**Methylanthydroecgonine methiodide** (EINHORN), 1889, A., 170.

**Methylarecaidine** (JAHNS), 1892, A., 789.

**Methylbrucine**, ammonium base obtained from (HANSEN), 1885, A., 819.

**Methylapocinchonine** and its hydrochloride (COMSTOCK and KOENIGS), 1885, A., 1248.

**Methylcinchonamine** (HESSE), 1885, A., 66.

## ALKALOIDS—

**Methylecaine** (LIEBERMANN and GIESEL), 1890, A., 647, 803; (EINHORN and MARQUARDT), 1890, A., 913; (GIESEL), 1890, A., 1011.

**Methylecdeine** and its derivatives (GRIMAUX), 1883, A., 359; (HESSE), 1884, A., 614.

**Methylcolchicine** (JOHANNY and ZIESEL), 1889, A., 282.

**Methyleconiine** (PASSON), 1891, A., 1118.

**Methyleytisine** (v. BUCHKA and MAGALHAES), 1891, A., 750.

**Methyldeoxystrychnine** (TAFEL), 1892, A., 1014.

**Methylecgonine** (LIEBERMANN and GIESEL), 1890, A., 647; (EINHORN and MARQUARDT), 1890, A., 913.

**Methylhydrastallylamide** (FREUND and HEIM), 1891, A., 93.

**Methylhydrastamide** (FREUND and HEIM), 1891, A., 92.

**Methylhydrastisoamylamide** (FREUND and HEIM), 1891, A., 93.

**Methylhydrastaine** (FREUND and ROSENBERG), 1890, A., 533.

**Methylhydrastethylamide** (FREUND and HEIM), 1891, A., 93.

**Methylhydrastimide** and its methiodide (FREUND and HEIM), 1891, A., 92.

**Methylhydrastine** and its methiodide (FREUND and ROSENBERG), 1890, A., 532; (SCHMIDT), 1890, A., 1167.

alcoholate and hydroxide (SCHMIDT), 1890, A., 1168.

**Methylhydrastomethylamide** (FREUND and HEIM), 1891, A., 93.

**Methylhydroberberine** (GLACON and SOAVE), 1890, A., 920; (GLAZER), 1890, A., 1012.

**Methylhydrohydrastinine** and its derivatives (FREUND and DORMMEYER), 1891, A., 1510.

bromo- (FREUND and DORMMEYER), 1892, A., 223.

**Methylmorphomethine**. See Codo-methine under Alkaloids.

$\psi$  **Methynarceine** and its salts (CLAUS and RITZFFELD), 1885, A., 997.

**Methylquinidine** (CLAUS), 1892, A., 1250.

**Methylquinine**, preparation of (LIPP-MANN), 1892, A., 222.

**Methylstrychnine** (TAFEL), 1890, A., 1447; 1891, A., 1263.

*iso***Methylstrychnine** (TAFEL), 1891, A., 1264.

## ALKALOIDS—

- $\alpha$ -Methyltropidine** and its derivatives (ROTH), 1881, A., 761; (MERLING), 1892, A., 358.
- $\beta$ -Methyltropidine** (MERLING), 1892, A., 359.
- Methyltropine**, decomposition of, by potash (LADENBURG), 1883, A., 672.
- Moradeine** (ARATA and CANZONERI), 1890, A., 405.
- Morphine** (v. GERICHTEN and SCHREÜTER), 1883, A., 221; (HESSE), 1884, A., 613; (PLUGGE), 1887, A., 280; (KNORR), 1889, A., 905.
- from *Papaver Rhoeas* (HESSE), 1890, A., 646.
- from *Escholtzia* (*Eschscholzia*) *californica* (BAUDET and ADRIAN), 1889, A., 644.
- formula of (DOTT and STOCKMAN), 1888, A., 506; (HESSE), 1888, A., 1115.
- constitution of (KNORR), 1889, A., 417, 906; (SKRAUP and WIEGMANN), 1889, A., 1018.
- water of crystallisation of (HESSE), 1889, A., 417.
- cryoscopic behaviour of solutions of compounds of (v. KLOBUKOFF), 1889, A., 933.
- action of alcoholic potash on (SKRAUP and WIEGMANN), 1889, A., 1018.
- action of potassium chromate on (DITZLER), 1886, A., 1047.
- action of sulphuric acid on, in presence of dibasic acids (CHASTAING and BARILLOT), 1888, A., 165.
- oxidation of (BARTH and WEIDEL), 1884, A., 85.
- derivatives (GRIMAUD), 1883, A., 358; (HESSE), 1884, A., 613; (FITCHER and v. GERICHTEN), 1886, A., 563; (DANCKWORTT), 1891, A., 332.
- ferrocyanide (BROCKURTS), 1890, A., 1318.
- hydrate (DOTT), 1888, A., 506.
- hydriodide (KUNZ), 1888, A., 855.
- hydrochloride, rotatory dispersion of (GRIMBERT), 1888, A., 329.
- hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1001.
- hydrogen meconate (DOTT), 1887, A., 505.
- lactate (DOTT), 1886, A., 818.
- violet colouring matter derived from (CAZENÈVE), 1891, A., 1120.

## ALKALOIDS—

- Morphine**, physiological action of (STOCKMAN and DOTT), 1890, A., 1178.
- action of, on cats (GUINARD), 1891, A., 486.
- action of, on the intestine (SPITZER), 1891, A., 852.
- fate of, in the organism (ELLIASSON), 1885, A., 577; (TAUBER), 1891, A., 479.
- detection of (DONATH), 1886, A., 899; (VULPIUS), 1887, A., 870; (ARMITAGE), 1888, A., 1137; (BROCINER), 1890, A., 311; (FERREIRA DA SILVA), 1891, A., 1562.
- detection of, in fatty matters (FÖCKE), 1887, A., 187.
- detection of, in toxicology (SCHEIBE), 1883, A., 1036; 1884, A., 373.
- detection of, in the urine (NOTTA and LUGAN), 1885, A., 447.
- bromine as a test for (EILOANT), 1885, A., 96.
- estimation of (SCHLICKUM), 1887, A., 622; (GOEBEL), 1887, A., 869; (CLAASSEN), 1890, A., 1198; (LOOFF), 1891, A., 771; (LAMBERT), 1891, A., 1403.
- estimation of, in opium (v. PERGER), 1884, A., 1217; (FLÜCKIGER), 1885, A., 1165; 1890, A., 94; (VENTURINI), 1886, A., 1086; (KREMEL; WILLIAMS), 1888, A., 635; (TESCHEMACHER and SMITH), 1888, A., 635, 1137; (LOOFF), 1890, A., 1349; (DIETTERICH), 1891, A., 511.
- estimation of, colorimetric, in opium preparations (HINSDALE), 1890, A., 1349.
- Morrenine** (ARATA and GELZER), 1891, A., 1122.
- Morrhaine** (GAUTIER and MOURGUES), 1888, A., 1315; 1889, A., 63.
- Myocetonine** (DRAGENDORFF and SPOHN), 1885, A., 403; (DRAGENDORFF and SALOMONOWITSCH), 1887, A., 858.
- Nandinine** (ELJKMAN), 1885, A., 565.
- Napelline** (DUNSTAN and UMNEY), 1892, T., 391; F., 43.
- Narcosine** (PLUGGE), 1887, A., 280; (CLAUS and MEIXNER), 1888, A., 611.
- derivatives (CLAUS and RITZEFELD), 1885, A., 996.
- ferrocyanide (BROCKURTS), 1890, A., 1318.
- meconate (MERCK), 1889, A., 906.

## ALKALOIDS—

- Narceine**, reaction of (PLUGGER), 1887, A., 870; (FERREIRA DA SILVA), 1891, A., 1562.
- Narcotine** (PLUGGER), 1887, A., 280; (ROSER), 1888, A., 1115, 1316; 1889, A., 417; 1890, A., 528. constitution of (ROSER), 1890, A., 531. oxidation of (SCHMIDT and KERSTEIN), 1890, A., 648. ferrocyanide (BECKHUIS), 1890, A., 1318. physiological action of (STOCKMAN and DOTT), 1891, A., 762. reaction of (FERREIRA DA SILVA), 1891, A., 1562; (VITALI), 1892, A., 756. bromine as a test for (EILOART), 1885, A., 96.
- Nicotine** (PINNER and WOLFFENSTEIN), 1891, A., 945; 1892, A., 1010, 1497. constitution of (BLAU), 1891, A., 583. specific rotation of (PILBRAM), 1887, A., 756. specific rotatory and refractive powers of (KANONNIKOFF), 1889, A., 453. specific rotatory power of salts of (SCHWEBEL), 1883, A., 354. thermochemistry of (COLSON), 1890, A., 101. action of benzoic chloride on (PINNER and WOLFFENSTEIN), 1891, A., 945. action of bromine on (PINNER), 1892, A., 1497. action of, on ethylic and methylic iodides (ORCHNER DE CONINCK), 1887, A., 603, 851. action of silver acetate on (TAFEL), 1892, A., 1104. oxidation of, with hydrogen peroxide (PINNER and WOLFFENSTEIN), 1891, A., 473. reduction of (LIEBRECHT), 1886, A., 161; 1887, A., 161. hydrogen tartrate (DRESER), 1889, A., 730. in tobacco plants, climatic conditions for the development of (MAYER), 1891, A., 858. physiological action of (LANGLEY and DICKINSON), 1890, A., 1178. action of, on the heart and blood-vessels (COLAS), 1891, A., 96. action of, on invertebrates (GREENWOOD), 1891, A., 485.

## ALKALOIDS—

- Nicotine**, influence of, on salivary secretion (LANGLEY), 1890, A., 397. poisoning by (RABOT), 1885, A., 416. estimation of (SCHNEFFER), 1885, A., 601. estimation of, in presence of ammonia (PEZZOLATO), 1891, A., 771. estimation of, in tobacco (BIEL), 1888, A., 876; (KISSLING), 1890, A., 430.
- isoNicotine** (WEIDEL and RUSSO), 1883, A., 484.
- $\psi$ -Nicotine oxide** (PINNER and WOLFFENSTEIN), 1892, A., 1010.
- Nupharine** (GRUNING), 1883, A., 370.
- Ononine**, reaction of (BROCHNER), 1890, A., 310.
- Oxyacanthine** (HESSLE), 1887, A., 283; (RÜDEL), 1892, A., 641. derivatives of (HESSLE), 1887, A., 283. detection of (v. HIRSCHLATSCH), 1885, A., 606.
- Oxyberberine** and its compounds (PERKIN), 1890, T., 1003, 1033.
- Oxyeichenine** and its derivatives (KOENIGS), 1890, A., 1433.
- Oxyconiceine** and its derivatives (v. HOFMANN), 1885, A., 563.
- Oxyconessine** (*oxymorphine*) (WARNECKE), 1888, A., 855.
- Oxyconiine**. See *Conhydrine* under Alkaloids.
- Oxydimorphine**. See *Oxymorphine* under Alkaloids.
- Oxyhydrastinine** and its constitution (FREUND), 1889, A., 627, 1222. synthesis of, from methylic  $\omega$ -chlorethylpiperonylcarboxylate (PERKIN), 1890, T., 997, 1034.
- Oxylupinine** (BAUMERT), 1883, A., 100.
- Oxymorphine** ( $\psi$ -*morphine*, *oxylmorphine*) (HESSLE), 1884, A., 616; 1886, A., 1047; 1887, A., 163; (POLSTORFF), 1886, A., 900.
- Oxynicotine** (PINNER and WOLFFENSTEIN), 1891, A., 473.
- Oxytrinitotine** (ETARD), 1884, A., 464.
- Oxytropine** (LADENBURG and ROTH), 1884, A., 761.
- Papaveraldine** (GOLDSCHMIEDT), 1886, A., 478.
- Papaverine** (GOLDSCHMIEDT), 1884, A., 186; 1885, A., 1080; 1886, A., 83, 478; 1887, A., 163; 1888, A., 1116; (PLUGGER), 1887, A., 280. composition of (PLUGGER), 1887, A., 852.

## ALKALOIDS—

- Papaverine**, constitution of (GOLDSCHMIEDT), 1888, A., 1118; 1889, A., 167.  
 optical rotatory power of (GOLDSCHMIEDT), 1888, A., 611.  
 additive product of, with *o*-nitrobenzyl chloride (v. SEUTTER), 1889, A., 281.  
 additive products of, bases formed by the action of potash on (STRANSKY), 1890, A., 166.  
 alkyl halogen salts of, bases formed by the action of potash on the (CLAUS), 1890, A., 271.  
 derivatives (CLAUS and HUETLIN), 1885, A., 996; (GOLDSCHMIEDT), 1887, A., 163; (JAHODA), 1887, A., 164; (GOLDSCHMIEDT and OBERSEITZER), 1889, A., 166.  
 derivatives and salts, crystallographic measurements of (GOLDSCHMIEDT), 1886, A., 83.  
 methiodide (CLAUS and EDINGER), 1889, A., 416.  
 oxidation products of (GOLDSCHMIEDT), 1885, A., 1080; 1888, A., 302.  
 phenacyl bromide and oxide (v. SEUTTER), 1889, A., 418.  
 reaction of (FERREIRA DA SILVA), 1891, A., 1562.  
**Papaveroline** (GOLDSCHMIEDT), 1886, A., 479; (KRAUS), 1891, A., 85.  
 **$\psi$ -Pelletierine** (CIAMICIAN and SILBER), 1892, A., 1110.  
**Phenomorphone** and **phenylmorpholine** (KNORR), 1889, A., 1219, 1220.  
**Phthalyltropine** (LADENBURG), 1883, A., 672.  
**Picroconitine** (DUNSTAN and INCE), 1891, T., 272; (EHRENBURG and PURFURT), 1892, A., 1254.  
**Pilganine** (ADRIAN), 1886, A., 815.  
**Pilocarpidine** (HARNACK), 1886, A., 85.  
**Pituri**, physiological action of (LANGLEY and DICKINSON), 1890, A., 1178.  
**Protopine** (SELLE), 1891, A., 229; (KONIG), 1891, A., 844.  
**Protoveratridine** and **protoveratrine** (SALZBERGER), 1891, A., 231.  
**Quinazoline** (*chinine*) (COMSTOCK and KOENIGS), 1884, A., 1383; 1885, A., 910.  
 dibromide (COMSTOCK and KOENIGS), 1887, A., 1123.  
 hydrobromide (COMSTOCK and KOENIGS), 1888, A., 72.

## ALKALOIDS—

- Quinenine** (*chinine*), formation of lepidine derivatives from (KOENIGS), 1890, A., 1433.  
*apo***Quinenine** (COMSTOCK and KOENIGS), 1885, A., 911.  
**Quinicine**, oxidation of (SKRAUP and WURSTL), 1889, A., 1074.  
**Quinidine** (*conquinine*) (WOOD and BARRET), 1883, A., 1018.  
 constitution of (SKRAUP), 1884, A., 86; (WURSTL), 1889, A., 626.  
 alcoholates of (MYLIUS), 1886, A., 900.  
 alkyl and benzyl salts of (CLAUS), 1892, A., 1249.  
 chloride (COMSTOCK and KOENIGS), 1885, A., 910.  
 cincholeupone from (SKRAUP and WURSTL), 1889, A., 1073.  
 compounds of, with hydriodic acid (SKRAUP), 1892, A., 83; (SCHUBERT and SKRAUP), 1892, A., 640; (LIPPMANN and FLEISSNER), 1892, A., 1364.  
 ferrocyanide (BECKURTS), 1890, A., 1318.  
 separation of, from hydroconquinine (HESSE), 1883, A., 602.  
*iso***Quinidine** (*isoconquinine*) (HESSE), 1888, A., 380.  
*iso***Quinidinesulphonic acid** (*isoconquininesulphonic acid*) (HESSE), 1892, A., 514.  
**Quinine** (WOOD and BARRET), 1883, A., 1018; (HESSE), 1884, A., 1384.  
 preparation of (LIPPMANN), 1892, A., 222.  
 conversion of cupreine into (GRIMMAUX and ARNAUD), 1891, A., 1121; (HESSE), 1892, A., 1010.  
 constitution of (SKRAUP), 1884, A., 86; 1889, A., 626.  
 rotatory dispersion of (GRIMBERT), 1888, A., 330.  
 appearance of fluorescence in salts of (ARMSTRONG), 1892, T., 789; P., 143.  
 action of aromatic aldehydes on (MAZZARA), 1884, A., 466.  
 action of benzyl chloride on (MAZZARA and POSSETTO), 1884, A., 465.  
 action of bromine water on (COLSON), 1889, A., 730.  
 action of hydriodic acid on (LIPPMANN and FLEISSNER), 1891, A., 1517; 1892, A., 81; (SKRAUP), 1892, A., 83; (SCHUBERT and SKRAUP), 1892, A., 640.

## ALKALOIDS—

- Quinine**, action of lime on (HASLAM), 1885, A., 1267.  
 action of, on methylic iodide (HESSE), 1892, A., 221.  
 action of silicon tetrafluoride on (CAVAZZI), 1888, A., 968.  
 oxidation of (SKRAUP), 1889, A., 626.  
 oxidation products of (COMSTOCK and KOENIGS), 1884, A., 1383.  
 first synthetically prepared base isomeric with (KOHN), 1890, A., 523.  
 formation of an anhydride from (HESSE), 1884, A., 1384; 1890, A., 166.  
*di*bromide (COMSTOCK and KOENIGS), 1892, A., 1012.  
*tetra*bromide (COLSON), 1889, A., 780.  
 catechol sulphate (HESSE), 1889, A., 908.  
*mono*- and *di*-chloracetate (MAZZARA), 1884, A., 465.  
 chloride (COMSTOCK and KOENIGS), 1884, A., 1383.  
 compound of, with chloral (MAZZARA), 1884, A., 186.  
 compounds of, with hydriodic acid (SKRAUP), 1892, A., 83; (SCHUBERT and SKRAUP), 1892, A., 640.  
 ethylic cyanide (CLAUS and MERCK), 1884, A., 338.  
 ferrocyanide (BECKURTS), 1890, A., 1818.  
 homologues (GRIMAUD and ARNAUD), 1892, A., 1253.  
 hydrate (FLEISCHNER), 1886, A., 871; (FLUCKIGER), 1886, A., 813.  
 hydriodo- (LIPPMANN and FLEISCHNER), 1892, A., 82; (SCHUBERT and SKRAUP), 1892, A., 640.  
 hydrobromo- and hydrochloro- (COMSTOCK and KOENIGS), 1887, A., 1123.  
 hydrochloride, normal (CLERMONT), 1887, A., 980.  
 hydrochlorides (HESSE), 1892, A., 514.  
 hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1001.  
*mono*- and *di*-methiodides (GRIMAUD), 1892, A., 1363.  
 mucate (RUHEMANN and DUTTON), 1891, T., 754.  
 orcinol and phenol sulphates (HESSE), 1889, A., 908.  
 phenolsulphonate (GITTELRO), 1884, A., 339.

## ALKALOIDS—

- Quinine** silicofluoride (CAVAZZI), 1888, A., 969.  
 sulphate, valuation of (WOOD and BARRER), 1883, A., 1019; (BYASSON), 1884, A., 1080; (DE VILJ), 1885, A., 302; 1886, A., 397; 1887, A., 401; 1889, A., 1091; (KOPFISCHAUER), 1886, A., 182; (COWNLEY), 1886, A., 632; (HESSE), 1886, A., 813; 1887, A., 1145; (VULPIUS), 1887, A., 404; (JUNGLEISCH), 1887, A., 405; (SCHÄFER), 1887, A., 623; 1888, A., 636; (SCHLICKUM), 1887, A., 623; (KEUNER and WELLER), 1887, A., 1146; (LENZ), 1889, A., 86.  
 assay of, by the ammonia process (PRUNIER), 1891, A., 772.  
 fractional crystallisation of (PRUNIER), 1891, A., 961.  
 optical analysis of (HOOPER), 1886, A., 1086.  
*di*-tropate (LADENBURG and HUNDI), 1890, A., 74.  
 as a protoplasmic poison (BLAZ), 1891, A., 1531.  
 detection of, in cases of poisoning (CHANDELON), 1885, A., 605.  
 detection of, in urine (SESTINI and CAMPANI), 1892, A., 665.  
 bromine as a test for (EILOART), 1885, A., 96.  
 ether test for (COWNLEY), 1883, A., 1174.  
 estimation of (SEATON and RICHMOND), 1891, A., 131.  
 estimation of, by Kerner's method (RUDDIMAN), 1889, A., 323.  
 estimation of, in mixtures of quinine alkaloids (SHIMOMYAMA), 1885, A., 935.  
 estimation of, in quinine tannate (NEUMANN), 1890, A., 672.  
**Quininesulphonic acid** and *iso*quininesulphonic acid (HESSE), 1892, A., 514, 515.  
*apo*Quinine, hydriod- (LIPPMANN and FLEISCHNER), 1892, A., 82.  
 hydrobromo-, and its salts (JULIUS), 1886, A., 83.  
*isoapo*Quinine (LIPPMANN and FLEISCHNER), 1892, A., 82.  
*iso*Quinine (HESSE), 1888, A., 379; (LIPPMANN and FLEISCHNER), 1892, A., 82.  
**Reducine** and *p*-**reducine** (THUDICHUM), 1888, A., 1120.  
**Sabadine** and **sabadinine** (MERCK), 1891, A., 844.

## ALKALOIDS—

- Salicylic tropeine** (LADENBURG), 1883, A., 671.
- Sanguinarine** (HENSCHKE), 1887, A., 854; (KÖNIG), 1891, A., 844.  
detection of (v. KUGELGEN), 1885, A., 608.
- Scopoleine** (EIJKMAN), 1885, A., 404.
- Sinapine**, investigations on (REMSEN and COALE), 1884, A., 1387.
- Solaneine** and **solanine** (FIRBAS), 1890, A., 75.
- Solanidine** (FIRBAS), 1890, A., 75; (JORISSEN and GROSJEAN), 1890, A., 1182; 1891, A., 473.  
amount of, in diseased potatoes (KASSNER), 1887, A., 860.  
reaction of (BROCIENER), 1890, A., 810; (FERREIRA DA SILVA), 1891, A., 1562.
- Sparteine** (BERNHEIMER), 1884, A., 337; (HOUDÉ), 1886, A., 370; (DAMBERGER), 1887, A., 162; (AURENS), 1887, A., 1056; 1888, A., 611; 1891, A., 842; (PERATONER), 1892, A., 1362.  
derivatives (BERNHEIMER), 1884, A., 337; (HOUDÉ), 1886, A., 370.  
ammonium methiodide and ethiodide (OECHSNER DE CONINCK), 1887, A., 603.  
ethiodide and methiodide (DAMBERGER), 1887, A., 163.  
ferrocyanide (BECKURTS), 1890, A., 1318.  
sulphate, physiological action of (SÉE), 1886, A., 273.
- Strychnine** (SHENSTONE), 1885, T., 139; P., 5; (BECKURTS), 1885, A., 675; 1890, A., 1328; (TAFEL), 1890, A., 1447; 1891, A., 1262; 1892, A., 1012.  
constitution of (STOEHR), 1887, A., 604.  
rotatory dispersion of (GRIMBERT), 1888, A., 330.  
melting point of (STOEHR), 1891, A., 86.  
specific gravity of crystalline (BLUNT), 1886, A., 1047.  
action of potassium permanganate on (PLUGGE), 1884, A., 188.  
action of hydrochloric acid on (SHENSTONE), 1883, T., 103, 104.  
distillation of, with lime (STOEHR), 1891, A., 86.  
distillation of, with zinc (SCHILONE and MAGNANIM), 1883, A., 99; (LOEBISCH and SCHOOP), 1887, A., 282.  
solubility of (CRESPI), 1884, A., 187.

## ALKALOIDS—

- Strychnine**, solubility of, in acids (HANRIOT and BLAREZ), 1883, A., 924.  
relation of, to brucine (HANSSEN), 1885, A., 1146.  
cadaveric alkaloid behaving like (AMTHOR), 1888, A., 731.  
derivatives (HANRIOT), 1883, A., 660.  
salts, preparation of (CRESPI), 1884, A., 187.  
benzylic hydroxide and salts (v. GARZAROLLI-THURNLACKH), 1889, A., 626, 627.  
chromates (DITZLER), 1886, A., 564.  
citrate (FISCHER), 1886, A., 1047.  
ethylic cyanide (CLAUS and MERCK), 1884, A., 338.  
ferricyanide (BECKURTS), 1885, A., 675; (HOLST and BECKURTS), 1887, A., 852.  
ferrocyanide (BECKURTS), 1885, A., 675; 1890, A., 1318; (HOLST and BECKURTS), 1887, A., 852.  
hydrate. See Strychnol.  
hydride (LOEBISCH and SCHOOP), 1886, A., 815.  
hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1001.  
hydroxide and dihydroxide (TAFEL), 1890, A., 1448.  
indole from (GOLDSCHMIDT), 1883, A., 99.  
mucate (PHEMANN and DUFTON), 1891, A., 754.  
scatole in (STOEHR), 1887, A., 832.  
sulphate (LEXTREIT), 1883, A., 223.  
trapezohedral homihedry of (BAUMHAUER), 1883, A., 485.  
physiological action of (MAYR), 1888, A., 312; (SCHLICK), 1891, A., 486.  
behaviour of, in the animal organism (PLUGGE), 1884, A., 188.  
influence of, on the glycogen of the liver and muscles (DEMANR), 1886, A., 1054.  
poisoning (LOVETT), 1888, A., 1217.  
detection of, in cases of poisoning (CHANDELON), 1885, A., 605.  
bromine as a test for (JACKSON), 1883, A., 1175.  
colour tests for (BLOXAM), 1887, A., 752.  
microchemical test for (LINDT), 1885, A., 449.  
estimation of brucine and (HOLST and BECKURTS), 1887, A., 853.

## ALKALOIDS—

- Strychnine**, separation of, from brucine (GEROCK), 1889, A., 718.  
separation of, from fatty matters (FOCKE), 1887, A., 187.
- Strychnine**, amido- (LOEBISCH and SCHOOP), 1886, A., 268.  
diamido- (HANRIOT), 1883, A., 670.  
bromo- (SHENSTONE), 1885, T., 140, 141; P., 5; (BECKURTS), 1885, A., 675, 911; 1890, A., 1329; (LOEBISCH and SCHOOP), 1886, A., 268.  
crystallography of (MIERS), 1885, T., 144; P., 5.  
action of nitric acid on (SHENSTONE), 1885, T., 141; P., 5.  
methiodide and methhydroxide (BECKURTS), 1890, A., 1329.  
physiological action of (BRUNTON), 1885, T., 143; P., 5.  
*di*bromo- (SHENSTONE), 1885, T., 141; P., 5; (BECKURTS), 1885, A., 675, 911.  
*tri*bromo- (BECKURTS), 1885, A., 675, 911.  
bromamido-, and bromonitro- (BECKURTS), 1890, A., 1329.  
chloro- (SHENSTONE), 1885, T., 141; P., 5.  
*tri*chloro- (STOEHR), 1891, A., 86.  
nitro- (LOEBISCH and SCHOOP), 1886, A., 267.  
*d*initro-, and its salts (HANRIOT), 1883, A., 669.
- Strychnedisulphonic acid** (STOEHR), 1886, A., 269.
- Strychninesulphonic acids** (STOEHR), 1886, A., 269; 1888, A., 73; (GUARESCHI), 1887, A., 853.
- Strychnol** (*strychnine hydrate*) (LOEBISCH and SCHOOP), 1886, A., 814; (TAFEL), 1891, A., 1262.  
nitro- (LOEBISCH and SCHOOP), 1886, A., 814.
- Tarconine** and its salts (ROSER), 1888, A., 1115.
- Taxine** (HILGER and BRAND), 1890, A., 650.
- Tetano-cannabine** (HAY), 1883, A., 1156.
- Tetrahydropapaverine** and its derivatives (GOLDSCHMIEDT), 1887, A., 163.
- Tetramethylstrychnine dihydroxide** (TAFEL), 1890, A., 1448.
- Thebaine** and its derivatives (HOWARD), 1884, A., 1201; (HOWARD and ROSER), 1886, A., 813; (PLUGGE), 1887, A., 280.  
physiological action of (STOCKMAN and DOTT), 1891, A., 762.

## ALKALOIDS--

- Theobromine** and its derivatives (FISCHER), 1883, A., 356; (SCHMIDT and PRESSLER), 1883, A., 872; (MALY and ANDREASCH), 1883, A., 1017.  
action of alkalis on (MALY and ANDREASCH), 1883, A., 1017.
- Trigonelline** and its salts (JAHNS), 1886, A., 85; 1888, A., 166.
- Tritopine** (KAUDER), 1891, A., 227.
- Tropeines** (LADENBURG), 1883, A., 671.
- $\psi$ -Tropines** (LIEBERMANN and LIMPACH), 1892, A., 891.
- Tropilidene** and **tropilene** (LADENBURG), 1883, A., 672.
- Tropine** (LADENBURG), 1891, A., 1121; (MERLING), 1892, A., 358.  
conversion of tropidine into (LADENBURG), 1890, A., 1167, 1333.  
constitution of (LADENBURG), 1887, A., 740; (LIPP), 1892, A., 1211.  
action of hypochlorous acid on (EINHORN and FISCHER), 1892, A., 1014.  
oxidation products of (LIEBERMANN), 1891, A., 749.  
atropate (LIEBERMANN and LIMPACH), 1892, A., 892.  
aurochloride (LADENBURG), 1891, A., 1121.  
cinnamate and *allo*cinnamate (LIEBERMANN), 1891, A., 833.  
iodide (LADENBURG), 1883, A., 1155.  
meurochloride (LADENBURG), 1891, A., 1122.
- m*-**Tropine** (LADENBURG), 1883, A., 672.
- p*-**Tropine** and its derivatives (LADENBURG), 1891, A., 1098.
- $\psi$ -Tropine** (LADENBURG and ROTH), 1884, A., 761; (LIEBERMANN), 1891, A., 1265; (LIEBERMANN and LIMPACH), 1892, A., 891; (LADENBURG), 1892, A., 1306.  
oxidation of (LIEBERMANN), 1891, A., 1520.  
derivatives (LADENBURG and ROTH), 1884, A., 761.
- Tropyl- $\psi$ -tropine** (LIEBERMANN and LIMPACH), 1892, A., 891.
- Tylophorine** (HOOPER), 1891, A., 1207.
- Typhoxine**, Brigger's (DE BLASI), 1890, A., 391.
- Ulexine** (GERRARD), 1886, A., 1048; (GERRARD and SYMONS), 1890, A., 180; (VAN DE MOER), 1891, A., 946.  
difference between cytiline and (GERRARD and SYMONS), 1891, A., 334.

## ALKALOIDS —

- Veratrine** (STRANSKY), 1891, A., 585.  
crystallised (AHRENS), 1890, A., 1448.  
dry distillation, oxidation of, and action of alcoholic potash and of hydrochloric acid on (AHRENS), 1890, A., 1448.  
bromides (AHRENS), 1890, A., 1118.  
reaction of (FERREIRA DA SILVA), 1891, A., 1562.
- Veratroidine** (PEHESCHEN), 1891, A., 87.
- Veratronitrile** (GARELLI), 1891, A., 712.
- Wrightine**. See Conessine.
- Alkaloids**. See also Betaines, Pto-  
maines.
- Alkaloid-like bases** in Galician petro-  
leum and paraffin oil (WELLER), 1887,  
A., 979.
- Alkana red**, detection of, in wine  
(HERZ), 1890, A., 311.
- Alkana root**, detection of the colouring  
matter of (BUJARD and KLINGER),  
1891, A., 372.
- Alkannin** (LIEBERMANN and RÖMER),  
1887, A., 1051.
- Alkines** (BEREND), 1881, A., 1114.  
aromatic (LAUN), 1881, A., 1011.  
cyan- (SCHWARZE), 1890, A., 1158.
- Alkophyr** (v. BRÜCKE), 1886, A., 338,  
and the true and so-called biuret re-  
action (v. BRÜCKE), 1883, A., 1019.
- Alkoxyanthraquinones**, spectra of the  
(LIEBERMANN), 1888, A., 1203.
- Alkyl derivatives** of the halogen-sub-  
stituted fatty acids, action of, on anil-  
ine (BISCHOFF), 1883, A., 919.
- Alkyl ketones**, aromatic, oxidation of  
(CLAUS), 1890, A., 979; 1891, A.,  
199.
- Alkylacetonedicarboxylic acids** (v.  
PECHMANN and JENISCH), 1892, A.,  
148.
- Alkylisoxaldoximes**, additive compounds  
of (GOLDSCHMIDT and KJELLIN), 1891,  
A., 1477.
- Alkylallylsemithiocarbamides**, conver-  
sion of, into isomeric bases (AVEN-  
ARIUS), 1891, A., 548.
- Alkylallylthiocarbamides**, conversion  
of, into isomeric bases (AVENARIUS),  
1891, A., 548.
- Alkylamides**, action of nitric acid on  
(FRANCHIMONT), 1888, A., 447.
- Alkylamines**, hydrates of (PICKERING),  
1892, P., 104.
- Alkylammonium chlorides**, dissymmetry  
and optical activity of (LE BEL),  
1891, A., 1002.

- Alkylanilines**, action of chronic anhy-  
dride on (VAN ROMBURGH), 1889, A.,  
971.
- Alkylcamphors**, preparation of (HALL-  
ER), 1892, A., 72.
- $\alpha$ -Alkylcinchoninic acids** (DOEBNER),  
1887, A., 501; 1888, A., 299; 1889,  
A., 410.
- Alkylcyanocamphors** (HALLER), 1892,  
A., 1344.
- Alkyldiazo-**. See Azo.
- Alkylene haloids**, action of aluminium  
haloid salts on (KEREZ), 1886, A.,  
435.
- Alkylenediamines** (MASON), 1886, A.,  
329.
- Alkylhydrastines** and their derivatives  
(SCHMIDT), 1890, A., 1167.
- Alkylhydroxanthranolones**, constitution  
of (LIEBERMANN), 1885, A., 1240.
- Alkyl salts of the fatty acids**, critical  
temperatures of (PAWLEWSKI), 1883,  
A., 276.  
of the fatty acids, specific volumes  
and boiling points of, and specific  
gravity at boiling points (ELSÄSSER),  
1883, A., 907.
- Alkyl bismuth compounds** (MAR-  
QUARDT), 1887, A., 802; 1888, A.,  
1066.
- Alkyl bromides**, relative stability of  
(REMSEN and HILLYER), 1887, A., 122;  
(LENGFELD), 1889, A., 476.
- Alkyl cadmium compounds** (LÖHR),  
1891, A., 682.
- Alkyl chlorides**, preparation of, from  
alcohols (MALBOT), 1889, A., 687.  
action of ammonia and the methyl-  
amines on (VINCENT and CHAPPUIS),  
1886, A., 439.
- Alkyl diallylacetoacetates**, mixed  
(JAMES), 1885, T., 3.
- Alkyl dicyanacetates** (HALLER), 1890,  
A., 1395.
- Alkyl haloids**, affinity coefficients of  
(HECHT, CONRAD and BÜCKNER),  
1890, A., 4; (CONRAD and BÜCK-  
NER), 1890, A., 327; (MENSCHUTKIN  
and WASSILIEFF), 1892, A., 1280.  
velocity of reaction between alcoholic  
potash and (WILDERMANN and  
AMINMANN), 1892, A., 399.  
halogenation of (MEYER and MÜLLER),  
1892, A., 577, 1414.
- Alkyl hippurates**, synthesis of  
(CURTIUS), 1884, A., 1347.
- Alkyl hydrogen oxalates** (ANSCHÜTZ),  
1890, A., 235.
- Alkyl hypochlorites** from isonitroso-  
compounds (MÜHLAU and HOFF-  
MANN), 1887, A., 795.

- Alkyl iodides**, preparation of (CRISMER), 1884, A., 1073; (WALKER), 1892, T., 717; P., 137.  
 action of, on acetoacetates, and on sodium derivatives of phenols and cresols (CONRAD and BRUCKNER), 1891, A., 796.  
 action of, on amido-acids (MICHAEL and WING), 1886, A., 148.
- Alkyl magnesium compounds** (LOHR), 1891, A., 682.
- Alkyl oxides**, preparation of (DE FORCRAND), 1891, A., 657.  
 affinity coefficients of (HECHT, CONRAD, and BRUCKNER), 1890, A., 4; (CONRAD and BRUCKNER), 1890, A., 327.
- Alkyl phenylcarbamates**, action of nitric acid on (VAN ROMBURGH), 1892, A., 711.
- Alkyl potassium and sodium oxides**, heat of formation of (DE FORCRAND), 1887, A., 318.
- Alkyl sulphates**, constitution of the double compounds of the sulphonates with (GEUTHER), 1883, A., 978.
- Alkyl sulphides** (DAVIES), 1892, A., 300, 581.
- Alkyl disulphides**, preparation of (COURANT and v. RICHTER), 1886, A., 217.  
 mixed, action of potash on (OTTO and ROSSING), 1887, A., 371.
- Alkyl polysulphides** (KLASON), 1888, A., 356.  
 aromatic, synthesis of (OTTO), 1887, A., 923.
- Alkylmelamines**, normal (v. HOFMANN), 1886, A., 38.
- Alkylisomelamines** derived from the alkylcyanamides (v. HOFMANN), 1886, A., 41.
- Alkyl-nitrous acids** (CHANCELL), 1883, A., 914.
- Alkyl oxyquartenylic acids**, ethereal salts of (ENKE), 1890, A., 865.
- Alkyl-o-phenylenediamines** and their derivatives (HEMPER), 1890, A., 611.
- s-Alkylisophthalic acids** (DOEBNER), 1890, A., 1283; 1891, A., 1064.
- Alkylpyrrolines**, derivatives of (ZANNETTI), 1890, A., 65.
- Alkylquinoline**, derivatives of (CLAUS), 1885, A., 814.
- α-Alkylquinolines** (DOEBNER), 1888, A., 299; 1889, A., 410.
- Alkylquinols**, diphenyl derivatives from (NÖLTING and WERNER), 1891, A., 209.
- Alkylsulphamic acids** (BEILSTEIN and WIEGAND), 1883, A., 971.
- Alkylthiosulphuric acids** (SPRING and LEGROS), 1883, A., 47.
- Alkyl-o-toluidines**, *p*-amido- (WEINBERG), 1892, A., 1078.
- Alkyltricarballic acids**, synthesis of (AUWERS), 1891, A., 546.
- Allactite** (SJÖGREN), 1885, A., 959.  
 from Långban (SJÖGREN), 1889, A., 217.  
 optical properties of (KRENNER), 1885, A., 731.
- Allanite** (EAKINS), 1886, A., 779; (GENTH), 1891, A., 155.  
 a decomposition product of: a variety of kaolinite from Nelson Co., Virginia (VALENTINE), 1886, A., 128.  
 as a rock constituent (IDDINGS and CROSS), 1886, A., 317; (HOBBS), 1890, A., 460.  
 from Alexander Co., N.C. (GENTH), 1884, A., 274.  
 from Alexander Co. and Mitchell Co. (HIDDEN), 1883, A., 163.  
 from Gyttopp, Sweden (NORDENSTRÖM), 1892, A., 1409.  
 from Maine, analysis of (CLARK and CHATARD), 1885, A., 491.  
 from Nelson Co., Virginia (MEMMINGER), 1886, A., 127; (VALENTINE), 1886, A., 128.  
 from North Carolina (HIDDEN), 1883, A., 163, 1064; (GENTH), 1888, A., 274, 564.
- Allantoin** in ascitic fluid (MOSCATELLI), 1889, A., 291.  
 in the wheat germ (RICHARDSON and CRAMPTON), 1886, A., 734.  
 as a plant constituent (SCHULZE and DORNHARD), 1885, A., 1007.  
 synthesis of (MICHAEL), 1884, A., 426.  
 thermochemistry of (MATIGNON), 1891, A., 1448.  
 effect of, on the estimation of urea in urine (MALERDA), 1886, A., 583.
- Allantoxanic acid**, synthesis of, from parabanic acid (PONOMAREFF), 1885, A., 760.
- Allium ursinum**, ethereal oil of (SEMMERLE), 1887, A., 1089.
- Allo-** See under parent substance.
- Allocaffeine** (FISCHER), 1883, A., 355; (SCHILLING), 1885, A., 674.
- Alloclasite** (FRENZEL), 1884, A., 266.
- Alloisomerism** (MICHAEL and PENDLETON), 1888, A., 1176; (MICHAEL and SCHULTHESS), 1891, A., 1184.
- Allophanic acid**, derivatives of (TRAUBE), 1889, A., 964.
- Allophanylglycollic acid** (TRAUBE), 1889, A., 964.

- Allophanyl- $\alpha$ -lactic acid** (TRAUBE), 1889, A., 394, 964.
- Allophanyltartaric acid** (TRAUBE), 1889, A., 965.
- Alloxan**, thermochemistry of (MATIGNON), 1891, A., 1448.
- action of phosphoric chloride on (CIAMICIAN and MAGNAGHI), 1886, A., 226.
- oxidising action of (PELLIZZARI), 1887, A., 1100.
- compounds with aromatic amines (PELLIZZARI), 1888, A., 142, 681.
- compounds with pyrazolic bases (PELLIZZARI), 1889, A., 517.
- ammonium, aniline, dimethylamine, ethylamine, and pyridine sulphites (PELLIZZARI), 1889, A., 239.
- Alloxanhydrazone** (KUHNING), 1892, A., 442.
- Alloxantin**, thermochemistry of (MATIGNON), 1891, A., 1448.
- action of, on blood (KOWALEWSKY), 1888, A., 732.
- Alloxazine** (KUHNING), 1891, A., 1341.
- Alloys** (ANON.), 1884, A., 517; (SHAW), 1889, A., 933.
- preparation of (HALLOCK), 1888, A., 1163; 1891, A., 805.
- electrolytic preparation of (WARREN), 1888, A., 27; 1892, A., 394.
- manufacture of (ANON.), 1885, A., 461.
- constitution of (TAMMANN), 1889, A., 932.
- nature of (RATHEKE), 1885, A., 954.
- electrical resistance of (LE CHATELIER), 1891, A., 5.
- melting points of some (WELD), 1891, A., 643.
- change of voltaic energy of, during fusion (GORE), 1892, A., 254.
- change of volume of, on melting (WIEDEMANN), 1884, A., 7.
- behaviour of, near their freezing points (HEYCOCK and NEVILLE), 1890, T., 387.
- application of Raoult's depression of melting-point method to (HEYCOCK and NEVILLE), 1889, P., 41.
- action of acids on (ARMSTRONG), 1886, P., 189; (DEBRAY), 1887, A., 779.
- containing the heavy metals, selenium, tellurium, etc. (BAYLEY), 1886, T., 735.
- of high conductivity (SHAW), 1886, A., 109.
- ternary (WRIGHT and THOMPSON), 1890, A., 336; 1891, A., 267, 1158; (WRIGHT, THOMPSON, and LEON), 1891, A., 1158.
- Alloys** of cadmium, gold, and tin, freezing points of (HEYCOCK and NEVILLE), 1891, T., 936; P., 124.
- of cadmium and zinc, position of, in electropotential series (ROBB), 1884, A., 382.
- of copper and antimony, and of copper and tin (BALL), 1887, P., 136; 1888, T., 167.
- of copper and cobalt (GUILLEMIN), 1885, A., 1114; 1886, A., 109.
- of copper and ferro-manganese, electrical resistance of (NICHOLS), 1890, A., 1356.
- of copper, tin, and lead (FRENCH), 1890, A., 335.
- of gallium and indium (LECOQ DE BOISBAUDRAN), 1885, A., 638.
- of gold and platinum, liquation of (MATTHEY), 1890, A., 947.
- of gold, silver, etc., found in grains along with the native platinum of Columbia (SEAMON), 1883, A., 160.
- of gold and sodium (HEYCOCK and NEVILLE), 1889, T., 670.
- of lead and tin, composition and specific gravity of (KLEINSTÜCK), 1889, A., 1051.
- of lead and tin, specific heat of (SPRING), 1886, A., 961.
- of lead, tin, zinc, and cadmium (LAURIE), 1889, T., 677; P., 147.
- of potassium and sodium (JOANNIN), 1888, A., 1238.
- (eutectic) of tin (HEYCOCK and NEVILLE), 1890, T., 386.
- of tin and platinum (SCHÜTZENBERGER), 1884, A., 822.
- of tin with the platinum metals, action of acids on (DEBRAY), 1887, A., 779.
- of zinc-copper and tin-copper (LAURIE), 1887, P., 117; 1888, T., 104.
- (explosive) of zinc with certain platinum metals (SAINT-CLAIRE DEVILLE and DEBRAY), 1883, A., 19.
- analysis of (BAYLEY), 1886, T., 735.
- analysis of, by means of hydrogen peroxide (HIERRE), 1890, A., 419.
- micrographic analysis of (GUILLEMIN), 1892, A., 1399.
- estimation of antimony and tin in (WARREN), 1888, A., 632.
- estimation of gold, tin, and cadmium in (FRENCH), 1892, A., 1030.
- estimation of iron and chromium in (PETERSON), 1885, A., 194.
- estimation of oxygen in (MULLER), 1885, A., 1167.
- estimation of tin and lead in (WACHSMUTH), 1887, A., 304.

- Alloys**, separation of silver from (SOLTHUIN), 1883, A., 243.
- Alluvial-deposits**, recent, in the Ij and Zuyder Zee (VAN BEMMELEN), 1887, A., 224.
- Allyl compounds**, atomic re-arrangement in (ASCHAN), 1890, A., 1084.  
specific volumes of (LOHSEN), 1883, A., 13.
- Allylacetic acid** (*pentenoic acid*), magnetic rotation of (PERKIN), 1886, T., 205; P., 153.  
molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
oxidation of (FITTING and URBAN), 1892, A., 958.  
*di*brom- (OTT), 1891, A., 1453.
- Allylacetone**, nitroso- (OTTE and v. PECHMANN), 1889, A., 1139.
- Allylacetophenone** (PERKIN), 1884, T., 187; (v. BAEYER and PERKIN), 1884, A., 63.  
action of bromine on (PERKIN), 1884, T., 187.  
*di*bromide, and brom- (PERKIN), 1884, T., 188.
- Allylacetoxime** (NÄGELI), 1883, A., 728.
- Allylamine**, magnetic rotatory power of (PERKIN), 1889, T., 697, 732.  
platinichloride (LIEBERMANN and PAAL), 1883, A., 909.  
sulphate (ANDREASCH), 1884, A., 732.  
brom-, and its derivatives (PAAL), 1889, A., 116; (PAAL and HERMANN), 1890, A., 229.
- o*-Allylanisole**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- $\beta$ -Allylasparagine** (PIRETTI), 1889, A., 591.
- Allylbenzene** (*phenylpropylene*) (ERRERA), 1885, A., 772.  
derivatives, conversion of, into propenylbenzene derivatives, and their dispersion and refraction (EIJMANN), 1890, A., 748.  
discrimination between propenylbenzene derivatives and (NASINI), 1891, A., 551.  
brom- (KÖRNER), 1888, A., 368.  
*d*initro- (EDELEANU), 1887, A., 583.  
thio- (ESCALES and BAUMANN), 1886, A., 879.  
 $\alpha$ -thio- (AUTENRIETH), 1890, A., 362.
- Allylbenzoylacetic acid**. See Benzoylallylacetic acid.
- Allylcamphorimide** (MOINE), 1887, A., 489.
- Allylcarbamide**, and its derivatives (ANDREASCH), 1884, A., 731.
- Allylcarbamides**, intramolecular change of, into isomeric bases (GABRIEL), 1890, A., 127.
- Allylcarbaminesodiocyanide** (HECHT), 1892, A., 703.
- $\beta$ -Allylcarbinol** (*isopropenylcarbinol*; *isobutenyl alcohol*), action of acids and hydrogen iodide on (SCHESCHUKOFF), 1885, A., 645.  
action of hydrochloric acid on (LWOFF and SCHESCHUKOFF), 1885, A., 647.
- Allylchloracetamide** (CLOEZ), 1887, A., 1098.
- Allyldeoxybenzoin** (BUDDERBERG), 1890, A., 1142.
- Allyldiethyl-**. See Diethylallyl-.
- Allyldiguanidine** and its derivatives (SMOLKA), 1888, A., 42.
- Allyldimethyl-**. See Dimethylallyl-.
- Allyldipropyl-**. See Dipropylallyl-.
- Allylene** (KUTSCHEROFF), 1883, A., 172; (BÉHAL), 1888, A., 663.  
alleged non-existence of (BÉHAL), 1889, A., 840.  
liquefaction of (MOLTSCHANOWSKI), 1889, A., 1126.  
action of alcoholic potash on (FAWORSKY), 1889, A., 360.  
action of, on mercuric oxide and its salts (KUTSCHEROFF), 1884, A., 719.
- iso*Allylene** (GUNTAYSON and DEMJANOFF), 1889, A., 29.  
preparation of (VAUBER), 1891, A., 996.  
isomeric change in (FAWORSKY), 1891, A., 1330.  
*tetrabromide* (GUNTAYSON and DEMJANOFF), 1889, A., 30.
- iso*Allylenetricarboxylic acid**. See Propanetricarboxylic acid.
- Allylethanetricarboxylic acid**. See Allylenetricarboxylic acid.
- Allylformamidine disulphide** (HECTOR), 1892, A., 292.
- Allylhydrastamide** and **allylhydrastine** (FREUND and PHILIP), 1891, A., 93.
- Allylhydrastimide** and its allylic iodide (FREUND and PHILIP), 1891, A., 93.
- Allylhydrastine** (FREUND and PHILIP), 1891, A., 93.
- Allylic alcohol** (TORNØE), 1891, A., 1442.  
preparation of (BÉHAL), 1887, A., 905.  
preparation of, from *s*-dichlorhydrin (TORNØE), 1888, A., 665.  
condensation of, with methylbenzenes (KRAEMER and SPIELKEN), 1891, A., 1162.

- Allylic alcohol**, action of dilute mineral acids on (SOLOMINA), 1885, A., 741; 1888, A., 806.  
 bromination of (FINK), 1888, A., 214.  
 oxidation of (WAGNER), 1889, A., 231.  
 attempts to prepare *s*-allylene from (BELLSTEIN and WIEGAND), 1885, A., 740.  
 $\alpha$ -chlor-, and its derivatives (HENRY), 1883, A., 173; (VAN ROMBURGH), 1883, A., 450.  
 $\beta$ -chlor- (VAN ROMBURGH), 1883, A., 450.  
 bromide, action of, on thiocarbamide and on phenyl- and diphenyl-thiocarbamide (WERNER), 1890, T., 283; P., 33.  
 compound of phenylhydrazine with (FISCHER and KNOEVENAGEL), 1887, A., 932.  
 tribromide, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
 action of ammonia on (GALEWSKY), 1890, A., 953.  
 carbamate (TORNØE), 1888, A., 665.  
 cyanide. See Crotonitrile.  
 fluoride (MELANS), 1891, A., 409.  
 action of halogens on (MELANS), 1892, A., 800.  
 imidophenylthiocarbamate (WERNER), 1890, T., 302; P., 33.  
 iodide, preparation of (BÉHAL), 1887, A., 905.  
 action of hydriodic acid on (MALBOT), 1889, A., 766.  
 action of, on phenol in presence of zinc or aluminium foil (FRANKLAND and TURNER), 1883, T., 357.  
 iodides, chlor-, isomeric (VAN ROMBURGH), 1883, A., 449.  
 nitrite (BERTONI), 1886, A., 218.  
 phenylamidoacetate (KOSSEL), 1892, A., 468.  
 phenylimidophenylthiocarbamate (WERNER), 1890, T., 303; P., 33.  
 sodium thiosulphate (PURGOTTI), 1892, A., 1418.  
 trisulphide, so-called (NASINI and SCALA), 1887, A., 1088.  
 hexa- and oxy-sulphides (KEUTGEN), 1890, A., 577.  
**Allylmalonic acid** (PERKIN), 1887, T., 16.  
**Allylmethyl-**. See Methylallyl-.  
**Allylnitrolic acid** (ASKENASY and MEYER), 1892, A., 1068.  
**Allylphenyl-**. See Phenylallyl-.  
**Allylphthalimide** (NEUMANN), 1890, A., 890.  
**Allylphthalaldehyde-cumidamide** (FRÜHLICH), 1884, A., 1319.  
**2-Allylpyridine** and its derivatives (LADENBURG), 1887, A., 160.  
**Allylpyrroline** (GLAMICIAN and DENNSTEDT), 1883, A., 350.  
**2'-Allylquinoline** (EISELE), 1887, A., 975.  
**Allylsalicylic acid** (SCHILONE), 1883, A., 336.  
**Allylsuccinic acid** (HJELT), 1883, A., 656.  
**Allylsuccinimide** (MOINE), 1887, A., 489.  
**Allylsulphuric acid** and its salts (SZYMANSKI), 1886, A., 43.  
**Allyltaurine**, preparation of (JAMES), 1885, T., 369.  
 $\alpha$ -Allyldithiobiuret (HECHT), 1892, A., 704.  
**Allylthiocarbamide**, action of silicon tetrabromide on (REYNOLDS), 1888, T., 853; P., 88.  
**Allylthiocarbamidesallylic**, allylthiocarbamidebenzylic, allylthiocarbamide-ethylic, and allylthiocarbamide-propylic cyanides (HECHT), 1890, A., 1104.  
 $o$ -Allylthiocarbamidocinnamic acid (ROTHSCHILD), 1890, A., 1123; 1891, A., 198.  
**Allylthiocarbimide** (oil of mustard), specific gravity and refractive index of (LONG), 1889, A., 86.  
 action of aldehyde-ammonia on (DIXON), 1888, T., 415.  
 action of bromine on (DIXON), 1892, T., 545; P., 124.  
 copper compound of (BIRKENWALD), 1891, A., 818.  
 effect of, on animals (ULBRICHT), 1890, A., 539.  
 estimation of (HAGER), 1886, A., 394; (SCHLICHT), 1892, A., 1035.  
 estimation of, in the seeds of Cruciferae (DIRCKS), 1883, A., 245; (FOERSTER), 1885, A., 1350.  
**Allylthiohydantoin** (MARCKWALD, NEUMARK, and STELZNER), 1892, A., 151.  
**Allyltolyl-**. See Tolyallyl-.  
**Allyltriethyl-**. See Triethylallyl-.  
**Allyltrimethyl-**. See Trimethylallyl-.  
**Almond oil**, testing (HAGEN), 1884, A., 120; (VULPIUS), 1886, A., 494.  
**Almonds**, distribution of amygdalin and emulsin in (JOHANNSEN), 1888, A., 869.  
 sweet, germination of (JONISSEN), 1885, A., 181.  
*Alnus glutinosa*, calcium oxalate in the leaves of (WEHMER), 1890, A., 191.

- Aloes**, Jafferahad (SHENSTONE), 1883, A., 480.  
 detection of, in mixtures (CRIPPS and DYMOND), 1885, A., 1015.
- Aloin or Aloins** (SHENSTONE), 1883, A., 480.  
 from various aloes (PLENGE), 1885, A., 808.  
 from Barbados, Curaçao, and Natal aloes (GROENEWOLD), 1890, A., 639.  
 preparation of (WOODRUFF), 1890, A., 170.  
 acetyl derivatives of (GROENEWOLD), 1890, A., 639.  
 brom- (GROENEWOLD), 1890, A., 639.
- Alstonite**. See Bromlite.
- Alum or Alums**, specific refraction and dispersion of (GLADSTONE), 1886, A., 293.  
 refractive indices and specific gravities of (SORET), 1885, A., 109, 1097.  
 thermochemical analysis of the reaction between potassium hydroxide and (YOUNG), 1886, A., 589.  
 expansion of (SPRING), 1884, A., 892.  
 differential dilatometer and its application in an investigation on the formation of (SPRING), 1884, A., 887.  
 dissociation of (MÜLLER-ERZBACH), 1888, A., 1022.  
 water of crystallisation of (MAUMENÉ), 1887, A., 218; (DE BOISSIEU), 1887, A., 892; (JUTTKE), 1888, A., 112; (LESCOEUR and MATHURIN), 1889, A., 7; (MULLER-ERZBACH), 1889, A., 331.  
 solubility of, in aluminium sulphate (REUSS), 1885, A., 458.  
 detection of, in flour (HERZ), 1887, A., 530.  
 detection of, in wines (DE' COLLI), 1892, A., 1523.  
 logwood test for, in bread (YOUNG), 1887, A., 1143.  
 estimation of, in bread (YOUNG), 1891, A., 114.  
 estimation of minute amounts of iron in (TATLOCK), 1888, A., 90.  
 Chilian (DARAPSKY), 1887, A., 558.  
 dried, of the B.P. (BAILEY), 1883, A., 1053.
- Alum-cake**, analysis of (WILLIAMS), 1888, P., 84; A., 90.
- Alumina**. See Aluminium oxide.
- Alumina-garnet** containing manganese (WEIBULL), 1884, A., 409.
- Alumina-hornblende**, chemical composition of (IGELSTRÖM), 1886, A., 29; (USSING), 1890, A., 19.
- Aluminite**, new variety of (PFLUG), 1890, A., 454.
- Aluminium** in ash of flowering plants (YOSHIDA), 1887, T., 748.  
 in plants (RICHTARDT), 1890, A., 818.  
 in vascular cryptogams (CHURCH), 1889, A., 182.  
 in wheat (YOUNG), 1888, A., 621; (ALLEN), 1888, A., 631.  
 in mineral waters (PARMENTIER), 1892, A., 1287.  
 atomic weight of (BAUDIGNY), 1884, A., 395.  
 molecular weight of (RAMSAY), 1889, T., 531, 533.  
 valency of (NILSON and PETTERSSON), 1883, T., 825; (COMBES), 1889, A., 571.  
 (metal) preparation of (HERZOG), 1886, A., 401.  
 production of, in the electrical furnace (MABERY), 1887, A., 551.  
 manufacture of (ANON.), 1884, A., 230, 1230; 1885, A., 98.  
 properties of pure (MALLET), 1883, A., 151.  
 mechanical properties of (BARLOW), 1883, A., 424.  
 suitability of, for domestic purposes (LUNGE), 1892, A., 687; (BALLAND), 1892, A., 1281.  
 spectrum of (HARTLEY), 1883, T., 396.  
 galvanic polarisation of (STREINZ), 1887, A., 415.  
 electrolytic deposition of (FISCHER), 1884, A., 934.  
 electrometallurgy of (MINET), 1891, A., 525.  
 latent heat of fusion of (PRIONCHON), 1892, A., 1281.  
 specific heat of (NACCARI), 1888, A., 1236; (RICHARDS), 1892, A., 673; (PRIONCHON), 1892, A., 1281.  
 occlusion of hydrogen by (NEUMANN and STREINTZ), 1892, A., 567.  
 absorption of an iodine-compound by (GORE), 1884, A., 655.  
 action of, on alkali hydroxides (CAVAZZI), 1885, A., 1112.  
 action of chlorine and of bromine on (GAUTIER and CHARPY), 1892, A., 118.  
 action of, on chromic and nitric acids (FROMME), 1883, A., 699, 700.  
 action of, on cupric chloride (TOMMASI), 1883, A., 19.  
 action of mercuric cyanide dissolved in water and in organic solvents on (VARET), 1892, A., 797.  
 action of nitric acid on (DITTR), 1890, A., 702; (MONTEMARTINI), 1892, A., 1403.

**Aluminium** (metal) action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 659.  
 action of sulphuric acid on (DITTE), 1890, A., 701.  
 condition of, in cast iron (OMOND), 1892, A., 19.  
 soldering of (BOURBOUZE), 1884, A., 961.  
 influence of, on the freezing point of gold (ROBERTS-AUSTEN), 1891, A., 1161.  
 influence of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 385.  
**Aluminium alloys** (BOURBOUZE), 1886, A., 772; (BAILLE and FÉRY), 1890, A., 110.  
 with boron (MINET), 1891, A., 1321.  
 with silicon and titanium (LÉVY), 1838, A., 423.  
 assay of (REGELSDERGER), 1892, A., 535.  
 use of, in thermochemistry (BAILLE and FÉRY), 1890, A., 110.  
 See also Aluminium-bronze and Aluminium-steel.  
**Aluminium salts**, molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
 behaviour of, as mordants (LIECHTI and SUIDA), 1884, A., 794.  
 reactions of, with organic compounds (GUSTAVSON), 1885, A., 363.  
 detection of free sulphuric acid in (EGGER), 1889, A., 648.  
**Aluminium antimonate** (BEILSTEIN and V. BLASE), 1889, A., 1124; (EBEL), 1890, A., 216.  
 potassium and sodium arsenates (LEFÈVRE), 1890, A., 1378.  
 pyroarsenate (LEFÈVRE), 1890, A., 1378.  
 borate (MALLARD), 1888, A., 349.  
 from Siberia (DAMOUR), 1883, A., 719.  
 borides (JOLY), 1884, A., 156.  
 bromide, thermic data for the compounds of, with hydrocarbons (GUSTAVSON), 1885, A., 472.  
 rationale of reactions, in the presence of aluminium chloride and (GUSTAVSON), 1891, A., 182.  
 chloride, preparation of (WARREN), 1890, A., 108.  
 preparation of anhydrous (MABERY), 1890, A., 13.  
 crystalline form of (SEUBERT and POLLARD), 1891, A., 1426.  
 vapour density of (NILSON and PETERSSON), 1888, A., 788; 1889, A., 1113; (FRIEDEL and CRAFTS), 1888, A., 1040.

**Aluminium chloride**, melting point of (SEUBERT and POLLARD), 1891, A., 1426.  
 action of aluminium on (FRIEDEL and ROUX), 1885, A., 873.  
 action of, on benzenoid acid chlorides (HUGHES), 1891, P., 70.  
 action of, on a mixture of alcohols of the paraffin series with ethylic chlorocarbonate (PAWLEWSKI), 1885, A., 1279.  
 action of, on hydroxyl compounds (CLAUS and MERCKLIN), 1886, A., 143.  
 action of, on toluene, the three xylenes, and ethylbenzene (ANSCHUTZ and IMMENDORFF), 1885, A., 269.  
 action of sodium thiosulphate on (VORTMANN), 1889, A., 1103.  
 decomposing action of, on hydrocarbons (FRIEDEL and CRAFTS), 1885, A., 654.  
 decomposition of, in solution (FOUSSEREAU), 1886, A., 975.  
 reaction (ANSCHUTZ), 1887, A., 150.  
 compounds of, with nitric oxide and nitric peroxide (BESON), 1889, A., 834.  
 potassium chloride (NEUMANN), 1888, A., 655.  
 oxychloride (TOMMANS), 1883, A., 19; (HAUTEFEUILLE and PERREY), 1885, A., 874.  
 fluoride, electrolysis of fused (MINET), 1890, A., 552; 1891, A., 152.  
 heat of neutralisation of (PETERSEN), 1890, A., 680.  
 dissociation of (V. ANSBÖTH), 1891, A., 806.  
 See also Fluellite.  
 fluorides, double (PETERSEN), 1889, A., 107.  
 potassium fluoride (DUBOIN), 1892, A., 1162.  
 sub-fluoride (HAMPE), 1889, A., 676; (DIEHL), 1889, A., 677.  
 hydroxide (BAYER), 1889, A., 213.  
 dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 74, 87; (VAN BEMMELEN), 1888, A., 1159.  
 colloidal solution of (PICKTON and LINDER), 1892, T., 154.  
 action of, on aluminium and ferric salts (SCHNEIDER), 1890, A., 946.  
 oxide (*alumina*) in superphosphate (YARDLEY), 1886, A., 288.  
 colloidal (VAN BEMMELEN), 1888, A., 1159.

- Aluminium oxide** (*alumina*), preparation of (ROSENTHAL), 1886, A., 108.
- phosphorescence of (BÉQUEREL), 1887, A., 191, 409; (LECOQ DE BOISBAUDRAN), 1887, A., 191, 409, 538, 625; (CROOKES), 1887, A., 1067; 1889, T., 280.
- phosphorescent, crimson line of (CROOKES), 1887, A., 1006.
- electrolysis of fused aluminium fluoride and (MINET), 1890, A., 552.
- crystallisation of, in hydrogen chloride (HAUTEFEUILLE and PERREY), 1890, A., 1071.
- relative basicity of ferric hydroxide and (SCHNEIDER), 1890, A., 1062.
- action of, on calcium chloride; (GORGÉU), 1888, A., 228.
- action of carbon tetrachloride on (MEYER), 1887, A., 552.
- action of fluorides on (FREMY and VERNEUIL), 1887, A., 556.
- action of magnesium on (WINKLER), 1890, A., 693.
- action of, on potassium chlorate (FOWLER and GRANT), 1890, T., 276.
- reduction of (FATRIE), 1888, A., 28.
- solubility of, in carbonic acid water (SESTINI), 1891, A., 151.
- fixation of, as a discharge on indigo-blue (SCHEURER), 1885, A., 1276.
- estimation of. See Aluminium, estimation of.
- peroxide (GIBSON and MORRISON), 1886, A., 305.
- phosphate (HAUTEFEUILLE and MARGOTTER), 1888, A., 420; (SESTINI), 1891, A., 151.
- action of ammonium citrate on (HUSTON), 1892, A., 1127.
- solubility of, in acetic acid (YOUNG), 1891, A., 114.
- estimation of (GLASER), 1892, A., 1523.
- calcium phosphate (DAMOUR), 1885, A., 640.
- metaphosphate (HAUTEFEUILLE and MARGOTTER), 1888, A., 711; (JOHNSON), 1889, A., 757.
- orthophosphate, crystallised (DE SCHULTEN), 1884, A., 1263.
- selenites (BOUTZOURÉANU), 1891, A., 262.
- silicates (GORGÉU), 1886, A., 667; 1890, A., 13.
- silicofluorides (CHABRIÉ), 1886, A., 981.
- zinc silicate, hydrated (CESARO), 1884, A., 1105.
- See also Topaz.
- Aluminium potassium and sodium sulphate**, basic (ATHANASESCU), 1886, A., 981; (BAYER), 1887, A., 448; (BÖTTINGER), 1888, A., 556.
- hydrated (MARGUERITE-DELLACHARLONNY), 1883, A., 714; 1884, A., 820; 1885, A., 124; 1890, A., 1884.
- natural, of Rio Saldana, composition of (MARGUERITE-DELLACHARLONNY), 1883, A., 714.
- preparation of perfect crystals of (GAWALOWSKI), 1886, A., 204.
- preparation from bauxite of, free from iron (FAHLBERG), 1883, A., 30.
- density of solutions of pure and commercial, and the solubility of alum in (REUSS), 1885, A., 458.
- action of concentrated sulphuric acid on (EREMIN), 1889, A., 347.
- detection of free sulphuric acid and aluminium hydroxide in (HAGER), 1887, A., 182; (BAYER), 1887, A., 530.
- analysis of (BEILSTEIN and GROSSET), 1890, A., 85.
- estimation of alumina and free sulphuric acid in (WILLIAMS), 1888, P., 84.
- ferrous sulphate, native, from Mexico (LIPPITT), 1884, A., 24.
- lead sulphate (BAILEY), 1888, A., 110.
- manganese sulphate, a new hydrous, from Sevier Co., Tennessee (BROWN), 1885, A., 226.
- sulphide (WARREN), 1892, A., 943.
- potassium sulphide (GRAMA), 1885, A., 350.
- sulphite, preparation of (MANZONI), 1885, A., 725; (BECKER), 1885, A., 1271.
- hydrogen sulphite, preparation of (BECKER), 1885, A., 1271.
- dithionate (KLUS), 1888, A., 1157.
- Aluminium organic compounds:—**
- Aluminium alcohols:** aluminium *o*-cresylate and its products of decomposition by heat (GLADSTONE and TRIBE), 1885, P., 111; 1886, T., 25.
- alkyls, molecular reductions of freezing points by (LOUISE and ROUX), 1889, A., 37.
- isomyl (LOUISE and ROUX), 1889, A., 37.
- molecular weight of (ROUX and LOUISE), 1889, A., 758.
- ethyl, molecular weight of (ROUX and LOUISE), 1889, A., 757.
- vapour density of (ROUX and LOUISE), 1888, A., 453.

**Aluminium methyl**, molecular weight of (ROUX and LOUISE), 1889, A., 757.  
 vapour density of (LOUISE and ROUX), 1888, A., 583; (QUINCKE), 1889, A., 695.  
 phenyl (FRIEDEL and CRAFTS), 1889, A., 243.  
 propyl (LOUISE and ROUX), 1889, A., 37.  
 molecular weight of (ROUX and LOUISE), 1889, A., 758.  
 thiocyanate free from iron (STEIN), 1884, A., 540.  
 preparation of (ANON.), 1883, A., 256.

**Aluminium detection, estimation and separation:**—  
 detection of, in wine and grapes (L'HÔTE), 1887, A., 690.  
 detection of small quantities of, in iron and steel (CARNOT), 1891, A., 501.  
 precipitation of, by ammonia (LUNGE), 1890, A., 420.  
 estimation of (BAYER), 1886, A., 281; (REGELSBERGER), 1892, A., 535; (HUNT, CLAPP, and HANDY), 1892, A., 1130.  
 estimation of commercial (KLEMP), 1891, A., 114; (REGELSBERGER), 1892, A., 102, 535.  
 estimation of, volumetric (ATKINSON), 1886, A., 282; (BAYER), "E.B.", 1886, A., 651; (GATENBY), 1887, A., 865; (LUNGE), 1891, A., 365; 1892, A., 535; (CROSS and BEVAN), 1892, A., 535.  
 estimation of, by the Glaser method (GIBBINS), 1892, A., 755.  
 estimation of, in alum-cake and sulphate of alumina (WILLIAMS), 1888, P., 81; A., 88.  
 estimation of, in presence of calcium (KENNEDY), 1889, A., 188.  
 estimation of, volumetric, in lime and cement (PRUNIER), 1885, A., 441.  
 estimation of minute quantities of, in iron and steel (STEAD), 1890, A., 548; (CARNOT), 1891, A., 501.  
 estimation of, direct, in iron and steel (DROWN and MCKENNA), 1892, A., 102.  
 estimation of, in presence of much iron (THOMSON), 1887, A., 182.  
 estimation of, in presence of iron and phosphoric acid (BLUM), 1888, A., 324.  
 estimation of, in the presence of phosphoric acid (KENNEDY), 1889, A., 188; (KAPP), 1892, A., 755.

**Aluminium**, estimation of, in phosphates (KRETSZSCHMAR), 1886, A., 393; (DYER), 1886, A., 491; (JONES), 1886, A., 491; 1891, A., 114; (v. GRUBER), 1891, A., 501, 963; (STEPHERD), 1891, A., 1138; (MEYER), 1892, A., 536.  
 estimation of, in phosphatic manures (GLASER), 1890, A., 420; (STUTZER), 1891, A., 245.  
 estimation of, in mineral phosphates and manures (THOMSON), 1887, A., 302.  
 estimation of, in rock analysis (CHATARD), 1891, A., 768.  
 estimation of, in slags (KOSMANN), 1886, A., 489.  
 estimation of, in sodium aluminate (LUNGE), 1891, A., 365.  
 estimation of, in soils (VAN BEMMELEN), 1890, A., 833.  
 estimation of, in wine and grapes (CARLES), 1884, A., 1077; (L'HÔTE), 1887, A., 690.  
 separation of, from beryllium (ZIMMERMANN), 1888, A., 323.  
 separation of, from calcium and magnesium (BLUM), 1889, A., 652.  
 separation of, from iron (VIGNON), 1885, A., 689; (v. ILINSKI and v. KNORRE), 1886, A., 100; (BEILSTEIN and LUTHER), 1891, A., 1293.  
 separation of, from ferric oxide and titanio oxide (COHEN), 1884, A., 640.  
 separation of, from iron, interference of chromium with the (MAYR), 1890, A., 84.  
 separation of, from iron, nickel, cobalt, manganese and zinc (MOORE), 1888, A., 631.  
 separation of, from titanium (GOOCH), 1886, A., 492.  
 separation of, from zirconium (DAVIS), 1889, A., 550.

**Aluminium-bronze**, manufacture of (ANON.), 1885, A., 98.  
 preparation of, by the electrolysis of cryolite (HAMPE), 1889, A., 676.

**Aluminium-steel**, analysis of (ZIEGLER), 1890, A., 1471.

**Aluminium-group**, valency of the elements of (NIELSON and PETTERSSON), 1888, T., 825.

**Alunite**, calcination of (GUYOT), 1883, A., 397.  
 industrial value of crude (GUYOT), 1883, A., 250.  
 from Colorado (CROSS), 1891, A., 1328.  
 from New South Wales (MACIVOR), 1888, A., 560.

- Alunite**, Roman, extraction of alumina and potash from (SCHWARZ), 1885, A., 307.  
treatment of (GUYOT), 1886, A., 402.
- Alunogen** from New Mexico, analysis of (CLARKE and CHATARD), 1885, A., 492.
- Alvite** (NORDENSKIÖLD), 1889, A., 220.
- Amalgam** from the Friedrichsseen mine near Oberlahnstein (v. SANDBERGER), 1884, A., 563.
- Amalgamation**, expansion produced by (AYRTON and PERRY), 1887, A., 327.
- Amalgamation process**, Mexican, reactions of (HUNTINGTON), 1883, A., 134.
- Amalgams**. See Mercury alloys.
- Amalic acid**, decomposition of, by heat (FISCHER and REESE), 1884, A., 467.
- Amanita Mappa**, sugars in (BOURQUELOT), 1891, A., 103.
- Amanita pantherina**, iat of (OPITZ), 1891, A., 1285.  
toxic principle of (INOKO), 1892, A., 232.
- Amaranthite** from Chili (FRENZEL), 1888, A., 923; (MACKINTOSH), 1890, A., 454; (DARAPSKY), 1890, A., 456; (GENTH and PENFIELD), 1891, A., 274.
- Amarine** (CLAUS), 1883, A., 203; (BAHRMANN), 1883, A., 799; (CLAUS and ELBS), 1883, A., 982; (CLAUS and KOHLSTOCK), 1885, A., 1132.  
allotopic modification of (CLAUS), 1885, A., 1063.  
reduction of (ZAUEN-SCHIRM), 1888, A., 1077; (GROSSMANN), 1889, A., 1191.  
acetyl and benzoyl chlorides (BAHRMANN), 1883, A., 799.  
mono-substituted derivatives of (CLAUS and SCHERBEL), 1886, A., 237.  
dinitr-, and diamido-, and salts of (CLAUS and WIT), 1885, A., 1062.
- Amarine silver**, additive products of (CLAUS and SCHERBEL), 1886, A., 237.
- Amarylline** (FRÄGNER), 1891, A., 1122.
- Amaryllis Belladonna** and *A. formosissima*, alkaloids from (FRÄGNER), 1891, A., 1122.
- Amazon stone** from Amelia Co., Virginia (PAGE), 1885, A., 130.
- Amber** from Southern Mexico (KUNZ), 1890, A., 337.  
so-called, of Cedar Lake, Canada (HARRINGTON), 1892, A., 573.
- Amenylbenzene** (DAFERT), 1883, A., 1094.
- Amethylcamphophenolsulphone** and a nitro-colouring matter derived from it (CAZENEUVE), 1890, A., 791, 1153.
- Amethylcamphophenolsulphone**, action of nitric acid on (CAZENEUVE), 1892, A., 999.
- Amethylcamphophenolsulphonic acid** (CAZENEUVE), 1891, A., 324.  
action of nitric acid on (CAZENEUVE), 1892, A., 999.
- Amidation**, partial, of polynitrated aromatic compounds (ANSCHUTZ and HEUSLER), 1886, A., 1021.
- Amides**, formation of, from amines (BAUBIGNY), 1883, A., 175; 1886, A., 1006.  
formation of, from animonium salts (MENSCHUTKIN), 1884, A., 836, 1294.  
formation of, from ethereal salts and ammonia (BONZ), 1889, A., 335.  
formation of, from the nitranilines (MELDOLA and SALMON), 1888, T., 774.  
formation of, during the germination of various seeds in the dark (SCHULZE and FLECHSIG), 1886, A., 90.  
heat of formation of (BERTHELOT and FOGU), 1890, A., 1359.  
action of alkalis on (BOSSHARD), 1884, A., 878.  
action of bromacetophenone on (BLUMLEIN), 1885, A., 162.  
action of bromine in alkaline solution on (v. HOFMANN), 1886, A., 45.  
action of nitric acid on (FRANCHIMONT), 1888, A., 447.  
action of potassium hypobromite on (HOOGWERFF and VAN DORT), 1888, A., 1194; 1889, A., 981.  
decomposition of, by alcohols (MEYER), 1889, A., 380.  
decomposition of, by water and dilute acids (BERTHELOT and ANDRÉ), 1887, A., 235.  
dehydration of, in contact with, diphenyl derivatives (BIZZARRI), 1892, A., 617.  
alkyl derivatives (TAFEL and ENOCH), 1890, A., 491, 973.  
metallic derivatives of, and a method of distinguishing mono- and diamides (GAL), 1883, A., 913.  
of the acetic series, reaction of acetone with (CANZONERI and SPICA), 1885, A., 746.  
of carbonic acid (EMICH), 1888, A., 1063.  
of the fatty series, formation of amines from (SEIFERT), 1885, A., 968.  
of oxalic acid, action of phosphorus pentachloride on (WALLACH), 1883, A., 49.

- Amides of the oxalic series** (HENRY), 1885, A., 886.  
 physiological action of (GIBBS and REICHMUT), 1891, A., 1282.  
 behaviour of, in the animal organism (ZUNTZ), 1884, A., 472; (WEINKE and SCHULZE), 1885, A., 109.  
 estimation of, in vegetable extracts (SCHULZE), 1884, A., 1438.
- Amides, acid.** See Acid amides.
- Amides, aromatic,** preparation of (FILLET), 1887, A., 42.  
 action of trimethylenic chlorobromide on (PINKUS), 1892, A., 1491.  
 reduction of (HUTCHINSON), 1890, T., 957; P., 189; 1891, A., 561.
- Amidic substances,** effect of feeding on the secretion of (SCHULZE), 1890, A., 278.
- Amidine derivatives** (LOEB), 1887, A., 42.
- Amidine hydrochlorides,** action of heat on (PINNER), 1884, A., 723.
- Amidines** (PINNER), 1889, A., 1004; 1891, A., 60; (LOSSEN), 1892, A., 51.  
 formation of (KUHLEWEIN), 1890, A., 371.  
 action of acetic anhydride on (PINNER), 1883, A., 1099; 1884, A., 722.  
 action of benzoic chloride on (PINNER), 1884, A., 1324.  
 action of ethylic acetoacetate on (PINNER), 1885, A., 158, 751; 1886, A., 45.  
 action of hydroxylamine on (PINNER), 1884, A., 739.  
 action of nitric acid on (FRANCHIMONT), 1892, A., 951.
- Amidinethiocinnamic acid** (ANDREASCH), 1888, A., 48.
- Amidoacenaphthene** (QUINCKE), 1887, A., 592; 1888, A., 844.
- diAmidoacenaphthene** (QUINCKE), 1888, A., 844.
- Amidoacetal** (WOHL), 1888, A., 443.  
 preparation of (MARCKWALD), 1892, A., 1827.  
 condensation products of (WOHL and MARCKWALD), 1889, A., 624, 866.  
 derivatives of (WOHL), 1888, A., 443.
- p-Amidoacetanilide.** See Aceto-p-phenylenediamine.
- Amidoacetic acid.** See Glycocine.
- diAmidoacetone** (RUGHEIMER and MISCHKE), 1892, A., 952.  
 platinumchloride (RUGHEIMER), 1889, A., 250.
- Amidoacetophenone** See Acetophenone.
- o-Amidoacetophenone-oxime and -hydrazone** (AUWERS and v. MEYENBURG), 1891, A., 1376.
- Amidoaceto-p-toluidide.** See Aceto-o-tolylenediamine.
- diAmidoaceto-p-toluidide** (NIEMEN-TOWSKI), 1886, A., 545.
- o-Amido-m-acetyltoluene** and its derivatives (KLINGEL), 1884, A., 1343; 1886, A., 60.
- Amido-acids** (REBUFFAT), 1890, A., 621.  
 resulting from the action of hydrochloric acid and of barium hydroxide solutions on albuminoids (SCHULZE), 1885, A., 916; (SCHULZE and BOSSHARD), 1886, A., 373.  
 optical behaviour of (SCHULZE and BOSSHARD), 1884, A., 1306; 1885, A., 759.  
 action of alkylid iodides on (MICHAEL and WING), 1886, A., 148.  
 condensation of, with benzenesulphonic chloride (HEDIN), 1891, A., 202.  
 action of cyanogen chloride on (TRAUBE), 1883, A., 192.  
 action of ethylic iodide on (DUVILLIER), 1890, A., 956.  
 action of hydriodic acid on (KWIŃDA), 1892, A., 38.  
 action of phthalic anhydride on (KEENE), 1888, A., 148, 369.  
 action of thiocarbimides on (ANCHAN), 1884, A., 907.  
 influence of, on gastric digestion (SALKOWSKI), 1892, A., 742.
- Amido-acids, fatty,** general reactions for (CURTIUS), 1884, A., 994.
- α-Amidoalizarin** (BRASCH), 1891, A., 1077.
- β-Amidoalizarin** (BRUNNER and CHIRARD), 1885, A., 806; (ROEMER), 1885, A., 1068.  
 preparation of (LAUTH), 1892, A., 864.
- p-Amidoalkyl-o-toluidines** (WEINBERG), 1892, A., 1078.
- β-Amidoallylic cyanide** (HOLTZWART), 1889, A., 683.
- diAmidoamarine** and its salts (CLAUD and WITT), 1885, A., 1062.
- Amidoisomylbenzene** (LLOYD), 1889, A., 700.
- pentaAmidoamylene** (NIETZKI and ROSEMANN), 1889, A., 769.
- Amidoamylhexylquinoline** (v. MILLER), 1891, A., 1104.
- m-Amido-p-anilidobenzoic acid** (SCHOPFF), 1890, A., 374.
- diAmidoanilidotolylamine.** See triAmidophenylytoluidine.
- m-Amidoanisole.** See Anisidine.
- m-p-diAmidoanisole hydrochloride** (HÄHLE), 1891, A., 431.

*tetra*Amidoanisole (NIEZKI and KUR-TENACKER), 1892, A., 596.

Amidoanthracene. See Anthramine.

*di*Amidoanthracene (PARKIN), 1889, P., 13.

Amidoanthranilamide (v. MEYER and BELLMANN), 1886, A., 358.

Amido- and *di*amido-anthraquinone (ROEMER), 1883, A., 71, 737.

*di*Amidoapone (CIAMICIAN and SILBER), 1890, A., 1295.

"Amidoaspartic colloid" (GRIMAUD), 1884, A., 957.

Amidoazo-. See under Azo.

Amido-bases, compounds of, with phenols (DYSON), 1883, T., 466.

phenates of (DALE and SCHORLEMER), 1883, T., 185.

Amidobenzaldehyde. See Benzaldehyde.

*o*-Amidobenzaldehydephenylhydrazine (ELIASBERG and FRIEDLANDER), 1892, A., 1106.

*p*-Amidobenzaldoxime (GABRIEL and HERZBERG), 1883, A., 1104; (HERZBERG), 1885, A., 662.

Amidobenzamide. See Benzamide.

*m*-Amido-*m*-benzamidobenzamide (SCHULZE), 1889, A., 779.

Amidobenzamidocacrol (MAZZARA), 1891, A., 48.

6-Amido-2-benzamidothymol, anhydride of (MAZZARA), 1891, A., 46.

Amidobenzanilide and the action of aniline on (PICTET), 1883, A., 999.

Amidobenzene. See Aniline.

*di*Amidobenzene. See Phenylenediamine.

*di*Amidobenzenes, isomeric, action of *p*-diazobenzenesulphonic acids on (GRIESS), 1883, A., 183.

Amidobenzenes, *tri*-, *tetra*-, and *penta*-. See Benzene.

Amidobenzeneazo-. See Benzene, under Azo.

Amidobenzenehydrazinesulphonic acid. See Amidophenylhydrazinesulphonic acid.

Amidobenzenesulphonic acids. See Anilinesulphonic acids.

*m*-Amidobenzenyamidoxime (SCHÖPF), 1885, A., 1217.

*p*-Amidobenzenyamidoxime (WEISE), 1890, A., 46.

*m*-Amidobenzenyloximebenzenyl and derivatives (SCHÖPF), 1885, A., 1217.

*o*-Amidobenzethylamide (FINGER), 1888, A., 948.

$\alpha$ -*di*Amidobenzhydrol (WICHELHAUS), 1889, A., 781.

$\beta$ -*di*Amidobenzhydrol and its derivatives (STAEDEL), 1888, A., 991.

*m*-Amidobenzidine (TAUBER), 1890, A., 783.

*m*-*di*Amidobenzidine (BRUNNLE and WITTE), 1887, A., 672; (TAUBER), 1890, A., 782.

*m*-*di*Amidobenzidine-*m*-sulphonic acid (ZIEHL), 1891, A., 313.

*o*-Amidobenzobenzylamide (SODERBAUM and WIDMAN), 1890, A., 1258.

*o*-Amidobenzoic acid. See Anthranilic acid.

Amidobenzoic acids, *m*- and *p*-. See Benzoic acid.

*p*-Amidobenzoic sulphinide (NOYES), 1886, A., 804.

Amidobenzoid (PICTET), 1883, A., 999.

*o*-Amidobenzomethylamide (WEDDIGE), 1887, A., 1043.

Amidobenzophenone. See Benzophenone.

Amidobenzophenoneoxime (AUWERS and v. MEYENBURG), 1891, A., 1378.

Amidobenzophenylhydrazide (PILLAZZARI), 1886, A., 1025.

*o*-Amidobenzoylglyoxylic acid (*quinisatic acid*), and its salts (v. BAeyer and HOMOLKA), 1884, A., 79.

Amidobenzoylperidine (SCHOTTEN), 1888, A., 1105.

*o*-Amidobenzylacetamide (GABRIEL and JANSEN), 1890, A., 1442.

*o*-Amidobenzylacetanilide (PAAL and KRECKE), 1892, A., 80.

*o*-Amidobenzylacetomethylamide (GABRIEL and JANSEN), 1892, A., 218.

*m*-Amidobenzylacetone (v. MILLER and RÖHDE), 1890, A., 1138.

*o*-Amidobenzylaceto-*p*-tolimide (SODERBAUM and WIDMAN), 1890, A., 1258.

Amidobenzylamine. See Benzylamine.

Amidobenzylaniline. See Benzylphenylenediamine.

*o*-Amidobenzylbenzamide (GABRIEL and JANSEN), 1890, A., 1112.

*p*-Amidobenzyldeoxybenzoin (BUDDEBERG), 1890, A., 1143.

*o*-Amidobenzylethyl-*m* amidophenol (LEHMANN and BOYLE), 1890, A., 1116.

Amidobenzyl alcohol. See Benzyl alcohol.

Amidobenzyl chloride (BORGMANN), 1886, A., 56.

Amidobenzyl cyanide. See Amidophenylacetoneitrile.

Amidobenzylideneanthrone (BACH), 1890, A., 1425.

*m*-Amidobenzylidene-2'-methylindole (FISCHER), 1888, A., 284.

Amidobenzylidene-2'-methylquinoline [m.p. 172°] (BULACH), 1889, A., 528.

- m*-Amidobenzylidene-2'-methylquinoline [ul.p. 158°] (WARTANIAN), 1891, A., 330.
- m*-Amidobenzylidene-4'-methylquinoline (HEYMAN and KOENIGS), 1888, A., 1114.
- Amidoisobenzylidenephthalimidine (GABRIEL), 1886, A., 631.
- o*-Amidobenzylidenerhodanic acid (BONDZYNSKI), 1887, A., 1109.
- p*-Amidobenzylphthalimidine (HAFNER), 1889, A., 982; 1890, A., 487.
- o*-Amidobenzyl-*p*-toluidine (SÜDERBAUM and WIDMAN), 1890, A., 1258.
- hydrochloride (BUSCH), 1892, A., 734.
- Amidobisazobenzene (NIETZKI and DIESTERWEG), 1888, A., 1082.
- Amidobrucine (HANSEN), 1886, A., 561.
- Amidoisobutylbenzene. See *iso*Butylbenzene.
- 2-Amido-5-*iso*butyltoluene (EFFRONT), 1884, A., 899; 1885, A., 151.
- Amidobutyric acid. See Butyric acid.
- Amidocarbamidophenol (KATACHOFF), 1883, A., 1110.
- Amidocarbazole (MAZZARA and LEONARDI), 1892, A., 616.
- di*Amidocarbazole, synthesis of, from benzidine (TÄUBER), 1891, A., 227.
- synthesis of, from carbazole (TÄUBER), 1892, A., 480.
- p*-Amidocarbinols (O. and G. FISCHER), 1891, A., 695.
- Amidocarbonylsulphamyl. See Amylic thiocarbamate.
- $\gamma$ -Amidocarbostyryl (FRIEDLÄNDER and LAZARUS), 1885, A., 1139.
- Amidocarboxyphenyloxamic acid (GRIESS), 1885, A., 1225; 1888, A., 827.
- di*Amidocarpaerol (MAZZARA), 1891, A., 47.
- Amidochrysene (ABEGG), 1890, A., 789; (BAMBERGER and BURGDORF), 1890, A., 902, 1313.
- Amidochryso-quinol and quinone, salts of (ABEGG), 1891, A., 731.
- $\alpha$ -Amidocinnamic acid (PLÜCH), 1884, A., 1349.
- derivatives of (ROTHSCHILD), 1890, A., 1123; 1891, A., 198.
- Amidocinnamic acids, nitration of (FRIEDLÄNDER and LAZARUS), 1885, A., 1138.
- carbamide derivatives of (ROTHSCHILD), 1890, A., 1123; 1891, A., 198.
- $\beta$ -Amidocinnamonitrile (HOLTZWART), 1889, A., 683.
- Amidochloro-. See Chloramido-.
- Amidocomenic acid, action of phosphorus pentachloride on (FRIELMANN), 1884, A., 840.
- Amido-compounds in the animal system (BAHLMANN), 1887, A., 512.
- action of dilute nitric acid on (NORTON and LIVERMORE), 1887, A., 1038.
- action of nitrous acid on (KLOBBE), 1891, A., 292.
- action of phenylic isocyanate on (KÜHN), 1885, A., 260, 979.
- formation of haloid substitution derivatives of, by the reduction of nitro-derivatives of hydrocarbons (KOCK), 1887, A., 810.
- formation of thiocyanates from (GATTERMANN and HAUSKNECHT), 1890, A., 749.
- Amido-compounds, aromatic, action of silicon tetrachloride on (HARDEN), 1886, P., 251; 1887, T., 40.
- Amidocoumarin (TARGE), 1887, A., 939; 1891, A., 918.
- Amidocresols. See Cresol.
- $\beta$ -Amidocrotonanilide (KNORR), 1892, A., 708; (LEDERER), 1892, A., 965.
- $\beta$ -Amidocrotonitrile (HOLTZWART), 1889, A., 683.
- Amidocumene. See Cumidine.
- p*-*di*Amidocumene (KEHRMANN and MESSINGER), 1891, A., 298.
- Amido- $\psi$ -cumenol and the action of acetic anhydride on (LIEBERMANN and V. KOSTANECKI), 1884, A., 1147.
- o*-Amidocuminic acid (WIDMAN), 1886, A., 466.
- di*Amidocuminic acid and its hydrochloride (LITPMANN), 1883, A., 194.
- di*Amido- $\psi$ -cuminic acid (NEF), 1888, T., 433.
- Amidocumylacrylic acids, *o*- and *m*-, and their salts (WIDMAN), 1886, A., 467.
- Amido- $\psi$ -cumylenethenylamidine (AUWERS), 1886, A., 144.
- m*-Amidocumylpropionic acid (WIDMAN), 1886, A., 467.
- m*-Amidocyanobenzoic acid (TRAUBE), 1883, A., 192.
- Amido/cyanobenzoyl, derivatives of (GRIESS), 1885, A., 1225.
- di*Amido/cyanocarboxylic acid. See Ammelide.
- Amido-*p*-cyanophenylacetic acid (TRAUBE), 1883, A., 193.
- Amidocyanophenyglyoxylic acid (GRIESS), 1885, A., 1226.
- p*-*di*Amido-*p*-cymene hydrochloride (LIEBERMANN and V. ILINSKI), 1886, A., 240.
- Amidocymenesulphonic acid. See Cymidinesulphonic acid.
- p*-Amidodeoxybenzoinoxime (NEF), 1888, A., 1197.

- di*Amidodioresol, action of nascent nitrous acid on (DENINGER), 1890, A., 38.
- Amidodicyanic acid (WUNDERLICH), 1886, A., 435.
- di*Amido-1,4-diethoxybenzene. See Diethoxyphenylenediamine.
- Amidodiethoxyresorcinol (WILL and PUKALL), 1887, A., 661.
- p*-Amidodiethylaniline. See Diethyl-*p*-phenylenediamine.
- β*-Amidodiethylanilinesulphonic acid (BERNTHSEN), 1889, A., 776.
- di*Amidodithylic sulphoxide, picrate of (CROSS and BEVAN), 1892, A., 130.
- o*-Amidodiethylresorcinol hydrochloride (PUKALL), 1887, A., 662.
- p*-Amidodiethyl-*o*-toluidine. See Methylethylphenylenediamine.
- Amidodihydroindoxyl, derivatives of (BURMEISTER and MICHAELIS), 1891, A., 1068.
- Amidodihydroxynaphthalene. See Dihydroxynaphthylamine.
- 4-Amido-2,6-dihydroxypyridine. See Glutazine.
- di*Amidodihydroxyquinone (NIETZKI and SCHMIDT), 1888, A., 943.
- 4-Amido-1,3-dimethoxybenzene and its derivatives (BECHOLD), 1889, A., 1155.
- Amidodimethylaniline. See Dimethylphenylenediamine.
- di*Amidodimethylcarbazole (TAUBER and LOEWENHERZ), 1891, A., 834.
- Amidodimethyleyanidine (TSCHERVEN-IVANOFF), 1892, A., 1291.
- 4-Amido-2,6-dimethyl-*m*-diazine (SCHWARZE), 1890, A., 1159.
- m*-Amido-*βγ*-dimethylindene (V. MILLER and RÜHDE), 1890, A., 1138.
- Amido-1,3-dimethylquinoline (NÖLTING and TRAUTMANN), 1891, A., 328; 1892, A., 729.
- Amido-1,4-dimethylquinoline (MARCKWALD), 1890, A., 1004.
- Amidodimethyl-*α*-resorcylic acid (MEYER), 1888, A., 148.
- di*Amidodimethylstilbene sulphide (ANNSCHÜTZ and SCHULTZ), 1889, A., 602.
- di*Amidodinaphthyl and its derivatives (NIETZKI and GOLL), 1886, A., 215.
- di*Amidodinaphthyl derivatives (JULIUS), 1887, A., 56.
- tetra*Amidodinaphthyl (STAUB and SMITH), 1885, T., 106.
- 1:3'-*di*Amidodinaphthyl disulphide (EKROM), 1891, A., 573.
- 1:4'-*di*Amidodinaphthyl disulphide (EKROM), 1890, A., 994.
- 3:3'-*di*Amido- and *tetra*-amido-4:4'-diphenol (KUNZE), 1889, A., 262.
- di*Amido-*o*-diphenyl [m.p. 81°] (TAUBER), 1891, A., 570.
- di*Amidodiphenyl [m.p. 125°] (BERNTHSEN), 1886, A., 471.
- m*:*m*-*di*Amidodiphenyl [m.p. 257°] (BRUNNER and WITT), 1887, A., 673.
- o*:*p*-*di*Amidodiphenyl [m.p. 45°]. See *iso*Benzidine.
- p*:*p*-*di*Amidodiphenyl [m.p. 122°]. See Benzidine.
- tetra*Amidodiphenyl. See *di*Amidobenzidine.
- o*-Amidodiphenylamine. See Phenylphenylenediamine.
- 2:4-*di*Amidodiphenylamine (KEHRMANN and MESSINGER), 1892, A., 1109.
- tri*Amidodiphenylamine (NIETZKI and ERNST), 1890, A., 1114.
- m*-Amidodiphenylcarbamide (LEUCKART), 1890, A., 760.
- α*-*di*Amidodiphenylcarbinol (WICHELHAUS), 1889, A., 781.
- β*-*di*Amidodiphenylcarbinol and its compounds (STARDEL), 1883, A., 991.
- 4-Amido-2,6-diphenyl-*m*-diazine, formation of (SCHWARZE), 1890, A., 1159.
- Amidodiphenyldisulphonic acid (LIMPRICHT), 1891, A., 930.
- di*Amidodiphenylene ketone oxide and its hydrochloride (PERKIN), 1883, T., 191.
- di*Amidodiphenyleneazone (TAUBER), 1892, A., 184.
- Amidodiphenylene-*m*-phenylenediamine (FISCHER and HERP), 1890, A., 614.
- di*Amidodiphenylenic oxide (GALWINSKY), 1891, A., 1234.
- m*-Amidodiphenylmethane (BROKER), 1883, A., 202, 203.
- p*-Amidodiphenylmethane (BASLER), 1881, A., 310.
- p*-Amidodiphenylmethane derivatives (MANN), 1889, A., 261.
- p*-*di*Amidodiphenylmethane and its nitro-derivatives (GRAM), 1892, A., 618.
- tetra*Amidodiphenylmethane and its compounds (STARDEL), 1883, A., 991.
- 4-Amido-2,6-diphenyl-5-methyl-*m*-diazine (V. MEYER), 1889, A., 578; 1890, A., 68; (SCHWARZE), 1890, A., 1159.
- p*-Amidodiphenylmethylpyrazolecarboxylic acid (KNORR and JÖDICKE), 1885, A., 1248.

- o*-Amidodiphenylmethylpyrazolecarbonylic anhydride (KNORR and JÖDICKER), 1885, A., 1248.
- di*Amidodiphenylphosphinic acid (DÖRCKEN), 1888, A., 834.
- p*-*di*Amidodiphenylpiperazine, formation of colouring matters from (LELLMANN and SCHLEICH), 1889, A., 904.
- Amidodiphenylquinoxaline (NIETZKI and MÜLLER), 1889, A., 605.
- Amidodiphenylsulphamic acid (SPIEGEL), 1885, A., 987.
- di*Amidodiphenylsulphone and its derivatives (LAUTH), 1892, A., 1093.
- p*-Amidodiphenylsulphonic acid (CARNELLEY and SCHLESSELMANN), 1886, T., 380; P., 184.
- Amidodiphenylthiocarbamides (LELLMANN and WÜRTNER), 1885, A., 977.
- tri*Amidodiphenyltolylcarbinol. See Rosaniline.
- tri*Amidodiphenyltolylmethane. See Leucaniline.
- di*Amidoditetrahydronaphthylcarbamide (BAMBERGER and BAMMANN), 1889, A., 788.
- di*Amidoditolyl. See Tolidine.
- o*-Amidoditolylamine. See Tolytolylenediamine.
- 2-Amido-5:5'-ditolyl-4:4'-disulphonic acid (HELLE), 1892, A., 1467.
- di*-*p*-Amidodi-*m*-tolyllic disulphide (JACOBSON and NEY), 1889, A., 771.
- Amidodi-*o*-tolyltolylenediamine (KUEHLWEIN), 1890, A., 371.
- di*Amidodixyls and colouring matters derived therefrom (NÖLTING and STRICKER), 1889, A., 135.
- di*Amidodurylic acid. See *di*Amido- $\psi$ -cuminic acid.
- Amidoethanesulphonic acid. See Taurine.
- di*Amidoethoxydiphenyl (WEINBERG), 1888, A., 285.
- di*Amidoethoxydiphenylsulphonic acid (WEINBERG), 1888, A., 285; (FEER and MÜLLER), 1889, A., 258.
- 1:4-Amidoethoxynaphthalene (GRANDMOUGIN and MICHEL), 1892, A., 862; (HEERMANN), 1892, A., 1097. derivatives of (HEERMANN), 1892, A., 1097.
- 8-Amidoethoxynaphthalene (GIESSE), 1891, A., 459.
- di*Amidoethoxynaphthylphenyl (WEINBERG), 1888, A., 286.
- di*Amidoethoxyphenyltolylsulphonic acid (WEINBERG), 1888, A., 286.
- 4-Amido-1-ethoxyquinoline (VIA), 1892, A., 1105.
- o*-Amidoethylaniline. See Ethylphenylenediamine.
- Amidoethylbenzenes, derivatives of (PAUCKSCH), 1884, A., 1142; 1885, A., 255.
- o*-Amidoethylbenzenesulphonic acid (PAUCKSCH), 1885, A., 256.
- $\omega$ -Amidoethylbromopiperonylcarboxylic anhydride (PERKIN), 1890, T., 1017.
- Amidoethylic acetate (GABRIEL and HEYMANN), 1890, A., 1268.
- Amidoethylic alcohol. See Hydroxyethylamine.
- Amidoethylic benzoate, salts of (GABRIEL and HEYMANN), 1890, A., 1267.
- m*-Amidoethylic cumate (ABENIUS), 1888, A., 854.
- Amidoethylindene (v. MILLER and RÖHDE), 1889, A., 984.
- 1-Amidoethylpiperidine (GABRIEL), 1891, A., 817.
- $\omega$ -Amidoethylpiperonylcarboxylic acid, preparation of (PERKIN), 1890, T., 1053. action of heat, of methylic iodide, and of nitrous acid on (PERKIN), 1890, T., 1058. salts of, with acids (PERKIN), 1890, T., 1056. anhydride of (PERKIN), 1890, T., 993, 1013.
- di*Amidoethylsulphone (GABRIEL), 1892, A., 131.
- p*-Amidoethyl-*o*-toluidine. See Methylphenylenediamine.
- Amidoethylxylenes (TÜHL and GEYGER), 1892, A., 969.
- p*-Amidofluorene (STRASBURGER), 1884, A., 329, 754.
- Amidofumaric acid, diamide of (PERKIN), 1888, T., 703.
- Amidogen (NH<sub>2</sub>), alleged existence of (CUMBER), 1883, A., 14. substitution of, by means of sodamide (WALTER), 1886, A., 1004.
- Amidoglycocine (CURTIUS), 1891, A., 56.
- Amido-group, displacement of the, by the acetyl-group by aid of the diazo-reaction (MELDOLA), 1888, A., 487. displacement of the, by the cyanic acid residue and by halogens, cyanogen and thiocyanogen (GATTERMANN, HAUSKNECHT, CANTZLER and EHRHARDT), 1890, A., 971. displacement of the, in aromatic amines by the halogens (LO-SANTINI), 1885, A., 521.

- Amido-group**, displacement of the, in aromatic derivatives by chlorine, bromine and cyanogen (SANDMEYER), 1884, A., 1311; 1885, A., 149.
- displacement of the, in aromatic compounds by hydrothionyl and oxysulphuryl (KLASON), 1887, A., 478.
- displacement of the, by the sulphonic acid group (LANDSBERG), 1890, A., 1137.
- displacement of cyanogen by the (AHRENS), 1888, A., 266.
- displacement of halogens by the (SEELIG), 1891, A., 36.
- displacement of the nitro-group in aromatic compounds by the (SANDMEYER), 1887, A., 720.
- best method of elimination of (FRIEDLANDER), 1889, A., 606.
- reagent for (HINSBERG), 1891, A., 49.
- Amido-groups** in organic bases, method of determining the number of (MELDOLA and HAWKINS), 1892, P., 133.
- di*Amidoguaiacol (HERZIG), 1883, A., 464.
- Amidoguanidine** and its derivatives (THIELE), 1892, A., 1295.
- Amidohemipinic acid**, sodium salt of (GRUNE), 1887, A., 49.
- o*-Amidohemipinic anhydride (LIEBERMANN), 1886, A., 468; 1887, A., 257; (GRUNE), 1887, A., 48.
- o*-Amidohemipinphenylhydrazide (LIEBERMANN), 1887, A., 45.
- Amidheptamethylene** (MARKOWNIKOFF), 1890, A., 729.
- Amidoheptylbenzene** (AUGER), 1887, A., 816.
- p-di*Amidohexamethylene (v. BAAYER and NOYES), 1889, A., 1147.
- di*Amidohexane and its derivatives (TAFEL), 1889, A., 976; (TAFEL and NEUGERBAUER), 1890, A., 1000.
- $\alpha$ -amidohexocyanidine and  $\alpha$ -amidohexocyanine (DUVILLIER), 1887, A., 850.
- $\alpha$ -Amidohexoic acid. See Leucine.
- di*Amidohydracridine ketone and its derivatives (JOURDAN), 1885, A., 988.
- o*-Amidohydrazinebenzene-*p*-sulphonic acid. See Amidophenylhydrazine-sulphonic acid.
- Amidohydrocarbostyryl** (FISCHER and KUZEL), 1884, A., 441.
- di*Amidohydrocinnamic acid. See *di*Amido- $\beta$ -phenylpropionic acid.
- Amidohydrothiocinnamic acid** (BONDZYŃSKI), 1887, A., 1109.
- Amidohydroxyanthraquinone ethylate** (LIEBERMANN and HAGEN), 1883, A., 73.
- Amido-*o*-hydroxybenzoic acid**. See Amidosalicylic acid.
- 4-Amido-*m*-hydroxybenzoic acid** (LIMPRICHT), 1891, A., 1037.
- $\beta$ -Amido- $\alpha$ -hydroxybutyric acid** (MELNIKOFF), 1884, A., 1301.
- Amidohydroxyisobutyric acid** (MELNIKOFF), 1885, A., 650.
- Amidohydroxycamphor** (KACHLER and SPITZER), 1883, A., 1008.
- di*Amidohydroxydiphenyl (WEINBERG), 1888, A., 285.
- p*-Amido-*m*-hydroxydiphenylamine (KOHLER), 1888, A., 587.
- 4-Amido-4'-hydroxydiphenyl-2:2'-disulphonic acid** (LIMPRICHT), 1891, A., 929.
- 4:4'-*di*Amido-3-hydroxydiphenyl-6-sulphonic acid** (WEINBERG), 1888, A., 285.
- 2-Amido-2'-hydroxy-5:5'-ditolyl-4 4'-disulphonic acid** (HELLE), 1892, A., 1468.
- 4-Amido-1-hydroxy-3-methoxybenzene** (BECHHOLD), 1889, A., 1155.
- 2-Amido-2'-hydroxy-3-methylhydroquinoline** (EDRLEANU), 1888, T., 500; P., 55.
- 2-Amido-1-hydroxy-4-methylquinoline** (GANELIN and v. KOSTANECKI), 1892, A., 506.
- 4-Amido-1-hydroxy-2-naphthoic acid** (NIETZKI and GUTTERMANN), 1887, A., 732; (SCHMITT and BURKARD), 1888, A., 59.
- di*Amidohydroxynaphthylphenyl derivatives (MELDOLA and MORGAN), 1889, T., 124, 125.
- Amidohydroxyoxindole chloride** (JACKSON and BENTLEY), 1892, A., 1219.
- tetraAmidohydroxypentene** (NIETZKI and ROSEMAN), 1889, A., 770.
- di*Amido-4-hydroxy-2-phenyl-6-methyl-*m*-diazine (PINNER), 1887, A., 1051.
- p*-Amido-3-hydroxy-2'-phenylquinoline (WEIDEL and v. GEORGEVICH), 1888, A., 967.
- di*Amidohydroxyphenyltolyl (WEINBERG), 1888, A., 285.
- 4:4'-*di*Amido-3-hydroxyphenyltolylsulphonic acid** (WEINBERG), 1888, A., 285.
- Amidohydroxypropylbenzoic acid**, action of nitrous acid, and of ethylic chloroformate on (WIDMAN), 1884, A., 1022.
- o*-Amido-*p*-hydroxyisopropylbenzoic acid (WIDMAN), 1886, A., 466.
- m*-Amido-*p*-hydroxyisopropylbenzoic acid (WIDMAN), 1884, A., 317.

- Amido-*ero*-hydroxyisopropylbenzoic acid**, action of acetic anhydride on (WIDMAN), 1884, A., 302.
- Amidohydroxypyridine** and its derivatives (KLIPPENDORFF), 1885, A., 1243.
- 1-Amido-3-hydroxyquinoline** (MATHEUS), 1888, A., 852; (ALTSCHUL), 1888, A., 1108.
- Amido-2'-hydroxyquinoline**. See **Amidocarbostyryl**.
- 3'-Amidohydroxyquinoline** and the action of its diazo-salts on phenols and tertiary bases (RIEMERSCHMIED), 1883, A., 1148.
- Amidohydroxythymoquinoneimide** (ANSCHUTZ and LEATHER), 1886, T., 725.
- Amido-*o*- and *m*-hydroxytoluic acid** (NIETZKI and RUPPERT), 1891, A., 308.
- di*Amidodiimidobenzene** nitrate (NIETZKI), 1887, A., 930.
- Amidoindazine** (WITT, NÖLTING, and GRANDMOUGIN), 1891, A., 312.
- Amidoisethionic acid**. See **Taurine**.
- Amidolepidine**. See **Amido-4'-methylquinoline**.
- di*Amidomalonamide** (CONRAD and BRÜCKNER), 1892, A., 40.
- Amidomercaptan** (GABRIEL), 1889, A., 870.  
hydrochloride (GABRIEL), 1891, A., 815.
- Amidomesitylene**. See **Mesidine**.
- Amidomethamidoperchloromethylcyanidine** (WEDDIGE), 1886, A., 324.
- m*-Amido-*o*-methoxycinnamic acid** (SCHNELL), 1887, A., 140.
- 2-Amido-3-methoxy-2'-phenylhydroquinoline** (v. MILLER and KINKELIN), 1887, A., 978.
- m*-Amido-*p*-methoxytoluene** (LIMPACH), 1889, A., 499.
- di*Amidomethoxytriphenylmethane** (MAZZARA and POSSETTO), 1885, A., 1141.
- Amidomethylantranol** and its acetyl derivative (ROEMER), 1883, A., 1137.
- Amidomethylantraquinone** (ROEMER; ROEMER and LINK), 1883, A., 1137, 1138.
- Amidomethylcarbostyryl** (FEER and KOENIG), 1885, A., 1235.
- 4-Amido-5-methyl-2:6-diethyl-*m*-diazine** (v. MEYER), 1889, A., 577; (SCHWARZE), 1890, A., 1159.
- Amidomethyldihydroanthracene** (ROEMER), 1883, A., 1137.
- m*-*di*Amido-*p*-methyl-ethylbenzene** (ERRERA and BALDRACCO), 1892, A., 606.
- Amido-*p*-methylhexadecylbenzene** (KRAFFT and GÜTTIG), 1891, A., 130.
- Amidomethylethyl-*iso*-oxazole** (HANNOT), 1892, A., 79.
- Amidomethylethylisopropyl-*m*-diazine** (v. MEYER), 1889, A., 578.
- Amido-2'-methylindole** (WAGNER), 1888, A., 284.
- Amidomethylnaphthaquinoxaline** (WITT), 1886, T., 400.
- o*-Amido-2'-methyloctohydro- $\beta$ -naphthaquinoline** (BAMBERGER and STRASSER), 1891, A., 1514.
- 4-Amido-1-methylquinoline** [m.p. 143°] (NÖLTING and TRAUTMANN), 1891, A., 327; 1892, A., 728.
- Amido-3-methylquinoline** [m.p. 132°] (FOURNEAUX), 1885, A., 400.
- 1-Amido-3-methylquinoline** [m.p. 62°] (NÖLTING and TRAUTMANN), 1891, A., 327; 1892, A., 728.
- 4-Amido-3-methylquinoline** [m.p. 145°] (NÖLTING and TRAUTMANN), 1891, A., 325; 1892, A., 727.
- 2-Amido-2'-methylquinoline** (GERDEISEN), 1889, A., 520.  
derivatives of (DOEBNER and MILLER), 1884, A., 1373.
- 3'-Amido- and *di*-amido-2'-methylquinoline** (CONRAD and LIMPACH), 1888, A., 1111.
- 2'-Amido-4'-methylquinoline** (KLOTZ), 1888, A., 1113; (EPHRAIM), 1892, A., 1488.
- 3-Amido-4'-methylquinoline** (BUSCH and KOENIGS), 1890, A., 1437.
- Amidomethylselenazole** (HOFMANN), 1889, A., 726.
- 3-Amido-1-methyltetrahydroquinoline** (BAMBERGER and WULZ), 1891, A., 1254.
- 1-Amido-3-methyltetrahydroquinoline** (BAMBERGER and WULZ), 1891, A., 1255.
- meso*Amidomethylthiazole**. See **Thiocyanopropinine**.
- o*-Amidomethyl-*p*-toluidine**. See **Methyltolenyldiamine**.
- Amido- $\beta$ -methylumbelliferone** (v. PRICHMANN and COHEN), 1884, A., 1332.
- Amidomethyluracil** (BEHREND), 1886, A., 338.
- Amidomyristic acid** (HELL and TWERDMEDOFF), 1889, A., 956.
- Amidonaphthalene**. See **Naphthylamine**.
- di*Amidonaphthalene**. See **Naphthylenediamine**.
- Amidonaphthalenesulphonic acids**. See **Naphthylaminesulphonic acids**.
- Amido- $\beta$ -naphthaphenanthrazine** (LOEW), 1890, A., 1424.

- Amidonaphthaphenazine** (ZAERTLING), 1890, A., 509.
- $\alpha$ -Amido- $\alpha$ -naphthaphenazine** (FISCHER and HEPP), 1890, A., 801; (KEHRMANN), 1890, A., 1266.
- Amido- $\beta$ -naphthaquinol** and its hydrochloride (GROVES), 1884, T., 300.
- Amidonaphthaquinone** (MEERSON), 1888, A., 1200.
- Amidonaphthaquinoneimide** (KRONFELD), 1884, A., 1037.
- diAmidonaphtharesorcinol hydrochloride** (KEHRMANN and WEICHART), 1889, A., 1198.
- Amidonaphthastyril** (EKSTRAND), 1887, A., 373.
- Amido- $\alpha$ -naphthoic acid derivatives** (EKSTRAND), 1889, A., 152.
- Amido- $\beta$ -naphthoic acid** (EKSTRAND), 1891, A., 932.
- diAmido- $\beta$ -naphthoic acids** (EKSTRAND), 1891, A., 78, 79.
- Amido- $\alpha$ -naphthol [2:1]** (GRANDMOUGIN and MICHEL), 1892, A., 861.
- Amido- $\alpha$ -naphthol [1:4]** (GRANDMOUGIN and MICHEL), 1892, A., 861.
- sulphonic acid from** (SEIDEL), 1892, A., 721.
- diAmido- $\alpha$ -naphthol**, action of bromine on (ZINCKE and GERLAND), 1887, A., 838; (ZINCKE), 1888, A., 290.
- derivatives of** (MEERSON), 1888, A., 713.
- Amido- $\beta$ -naphthol [1:2]** (GRANDMOUGIN and MICHEL), 1892, A., 862.
- identification of** (MELDOLA and MORGAN), 1889, T., 120.
- Amido- $\beta$ -naphthol [1:2]** and its hydrochloride, preparation of, from nitroso- $\beta$ -naphthol (GROVES), 1884, T., 293.
- Amido- $\beta$ -naphthol [1:2 and 4:2]** (FRIEDLANDER and SZYMANSKI), 1892, A., 1233.
- diAmido- $\beta$ -naphthol hydrochloride** (LOEWE), 1890, A., 1424.
- Amido- $\beta$ -naphthol sulphate** (GROVES), 1884, T., 297.
- Amido- $\alpha$ -naphthol-3:1'-disulphonic acid** (BERNTSEN), 1891, A., 215.
- Amido- $\beta$ -naphthol -1':3'- and -3:3'-disulphonic acids** (WITT), 1889, A., 273.
- $\alpha$ -Amido- $\alpha$ -naphtholsulphonic acid [4:1:2]** (SEIDEL), 1892, A., 721.
- $\beta$ -Amido- $\alpha$ - and  $\alpha$ -Amido- $\beta$ -naphtholsulphonic acids** (SCHMIDT), 1892, A., 476.
- $\alpha$ -Amido- $\beta$ -naphthol- $\alpha$ -sulphonic acid [1:2:1'], [ $\alpha$ -acid] (WITT), 1889, A., 271.**
- Amido- $\beta$ -naphthol- $\beta$ -sulphonic acid [1:2:3'], [ $\beta$ -acid] (WITT), 1889, A., 272.**
- Amido- $\beta$ -naphthol- $\alpha$ -sulphonic acid, [1:2:4'], [ $\gamma$ -acid] (WITT), 1889, A., 272.**
- Amido- $\beta$ -naphthol- $\beta$ -sulphonic acid, [1:2:2'], [ $\beta$ -acid] (WITT), 1889, A., 272.**
- diAmido- $\beta$ -naphthol- $\alpha$ -sulphonic acid** (NIEZKZI and ZUBBLIN), 1889, A., 515.
- Amido- $\alpha$ - and - $\beta$ -naphtholsulphonic acids [4:1:2 and 2:1:4'] (REVERDIN and DE LA HARPE), 1892, A., 996.**
- Amido- $\alpha$ - and - $\beta$ -naphthyl mercaptans** (HOFMANN), 1887, A., 839.
- m*-Amido-*p*- $\alpha$ -naphthylamidobenzoic acid** (HEIDENSLEBEN), 1891, A., 307.
- Amido- $\beta$ -naphthylamine hydrochlorides** (LOEWE), 1890, A., 1424.
- Amido- $\beta$ -naphthylphenylamine.** See Phenyl-naphthylenediamine.
- diAmido- $\beta$ -naphthylphenylamine** (ERNST), 1891, A., 301.
- Amidonaphthylphenylcarbamide** (GOLDSCHMIDT and ROSEIL), 1890, A., 616.
- Amidonitro-** See Nitramido.
- Amidonononaphthene** (KONOWALOFF), 1892, A., 443.
- ar-p*-Amido-octohydro- $\alpha$ -naphthaquinoline** (BAMBERGER and STETTENHEIMER), 1891, A., 1261.
- o*-Amido-octylbenzene hydrochloride** (AHRENS), 1887, A., 134.
- p*-Amido-octylbenzene and its derivatives** (BERAN), 1885, A., 523.
- Amido-octyltoluene and its derivatives** (BERAN), 1885, A., 523.
- Amido-opianylphenylhydrazide** (LIEBERMANN), 1887, A., 45.
- Amido-oxalacetic acid phenylhydrazone** (TAFEL), 1887, A., 467.
- Amido-oxalamidobenzoic acid.** See Amidocarbonylphenyloxamic acid.
- o*-Amido-oxalyl- $\alpha$ -naphthyl mercaptan** (LANG), 1892, A., 1079.
- diAmido-oxalyl- $\alpha$ - and - $\beta$ -naphthyl mercaptans** (V. HOFMANN), 1887, A., 840.
- o*-Amido-oxalylphenyl mercaptan** (LANG), 1892, A., 1079.
- Amidoisooxazole** (HANNOT), 1891, A., 1108.
- "Amido-oxyquinizinecarboxylic acid"** (TAFEL), 1887, A., 468.
- Amido-2'-oxyquinoline.** See Amidocarbostyril.
- $\alpha$ -Amidopalmitic acid** (HELL and IORDANOFF), 1891, A., 820.
- Amidoparalidine** (CURTIUS and JAY), 1890, A., 735.
- Amidoperezone** (ANSCHUTZ and LEATHER), 1886, T., 720.
- Amidophenaceturic acid** (HOTTER), 1888, A., 1299.

- p*-Amido- and *di*amido-phenanthraquinol hydrochlorides (ANSCHÜTZ and MEYER), 1885, A., 1068.
- α-di*Amidophenanthraquinol and its derivatives (KLEEMANN and WENSE), 1885, A., 1240.
- α-di*Amidophenanthraquinone (KLEEMANN and WENSE), 1885, A., 1240.
- Amidophenazine (BARBIER and VIGNON), 1888, A., 688; (FISCHER and HEPP), 1889, A., 500.
- 1:4-*di*Amidophenazine (FISCHER and HEPP), 1889, A., 500.
- 2:2'-*di*Amidophenazine (NIETZKI and ERNST), 1890, A., 1114.
- m*-Amido-2-phenethylpiperidine (SCHULTAN), 1890, A., 1438.
- o*-Amidophenetol, action of chloroacetic acid on (VATER), 1884, A., 1144.  
action of cyanogen chloride on (BERLINERBLAU), 1885, A., 147.
- m*-Amidophenetol and its derivatives (WAGNER), 1885, A., 1212.  
hydrobromide (STAEDEL), 1883, A., 578.
- p*-Amidophenetol, action of cyanogen chloride on (BERLINERBLAU), 1885, A., 147.  
oxidation products of (KINZEL), 1892, A., 158.
- tetra*Amidophenetol hydrochloride (KÜHLER), 1884, A., 1161.
- Amidophenetoltrimethylammonium iodide (SEIDEL), 1891, A., 53.
- Amidophenols. See Phenol.
- Amidophenolsulphonic acids and their relationship to Liebermann's colouring matters (BRUNNER and KRAMER), 1884, A., 1354.  
action of bleaching powder on (HIRSCH), 1887, A., 834.
- Amidophenophenanthrazine (HEIM), 1888, A., 1097.
- Amidophenyl amidotolyl ketone (LIEBERMANN), 1888, A., 1097.
- Amidophenyl ethyl ether, *mono*-, *di*-, and *tri*- (LINDNER), 1885, A., 775.
- Amidophenyl ethylene ethers, *o*-, *m*-, and *p*-, preparation, properties and salts of (WAGNER), 1884, A., 433.
- o*-Amidophenyl mercaptan and its derivatives (v. HOFMANN), 1887, A., 823, 1039.  
formation of anhydro-compounds of, from thioanilides (JACOBSON), 1886, A., 700.
- Amidophenylacetamide (PURGOTTI), 1891, A., 562.
- Amidophenylacetic anhydride (KONSEL), 1892, A., 468.
- m*-Amidophenylacetoneitrile (FRIEDLÄNDER), 1884, A., 737; (SALKOWSKI), 1884, A., 1176.
- p*-Amidophenylacetoneitrile and its salts (FRIEDLÄNDER and MAILLY), 1883, A., 919; (FRIEDLÄNDER), 1884, A., 737.
- Amidophenylacridine. See Anilido-acridine.
- di*Amidophenylacridine. See Chrysaniline.
- m*-Amidophenyl*di-p*-amidotolylmethane (BISCHLER), 1889, A., 133.
- Amidophenylazimidobenzene (WILLGERODT), 1892, A., 1322.
- Amidophenylbenzoglycocyanine and its hydrochlorides (GRIESS), 1883, A., 669.
- o*-Amidophenylbenzylhydrazine (PAAL and BODEWIG), 1892, A., 1455.
- Amidophenylbiazalone (FREUND and KUHL), 1890, A., 1441.
- Amidophenylbismethyltetrahydroquinoxylmethane (v. MILLER and PLÜCHL), 1891, A., 1102.
- Amidophenylcarbizinecarboxylic acid (FREUND and KUHL), 1890, A., 1441.
- m*-Amidophenylcrotonaldehyde (v. MILLER and KINKELIN), 1886, A., 701.
- 6-Amido-5-phenyl-2:4-dibenzyl-*m*-diazine (WACHS), 1889, A., 684.
- Amidophenylencarbamide (JENTZSCH), 1889, A., 46.
- o*-Amidophenylethylhydrazine (HEMPFEL), 1890, A., 612.
- α-p*-Amidophenylfurfuracrylonitrile (FREUND and IMMERWAHR), 1890, A., 1408.
- o*-Amidophenylglyoxylic acid. See Isatic acid.
- o*-Amidophenylglyoxylic lactim. See Isatin.
- o*-Amidophenylhydrazine (BISCHLER), 1889, A., 501.
- m*-Amidophenylhydrazine and its hydrochloride (GRIESS), 1885, A., 789.
- 5-Amidophenylhydrazine-*o*-sulphonic acid (LIMPRICHT), 1885, A., 1216.
- o*-Amidophenylhydrazine-*p*-sulphonic acid (NIETZKI and LERCH), 1889, A., 144; (LERCH), 1889, A., 881.
- m*-Amidophenylhydroquinoline (v. MILLER and KINKELIN), 1885, A., 1145.
- o*-Amidophenyllic diphenylcarbamate (LELLMANN and BONHÖFFER), 1887, A., 936.
- Amidophenyllic diphenylcarbamates (LELLMANN and BENZ), 1891, A., 1215.
- o*-Amidophenyllic disulphide (v. HOFMANN), 1887, A., 823.

- p*-Amidophenyl ethylxanthate (LEUCKART), 1890, A., 604.
- o*-Amidophenyl methyl sulphide (V. HOFMANN), 1887, A., 823.
- Amidophenyl phenylmethylcarbamates (LELLMANN and BIENZ), 1891, A., 1215.
- di*Amidophenyl thiocyanate (AUSTEN), 1889, A., 700.
- Amido-2'-phenylindole (FISCHER and SCHMIDT), 1888, A., 698.
- Amidophenylinduline (FISCHER and HEPP), 1891, A., 1046.
- action of sulphuric acid on (FISCHER and HEPP), 1892, A., 311.
- p*-Amidophenyl lactic acid (ERLENMEYER and LIPP), 1888, A., 994.
- m*-Amidophenyl lutidine (LEPETIT), 1887, A., 1053.
- m*-Amidophenyl lutidinedicarboxylic acid (LEPETIT), 1887, A., 1053.
- Amido- and diamido-2-phenyl-6-methyl-*m*-diazine (PINNER), 1887, A., 1054.
- o*-Amidophenyl methylhydrazine (HEMPEL), 1890, A., 613.
- m*-Amido-2'-phenyl-3'-methylhydroquinoline (V. MILLER and KINKELIN), 1886, A., 561.
- m*-*di*Amido-*p*-phenyl- $\alpha$ -methylpropionic acid (ERRERA and BALDRACCO), 1892, A., 606.
- Amidophenyl-2-methylquinoline (SCHIFF and VANNT), 1890, A., 1298.
- m*-Amido-2'-phenyl-3'-methylquinoline (V. MILLER and KINKELIN), 1886, A., 560, 561.
- p*-Amido-2'-phenyl-2-methylquinoline (*ψ*-*flavaniline*) (WEIDEL and BAMBERGER), 1888, A., 966.
- 4-Amido-2'-phenyl-3'-methylquinoline. See Flavaniline.
- Amidophenyl mercaptomethyl mercaptan (JACOBSON and FRANKENBACHER), 1891, A., 1048.
- di*Amidophenyl- $\beta$ -naphthol (ERNST), 1891, A., 301.
- Amido-*n*-phenylsotriazolecarboxylic acid (BALTZER and V. PECHMANN), 1891, A., 1117.
- 1-Amidophenylpiperidine (LELLMANN and JUST), 1891, A., 1245.
- 3-Amidophenylpiperidine, formation of dyes from (LELLMANN and GELLER), 1888, A., 1108.
- o*-Amidophenyl propiolic acid and its derivatives (V. BAEYER and BLOEM), 1883, A., 196.
- di*Amidophenyl propionic acid (GABRIEL), 1883, A., 195.
- o*-Amido- $\alpha$ -phenylpropionic anhydride. See Atloxindole.
- $\alpha$ -Amidophenyl propionitrile (ERLENMEYER and LIPP), 1888, A., 992.
- Amidophenylquinoline [m.p. 136° 5'] (JELLINEK), 1886, A., 1045.
- Amido-3-phenylquinoline (WEIDEL and V. GEORGIEVICS), 1888, A., 967.
- 2-Amido-2'-phenylquinoline (V. MILLER and KINKELIN), 1885, A., 1144.
- Amidophenylisoquinoline (GABRIEL), 1886, A., 631.
- Amidophenylrosinduline (FISCHER and HEPP), 1890, A., 765.
- Amidophenyltetrazolecarboxylic acid (BLADIN), 1892, A., 1009.
- tri*Amidophenyltoluidine (ERNST), 1891, A., 300.
- o*-Amidophenyl-*p*-[*p*]-tolylamine (HINDENBERG), 1891, A., 307.
- p*-Amidophenyl-*p*-tolylamine. See Tolyphenylenediamine.
- di*Amidophenyltolymethanes (ULMANN), 1888, A., 288.
- Amidophenyltriazolecarboxylic acid (BLADIN), 1892, A., 735.
- o*-Amidophenyltrimethylmethane (SENKOWSKI), 1890, A., 1296; 1892, A., 44.
- p*-Amidophenyltrimethylmethane (SENKOWSKI), 1890, A., 1296; 1892, A., 44.
- p*-Amidophenylurethane and its derivatives (HAGER), 1885, A., 149.
- o*-Amidophenylvaleric acid, derivatives of (DIEHL and EINHORN), 1887, A., 485.
- Amidophthalamide (PELLIZZARI), 1886, A., 1025.
- Amidophthalic acid, salts of (LANDSBERG), 1883, A., 476.
- as*-Amidophthalic acid (LOEWENHERZ), 1892, A., 1464.
- di*Amidophthalic acid (CLAUS and WYNDHAM), 1889, A., 143.
- Amidophthalide [m.p. 167°] (RACINE), 1887, A., 951.
- [m.p. 178°] (HÖNIG), 1886, A., 212.
- Amidopiaselenole (HINDBERG), 1890, A., 161.
- o*-Amidopiperonaloxime (HABER), 1891, A., 706.
- Amidopiperonylacrylic acid (FERKIN), 1891, T., 158.
- 7-Amidopropanesulphonic acid (LAUER), 1890, A., 1090.
- 2:4:1-Amidopropenylbenzoic acid (WIDMAN), 1886, A., 466.
- 3:4:1-Amidopropenylbenzoic acid and its derivatives (WIDMAN), 1884, A., 317.
- action of nitrous acid on (WIDMAN), 1884, A., 1022.

- Amidopropionic acid.** See Alanine.
- Amidopropiophenone hydrochloride** (SCHMIDT), 1890, A., 372.
- o*-Amido-*p*-propyleninnamic acid** (WIDMAN), 1886, A., 464.
- Amidopropylene** (HIRSCH), 1890, A., 860.
- Amidoisopropylic alcohol.** See Hydroxypropylamine.
- $\gamma$ -Amidopropylic benzoate** (GABRIEL and ELFELD), 1892, A., 213.
- $\beta$ -Amidopropylic benzoate hydrobromide** (GABRIEL and HAYMANN), 1890, A., 1268.
- $\gamma$ -Amidopropylic hydrogen sulphate** (GABRIEL and LAUER), 1890, A., 473.
- Amidoisopropylindene** (v. MILLER and ROHDE), 1889, A., 984.
- $\gamma$ -Amidopropyl hydrogen sulphate** (LAUER), 1890, A., 1090.
- Amidopurpurin** (BRASCH), 1891, A., 1078.
- di*-Amidopyrene** (JAHODA), 1888, A., 161.
- Amidopyridine 3·4-dicarboxylic acid** (GOLDSCHMIEDT and STRACHE), 1889, A., 1016.
- di*-Amidoquinol** (NIETZKI and SCHMIDT), 1889, A., 968.  
hydrochloride, and its derivatives (NIETZKI and PREUSSER), 1886, A., 1024.  
diethyl ether (NIETZKI and RECHENBERG), 1890, A., 967.
- tri*-Amidoquinol sulphate** (NIETZKI and SCHMIDT), 1889, A., 968.
- 2-Amidoquinoline** (FRYDL), 1888, A., 296.
- 4-Amidoquinoline** (DUFTON), 1892, T., 785.
- 2'-Amidoquinoline**, preparation of (EPHRAIM), 1891, A., 1509.
- 3'-Amidoquinoline** (RIEMERSHIED), 1883, A., 1148.
- 4'-Amidoquinoline** (HOOGEWILF and VAN DORP), 1892, A., 725.
- di*-Amidoquinolines,  $\alpha$ - and  $\beta$ -** (CLAUS and KRAMER), 1885, A., 908.
- Amidoquinones** (KLIRMANN), 1890, A., 756, 1265.
- Amidoquinoneimide** (MELDOLA), 1884, T., 161.
- p*-Amidoquinoxaline and its salts** (HINSBERG), 1886, A., 722.
- Amidoresorcinol** (FEYRE), 1883, A., 733.
- di*-Amidoresorcinol hydrochloride** (TYPKE), 1883, A., 917.
- Amidoresorcinoldisulphonic acid** (ULZER), 1889, A., 510.
- Amidoresorcinolsulphonic acid,  $\alpha$ - and  $\nu$ -** (BRUNNER and KRAEMER), 1884, A., 1354, 1355.
- p*-Amidoresorcinyl dimethyl ether**, and its derivatives (BECHHOLD), 1889, A., 1155.
- 1-Amidosalicylic acid**, action of aniline on (LIMPRICH and v. RECHENBERG), 1890, A., 158.
- 5-Amidosalicylic acid**, action of benzoic chloride on (DABNEY), 1884, A., 308.
- Amidostearic acid** [m. p. 63°] (GAUTIER and ERARD), 1884, A., 89.
- $\alpha$ -Amidostearic acid** [m. p. 221°] (HELL and SADOWSKY), 1891, A., 1336.
- o*-*di*-Amidostilbene**, azo-dyes from (BISCHOFF), 1888, A., 1091.
- p*-*di*-Amidostilbene** (BENDER and SCHULTZ), 1887, A., 268.
- di*-Amidostilbene sulphide** (ANSCHUTZ and SCHULTZ), 1889, A., 602.
- di*-Amidostilbenesulphonic acid** (BENDER and SCHULTZ), 1887, A., 268.
- Amidostyrychnine** (LOEBACH and SCHOOP), 1886, A., 268.
- di*-Amidostyrychnine** (HANKROT), 1883, A., 670.
- p*-Amidostyrene** (BERNTSEN and BENDER), 1883, A., 70.
- m*-Amidostyryl methyl ketone** (v. MILLER and ROHDE), 1890, A., 1138.
- o*-Amidostyrylacrylic acid** (DIEHL and EINHORN), 1885, A., 1222, 1223.
- o*-Amidostyrylpropionic acid** (DIEHL and EINHORN), 1887, A., 485.
- m*-Amido-2-styrylpyridine** (SCHUFTAN), 1890, A., 1438.
- Amidosuccinic acid.** See Aspartic acid.
- di*-Amidosuccinic acid** (CLAUS), 1883, A., 43.
- Amidosulphime dithiocarbamidophinites** (TIEMANN), 1891, A., 557.
- p*-Amido-*o*-sulphobenzoic acid** (HEDRICK), 1888, A., 280.
- p*-Amido-*m*-sulphobenzoic acid** (FISCHER), 1892, A., 332.
- Amidosulphonic acids** (PELLIZZARI and MAYERGOT), 1888, A., 1302; (KRAFFT and BOURGEOIS), 1892, A., 700.  
action of aldehydes on (CHANN and LANGR), 1887, A., 962.
- Amidosulphonic acids, aromatic**, acetyl derivatives of (NIETZKI and BENCKISER), 1884, A., 1021.
- Amidoterebenthene** (PESCI and BETTELLI), 1887, A., 272; (PESCI), 1891, A., 1086.
- p*-Amidotetrahydro- $\alpha$ -naphthaquinoline** (BAMBERGER and STEFFENHEIMER), 1891, A., 1259.
- di*-Amidotetrahydronaphthylthiocarbamide** (BAMBERGER and BAMMANN), 1889, A., 783.

- p*-Amidotetrahydroquinoline (ZIEGLER), 1888, A., 609.
- Amidotetrahydroxybenzene hydrochloride** (NIETZKI and SCHMIDT), 1889, A., 969.
- di*Amidotetrahydroxybenzene, and its derivatives (NIETZKI and BENCKISER), 1885, A., 780.
- Amidotetramethylbenzene** (*isoduridine*, *tetramethylamidobenzene*) (NÖLTING and BAUMANN), 1885, A., 384, 893.
- m-di*Amidotetramethylbenzidine (LAUTH), 1892, A., 1222.
- Amidotetrazotic acid** (THIELE), 1892, A., 1299.
- Amidotetraphenyl/iamidotriphenylmethane** (FISCHER and SCHMIDT), 1884, A., 1316.
- $\mu$ -Amidothiazole- $\alpha$ -carboxylic acid (STEINDE), 1891, A., 743.
- $\mu$ -Amidothiazoledicarboxylic acid (LUB-LEFF), 1891, A., 224.
- Amidothiazoles**, and their isomerides (TRAUMANN), 1889, A., 414.  
from thiocarbamide and halogenated ketones and aldehydes (HANTZSCH and TRAUMANN), 1888, A., 573.
- $\mu$ -Amido- $\alpha$ -thiazylacetic acid (STEINDE), 1891, A., 743.
- Amidothierylacetic acid** (BRADLEY), 1886, A., 1014.
- o*-Amidothiobenzamide derivatives (STEWART), 1892, A., 54.
- Amido-*m*- and -*p*-thiocyanocinnamic acids** (ROTHSCHILD), 1890, A., 1123; 1891, A., 199.
- Amidodiphénylamine** (BERNTSEN), 1885, A., 259; 1886, A., 53.
- di*Amidodiphénylamine (BERNTSEN), 1885, A., 259; 1886, A., 53.
- di*Amidodiphénylmethylamine and its derivatives (BERNTSEN), 1885, A., 259.
- Amidotionaphthol** (CLEVE), 1889, A., 155; (EKBOM), 1890, A., 995.
- Amidothiophen hydrochloride**, and its derivatives (STADLER), 1885, A., 1204.
- di*Amidothymoquinone (ANSCHÜTZ and LEATHER), 1886, T., 725.
- di*Amidotolazinedicarboxylic acid (KEHRMANN), 1889, A., 1154.
- m*-Amido-*o*-tolidine (LOEWENHERZ), 1892, A., 852.
- 3:4-*di*Amidotoluene. See Toluene-*o*-diamine.
- c-tetra*Amidotoluene, and its sulphate (NIETZKI and RÜSEL), 1891, A., 192.
- penta*Amidotoluene (PALMER), 1889, A., 390.
- o*-Amidotoluene-*p*-azodimethylaniline (WALLACH), 1887, A., 41.
- p*-Amidotoluene-*o*-azodimethylaniline (WALLACH), 1887, A., 41.
- Amidotoluenesulphonic acids.** See Toluidinesulphonic acid.
- di*Amidotoluenesulphonic acid (NIETZKI and POLLINI), 1890, A., 502.
- $\beta$ -Amido-*p*-toluic acid (NOYEN), 1889, A., 394.
- $\gamma$ -Amido-*o*-toluic acid, phosphate of (HÖNIG), 1886, A., 242.
- $\omega$ -Amido-*m*-toluic acid (REINGLASS), 1891, A., 1345.
- m*-Amido-*p*-toluic acid (*m-homanthranilic acid*) (NIEMENTOWSKI), 1888, A., 837; 1889, A., 1065; (NIEMENTOWSKI and KOZAKSKI), 1888, A., 1088; (FILETI and UROSA), 1889, A., 495.
- di*Amido-*p*-toluic acids, 2:3-, 2:5-, and 3:5- (CLAUS and JOACHIM), 1892, A., 176.
- o*-Amido-*p*-toluonitrile (NIEMENTOWSKI), 1888, A., 837; (GLOCK), 1888, A., 1291.
- o*-Amido-*p*-toluoylamide (NIEMENTOWSKI), 1888, A., 837.
- di*Amido-*p*-tolyl ketone (LANGE and ZUFALL), 1892, A., 1460.
- m*-Amido-*o*-tolylacrylic acid (V. MILLER and RÖHDE), 1890, A., 1140.
- m*Amido-*p*-(*o*) and -*p*-(*p*)-tolylamidobenzoic acid (HEIDENSLIEBEN), 1891, A., 306.
- Amido-*p*-tolylazimidobenzene** (WILLGERODT), 1892, A., 1322.
- m*-Amidotolyl-*p*-azoacetoacetic acid (BAMBERGER), 1885, A., 158.
- 2-Amidotolyl-4-oxamic acid (SCHIFF and VANNI), 1890, A., 1125; 1891, A., 833; 1892, A., 599, 601, 1208.
- 2-Amidotolyl-4-oxamide and -oxanilide (SCHIFF and VANNI), 1891, A., 834; 1892, A., 602.
- Amidotolylurethane** (SCHIFF and VANNI), 1892, A., 600; (SCHIFF), 1892, A., 1203.
- p*-Amidotriazobenzene (GRIESS), 1888, A., 826.
- m*-Amidotriazobenzoic acid (GRIESS), 1888, A., 826.
- 6-Amido-2:4:6-triethyl-*m*-diazine (WACHE), 1889, A., 684.
- Amidotriethylgallic acid** (SCHIFFER), 1892, A., 716.
- Amidotriethylpyrogallol** (SCHIFFER), 1892, A., 716.
- Amidotrihydroxynaphthalene** (KEHRMANN), 1888, A., 940.
- Amidotrimethylbutyllactic acid** (WELL), 1886, A., 1009.
- Amidotrimethyluracil** (HAGEN), 1888, A., 582.

**Amido- and triamido-triphenylamine** (HEYDRICH), 1885, A., 1213; (HERZ), 1890, A., 1409.

*tri***Amidotriphenylarsine** (PHILIPS), 1886, A., 618.

*tetra***Amidotriphenylbenzene** (MELIN), 1890, A., 1423.

*p*-**Amidotriphenylcarbinol** (v. BAEYER and LÖHR), 1890, A., 1141, 1142.

*tri***Amidotriphenylcarbinol**. See *p*-Ros-aniline.

6 - **Amido - 2:4:5 - triphenyl - *m* - diazine** (WACHE), 1889, A., 684.

**Amidotriphenylthophenazonium hydroxide** (KEHRMANN and MESSINGER), 1892, A., 1109.

*o*-**Amidotriphenylmethane** (FISCHER and FRÄNKEL), 1888, A., 56.

*p*-**Amidotriphenylmethane** (v. BAEYER and LÖHR), 1890, A., 1141.

*di***Amidotriphenylmethane**, preparation of (MAZZARA), 1885, A., 904; (ULMANN), 1885, A., 1236.

action of phenols on (MAZZARA), 1885, A., 800.

action of potassium nitrite on (MAZZARA), 1885, A., 800, 904.

*tri***Amidotriphenylmethane**. See *p*-Leucaniline.

**Amidotriphenylphosphine oxide** (MICHAELIS and v. SODEN), 1884, A., 1180.

**Amidotruaxillic acids** (HOMANS, STELTZNER and SUKOW), 1891, A., 1496.

**Amidouracilcarboxylic acid** (KÖHLER), 1887, A., 128; (BEHREND), 1887, A., 920.

δ - **Amidovaleraldehyde** (WOLFFENSTEIN), 1892, A., 1484.

γ - **Amidovaleric acid** (TAFEL), 1886, A., 1008; 1887, A., 463; 1889, A., 961.

γ - **Amidovaleric anhydride** (TAFEL), 1889, A., 961.

δ - **Amidovaleric acid** (SCHOTTEN), 1888, A., 1105.

from the putrefaction of proteins (GABRIEL and ASCHIAN), 1891, A., 948.

synthesis of (GABRIEL), 1890, A., 1129.

β - **Amidoisovaleric acid** (BREDT), 1883, A., 176.

**Amidoximes** (TIEMANN and KRUGER), 1884, A., 1325; (TIEMANN), 1885, A., 895; 1890, A., 41, 140, 141, 253; 1891, A., 538, 697; 1892, A., 135, 317; (HUCHHEIM), 1890, A., 1265.

preparation of (TIEMANN), 1886, A., 875.

action of benzenesulphonic chloride on (PINNOW), 1892, A., 460.

**Amidoximes**, behaviour of, towards diazobenzene derivatives (STIEGLITZ), 1890, A., 254.

cyanogen additive products of. (NORDENSKIÖLD), 1890, A., 1120.

sulphur derivatives of (TIEMANN), 1891, A., 557.

substituted (MÜLLER), 1890, A., 43. reactions of (TIEMANN), 1885, A., 1216.

**Amido-*p*-xylene**. See *p*-Xylidine.

*di***Amidoxylene**. See Xylylenediamine.

*di***Amido-*m*-xylenesulphonic acid** and its salts (LIMPRICHT), 1885, A., 1234.

**Amido-*m*-xyleneol** and its hydrochloride (PEAFF), 1883, A., 918.

**Amido-*p*-xyleneol** (SUTKOWSKI), 1887, A., 668.

*di***Amido-*p*-xylidine** (WITT, NÖLTING and FOREL), 1889, A., 604.

**Amidulin** (BRUKNER), 1884, A., 575.

**Amine hydrochlorides**, dissociation of, in solution (MÜLLER), 1890, A., 684.

**Amine salts**, absence of rotatory power in (LE BEL), 1890, A., 228.

**Amine vapours**, dissociation of (BURCH and MARSH), 1889, T., 656; P., 127.

**Amine-ethylenediaminechloropurpureocobalt salts** (JORGENSEN), 1890, A., 954.

**Amines**, formation of, from amides (BAUBIGNY), 1883, A., 175.

formation of, from the amides of the fatty series (SEIFERT), 1885, A., 963.

magnetic rotation of, and the refraction and dispersion of light by, correspondence between (GLADSTONE and PRICKIN), 1889, T., 751.

action of oxymethylene on (KOLOTOFF), 1886, A., 138.

action of picric chloride on, in presence of alkali (TURPIN), 1891, T., 714; P., 123.

action of silicon fluoride on (COMERY and JACKSON), 1888, A., 941.

action of soda, lime, and magnesia on (LUNGM), 1881, A., 776.

action of zinc ethyl on (GAL), 1883, A., 653; 1884, A., 985.

compounds of, with salts of the heavy metals (LACHOWICZ and BANDROWSKI), 1888, A., 1281.

phenylsulphonic chloride, as a reagent for (HINSHBERG), 1891, A., 49.

**Amines, aromatic**, preparation of (MALBOT), 1888, A., 41.

derived from the nitranilines (MELDOLA and SALMON), 1888, T., 774.

preparation of nitro-derivatives of. (LEVINSTEIN), 1885, A., 1127.

**Amines, aromatic**, conversion of phenols into (BUCH), 1885, A., 147.  
 isomeric change in the synthesis of (SENKOWSKI), 1892, A., 44.  
 heat of neutralisation of (VIGNON), 1888, A., 1013.  
 laws of substitution in (LIMPACH), 1888, A., 464.  
 action of acid amides on (KELDE), 1883, A., 915.  
 condensation of, with aromatic aldehydes (HANTZSCH), 1891, A., 50.  
 action of *dibromo- $\alpha$ -naphthol* on (MELDOLA), 1883, A., 536; 1884, T., 156.  
 action of carbonic anhydride on (DITTE), 1888, A., 49.  
 action of *dichloroacetic acid* on (MEYER), 1884, A., 47.  
 action of *ethyl-dichloramine* on (PIERSON and HEUMANN), 1883, A., 915.  
 action of *glyoxal* on (HINSBERG), 1888, A., 372.  
 action of *lactic acid* on (WALLACH and WÜSTER), 1883, A., 1096.  
 action of *nitrous acid* (nascent) on (DENINGER), 1890, A., 38.  
 action of *perthiocyanic acid* on (TURSINI), 1884, A., 1140.  
 action of *sodium hypobromite* on (DENIGES), 1889, A., 139.  
 action of *trimethylenic chlorobromide* on (PINKUS), 1892, A., 1491.  
 oxidation of (BARSILOWSKY), 1885, A., 525.  
 oxidation of, and formation of *aniline dyes* thereby (BARSILOWSKY), 1888, A., 140.  
 nitration of (NOLTING and STOECKLIN), 1891, A., 692.  
 conversion of, into *chlorine derivatives* of the hydrocarbons (PIRROHOMME and RABATT), 1892, A., 705.  
 conversion of, into the ethers of the corresponding phenols (v. HOFMANN), 1884, A., 1314.  
 derivatives of (PAAL and OTTEN), 1890, A., 1415.  
 benzoyl derivatives of (HENS), 1885, A., 783.  
 chlorinated and brominated hydrocarbons from (GASIKOWSKI and WATJNS), 1885, A., 1060.  
 nitroso-derivatives of (WITT), 1885, A., 782.  
 thio-derivatives of (KYM), 1890, A., 1306.  
 colour reactions of (LAUTH), 1891, A., 433.  
 citraconic acid as a means of separating (MICHAEL), 1886, A., 697.

**Amines, aromatic, primary**, formation of, from the corresponding halogen derivatives (GABRIEL), 1887, A., 1037.  
 preparation of (TAFEL), 1886, A., 939.  
 action of *diazotised *m*- and *p*-nitranilines* on (MELDOLA), 1883, T., 428; 1884, T., 112.  
 action of *sulphur* on (ANSCHÜTZ and SCHULTZ), 1889, A., 602.  
**Amines, aromatic, secondary** (GERHARDT), 1885, A., 383.  
 formation of (PICTET), 1888, A., 364.  
 action of, on *bromacetophenone* (CULMANN), 1888, A., 1287.  
 condensation of *chloral hydrate* with (BOESSENCK), 1888, A., 587.  
 action of *diazotised *m*- and *p*-nitranilines* on (MELDOLA), 1883, T., 440; 1884, T., 118.  
 action of *phthalic anhydride* on (PIUTTI), 1884, A., 448.  
 action of *thiocarbimides*, of *isocyanates*, of *thiocyanates*, and of *cyanates* on (GERHARDT), 1884, A., 1320.  
 action of *thiocarbonyl chloride* on (BILLETTER), 1887, A., 822; (BILLETTER and STROHL), 1888, A., 364.  
 action of *thionyl chloride* on (MICHAELIS and GODCHAUX), 1891, A., 74.  
**Amines, aromatic, tertiary**, action of *arsenic chloride* on (MICHAELIS and RABINERSON), 1892, A., 1321.  
 condensation of, with *chloral hydrate* (KNÖFLER and BOESSENCK), 1888, A., 267.  
 action of *diazotised *m*- and *p*-nitranilines* on (MELDOLA), 1884, T., 118.  
 action of *nitrous acid* on (KOCI), 1887, A., 1011.  
 action of *phosphorus chloride* on (MICHAELIS and SCHENK), 1891, A., 435.  
 action of *selenyl chloride* on (GODCHAUX), 1891, A., 606.  
 action of *thionyl chloride* on (MICHAELIS and GODCHAUX), 1890, A., 610.  
 compounds of, with *acetic acid* and its homologues (GARDNER), 1890, A., 1156.  
 removal of *ethyl* from (STAEDEL), 1886, A., 940.  
**Amines, fatty**, in *suint* (BUISINE), 1887, A., 792.  
 preparation of (MALBOT), 1888, A., 41.  
 extraction of, from *commercial methylamine* (MULLER), 1885, A., 501.

- Amines, fatty**, magnetic rotation of (PERKIN), 1889, T., 691, 713, 728.  
 heat of combustion of (MULLER), 1886, A., 409.  
 heats of formation of salts of, in dilute solutions (MULLER), 1885, A., 716.  
 decomposition of (MULLER), 1886, A., 783.  
 decomposition by heat of the nitrates of (VAN ROMBURGH), 1887, A., 230.  
 action of bromine in alkaline solution on (V. HOFMANN), 1883, A., 789; 1884, A., 1114.  
 action of, on oxymethylene (KOLTOFF), 1885, A., 647.  
 action of water on normal salts of (COLSON), 1891, A., 797.  
 halogen derivatives of (SEITZ), 1891, A., 1472.  
 vanadates of (BAILEY), 1884, T., 690.  
 unsaturated (PAAL and HEUPEL), 1892, A., 30; (PAAL), 1892, A., 578.
- Amines, fatty, primary**, preparation of (TAFEL), 1886, A., 939.  
 preparation of, by means of potassium phthalimide (GABRIEL), 1892, A., 157.  
 alkylation of, by potassium alkyl sulphate (PARSON), 1891, A., 1118.  
 conversion of, into nitriles (V. HOFMANN), 1884, A., 1288.
- Amines, fatty, secondary** (GEBHARDT), 1885, A., 383.  
 action of, on imidoethers (PINNER), 1891, A., 37.  
 action of sulphonic chloride on (BEHREND), 1884, A., 255.
- Amines, fatty, tertiary**, compounds of, with acetic acid and its homologues (GARDNER), 1890, A., 1156.
- Amines**. See also Bases and Diamines.
- Amelide** (*melamuric acid*) (BAMBERGER), 1883, A., 907, 1086; (STRIEGLER), 1885, A., 1194; 1886, A., 435; (RATHKE), 1886, A., 217; (KLASON), 1886, A., 523.  
 formation of (SMOLKA and FRIEDREICH), 1889, A., 951.
- Amelidoacetic acid** (KRIEGER), 1891, A., 163.
- Ammeline** (KLASON), 1886, A., 523; (SMOLKA and FRIEDREICH), 1889, A., 114.  
 formation of (SMOLKA and FRIEDREICH), 1889, A., 951.  
 constitution of (SMOLKA and FRIEDREICH), 1890, A., 856.  
 synthesis of (SMOLKA and FRIEDREICH), 1890, A., 856; (BAMBERGER), 1890, A., 1082.
- Ammeline**, properties of (SMOLKA and FRIEDREICH), 1890, A., 856.  
 hydrochloride (KLASON), 1886, A., 523.  
 thio-, and its salts (KLASON), 1886, A., 523; (RATHKE), 1887, A., 650.  
 formula of (RATHKE), 1886, A., 217.
- Ammonchelic acid** (*chelidamic acid*), and its derivatives (LIEBEN and HAITINGER), 1883, A., 871; 1885, A., 965; (LEROCH), 1885, A., 46.
- tetraAmmoncuprammonium** bromides (RICHARDS), 1891, A., 399.
- Ammonia** in the atmosphere (MÜNTZ), 1892, A., 909.  
 in the atmosphere and rain water of the tropics (MARGANO and MÜNTZ), 1892, A., 381.  
 in burnt magnesium (ASLANOGLOU), 1890, A., 1209.  
 in potable water (ENKLAAR), 1889, A., 1234.  
 in rain waters, variation of the amount of (HOUSSEAU), 1888, A., 753.  
 formation of, from free nitrogen (LOEW), 1890, A., 1051.  
 formed by oxidation of *p*-diamines (MELDOLA), 1889, P., 115.  
 reduction of nitric acid to, by the galvanic current (BECKER), 1892, A., 403.  
 obtaining a constant stream of (NEUMANN), 1888, A., 784.  
 catalytic formation of, from nitrates (LOEW), 1890, A., 689.  
 synthesis of, as a lecture experiment (VALENTINI), 1887, A., 442.  
 preparation of (ISAMBERT), 1885, A., 722; (FELDMANN), 1885, A., 1017.  
 preparation of, from nitrogenous minerals (BEILBY), 1885, A., 304.  
 extraction of, from coal (SCHEURER-KESTNER), 1888, A., 888.  
 recovery of, from the gases of coke-ovens (WINKLER), 1884, A., 1441.  
 spectrum of, with a reversed induced current (LECOQ DE ROISBAUDRAN), 1885, A., 1025.  
 emission spectrum of (MAGNANINI), 1890, A., 97.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
 magnetic rotatory power of (PERKIN), 1889, T., 689, 729.  
 electrolysis of solutions of, with carbon electrodes (BARTOLI and PAPASOGLI), 1884, A., 176; (MILLOT), 1885, A., 1125; 1886, A., 979.

**Ammonia**, electrolysis of, with carbon electrodes, and oxidation of the azulmic matter thereby (MILLOT), 1888, A., 242.  
 decomposition of, by electrolysis (IRVING), 1886, A., 848.  
 decomposition of, by heat (RAMSAY and YOUNG), 1884, T., 88.  
 diffusion of, into hydrochloric acid (STEFAN), 1889, A., 1046.  
 diffusion of, through the atmosphere (BERTHELOT and ANDRÉ), 1887, A., 11.  
 diffusion of, through water and through alcohol (MÜLLER), 1891, A., 1147.  
 diffusion-coefficient of (STEFAN), 1889, A., 1047.  
 specific gravity of solutions of (SMITH), 1883, A., 849; (LUNGE and WIERNIK), 1890, A., 107.  
 absorption of, by alcohols (PAGLIANI and EMO), 1884, A., 278; (DELEPINE), 1892, A., 1049.  
 absorption of, by various carbon compounds (PELLIZZARI), 1885, A., 723.  
 absorption of, by clay (WIPPRECHT), 1887, A., 1136.  
 absorption of, by superphosphatic gypsum (HEIDEN), 1885, A., 83.  
 absorption of, from the air by vegetable soils (SCHLÆSING), 1890, A., 821; (BERTHELOT), 1890, A., 822. See also Agricultural Chemistry.  
 action of, on benzil and furaldehyde (JAPP and HOOPER), 1884, T., 684.  
 action of, on cadmium chloride (KWASNIK), 1892, A., 566.  
 action of, on chromyl dichloride (RIDEAL), 1886, T., 367; P., 175.  
 action of  $\alpha$ -diketones on aldehydes and (WADSWORTH), 1889, P., 161; 1890, T., 8.  
 action of, on the halogen compounds of arsenic (BESSON), 1890, A., 1052.  
 action of magnesium on (MERZ), 1892, A., 409.  
 action of, on the oxylepidens (KLINGEMANN and LATCOCK), 1890, P., 149; 1891, T., 140.  
 action of phenolphthalein on (LONG), 1889, A., 746.  
 action of picric chloride on (TURPIN), 1891, T., 715.  
 action of sulphur on (SENDERENS), 1887, A., 327.  
 action of, on tungsten compounds (RIDEAL), 1888, P., 113; 1889, T., 41.  
 action of, on zinc chloride (KWASNIK), 1891, A., 1157.

**Ammonia**, combustion of oxygen in (HONGKINSON and LOWNDER), 1888, A., 1214.  
 oxidation of, by hydrogen peroxide (TRUBBE), 1889, A., 939.  
 oxidation of, in presence of platinum or palladium (KRAUT), 1887, A., 635.  
 oxidation of, in spring water (FLIMCK), 1885, A., 704.  
 production of nitric or nitrous acids in solutions of, under different conditions of alkalinity (WARINGTON), 1884, T., 657.  
 combination of, with boron chloride and silicon sesquichloride (BESSON), 1890, A., 690.  
 combination of, with chlorides (JOANNIS), 1891, A., 643.  
 combination of, with unsaturated compounds (ENGEL), 1887, A., 793.  
 combination of, with sodium and potassium (JOANNIS), 1890, A., 209, 560; (ROOZEBOM), 1890, A., 450; (MOUTIER), 1890, A., 679.  
 compounds of, with iodine (RASCHIG), 1888, A., 26.  
 compounds of, with metallic permanganates (KLOBB), 1890, A., 947.  
 compounds of, with silicon bromide and chloride (BESSON), 1890, A., 559.  
 protoxide ( $N_2H_6O$ ) (MAUMENÉ), 1889, A., 14.  
 evolution of, from plants and vegetable soils (BERTHELOT), 1889, A., 1238.  
 evolution of, from vegetable soils (BERTHELOT and ANDRÉ), 1887, A., 860.  
 formation of, in arable soil (HÉBERT), 1889, A., 1240.  
 preservation of, in stable manure (TROSCHEKE), 1885, A., 187.  
 in the nutrition of plants (MÜNTZ), 1890, A., 287.  
 nitrification of (PLATH), 1888, A., 521; (SCHLÆSING), 1889, A., 1239; 1890, A., 282. See also Agricultural Chemistry.  
 importance of, for the formation of glycogen in the liver of the rabbit (RÖHMANN), 1887, A., 68.  
 excretion of (HERRINGHAM and GROVES), 1892, A., 365.  
 poisoning by (BELKY), 1887, A., 392.  
 detection of, in animal liquids (LATSCHENBERGER), 1884, A., 1215.  
 detection of, in a mixture of alkaline salts (DE KONINCK), 1887, A., 297.  
 estimation of (PRATT), 1886, A., 190; (SCHLÆSING), 1886, A., 1075; (MILNE), 1888, A., 195.

- Ammonia**, estimation of, volumetric (v. HOFMANN), 1883, A., 281; (BRUCKHARTS), 1884, A., 492.  
 estimation of, by distillation (STEIN and SCHWARTZ), 1889, A., 1087.  
 estimation of, by distillation; effect of different alkaline bases in (BERTHELOT and ANDRÉ), 1886, A., 1074.  
 estimation of, by Ruffie's method (BUCHAN), 1890, A., 1024.  
 estimation of, volumetric, in ammonium salts (McGLASHAN), 1889, A., 75.  
 estimation of, in animal liquids (LATSCHENBERGER), 1884, A., 1215.  
 estimation of, as nitrogen in manures (MASSALSKI), 1884, A., 638; (ZECCHINI and VIGNA), 1889, A., 649.  
 estimation of, in potable water (MARSH), 1883, A., 514; (GORE), 1885, A., 194; (WARDEN), 1890, A., 87.  
 estimation of, in potable water, apparatus for (TICHPORNIK), 1883, A., 382. See also Water Analysis.  
 estimation of, in rain-water (WARRINGTON), 1889, T., 544; (LEVY), 1892, A., 381; (MUNTZ), 1892, A., 909.  
 estimation of, in sand and sewage (HAZEN), 1890, A., 1024.  
 estimation of, in soils (BERTHELOT and ANDRÉ), 1886, A., 739, 740, 832; (SCHLESING), 1886, A., 740, 831; (BAUMANN), 1887, A., 83; 1888, A., 87; (KNOP), 1887, A., 297; 1888, A., 533.  
 estimation of, in urine (WURSTER), 1888, A., 991.  
 estimation of, in vegetable juices and extracts (BOSSHARDT), 1884, A., 373; (SCHULTZ), 1884, A., 493.  
 eudiometric investigation of mixtures of oxygen and (NEUMANN), 1889, A., 1031.  
**Ammonio-ammonium picrate** (REYCHLER), 1885, A., 19.  
**Ammonio-chromium compounds**. See Chromammonium.  
**Ammonio-cobalt compounds**. See Cobaltamines.  
**Ammonio-copper compounds**. See Cuprammonium, under Copper.  
**Ammonio-mercury compounds**. See Mercurammonium.  
**Ammonio-nickel thiosulphate** (VORTMANN and PADBERG), 1890, A., 13.  
**Ammonio-phosphatic deposit** in the vicinity of Cape Town (GRIFFITHS), 1883, A., 859.  
**Ammonio-platinum diammonium compounds** (DRECHSEL), 1883, A., 28.  
**Ammonio-silver compounds** (REYCHLER), 1883, A., 902; 1884, A., 261, 721; 1885, A., 18; (TERRILL), 1881, A., 890; 1885, A., 18.  
 iodide (LONGI), 1883, A., 1052.  
 nitrates (REYCHLER), 1883, A., 902; 1884, A., 261.  
 nitrite (REYCHLER), 1884, A., 157.  
 phosphate (WIDMAN), 1885, A., 18.  
**Ammonio-stannic bromide** (PREIS and RAYMAN), 1883, A., 425.  
**Ammonio-vanadyl fluorides** (PETERSEN), 1889, A., 1123.  
**Ammonio-zinc chlorides** (THOM), 1887, A., 551.  
 nitrate (ANDRÉ), 1885, A., 634.  
 sulphates, separation of an aqueous solution of, into two layers (ANDRÉ), 1885, A., 485.  
**Ammonium amalgam**, existence of (LE BLANC), 1890, A., 1204.  
**Ammonium compounds**, mixed quaternary, action of heat on the chlorides and hydroxides of (COLLIE and SCHRYVER), 1890, T., 767; P., 115.  
 symmetry of nitrogen in (SCHRYVER), 1891, P., 39.  
 quaternary, isomerism in (LE BEL), 1890, A., 475.  
 substituted (DECKER), 1891, A., 736, 1247.  
**Ammonium derivatives**, substituted (REYNOLDS), 1891, T., 383; P., 79.  
**Ammonium salts**, molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
 magnetic rotatory power of (PERKIN), 1889, T., 742.  
 magnetic rotation and the refraction and dispersion of light by, correspondence between (GLADSTONE and PERKIN), 1889, T., 751.  
 electrolysis of solutions of, with carbon electrodes (BARTOLI and PAPASOGLI), 1884, A., 176; (MILLOT), 1885, A., 1125; 1886, A., 979.  
 action of soda, lime, and magnesia on (LUNGE), 1884, A., 776.  
 action of vanadic acid on (DITTE), 1886, A., 672.  
 decomposition of, by bromine water (RAICH), 1888, A., 1024.  
 decomposition of, by metallic oxides and hydroxides (BERTHELOT), 1886, A., 770.  
 interaction of hypochlorites and (CROSS and BEVAN), 1890, P., 22.  
 combination of ammonia with (PELIZZARI), 1885, A., 723.  
 distribution of, in the animal body (SALOMON), 1885, A., 921.

- Ammonium salts**, nitrification of (MUNRO), 1886, T., 613, 654; (LANDOLT), 1888, A., 1328.  
 direct absorption of, by plants (GRIFFITHS), 1892, A., 229.  
 function of, in the nutrition of higher plants (MUNTZ), 1890, A., 79.  
 value of, as food for ferments and other plants (LAURENT), 1891, A., 1135.  
 as manures (PAGNOUL), 1891, A., 1545.  
 See also Agricultural chemistry.  
 a new reaction of (HAGER), 1885, A., 441.  
 estimation of nitrogen in (HENTSCHEL), 1890, A., 1341.
- Ammonium antimonate** (RASCHIG), 1886, A., 20.  
 calcium arsenate (BLOXAM), 1887, A., 108.  
 magnesium arsenate (BLAREZ), 1887, A., 204.  
 borofluoride (STOLBA), 1890, A., 561.  
 bromide, magnetic rotatory power of (PERKIN), 1889, T., 716; P., 130.  
 combinations of, with ammonia (ROOZEBOOM), 1887, A., 631.  
 dissociation of compounds of, with hydrogen bromide (ROOZEBOOM), 1886, A., 500.  
 magnesium bromide (LERCH), 1884, A., 263.  
 zinc bromides (ANDRÉ), 1883, A., 713.  
 carbonate, electrolysis of (GERDES), 1883, A., 27.  
 dissociation of, in presence of an excess of one of its elements (ISAMBERT), 1884, A., 338.  
 specific gravity of solutions of (SMITH), 1883, A., 849.  
 estimation of, in *Spiritus ammonie aromuticus* (GRAVILL), 1887, A., 398.  
 preparation of cakes of (HEMPPEL), 1888, A., 553.  
 hydrogen carbonate, tension of dissociation of (BIRNTHLOT and ANDRÉ), 1887, A., 10.  
 decomposition of, by water (BIRNTHLOT and ANDRÉ), 1887, A., 11.  
 zinc carbonate, basic (KASCHNER), 1889, A., 1049.  
 chloride (GEISENHEIMER and LETEUR), 1890, A., 694.  
 magnetic rotatory power of (PERKIN), 1889, T., 712; P., 130.  
 decrease of the compressibility of solutions of, with increase of temperature (BRAUN), 1887, A., 768.  
 vapour density of (PULLINGER and GARDNER), 1891, P., 2; (NEUBERG), 1891, A., 1407.
- Ammonium chloride**, dissociation of (R. and G. F. R. BLOCHMANN), 1891, A., 1415.  
 action of, on silicates, at its dissociation temperature (SCHNEIDER), 1892, A., 772.  
 action of lead oxide on (ISAMBERT), 1886, A., 770.  
 action of nitric acid on (MATTHEWS), 1888, P., 102.  
 decomposition of, by an alloy of zinc and iron (WARREN), 1887, A., 443.  
 decomposition of, by phosphoric acid (JURINCH), 1888, A., 650.  
 influence of ammonia on the solubility of (ENGEL), 1892, A., 276.  
 preparation of cakes of (HEMPPEL), 1888, A., 553.  
 lead chlorides (ANDRÉ), 1883, A., 717.  
 manganese chloride (SAUNDERS), 1892, A., 781.  
 mercury chloride (*white precipitate*) (RAMMELSBERG), 1889, A., 347.  
 solubility of, in solution of ammonia containing ammonium carbonate (JOHNSON), 1889, A., 755.  
 mercury chlorides (ANDRÉ), 1891, A., 986.  
 osmiochloride (SEUBERT), 1888, A., 921.  
 zinc chlorides (DIVERS), 1883, A., 272; (THOM), 1887, A., 551.  
 chromates (JÄGER and KRUS), 1889, A., 1117.  
 manganese chromate (HENSEN), 1886, A., 426.  
 dichromate (LUPTON), 1888, P., 82.  
 preparation of (HOOD), 1887, A., 449.  
 action of light on (EDER), 1885, A., 1173.  
 chromiodate (BERG), 1887, A., 777.  
 fluochromate, effect of heat on (GORE), 1885, A., 1114.  
 fluoride, purification of (AUSTEN and WILBER), 1884, A., 492.  
 as a blowpipe reagent (LORD), 1884, A., 927.  
 compounds of, with fluorides of heavy metals (WAGNER), 1886, A., 670.  
 manganese fluoride (CHRISTENSEN), 1887, A., 448, 892.  
 titanium fluorides (PICCINI), 1886, A., 670; 1891, A., 271.  
 fluoroxymolybdates (MAURO), 1889, A., 106; 1891, A., 18.  
 fluoroxyhypomolybdates (MAURO), 1890, A., 703.  
 fluoroxyvanadates (PICCINI and GIORGIS), 1892, A., 785.

**Ammonium fluoroxyhypovanadate** (PICCINI and GIORGIS), 1892, A., 787.  
**hydrofluoroxovanadate**, octahedral (PICCINI and GIORGIS), 1889, A., 214.  
 hydroxide, non-existence of (TOMMASI), 1884, A., 1247; 1885, A., 484.  
**hypochlorite** (CROSS and BEVAN), 1890, P., 22.  
**imidosulphonates**, anhydrous, and hydrated (MENTE), 1889, A., 211; (DIVERS and HAGA), 1892, T., 946.  
**barium imidosulphonate** (DIVERS and HAGA), 1892, T., 966.  
**calcium imidosulphonate** (DIVERS and HAGA), 1892, T., 968.  
**sodium imidosulphonate** (DIVERS and HAGA), 1892, T., 961.  
**sodium hydrogen imidosulphonate nitrate** (DIVERS and HAGA), 1892, T., 962.  
**iodate**, preparation of (GUYARD), 1884, A., 153.  
**triiodate** (BLOMSTRAND), 1890, A., 107.  
**iodide**, preparation of (GUYARD), 1884, A., 153.  
 magnetic rotatory power of (PERKIN), 1889, T., 718; P., 130.  
**copper iodides** (SAGLIER), 1886, A., 851; 1887, A., 772.  
**magnesium iodide** (LERCH), 1884, A., 263.  
**iridium compounds** (PALMAER), 1889, A., 352; 1891, A., 402, 1165.  
**molybdate**, compounds of tartaric acid with (GERNEZ), 1888, A., 98.  
**dimolybdate** (MAURO), 1889, A., 107.  
**permolybdate** (PICHARD), 1891, A., 988.  
**molybdoiodate** (BLOMSTRAND), 1890, A., 107.  
**nitrate**, magnetic rotatory power of (PERKIN), 1889, T., 721, 745.  
 heat decompositions of (DIVERS), 1885, T., 232.  
 melting point, point of decomposition and purification of (VELEY), 1883, T., 370.  
 transformation of (BELIATI and ROMANESCU), 1888, A., 106.  
 explosion of (LOBRY DE BRUYN), 1892, A., 688.  
 anhydrous ammoniacal, action of, on metals (ARTH), 1885, A., 1039.  
 as manure (PAGNOUL), 1891, A., 1545.  
**nitride** (CURTIUS and RADENHAUSEN), 1891, A., 525; (CURTIUS), 1892, A., 113.  
**nitrite**, heat decomposition of (DIVERS), 1885, T., 232.

**Ammonium nitrite**, catalytic decomposition of (LOEW), 1891, A., 16.  
**rhodium nitrite** (LEMDIE), 1890, A., 1382; 1891, A., 809.  
**magnesium phosphate**. See Magnesium ammonium phosphate.  
**sodium hydrogen phosphate** (*microcosmic salt*), action of, on various oxides (WALLROTH), 1883, A., 850.  
**superphosphate**, crude, manuring with (WOLLENY), 1884, A., 926.  
**phosphites** (AMAT), 1888, A., 107.  
**barium phosphotungstates** (KEHRMANN and FREINKEL), 1892, A., 1160.  
**ruthenium salts**. See Ruthenium.  
**selenite** as a reagent for alkaloids (FERREIRA DA SILVA), 1891, A., 1562.  
**selenosamate** (CAMERON and MACALLAN), 1889, A., 103.  
**silicofluorides**, thermochemistry of (TRUCHOT), 1885, A., 626.  
**silver salts**. See Silver.  
**sodium salts**. See Sodammonium.  
**stannibromide** (LETEUR), 1892, A., 121.  
**sulphate**, formation of, by burning coal gas (PILWOZNIK), 1892, A., 1389.  
 production of (ANON.), 1884, A., 1442.  
 magnetic rotatory power of (PERKIN), 1889, T., 722, 745.  
 electrolysis of (MCLEOD), 1886, P., 248.  
 decomposition of, by means of sodium sulphate (BLATTNER), 1885, A., 613; 1886, A., 107.  
 action of nitrous acid on (EMMERLING), 1886, A., 747.  
 mineralising influence of (KLOBB), 1892, A., 1399.  
 manurial value of the nitrogen in (KLIEN), 1888, A., 872.  
 comparative manurial value of sodium nitrate and (MÄRKNER), 1885, A., 1156; 1886, A., 646, 954; 1890, A., 287; (MAGERSTEIN), 1887, A., 77; (BAESLER), 1889, A., 436; (ROLAND), 1889, A., 1085.  
 failure of, as a manure (BROWN), 1886, A., 646. See also Agricultural chemistry.  
**copper iron sulphate** (ROY), 1887, P., 53.  
**ferrous sulphate** as a reagent for nitric acid (AUNTEN and CHAMBERLAIN), 1884, A., 493.  
 hydrogen sulphate, magnetic rotatory power of (PERKIN), 1889, T., 721, 745.

**Ammonium iron sulphates** (LACHAUD and LEPIERRE), 1892, A., 943.  
**magnesium sulphate.** See Magnesium ammonium sulphate.  
**nickel sulphate** (LEPIERRE and LACHAUD), 1892, A., 1283.  
**zinc manganese sulphate** (ROY), 1887, P., 53.  
**persulphate** (MARSHALL), 1891, T., 777.  
**pyrosulphate** (DIVERS and HAGA), 1892, T., 948.  
**sulphide precipitate, qualitative analysis of the** (MAYER), 1890, A., 84.  
**hydrosulphide, examination of the vapour of** (ISAMBERT), 1883, A., 548, 775.  
**sulphite** (HARTOG), 1887, A., 887; 1889, A., 1106.  
**sulphite and disulphite, heat of formation of** (DE FORCRAND), 1885, A., 471.  
**potassium sulphite** (HARTOG), 1889, A., 1106.  
**pyrosulphite** (FOCK and KLUS), 1891, A., 151.  
**dithionate** (KLUS), 1888, A., 1156.  
**hydrochloride** (FOCK and KLUS), 1892, A., 13.  
**thiophosphate** (DODGE), 1891, A., 1238.  
**thiosulphate, use of, instead of sulphuretted hydrogen in qualitative analysis** (ORLOWSKI), 1884, A., 363.  
**compounds of, with copper oxide** (BRUN), 1892, A., 1157.  
**cadmium thiosulphates** (FOCK and KLUS), 1890, A., 1057.  
**magnesium and potassium thiosulphates** (FOCK and KLUS), 1890, A., 564.  
**thiotungstates** (CORLEIS), 1886, A., 510.  
**thiovanadate, and pyrohexathiovanadate** (KRUS and OHNMAIS), 1890, A., 1381.  
**tungstovanadates** (ROTHENBACH), 1891, A., 18.  
**uranates** (CARSON and NORTON), 1888, A., 918.  
**vanadate** (DITTE), 1886, A., 671; 1887, A., 899.  
**zinc compounds** (WRIGHT), 1884, A., 1232; (THOMS), 1890, A., 452.  
**Diammonium salts.** See Hydrazine, salts of.  
**Ammonium salts, organic, formula of** (ENGEL), 1884, A., 729.  
**of fatty acids, magnetic rotatory power of** (PERKIN), 1891, T., 981; P., 125.

**Ammonium albuminate, preparation of** (MUTH), 1884, A., 945.  
**carbamate, electrolysis of** (GERDES), 1883, A., 27.  
**dissociation tension of** (ERCKMANN), 1885, A., 859.  
**limited hydration of** (FENTON), 1886, A., 501.  
**cyanide, synthesis of, by the silent discharge** (FIGUIER), 1886, A., 604.  
**vapour of** (ISAMBERT), 1883, A., 775.  
**zinc cyanides** (VARET), 1888, A., 123.  
**ferricyanide, action of light on** (EDER), 1885, A., 1173.  
**ferrocyanide, preparation of** (ETARD and RÉMONT), 1885, A., 365.  
**calcium ferrocyanide** (SALZER), 1886, A., 860.  
**manganese ferrocyanide** (BLUM), 1891, A., 1293.  
**hydrogen purpurate.** See Murexide.  
**thiocyanate, preparation of** (SCHULZE), 1883, A., 1074.  
**poisonous effects of, on vegetation** (MÄRCKER), 1884, A., 768; (KONIG), 1885, A., 76.  
**nitrification of, by soil** (MUNRO), 1886, T., 638.  
**chromium thiocyanate, derivatives of** (CHRISTENSEN), 1892, A., 798.  
**Ammonium-bases, from quinoline** (BERNTSEN), 1885, A., 814.  
**physiological action of** (GLAUS and LUCHSINGER), 1885, A., 415.  
**Amœba, digestion in** (GREENWOOD), 1886, A., 1053.  
**Ampelochroic acids,  $\alpha$ -,  $\beta$ -, and  $\gamma$ -** (GAUTIER), 1892, A., 1242, 1243.  
**Amphibole.** See Hornblende.  
**Amphibolite from Habendorf, in Silesia** (DÄTTE), 1891, A., 23.  
**Amphicreatinine** (GAUTIER), 1886, A., 634.  
**Amphiglyoxime, chlor-** (HANTZSCH), 1892, A., 693.  
**Amphinitrile** (FRIEDLÄNDER and MAHL), 1883, A., 919.  
**Amphiphenacylnitrile (isoinidole)** (MOHLAU), 1885, A., 560.  
**Amphipyrenin** (SCHWARTZ), 1888, A., 984.  
**Amphodenteroalbumose** (NEUMEISTER), 1887, A., 286.  
**Amphopeptone** (KUHN and CHITTENDEN), 1886, A., 820.  
**Amygdalin, distribution of, in almonds** (JOHANNSEN), 1888, A., 869.  
**action of emulsin on** (TAMMANN), 1889, A., 566.

**Amylaceous granules** in Gregarinae (MAUPAS), 1886, A., 333.

**Amylaceous matters**, estimation of moisture in (BONDONNEAU), 1884, A., 927.

**isoAmylacetanilide** (PICTET), 1890, A., 753.

**isoAmylactic acid** See Heptioic acid.

**isoAmylacetacetamide** (PETERS), 1890, A., 1097.

**Amylacetylene** (*heptinene*) (BÉHAL and DESGREZ), 1892, A., 1064.

**isoAmylallylamine** (LIEBERMANN and PAAL), 1883, A., 909.

**Amylallylthiocarbamide** and **amylallyl-ψ-thiocarbamide** (AVENARIUS), 1891, A., 549.

**Amylamine** (*pentylamine*) and its derivatives (TAFEL), 1886, A., 940; 1889, A., 976.

**amylxamate** (BERG), 1891, A., 169.

**carbonyl chloroplatinitehydrochloride** (MYLIUS and FOERSTER), 1891, A., 1163.

**hydrogen diaminechromium thiocyanate** (CHRISTENSEN), 1892, A., 1000.

**Amylamine, chlor- and dichlor-** (BERG), 1890, A., 952.

**ε-chlor-** (GABRIEL), 1892, A., 717.

**isoAmylamines**, preparation of (MALBOT), 1887, A., 652.

**tert.-Amylamine** (FREUND and LENZE), 1890, A., 1388.

**Amylamyleneamine** (BERG), 1892, A., 804.

**Amylanhydracetonebenzil** (JAPP and BURTON), 1887, T., 433; P., 32.

**isoAmylaniline** (SPADY), 1886, A., 264; (LLOYD), 1887, A., 721; (PICTET), 1890, A., 758; (SEŃKOWSKI), 1892, A., 44.

**isoAmylarbutin** (SCHIFF), 1884, A., 432.

**Amylase**, presence of, in leaves (BRASSE), 1885, A., 182.

**Amylbenzene** (DAFERT), 1883, A., 659; (SCHRAMM), 1883, A., 977; 1889, A., 127.

**derivatives of** (DAFERT), 1883, A., 1093.

**isoAmylbenzene** (*phenylisopentylene*) (SCHRAMM), 1883, A., 977; (CLAUS), 1892, A., 985.

**dispersive power of** (BARBIER and ROUX), 1889, A., 805.

**bromination of** (SCHRAMM), 1889, A., 241.

**di-bromide** (SCHRAMM), 1883, A., 977.

**isoAmylbenzene, amido-** (LLOYD), 1889, A., 700.

**isoAmylbismuthine dibromide** (MARQUARDT), 1888, A., 1067.

**isoAmylbromallylamine** (PAAL), 1889, A., 118.

**Amylcarbamide** (FREUND and LENZE), 1890, A., 1388.

**Amylchlorophosphinic acids** (FOSSEK), 1886, A., 529.

**tert.-Amyl-compounds**, vapour-density of (MENSCHUTKIN and KONOWALOFF), 1884, A., 1119.

**Amyl-derivatives, active** (GUYE), 1891, A., 281.

**Amylene** (*pentene*, *pentylene*), molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.

**action of benzoic peroxide on** (LIPPMANN), 1885, A., 366.

**action of bromine on** (KONDAKOFF), 1891, A., 810.

**action of chlorine on** (KONDAKOFF), 1888, A., 123; (HELL and WILDERMANN), 1891, A., 534.

**action of phosphorus pentachloride on** (HELL and WILDERMANN), 1891, A., 534.

**compounds of, with acids as cases of chemical equilibrium** (KONOWALOFF), 1888, A., 1167.

**Guthrie's compound of, with nitric peroxide** (MILLER), 1887, P., 108.

**Amylene, pentamido-** (NIETZKI and ROSEMAN), 1889, A., 769.

**γ-octochlor-** (ZINCKE and KUSTER), 1890, A., 1256.

**halogen derivatives** (KONDAKOFF), 1891, A., 809.

**hydrate.** See *tert.-Amylic alcohol*.

**oxide** (ELTEKOFF), 1883, A., 566.

**action of hydroxylamine on** (NÄGELI), 1884, A., 610.

**isoAmylene** (BRÜHL), 1888, A., 377.

**condensation of, with phenols** (KONIGS), 1891, A., 208; (KONIGS and CARL), 1892, A., 446.

**halogen derivatives, action of potassium cyanide on** (HELL and WILDERMANN), 1891, A., 161.

**α-isoAmylene** (*isopropylethylene*), **action of chlorine on** (KONDAKOFF), 1889, A., 113.

**oxidation of** (WAGNER), 1888, A., 665.

**halogen derivatives of** (KONDAKOFF), 1891, A., 809.

**oxide** (ELTEKOFF), 1883, A., 566.

**β-isoAmylene** (*trimethylethylene*), **action of chlorine on** (KONDAKOFF), 1885, A., 736; 1886, A., 136.

- β*-isoAmylene** (*trimethylethylylene*), action of nitric peroxide on (MILLER), 1887, P., 109.  
oxidation of (WAGNER), 1888, A., 665.  
glycol from methylisopropenylcarbinol (KONDAKOFF), 1889, A., 115.  
halogen derivatives of (HELL and WILDERMANN), 1891, A., 533; (KONDAKOFF), 1891, A., 810.
- γ*-Amylene** (*as-methylethylylene*) from *tert.*-amylic iodide (KONDAKOFF), 1889, A., 1127.  
glycol and its anhydride (FREER and PERKIN), 1887, T., 836; A., 33; (LIPP), 1890, A., 20.  
oxidation of (v. FECHMANN), 1890, A., 1222.
- Amylenenitrolalylamine** (WALLACH), 1888, A., 38.
- Amylenenitrol-*o*-amidoquinoline** (WALLACH and WAHL), 1891, A., 1005.
- Amylenenitrolamine** (WALLACH and WAHL), 1891, A., 1004.
- Amylenenitrolaniline** and its derivatives (WALLACH), 1888, A., 38.
- Amylenenitrol-*o*-anisidine** (WALLACH), 1888, A., 38.
- Amylenenitrol-diethylamine** (WALLACH), 1888, A., 38.
- Amylenenitrol-*α*-naphthylamine** (WALLACH and WAHL), 1891, A., 1005.
- Amylenenitrolpiperidine** (WALLACH), 1889, A., 234.
- Amylenenitrol-*o*- and -*p*-toluidines** (WALLACH), 1888, A., 38.
- Amylenetricarboxylic acid** and its ethylic salt (HJELT), 1888, A., 656.
- Amylenic nitrosate** (WALLACH), 1888, A., 38; 1889, A., 238.  
decomposition of, with sodium ethoxide (WALLACH and ENGELS), 1891, A., 1005.  
derivatives of (WALLACH), 1889, A., 233; (WALLACH and WAHL), 1891, A., 1004.
- γ*-Amylenic dibromide** (LIPP), 1890, A., 20.
- Amylethylene**. See *Heptylene*.
- Amylengenol**, dispersion and molecular refractive energy of (CONTA), 1890, A., 1202.
- Amylformimide hydrochloride** (PINNER), 1883, A., 1089.
- isoAmylguanamine**, formation of (BAMBERGER and DIECKMANN), 1892, A., 736.
- Amylheptylacetic acid**. See *Tetradecoic acid*.
- Amylhexylquinoline** (DOEBNER and v. MILLER), 1884, A., 1376.
- Amylhexylquinoline**, amido- and nitro- (v. MILLER), 1891, A., 1101.
- Amylhydranthrone** (HALLGARTEN), 1888, A., 1202.
- n*-Amylic alcohol** from the fermentation of glycerol (MORIN), 1888, A., 125.  
formation of, in alcoholic fermentation (LE BEL), 1883, A., 908.  
formation of, from starch by a bacterium (PERDRIX), 1892, A., 90.  
action of bromine on (ETARD), 1892, A., 809.  
organic bases in commercial (HATTINGER), 1883, A., 127.  
in brandy from different parts of the German Empire (SELL), 1890, A., 1888.
- isoAmylic alcohol**, vapour pressure of (RICHARDSON), 1886, T., 764, 771, 773; (SCHMIDT), 1892, A., 897.  
action of iodine on (TRAUBE and NEUBERG), 1891, A., 656.
- Amylic alcohol** (*tertiary butylcarbinol*) (FRETND and LENZE), 1890, A., 1388; 1891, A., 1172.
- Amylic alcohol** (*trimethylethylyl alcohol*) (TISSIER), 1891, A., 998.
- sec.-Amylic alcohol** (*methylpropylcarbinol*) (MARKOWNIKOFF), 1884, A., 1280; (MARSHALL and PERKIN), 1891, T., 874.  
trichlor-, and its derivatives (v. GARZAROLLI-THURNLACKH), 1884, A., 1118.
- tert.-Amylic alcohol** (*amylenic hydrate*; *dimethylethylylcarbinol*), decomposition of, by heat (WOLKOFF and BUGAIEFF), 1886, A., 137.
- n*-Amylic salts** of normal fatty acids, boiling-points and specific volumes of (GARFENMEISTER), 1886, A., 966.  
**amyloxydichloracetate** (ANSCHUTZ and SCHONFELD), 1886, A., 786.  
bromide, dissociation of, under low pressures (LEMOINE), 1891, A., 970.  
chloracetate (HUGOUNENQ), 1886, A., 784.  
trichloracetate (CLERMONT), 1883, A., 729.  
**perchlorosebacate**, **perchlor-** (GERHARDT), 1887, A., 801.  
**chlorothiocarbonate** (SCHÖNE), 1886, A., 337.  
formate, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
glycol (COMBES), 1888, A., 666.  
iodide, purification of (MALBOT), 1890, A., 116.  
nitrite, preparation of (WILLIAMS and SMITH), 1886, A., 327.

- n*-Amylic nitrite, physiological action of (BRUNTON and BOKENHAM), 1889, A., 433.
- nitrites, the metameric (DUNSTON and WILLIAMS), 1889, A., 365.
- phenylamidoacetate (KOSSEL), 1892, A., 468.
- sulphide, action of chlorine on (SPRING and LECHENIER), 1888, A., 665.
- disulphide (SPRING and LEGROS), 1883, A., 48.
- oxysulphide, action of chlorine on (SPRING and WINSINGER), 1884, A., 1127.
- thioallophanate and diithiophenylallophanate (SCHONT), 1886, A., 388.
- thiocarbamate and thiocebanilate (SCHONE), 1885, A., 512; 1886, A., 387.
- $\alpha$ -truxillate (LIEBERMANN), 1889, A., 1194.
- vanadate and pyrovanadate (HALL), 1887, T., 753.
- iso*Amylic acetate, reaction of, with methylic and ethylic alcohols (PURDIE and MARSHALL), 1888, T., 394.
- chloroxalate (ANSCHÜTZ), 1890, A., 236.
- cyanide, action of sodium on (TRÜGER), 1888, A., 801.
- formanilide (BARBIER and VIGNON), 1888, A., 689; (PICTET), 1890, A., 758.
- iodide, action of, on trimethylamine (H. and A. MALBOT), 1892, A., 805.
- oxide, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- phenyloxamate (ANSCHÜTZ), 1890, A., 236.
- phosphite (JAEHNKE), 1890, A., 859.
- tert*-Amylic acetate, decomposition of, by heat (MENSCHUTKIN), 1883, A., 178, 309.
- decomposition of liquid (KONOWALOFF), 1888, A., 340.
- dissociation of, in presence of rough substances (MEYER and POND), 1885, A., 1033.
- action of acids on (KONOWALOFF), 1888, A., 1053.
- chloride, dissociation of, in presence of rough substances (MEYER and POND), 1885, A., 1033.
- nitrite (BERTONI), 1887, A., 458.
- 3'-Amylindole (TRENKLER), 1889, A., 260.
- Amylinene.** See Pentinene.
- Amylmalonic acid** (*pentylmalonic acid*) (LIELL and SCHULE), 1885, A., 757.
- iso*Amylmalonic acid (PAAL and HOFFMANN), 1890, A., 1100.
- Amylnaphthalene** (PATERNO), 1888, A., 212.
- $\beta$ -*iso*Amylnaphthalene (ROUX), 1888, A., 1305; (ONDO and BARABINI), 1891, A., 730.
- preparation of (ROUX), 1884, A., 1857.
- Amyl- $\alpha$ - and  $\beta$ -naphthols**, dispersion and molecular refraction of (COSTA), 1890, A., 1201.
- Amyl- $\psi$ -nitrole** (SCHOLL), 1888, A., 443.
- Amylodextrin** (BRÜCKNER), 1884, A., 576.
- constitution, molecular weight, properties, and reactions of (BROWN and MORRIS), 1889, T., 449; P., 95, 96.
- Amylohydrolyst** (ARMSTRONG), 1890, T., 531.
- Amyloid**, action of pepsin on (KOSTJURIN), 1887, A., 506.
- vegetable (WINTERSTEIN), 1892, A., 803.
- iso*Amylphenol (LIEBMANN), 1883, A., 59.
- Amylphenylic ethylic ether** (LIEBMANN), 1883, A., 59.
- iso*Amylphosphinic acid (FOSSEK), 1886, A., 529.
- iso*Amylphthalamic acid and its imide (NEUMANN), 1890, A., 890.
- iso*Amylpropargylamine (PAAL and HERMANN), 1890, A., 230.
- Amylsulphonic acid.** See Pentanesulphonic acid.
- Amylthymol**, dispersion and molecular refraction of (COSTA), 1890, A., 1201, 1202.
- iso*Amylthymol (KOENIGS and CARL), 1892, A., 446.
- Amyltoluenes** (ESNER and GOSSEN), 1885, A., 517.
- Amyrilenes,  $\alpha$ - and  $\beta$ -** (VESTERBERG), 1887, A., 734; 1892, A., 238.
- Amyrins,  $\alpha$ - and  $\beta$ -** (VESTERBERG), 1887, A., 733; 1891, A., 165.
- acetates and benzoates (VESTERBERG), 1891, A., 166.
- hydrocarbons from, and oxidation products of (VESTERBERG), 1892, A., 288.
- brom-, and their acetates (VESTERBERG), 1891, A., 166.
- Amyrone and Amyroneoxime,  $\alpha$ - and  $\beta$ -** (VESTERBERG), 1892, A., 290.
- Anacardic acid** (RUHEMANN and SKINNER), 1887, T., 663; P., 102.

- Anæmia**, pernicious (HUNTER), 1888, A., 1324; 1890, A., 1017; (MOTT and VANEY), 1890, A., 400; (MOTT), 1890, A., 1177.  
 tropical (GLOGNER), 1892, A., 363.
- Anagryic acid** (REALE), 1888, A., 188.
- Anagryine** and its derivatives (REALE), 1888, A., 188; (HARDY and GALLOIS), 1888, A., 1317.
- Anagryis fetida**, constituents of (REALE), 1888, A., 188.
- Analcite** (*analcime*, *picranalcime*) (BAMBERGER), 1883, A., 438; (CROSS and HILLEBRAND), 1883, A., 957; (PENFIELD), 1886, A., 318.  
 artificial (DE SCHULTEN), 1883, A., 34.  
 as rock-forming material (LINDGREN), 1892, A., 1413.  
 from Colorado (CROSS and HILLEBRAND), 1883, A., 165.
- Analgen** (VIS), 1892, A., 1104.
- Analysis**, combination of wet and dry methods in (ADENEY and SHEGOG), 1892, A., 100.  
 gas. See Gas analysis.  
 gravimetric, simple and rapid method of (BAILEY and CAIN), 1892, A., 524.  
 microchemical, of minerals, reactions for (BEHRENS), 1886, A., 917; 1891, A., 766.  
 microscopic (v. HAUSHOFER), 1885, A., 689; 1887, A., 300.  
 milk. See Agricultural Chemistry.  
 organic (JANNASCH and MEYER), 1886, A., 649; (BERTHELOT), 1892, A., 753.  
 modifications in the methods of (DUDLEY), 1889, A., 190.  
 wet methods of (MESSINGER), 1889, A., 80.  
 organic, elementary (BLAU), 1889, A., 1248.  
 by an electro-thermal method (OSER), 1891, A., 621.  
 calorimetric bomb as a combustion furnace for (EILOART), 1889, A., 301.  
 drying apparatus for (SAUER), 1892, A., 657.  
 potash apparatus for (DELISLE), 1891, A., 621.  
 testing of the reagents employed in (NENCKI), 1889, A., 1085.  
 polaristobometric (LANDOLT), 1888, A., 386.  
 qualitative, dry reactions in (TATE), 1891, A., 959.  
 Eyster's method for (WARDER), 1886, A., 100.
- Analysis**, quantitative, apparatus for (MIGUEL), 1884, A., 658; (WOLLNY), 1885, A., 591, 835; (NEUMANN), 1883, A., 1332.  
 by electrolysis (CLASSEN), 1885, A., 190; 1888, A., 528; (CLASSEN and SCHELLE), 1889, A., 76.  
 by measurement of electrical conductivity (REICHERT), 1889, A., 545.  
 by new methods (BAUMANN), 1892, A., 103, 538.  
 volumetric (REICHARDT), 1884, A., 213.  
 apparatus for (HÜBLING), 1889, A., 1086.  
 the true, or Mohr's litre for (FRESSENIUS), 1891, A., 1548.
- Anatase** (KUNZ), 1892, A., 1055.  
 from Burke Co., N. Carolina (HIDDEN), 1883, A., 435.
- "Ancella-Schicht"** (GRIGORIEFF), 1883, A., 529.
- Andalusite** from Marabastad, Transvaal (GÜTZ), 1887, A., 562.
- Anderbergite** (NORDENSKIÖLD), 1889, A., 220; (BLOMSTRAND), 1889, A., 221.
- "Anderson's reaction"** for pyridine bases (OECHSNER DE CONINCK), 1884, A., 612.
- Andesine** (DES CLOIZEAUX), 1886, A., 776.  
 from Ardèche, analysis of (DAMOUR), 1886, A., 211.  
 from Bodenmais (SCHUSTER and v. FOULLON), 1890, A., 344.  
 from Orijärvi, in Finland (GYLLING), 1884, A., 970.  
 from Sutherlandshire (TEALL), 1887, A., 1022.  
 from Trifail in Styria (MALY), 1885, A., 735.
- Andesites**, South and Central American (GÜMBEL), 1883, A., 448.  
 Cheviot (TEALL), 1884, A., 413.
- "Andresen's acid"** (ARMSTRONG and WYNNE), 1891, P., 27.
- Andromeda japonica**, poisonous constituent of (EIJKMAN), 1883, A., 215, 348.
- Andromedotoxin** (EIJKMAN), 1883, A., 349; (DE ZAAIJER), 1887, A., 497; 1889, A., 278.  
 in the Ericaceæ (PLUGGE), 1889, A., 644.
- Andropogon Schœnanthus**, oil of (SEMMLER), 1890, A., 951.
- Anemone-camphors** (BECKURTS), 1886, A., 365.
- Anemonic acid** (BECKURTS), 1886, A., 366; 1892, A., 1241.

- isoAnemonic acid* (BECKURTS), 1892, A., 1241.
- Anemonin** (BECKURTS), 1886, A., 366; 1892, A., 1241; (HANIMOT), 1887, A., 843.
- isoAnemonin* (BECKURTS), 1892, A., 1241.
- Anemoninic acid** (BECKURTS), 1892, A., 1241.
- Anethoil**, action of light on (DE VARDA), 1891, A., 1347.  
action of nitrous acid on (TÖNNIES), 1888, A., 264.
- Anethoilhydroquinine** (HENSE), 1888, A., 69.
- Angelic acid** (SCHMIDT), 1886, A., 867.  
constitution of (PUCKERT), 1889, A., 587; (KONDAKOFF), 1892, A., 1304.  
action of bromine on (FITTIG), 1891, A., 39.  
action of hypochlorous acid on (MELIKOFF), 1888, A., 1177.  
oxidation of (BEILSTEIN and WIEGAND), 1885, A., 42; (KONDAKOFF), 1889, A., 374.  
derivatives of (MELIKOFF and PETRENKO-KRITSCHENKO), 1890, A., 862.
- α*Bromide (PUCKERT), 1889, A., 587.
- Angelicalactones**,  $\alpha$ - and  $\beta$ - (WOLFF), 1885, A., 1123.
- Angelica root**, essence of (NAUDIN), 1883, A., 809.
- Anglesite** by Senarmont's process (BOURGEOIS), 1888, A., 116.  
from Felsö-Vissó (FRANZENAU), 1885, A., 733.
- Angostura bark**, alkaloids of (KÖRNER and BÖHRINGER), 1884, A., 341.  
constituents of (BECKURTS and NEHRING), 1892, A., 642.
- Angosturin** (BECKURTS and NEHRING), 1892, A., 644.
- Anhydride formation** in acids of the succinic series (AUVERS and MEYER), 1890, A., 479; (BISCHOFF), 1890, A., 741.  
of mono- and di-basic acids (ANSCHUTZ), 1885, A., 243.  
of higher fatty acids (LEWKOWITZ), 1890, P., 72, 91.
- Anhydrides**, mixed (AUTENRIETH), 1888, A., 250.  
of dibasic acids. See Acids, dibasic.  
organic, preparation of (ANON.), 1885, A., 943.
- Anhydrite**, occurrence, association, and probable mode of formation of (DIEULAFAIT), 1884, A., 25.  
artificial formation of (GORGEU), 1883, A., 1062.
- Anhydrite**, relative rates of solution of gypsum and (MCCALEB), 1889, A., 466.  
from North America (KÖNIG), 1890, A., 218.  
See also Calcium sulphate.
- Anhydroacetonebenzil** (JAPP and BURTON), 1887, T., 420; P., 30.
- Anhydroacetonephenanthraquinone** (WADSWORTH), 1891, T., 105.
- Anhydroacetophenonebenzil**. See  $\alpha\beta$ -Dibenzoylstyrene.
- Anhydroacetyl**-. See Ethenyl-.
- Anhydroaconitine**, formation and properties of (DUNSTAN and INCE), 1891, T., 283.  
gold chloride (DUNSTAN and INCE), 1891, T., 285.
- Anhydroaldol- $\gamma$ -rosaniline hydrochloride** (v. MILLER and PLOCHL), 1891, A., 1071.
- Anhydro-*o*-amidophenol ethylic acetate**. See Ethylic propenyl-*o*-amidophenol- $\omega$ -carboxylate.
- Anhydro-*o*-amidophenyllic carbonate** (BENDER), 1887, A., 38, 245.
- Anhydroamidotoloxamic acid**, derivatives of (HINSBERG), 1883, A., 1129.
- "**Anhydroanisylphenylthiouramidoxime**" (HOCHHEIM), 1890, A., 1265.
- Anhydro-bases** (MELDOLA and STREETFIELD), 1887, T., 691.  
preparation of, from amidomercaptans of the fatty series (GABRIEL and HEYMANN), 1890, A., 524.
- Anhydrobenzenesulphone-*o*-amidobenzamide** (FRANKE), 1892, A., 334.
- Anhydrobenzoyl**-. See Benzenyl-.
- Anhydroberberilamide** (PERKIN), 1890, T., 1046.
- Anhydroberberilanilide** (PERKIN), 1890, T., 1047.
- Anhydroberberilic acid**, constitution and synthesis of (PERKIN), 1890, T., 994, 1037, 1061.  
salts of (PERKIN), 1890, T., 1061.
- Anhydroberberilic chloride** (PERKIN), 1890, T., 1042.
- Anhydrocamphoronic acid** (KACHLER and SPITZER), 1885, A., 807.
- Anhydrocinnamaldehydeanisisidine** (v. MILLER and PLOCHL), 1892, A., 1195.
- Anhydro-compounds** (BÖTTCHER), 1883, A., 800; (NIEMENTOWSKI), 1886, A., 544; 1887, A., 937.
- Anhydrodiacetylacetamidil**. See 4-Acetyl-amido-2:6-dimethyl-*m*-diazine.
- Anhydrodiacetyl ethenylamidine** (PINNER), 1884, A., 723; 1889, A., 1004.
- Anhydrodiazohemipinic acid** (GRÜNE), 1887, A., 49.

**Anhydroadipic acid** and its derivatives (DORTINGER), 1884, A., 319.

**Anhydroecgonine** (EINHORN), 1887, A., 741; 1889, A., 169; (LIEBERMANN and GIBBEL), 1889, A., 168.

constitution of (MERLING), 1892, A., 360.

conversion of, into pyridine (EINHORN), 1889, A., 909.

derivatives of (EINHORN), 1887, A., 741.

*di*bromide, derivatives of (EICHENGRUN and EINHORN), 1891, A., 65, 66.

hydrochloride, specific rotatory power of (EINHORN), 1889, A., 1018.

action of hydrogen bromide on (EICHENGRUN and EINHORN), 1891, A., 94.

**Anhydroformaldehyde compounds** (WELLINGTON and TOLLENS), 1886, A., 330.

**Anhydroformaldehydeaniline** (TOLLENS), 1884, A., 988; (v. MILLER and PLOCHL), 1892, A., 1190.

"**Anhydroformyl-*o*-amido-*p*-toluylamide**" (NIEMENTOWSKI), 1889, A., 1065.

**Anhydrogeraniol** (SEMMLER), 1891, A., 655.

**Anhydrogluco-*o*-diamidobenzene** (GRIESS and HARROW), 1887, A., 930.

**Anhydrogluco-*m-p*-diamidotoluene** (FISCHER), 1889, A., 484.

**Anhydroglycolylphenylamidoacetic acid** (ABENIUS), 1890, A., 245.

**Anhydroglycolyl-*o*-tolylamidoacetic acid** (ABENIUS), 1888, A., 825.

**Anhydrolupinine** (BAUMERT), 1883, A., 100.

**Anhydro-*m*-nitrocinnamaldehydanisidine** (v. MILLER and PLOCHL), 1892, A., 1195.

**Anhydronitrosulphaminebenzoic acid**, potassium salt of (NOYES), 1886, A., 804.

**Anhydrophenylhydrazine-*o*-carboxylphenylglyoxylic acid** (HENRIQUES), 1888, A., 842.

**Anhydrophenyltaurine** (LEYMANN), 1885, A., 786.

**$\alpha$ -Anhydrophospholutedungstic acid** (KEHRMANN), 1887, A., 777.

**Anhydrosalicilic glucoside**, synthesis of (MICHAEL), 1888, A., 76.

**$\alpha$ -Anhydrosulphaminephthalic acid** and its derivatives (STOKES), 1885, A., 539; (MOULTON), 1891, A., 1063. potassium salt of (REMSEN and COMSTOCK), 1884, A., 320.

**Anhydrotaurine** (JAMES), 1886, T., 490.

**Anhydrotimboin** (PFAFF), 1891, A., 939.

**Anhydrotricarballic acid** (EMERY), 1891, A., 680; (AUWERK, KOBNER and v. MEYENBURG), 1892, A., 41.

**Anhydrotriethylsulphamic acid** (BREILSTEIN and WIRGAND), 1883, A., 971.

**Anhydrovaleraldehydaniline** (v. MILLER and PLOCHL), 1892, A., 1193.

**Anil-**. See Phenylimido-.

**Anilic acid**, decomposition products of (HANTZSCH), 1892, A., 834.

substituted, crystalline forms of the sodium salts of (POPE), 1892, T., 381; P., 106.

brom-. See Bromanilic acid.

chlor-. See Chloranilic acid.

nitr-. See Nitranilic acid.

sulph-. See Aniline-*p*-sulphonic acid.

**Anilic acids** (SAIZMANN), 1887, A., 926.

formation of, from anhydrides of dibasic acids (ANSCHUTZ), 1888, A., 277.

constitution of (NEF), 1889, A., 197.

of dibasic acids, action of phosphorus pentachloride on (ANSCHUTZ), 1888, A., 591.

**Anilides**, formation of (TORIAN), 1883, A., 325; (KEILBE), 1883, A., 915;

(MICHAEL), 1886, A., 697; (MICHAEL and PALMER), 1886, A., 698.

preparation and properties of (PIOTET), 1890, A., 758.

decomposition of, at a high temperature (BISCHOFF), 1888, A., 726.

action of dilute nitric acid on (NORTON and ALLEN), 1885, A., 1213.

physiological action of (GIBBS and REICHERT), 1891, A., 1282.

**Anilides, acid**, colour reactions of (TAFEL), 1892, A., 709.

**Anilides, isoanilides and their analogues** (COMSTOCK and WHEELER), 1892, A., 705.

**Anilidoacetanilide**, action of carbonyl chloride on (BISCHOFF and NANTVOGEL), 1890, A., 1164.

**Anilidoacetanilidoacetic acid** (*phenylglycylphenylamidacetic acid*) (REBUFFAT), 1887, A., 1108; (BISCHOFF), 1888, A., 726; (ABENIUS), 1888, A., 854.

**Anilidoacetic acid** (*phenylglycine*) (GABRIEL and BORGMANN), 1883, A., 1121.

preparation of (HAUSDORFER), 1889, A., 1013.

derivatives of (REBUFFAT), 1887, A., 1108; (BISCHOFF and HAUSDORFER), 1892, A., 1338.

- Anilidoacetic acid** (*phenylglycine*), indole from (MAUTHNER and STIDA), 1889, A., 1068.  
 synthesis of indigo with (LEDERER), 1891, A., 75, 311, 928; (HEUMANN), 1891, A., 75, 206, 311, 456; (BIEDERMANN and LEPETIT), 1891, A., 206.  
*o*-nitr- (PLOCHL), 1886, A., 351.  
*m*-nitr- (PLOCHL and LOE), 1885, A., 899.  
 sulph- (ZEHENTER), 1885, A., 1235.  
 sulpho-derivatives of (PLOCHL and LOE), 1885, A., 899.  
**Anilidoaceto-*p*-toluolide** (BISCHOFF and HAUSDORFER), 1890, A., 1285.  
 **$\beta$ -Anilido-acids**, condensation products from (REISSERT and TIEMANN), 1886, A., 551; (REISSERT), 1888, A., 276, 694.  
**Anilidoacridine** (HESSEN and BRUNTHSEN), 1885, A., 800.  
**Anilidoacridines** (BESTHORN and CURTMAN), 1891, A., 1232.  
**Anilidoacridylbenzoic acid** (BESTHORN and CURTMAN), 1891, A., 1234.  
 **$\beta$ -Anilidoacrylic acid** (REISSERT), 1888, A., 276.  
**Anilidoaniline-3-sulphonic acids**, 4- and 6- (FISCHER), 1892, A., 332.  
**Anilidobenzanilide**, 3:4-nitr- (GROHMANN), 1891, A., 305.  
 5:2-nitr- (GROHMANN), 1892, A., 326.  
**Anilidobenzeneazobenzenepolysulphonic acids**, preparation of (ANON.), 1884, A., 237.  
**Anilidobenzene-*m*-disulphonic acid** (*diphenylaminedisulphonic acid*) (FISCHER), 1892, A., 333.  
**Anilidobenzenesulphonic acids**, *m*-nitr- *o*- and *p*- (FISCHER), 1892, A., 332.  
*m*-**Anilidobenzoic acid**, and some of its salts (CLAUS and NICOLAYSEN), 1886, A., 68.  
*o*-**Anilidobenzoic acid**, *m*-nitro- (SCHOPFF), 1891, A., 304.  
*p*-**Anilidobenzoic acid**, *m*-amido- and *m*-nitro- (SCHOPFF), 1890, A., 374.  
**Anilidobenzonitriles**, *m*-nitro- *o*- and *p*- (SCHOPFF), 1891, A., 305.  
**Anilidobenzophenones**, *m*-nitro- *o*- and *p*- (SCHOPFF), 1892, A., 336.  
**Anilidobenzylthiocarbamide**, cyan- (FREUND and IMMERWAHR), 1890, A., 1408.  
**Anilidobenzoylnaphthaquinones**, *o*- and *p*- (KEGEL), 1888, A., 1308.  
**Anilidobromopianic acid** (TUST), 1892, A., 1209.  
 **$\alpha$ -Anilidobutyric acid** (NASTVOGEL), 1890, A., 1159, 1160.  
**Anilidoisobutyric acid**, nitr- (EDLEMAN), 1888, T., 560.  
 **$\alpha$ -Anilidoisobutyric acid**, and its amide and nitrile (TIEMANN), 1883, A., 199.  
**Anilidoisobutyric acids** (BISCHOFF and MINZ), 1892, A., 1338.  
**Anilidocarbamidophenol** (KALCKHOFF), 1883, A., 1110.  
**Anilidocinnoline** (BUSCH and KLETT), 1892, A., 1494.  
 **$\beta$ -Anilidocrotonic acid**,  $\alpha$ -bromo- (KNORR and ANTRICK), 1885, A., 273.  
**Anilidoacumylacetic acid** (*isopropylphenylanilidoacetic acid*) (FILET and AMORETTI), 1891, A., 1060.  
**Anilido-*p*-diketohexene**, pentachlor- (ZINCKE and FUCHS), 1892, A., 448.  
**Anilidodimethylpyrrolone** (KNORR), 1889, A., 386.  
**Anilidodiphenamic acid** (GRAEBE and AUBIN), 1889, A., 145.  
**Anilidodiphenylacetic acid** (KLINGER and STANDKE), 1889, A., 885.  
**Anilidodiphenylpyrrolone** (KLINGEMANN), 1892, A., 1002.  
**Anilidoethoxytoluquinoneanilide** and its derivatives (ZINCKE), 1883, A., 1118.  
**Anilidoethylphthalamic acid** (GABRIEL), 1889, A., 1167.  
**Anilidoethylenephenylamidoacetic acid** (BISCHOFF and NASTVOGEL), 1890, A., 1160.  
**Anilidoethylideneanilide** (BERLINERBLAU and POLIKIER), 1887, A., 813.  
**Anilidoethylphthalamic acid and  $\beta$ -anilidoethylphthalimide** (GABRIEL), 1889, A., 1166.  
**Anilidoethylpiperonylcarboxylic anhydride** (PERKIN), 1890, T., 1036.  
**Anilidoformylcamphor** (CLAUSEN), 1891, A., 575.  
**Anilidofumarimide** (LOSCHER and KUNEROW), 1888, A., 1281.  
 **$\beta$ -Anilidoglutaranil** (ANNSCHUTZ), 1891, A., 741.  
**Anilidoglutaric acid**, condensation products of (REISSERT), 1891, A., 567.  
**Anilido-*p*-hydroxybenzoic acid**, *m*-nitr- (SCHOPFF), 1890, A., 375.  
**Anilido-*o*-hydroxychloroethoxyquinone** (KEHRMANN), 1891, A., 904.  
**1-Anilido-3-hydroxyquinoline**, 2:4-dichloro- (ZINCKE), 1891, A., 1250.  
**Anilido-*o*-hydroxyquinone and anilido-*o*-hydroxyquinoneanilide** (ZINCKE), 1885, A., 787.  
**Anilidoisethionic acid** and its salts (ANDREASCH), 1883, A., 665.

- 1-Anilidoketodihydroquinoline, *tri*-chloro- (ZINCKE), 1891, A., 1251.
- 4-Anilido-2:6-lutidine (CONRAD and EPSTEIN), 1887, A., 501.
- Anilidomaleic acid, anil and monanilide of (MICHAEL and PALMER), 1888, A., 461.
- Anilidomethylacridine (BESTHORN and CURTMAN), 1891, A., 1233.
- 6-Anilido-5-methyl-2:4-diethyl-*m*-diazine (v. MEYER), 1889, A., 685.
- Anilidomethylmaleic acid phenylimide (WISLIGENUS and SPIRO), 1890, A., 379.
- 2'-Anilido-4'-methylquinoline (*phenyl-lepidinamine*) (KNORR), 1887, A., 159.
- 4'-Anilido-2-methylquinoline (*phenyl-anilidoquinaldine*) (CONRAD and LIMPACH), 1887, A., 680.
- $\alpha$ -Anilidomethylsuccinic acid ( $\alpha$ -anilidopyrotartaric acid), its derivatives and condensation-product (SCHILLER-WECHSLER), 1885, A., 900.
- $\beta$ -Anilidomethylsuccinic acid (REISSERT), 1888, A., 694.
- preparation of (ANSCHUTZ), 1890, A., 774.
- pyridine- and pyrroline-derivatives from (REISSERT), 1890, A., 642.
- Anilidomyristic acid (HELL and TWERDOMEDOFF), 1889, A., 957.
- Anilidonaphthalene, chlorotrinitr- (CLEVE), 1890, A., 626.
- Anilidonaphthaquinone, *dichlor*- (HELLSTRÖM), 1889, A., 149.
- o*-nitro- (LEICESTER), 1890, A., 1446.
- Anilidonaphthaquinoneanilide (BRÜMME), 1888, A., 491.
- di*brom- (FISCHER and HEPP), 1888, A., 478.
- $\beta\beta$ -chlor- (ZINCKE), 1888, A., 711.
- nitr- (ZINCKE and KEGEL), 1889, A., 266.
- Anilidonaphthaquinonedianil (FISCHER and HEPP), 1891, A., 1045.
- $\alpha$ -Anilido- $\alpha$ -naphthalolazine (EICKER), 1891, A., 471.
- $\beta$ -Anilidonaphthoic acid and its anilide (SCHÖPF), 1892, A., 1476.
- 2'-Anilido- $\beta$ -naphthol (CLAUSIUS), 1890, A., 629.
- Anilidonaphthylcarbamide (BAMBERGER and SCHIEFFELIN), 1889, A., 892.
- Anilido $\alpha$ naphthylrosinduline (FISCHER and HEPP), 1891, A., 1044.
- 3-Anilido- $\alpha$ - and  $\beta$ -naphthylthioiazolones (FREUND), 1892, A., 508.
- 3-Anilido- $\alpha$ -naphthyl*di*thioiazolone (FREUND), 1892, A., 508.
- Anilido*di*nitrobenzyl methyl ketone (JACKSON and MOORE), 1890, A., 737.
- Anilido-opianic and anilidonitropianic acids (LIEBERMANN), 1887, A., 46.
- $\alpha$ -Anilidopalmitic acid (HELL and IORDANOFF), 1891, A., 821.
- Anilidoperezone (MYLIUS), 1885, A., 778.
- Anilidophenol (LIMPRICHT and v. RECHENBERG), 1890, A., 158.
- Anilidophenolsulphonic acid (LIMPRICHT and v. RECHENBERG), 1890, A., 159.
- Anilidophenylacetic acid and its amide and nitrile (TIEMANN and PIEST), 1883, A., 198.
- Anilidophenylacridine (BESTHORN and CURTMAN), 1891, A., 1233.
- $\beta$ -Anilidophenylacrylanilide (KNORR), 1888, A., 1112.
- Anilidophenylamidophenylinduline (FISCHER and HEPP), 1892, A., 342.
- Anilidophenylbromomethylmethyl-anilidopyrazolone (REISSERT), 1890, A., 643.
- $\alpha$ -Anilidophenylcrotonic acid and its amide (PEINE), 1884, A., 1315.
- $\alpha$ -Anilidophenylcrotononitrile (PFINF), 1884, A., 1345; (v. MILLER and PLOCHL), 1892, A., 1194.
- 1-Anilido-5-phenyl-3-diphenylpyrrolidone (JAPP and KLINGEMANN), 1890, T., 683.
- $\alpha$ -Anilido- $\alpha$ -phenylpropionamide and  $\alpha$ -anilido- $\alpha$ -phenylpropionitrile (JACOBY), 1886, A., 800.
- Anilidophthalaminic acid (HÖTTE), 1887, A., 669.
- Anilidopipitzahoic acid. See Anilidoperezone.
- $\alpha$ -Anilidopropionamide (TIEMANN and STEPHAN), 1883, A., 199; (STEPHAN), 1887, A., 113.
- $\alpha$ -Anilidopropionic acid and its derivatives (TIEMANN and STEPHAN), 1883, A., 199; (ERLENMEYER and LIPP), 1883, A., 992; (STEPHAN), 1887, A., 143; (NARSVOGEL), 1889, A., 1012; 1890, A., 1159.
- nitro-*o*- (REISSERT), 1892, A., 1456.
- See also Phenyl- $\alpha$ -alanine.
- $\beta$ -Anilidopropionic acid (*phenyl- $\beta$ -alanine*) (BISCHOFF and MINTZ), 1892, A., 1342.
- o*-nitro-, and its derivatives (EINHORN), 1884, A., 304.
- p*-nitro-, and its derivatives (BASLER), 1884, A., 1172.
- $\alpha$ -Anilidopropionitrile (TIEMANN and STEPHAN), 1883, A., 199; (ERLENMEYER and LIPP), 1883, A., 992; (STEPHAN), 1887, A., 142.
- tri*bromo- (STEPHAN), 1887, A., 143.

- Anilidopropionylanilidopropionic acid** (NASTVOGEL), 1890, A., 1160.
- Anilidopropylcarbamide** (GOLDENRING), 1890, A., 977.
- $\beta$ -Anilidopropylphthalimide** (GOLDENRING), 1890, A., 976.
- $\gamma$ -Anilidopropylphthalimide** (SEITZ), 1891, A., 1473.
- Anilidopyrotartaric acid.** See Anilido-methylsuccinic acid.
- Anilidoquinolinequinoneanilide** (HEBERBRAND), 1889, A., 62.
- chlor-** (ZINGKE), 1891, A., 1251.
- Anilidoquinonedianil** (FISCHER and HEPP), 1890, A., 912.
- $\alpha$ -Anilidostearic acid** (HELL and SADOWSKY), 1891, A., 1336.
- Anilidosuccinic acid.** See Phenyl-aspartic acid.
- Anilido-*m*-sulphobenzoic acids, *o*- and *p*-** (FISCHER), 1892, A., 333.
- Anilidotetraphenylpyrroline** (KLINGEMANN), 1892, A., 995.
- Anilidothiazole** (HANTZSCH and TRAUMANN), 1888, A., 573; (TRAUMANN), 1889, A., 415.
- Anilidotoluene.** See Phenyltolylamine.
- Anilidotolquinone, nitr-** (LEICESTER), 1890, A., 1446.
- Anilidotolquinoneanil** (FISCHER and HEPP), 1890, A., 912.
- Anilido-*m*-tolylacetic acid** (BORNE-MANN), 1884, A., 1162.
- Anilido-*m*-tolylacetoneitrile, and its amide** (BORNE-MANN), 1884, A., 1162.
- Anilidotolylamine, diamido-, and di-nitr-** (ERNST), 1891, A., 300.
- o*-Anilidotolylcarbamide** (LEUCKART), 1890, A., 760.
- Anilidotricarballylic acid** (EMERY), 1891, A., 680.
- 4'-Anilido-1:3:2-trimethylquinoline** (CONRAD and LIMPACH), 1888, A., 503.
- $\alpha$ -Anilidoisovaleramide** (v. MILLER and FLÖCHL), 1892, A., 1192.
- Anilidovaleric acid and other constituents of lupin shoots** (SCHULZE and BARBIERI), 1883, A., 1122.
- Aniline** (*phenylamine* : *amidobenzene*) from phenol (MERZ and MÜLLER), 1887, A., 243.
- refractive power of, at different temperatures (PERKIN), 1892, T., 301.
- dispersive power of (BARBIER and ROUX), 1889, A., 805.
- heat of formation of (PETIT), 1888, A., 773.
- vapour-pressures of (RAMSAY and YOUNG), 1885, T., 647, 655.
- Aniline** (*phenylamine* : *amidobenzene*), action of the induction spark on (DESTREUM), 1884, A., 1243.
- as an absorbent of cyanogen in gas analysis (LOEB), 1888, T., 812; P., 87.
- action of acetone on (ENGLER and RIEHM), 1885, A., 1246; 1886, A., 235; (BEYER), 1886, A., 145.
- action of the alkyl derivatives of the halogen-substituted fatty acids on (BISCHOFF), 1883, A., 919.
- action of, on arsenic chloride and bromide (ANSCHÜTZ and WEYER), 1891, A., 901.
- action of benzaldehyde and sulphuric acid on a mixture of nitrobenzene and (MAZZARA), 1884, A., 442.
- action of *di*bromo- $\alpha$ -naphthol on (MELDOLA), 1884, T., 156.
- action of *isobutyric* acid on (BARDWELL), 1886, A., 52.
- action of carbonic anhydride on (DITTE), 1888, A., 49.
- action of  $\beta$ -chloroethylenesulphonic chloride on (LEYMANN), 1885, A., 786.
- action of, on epichlorhydrin (FAUCONNIER), 1888, A., 1280.
- action of ethylic malonylchloride on (RÜGHRIMER), 1884, A., 729.
- action of formaldehyde on (PRATESI), 1885, A., 782.
- condensation of, with furfuraldehyde (DE CHALMOT), 1892, A., 1452.
- action of *m*-nitrodiazobenzene chloride on (MELDOLA), 1884, T., 112.
- action of nascent nitrous acid on (DENINGER), 1890, A., 38.
- action of phosphorus trichloride on (JACKSON and MENKE), 1885, A., 254.
- action of phosphorus pentasulphide on (KNOP), 1888, A., 265.
- action of picric chloride on (TURPIN), 1891, T., 715.
- action of, on pyrotartaric acid (BÜTTINGER), 1884, A., 1006.
- action of sulphur chloride on (EDEL-MANU), 1891, A., 1202.
- action of trimethylenic chlorobromide on (PINKUS), 1892, A., 1491.
- chlorination and bromination of, in presence of an excess of a mineral acid (HAFNER), 1890, A., 37.
- methylation and ethylation of (REINHARDT and STAEDEL), 1883, A., 578.
- nitration of (NÖLTING and COLLIN), 1884, A., 1012.

- Aniline** (*ph nylamine · amidoben·ene*),  
sulphonation of, with potassium  
hydrogen sulphate (BISCHOFF, SIEN-  
NECKI and BRODSKY), 1890, A.,  
1149.  
last runnings obtained in the purifica-  
tion of (HELL and ROCKENBAUGH),  
1889, A., 600.  
compound of, with copper haloid  
salts (SAGLIER), 1888, A., 941.  
compound of, with silicon fluoride  
(JACKSON and CONEY), 1887, A.,  
243.  
compound of, with zinc chloride  
(LACHOWICZ and BANDROWSKI),  
1888, A., 1281.  
compounds of, with mercuric chloride  
(ANDRÉ), 1891, A., 1030.  
compounds of, with metallic sulphites  
(DENIGS), 1891, A., 1030.  
conversion of, into benzenesulphonic  
acid (LANDSBERG), 1890, A., 1137.  
conversion of, into diphenyl (GAT-  
TERMANN, HAUSKNECHT, CANTZ-  
LER, and EHRHARDT), 1890, A.,  
972.  
derivatives (CLAUS and HOWITZ),  
1884, A., 1005.  
homologues of (LEWY), 1887, A., 134.  
separation of homologues of, on the  
large scale (WITT), 1888, A., 138.  
salts, stability of, alone and in presence  
of water (BERTHELOT), 1890, A.,  
1361.  
poisoning by (MÜLLER), 1887, A.,  
514; (FALKENBERG), 1891, A., 853.  
use of, in qualitative analysis (LAAR),  
1883, A., 239.  
estimation of (REVERDIN and DE LA  
HARPE), 1889, A., 1038.  
titration of (LUNGE), 1884, A., 776.  
titration of, using Congo-red (JULIUS),  
1887, A., 90.  
separation of *p*- and *o*-toluidine and  
(LEWY), 1884, A., 46.  
**Aniline** arsenious bromide (LANDAU),  
1889, A., 211.  
aurinate (DYSON), 1883, T., 472.  
borate (DITTE), 1888, A., 138.  
carbonyl chloroplatinite hydrochlor-  
ide (MYLIUS and FORNSTER), 1891,  
A., 1163.  
chlorate (DITTE), 1888, A., 138;  
(GIRARD and L'HÔTE), 1889, A.,  
497.  
*perchlorate* (GIRARD and L'HÔTE),  
1889, A., 497.  
chromates, dyes from (GRAWITZ),  
1888, A., 54.  
*dichromate* (GIRARD and L'HÔTE),  
1887, A., 927.  
**Aniline**, *dichromate*, heat of formation  
of (GIRARD and L'HÔTE), 1889, A.,  
562.  
*allicinnamate* (LIEBERMANN), 1891,  
A., 832.  
*isocinnamate* (LIEBERMANN), 1890,  
A., 1418.  
*citrate* (ANSCHÜTZ and REUTER;  
SHARFENBERG), 1890, A., 368.  
*ethylmalonate*, action of phosphorus  
pentachloride on (RÜGHEIMER and  
SCHRAMM), 1888, A., 502.  
*hydrochloride*, action of amidoazo-  
benzene on (WITT and THOMAS),  
1883, T., 112.  
action of, on fatty amines (ECKEN-  
ROTH and RÜCKEL), 1888, A., 942.  
testing (WILLIAMS), 1885, A., 446.  
*iodate* (DITTE), 1888, A., 138.  
*molybdate* (DITTE), 1888, A., 137.  
*β-naphthate* (DYSON), 1883, T., 469.  
*phenate* (DALE and SCHORFFMEYER),  
1883, T., 186; (DYSON), 1883, T.,  
466.  
*rhodizonate* (NIETZKI and SCHMIDT),  
1888, A., 944.  
*sebacate* (GEHRING), 1887, A., 822.  
*selenite* (HINSBERG), 1891, A., 393.  
*sulphate*, thermochemistry of (BER-  
THELOT), 1890, A., 1861.  
*hydrogen sulphate* (WELLINGTON and  
TOLLENS), 1886, A., 347.  
*sulphite* (BOESSNECK), 1888, A., 943.  
*hydrogen diaminechromium thio-*  
*cyanate* (CHRISTENSEN), 1892, A.,  
1000.  
*platiniothiocyanate* (GUARESCHI), 1892,  
A., 287.  
*tungstate and vanadate* (DITTE), 1888,  
A., 137.  
**Aniline**, *p*-brom-, nitration of (NÖLTING  
and COLLIN), 1884, A., 1013;  
(HAGER), 1886, A., 52.  
*hydrobromide* (STANDL), 1883, A.,  
578.  
*nitrate*, action of nitrous anhy-  
dride on (OLIVERI), 1885, A.,  
781.  
*diazotised*, action of methyl- and  
ethyl-*m*- and *p*-nitranilines, and  
of methyl-*p*-toluidine on (MET-  
DOLA and STREETFEILD), 1889,  
T., 419; P., 98.  
*2:6-di*brom- (HEINICHEN), 1890, A.,  
165.  
*2:4:6-tri*brom-, diazo-derivatives of  
(SILBERSTEIN), 1883, A., 660.  
*hydrobromide and hydrochloride*  
(GATTERMANN), 1883, A., 796.  
*3:5:6-tri*brom- (GATTERMANN), 1883,  
A., 796.

**Aniline**, *m*-bromo-*p*-nitro- (CLAUS and SCHEULEN), 1891, A., 565.  
*p*-bromo-*o*-nitro- (NOLTING and COLMAN), 1881, A., 1013.  
 3-5-*d*-bromo-1-nitro- (CLAUS and WEIL), 1892, A., 1205.  
*m*-chlor-, sulphonation of (CLAUS and BOPP), 1891, A., 1489.  
 hydrobromide (STAEDEL), 1883, A., 578.  
*p*-chlor-, sulphonation of (CLAUS and MANN), 1891, A., 1488.  
 diazotised, action of, on methyl-*p*-toluidine (MELDOLA and STREATFIELD), 1889, T., 426; P., 98.  
 2:4-*d*-chlor-, and 2:4:6-*tri*-chlor- (PIERSON and HEUMANN), 1883, A., 915.  
*tetrachlor*- (TUNT), 1888, A., 836.  
*p*-chloro-*m*-nitro- and its derivatives (CLAUS and STIEBEL), 1887, A., 810.  
 cyan-, and its derivatives (SENF), 1885, A., 1060; 1887, A., 928.  
*m*-fluor- (WALLACH), 1887, A., 131.  
*p*-fluor- (WALLACH), 1887, A., 131; (WALLACH and HEUSLER), 1888, A., 362.  
*o*-iod-, and 2:4-*d*-iod- (KORNER and WENDER), 1888, A., 1279.  
 nitro-derivatives (LEVINSTEIN), 1885, A., 1127.  
*o*- and *p*-nitro-derivatives, from the corresponding nitrophenols (MERZ and RITS), 1886, A., 872.  
*m*-, and *p*-nitro-derivatives, conversion of, into nitrobenzoic acids (SANDMEYER), 1885, A., 981.  
*o*-nitro-, preparation of (NIETZKI and BENCKISER), 1885, A., 535; (TURNER), 1892, A., 837.  
*m*-nitro-, action of ethylenic bromide on (GATTERMANN and HAGER), 1884, A., 1142.  
 hydrobromide (STAEDEL), 1883, A., 578; (STAEDEL and BAUER), 1886, A., 941.  
 hydrofluoride (ODDO), 1891, A., 554.  
*m*-nitro-, diazotised, action of, on methyl- and ethyl-*p*-bromanilines (MELDOLA and STREATFIELD), 1889, T., 425; P., 98.  
 action of, on monamines (MELDOLA), 1884, T., 112, 118.  
 action of, on *p*-nitraniline (MELDOLA and STREATFIELD), 1887, T., 102.  
*p*-nitro-, preparation of (MELDOLA), 1883, T., 427.  
 action of ethylic chlorocarbonate on (HAGER), 1885, A., 149.  
 hydrobromide (STAEDEL), 1883, A., 578.

**Aniline**, *p*-nitro-, diazotised, action of, on methyl- and ethyl-*p*-bromaniline (MELDOLA and STREATFIELD), 1889, T., 118; P., 98.  
 action of, on primary and secondary monamines (MELDOLA), 1883, T., 428, 110.  
 action of, on tertiary monamines (MELDOLA), 1884, T., 107.  
 2:3-, 3:4-, and 3:6-*d*-nitro- (WENDER), 1890, A., 885.  
 2:4-*d*-nitro- (BAER), 1888, A., 822.  
 action of potassium cyanide on (LEPPMANN and FLEISCHNER), 1886, A., 791.  
 3:5-*d*-nitro- (BADER), 1891, A., 1030.  
*trinitro*- (*picramide*), derivatives of (HEPP), 1883, A., 316.  
*m*-nitrocyan- (SENF), 1887, A., 929.  
*p*-nitroso- (FISCHER and ILPP), 1887, A., 1114; 1888, A., 460.  
 action of phenylhydrazine on (FISCHER and WACKER), 1888, A., 1286.  
 phenylmethylhydrazine of (FISCHER and WACKER), 1889, A., 702.  
 thionyl- (MICHAELIS and HERZ), 1891, A., 310.  
 thionylthio- (RUHL), 1892, A., 1326.  
**Anilinealloxan** (PELLIZZARI), 1888, A., 142.  
**Anilineazo- $\alpha$ -naphthol**, ethyl and methyl ethers of (WITT and SCHMIDT), 1892, A., 862.  
**Aniline-bases**, cryoscopic experiments with (GOLDSCHMIDT), 1891, A., 1211.  
**Aniline-black**, formation of (ZURCHER), 1885, A., 1276.  
 dyeing with, in the cold (RENARD), 1884, A., 942.  
 dyeing with, in the dry way (GRAWITZ), 1892, A., 323.  
**Aniline-blue**, theory of the formation of (ILIRSCH), 1889, A., 503.  
**Aniline-colours** (PETRIEFF), 1884, A., 1322.  
 fixation of, by means of metallic sulphides (ANON.), 1884, A., 539.  
**Aniline-*m*-disulphonic acid** (*disulph-anilic acid*) (JANOVSKY), 1883, A., 325; (FISCHER), 1892, A., 333.  
**Aniline-*m*-sulphonic acid**, 4-chlor- (CLAUS and MANN), 1891, A., 1488.  
 4-chlor- and 6-chlor- (FISCHER), 1892, A., 182.  
**Anilines**, compound, correspondence between the magnetic rotation and the refraction and dispersion of light by (GLADSTONE and PERKIN), 1889, T., 755.

- Aniline-*m*-sulphonamide**, and the action of nitrous acid on (HYBENETH), 1884, A., 72.
- Aniline-*o*-sulphonic acid**, 4-chlor- (CLAUS and BOPP), 1891, A., 1489.
- 5-chlor- (CLAUS and MANN), 1891, A., 1489.
- Aniline-*o*-sulphonic acid, *m*-nitr-** (FISCHER), 1892, A., 331.
- Aniline-*m*-sulphonic acid, *p*-chlor- and *p*-brom-**, constitution of (ARMSTRONG and BRINGS), 1892, P., 40.
- p*-nitr- and its derivatives (EGER), 1888, A., 1801; 1889, A., 708.
- Aniline-*p*-sulphonic acid (*sulphanilic acid*)**, action of carbamide on (VILLE), 1891, A., 1066.
- action of nascent nitrous acid on (DENINGER), 1890, A., 39.
- action of picric chloride on (TURPIN), 1891, T., 717.
- transformation of, into sulphanilic-carbamic acid in the animal economy (VILLE), 1892, A., 908.
- di*brom- (HEINICHEN), 1890, A., 165.
- o*-nitr- and its derivatives (NIETZKI and BENCKISER), 1885, A., 535; (NIETZKI and LERCH), 1889, A., 144; (LERCH), 1889, A., 880.
- m*-nitr- (FISCHER), 1892, A., 331.
- Anilinesulphonic acids**, oxidation of, by potassium permanganate (LIMPRIGHT), 1885, A., 984.
- Anilinetrisulphonic acid** (HARTSHORN and JACKSON), 1888, A., 1093; 1890, A., 1287.
- "Anilpropionic acid"** (ANSCHÜTZ), 1889, A., 707.
- " $\beta$ -Anilpropionic acid"** (REISSERT), 1888, A., 695.
- "Anilsuccinic acid"** (REISSERT), 1888, A., 695; (ANSCHÜTZ), 1888, A., 1092; 1889, A., 707.
- constitution of (REISSERT), 1888, A., 954.
- Aniluvitonic acid**. See 2-Methyl-quinoline-4-carboxylic acid.
- Anilylmelamine** (FRIEß), 1886, T., 743.
- Animal charcoal (*char*, *bone-black*)**, decolourising power of (LAUBE), 1887, A., 619.
- use of, in sugar refining (PELLET), 1885, A., 205.
- treatment of (DEGENER and LACH), 1885, A., 1170.
- estimation of lime in (GUYOT), 1886, A., 1075.
- estimation of iron in (DAVIDSON), 1888, A., 196; (TEIRNE), 1892, A., 1053.
- Animal chromatology** (MACMUNN), 1889, A., 1231.
- Animal dextran** (LIEBERMANN), 1888, A., 177.
- Animal gum** (LANDWEHR), 1887, A., 26; 1888, A., 175.
- in normal urine (WEDENSKI), 1889, A., 293.
- Animal heat** (BERTHELOT and PETIT), 1890, A., 206.
- Animal liquids**, absolute acidity of (BLAREZ), 1886, A., 1057.
- detection and estimation of ammonia in (LATSCHENBERGER), 1881, A., 1215.
- Animal matters**, spontaneous fermentation of (BÉCHAMP), 1883, A., 226.
- Animal oil**, bases from (LADENBURG and ROTH), 1887, A., 157.
- extraction of pyrroline from (CIAMICIAN and DENNSTEIT), 1887, A., 59.
- Animal organism**. See Organism.
- Animal-quinine** (MARINO-ZUCO), 1881, A., 342.
- Animals**, respiratory exchanges in (CHAPMAN and BRUBAKER), 1891, A., 592.
- exhalation of nitrogen during the respiration of (REISSET), 1883, A., 875.
- digestion of cellulose by grain-feeding (BROWN), 1892, T., 352; P., 30.
- influence of the consumption of water on the alimentation of (HENNEBERG), 1889, A., 287.
- hydrocyanic acid from (WEBER), 1884, A., 348.
- secretion of calcium carbonate by (IRVINE and WOODHEAD), 1889, A., 429; 1890, A., 653.
- idiosyncrasy of certain, with regard to phenol (ZWAARDENAKER), 1891, A., 762.
- starving, amount of iron in (ZALEWSKI), 1888, A., 977.
- starving and normal, the relation of water and solid constituents in the organs and tissues of (LUKJANOW), 1889, A., 632.
- results of the suppression of perspiration of (ELLENBERGER), 1883, A., 817.
- diseases of (ROLOFF), 1884, A., 95, 914.
- stony concretions in (SCHUBERT), 1881, A., 348.
- Animals, fresh-water**, influence of the salts of sea-water on, and the causes of the death of fresh-water animals in sea-water and of marine animals in fresh water (DE VARIENY; BEIT), 1881, A., 620; (PLATEAU), 1884, A., 621.

- Animals, herbivorous**, cellulose in the nutrition of (V. KNERIEM), 1888, A., 515.  
 composition of the ash of the entire, and of certain separate parts of some of the animals used as human food (LAWES and GILBERT), 1883, A., 1019.  
 destruction and utilisation of the bodies of, which have died from contagious diseases, especially from anthrax (GIRAUD), 1881, A., 106.
- Animals, marine**, influence of fresh-water on (PLATEAU), 1884, A., 621.
- Animal tar**, compounds from (WEIDEL and PICK), 1885, A., 556.
- Animal tissues**, attraction of, for sulphur (DE REY-PAILLADÉ), 1889, A., 633.  
 electrolysis in (STEWART), 1891, A., 597.  
 estimation of mercury in (LUDWIG and ZILLNER), 1891, A., 962.
- Anisaldehyde** (*o-methoxybenzaldehyde*), melting point of (PERKIN), 1889, T., 551.  
 condensation of, with *p*-nitrobenzyl cyanide (REMSER), 1891, A., 208.  
 condensation of, with succinic acid (FITTIG and POLITIS), 1890, A., 770.  
 reaction of albumin with (REICHL), 1890, A., 1350.  
*o*-chlor-, production of, from *p*-nitrotoluene (TIEMANN), 1891, A., 703.
- Anisaldehydephenylhydrazone** (RUDOLPH), 1889, A., 252.
- Anisaldoxime** (WESTENBERGER), 1884, A., 581; (GOLDSCHMIDT and POLONOWSKA), 1887, A., 1041.  
*o*-chlor- (TIEMANN), 1891, A., 701.
- o*-**Anisaldoxime** (GOLDSCHMIDT and ERNST), 1890, A., 1411.
- iso*-**Anisaldoxime** (GOLDSCHMIDT), 1890, A., 1261.
- Anisaldoximes**, isomeric (BECKMANN), 1890, A., 1122.
- Anisamide** (*methoxybenzamide*) (TAFEL and ENOCH), 1890, A., 491; (GATTERMANN and ROSSOLYMO), 1890, A., 975.  
 reduction of (HUTCHINSON), 1890, T., 957.
- Anise**, oil of. See Oil.
- Anisensylamidine** (TAFEL and ENOCH), 1890, A., 492.
- Anisensylamidoxime** (MILLER), 1890, A., 144; (HOCHHEIM), 1890, A., 1265.
- Anisensylamidoxime-ethylidene** (MILLER), 1890, A., 145.
- Anisensylazoximebenzenyl** (MILLER), 1890, A., 145.
- Anisensylazoximecarbonyl** (MILLER), 1890, A., 145.
- Anisensylazoximeethenyl** (MILLER), 1890, A., 145; (HOCHHEIM), 1890, A., 1265.
- Anisensylazoximepropenyl- $\omega$ -carboxylic acid** (MILLER), 1890, A., 145; (HOCHHEIM), 1890, A., 1265.
- Anisensylimidoximecarbonyl** (HOCHHEIM), 1890, A., 1265.
- Anisensyluramidoxime** (HOCHHEIM), 1890, A., 1265.
- Anisic acid** (*methoxybenzoic acid*), preparation of (V. MEYER), 1886, A., 352.  
 salts of (BORRELLA), 1886, A., 65.  
 brom- (SCHALL and DRALLE), 1885, A., 146.  
 derivatives of (BALBIANO), 1885, A., 530.  
*di*brom-, constitution of (BALBIANO), 1884, A., 1172.  
 chlor- [m.p. 214°] and iod- (SCHALL and DRALLE), 1885, A., 146.  
*o*-chlor- [m.p. 208°] (TIEMANN), 1891, A., 704.
- Anisic alcohol** (*p-methoxybenzyl alcohol*) (BIEDERMANN), 1887, A., 39.
- Anisic compounds**, melting points of (PERKIN), 1889, T., 549; P., 105.
- m*-**Anisidine** (PFAFF), 1883, A., 802.
- Anisidine**, *o*-, *m*-, and *p*- (KÖRNER and WENDER), 1888, A., 1280.  
*mono*- and *di*brom- *o*- and *p*-, and their salts (STAEDEL), 1883, A., 663.  
*dinitr*- (WENDER), 1890, A., 752.  
*p*-nitroso- (BEST), 1890, A., 608.  
 thio- (V. HOFMANN), 1887, A., 823.
- o*-**Anisidylmethylnitrosamine** (BEST), 1890, A., 607.
- Anisodus luridus*, alkaloids of (SCHÜTTE), 1892, A., 232.  
 constituents of (SIEBERT), 1890, A., 658.
- Anisoil** (*phenylmethyl oxide*), heat equivalent of (STORMANN, RODATZ, and HERZBERG), 1887, A., 428.  
 behaviour of, at a high temperature (BAMBERGER), 1886, A., 872.  
 chlorobenzenes from (HUGOUNENQ), 1890, A., 365.  
 ketones' from (GATTERMANN, EHRHARDT, and MAISCH), 1890, A., 963.  
 sulphonic acid derived from (MOODY), 1892, P., 90.
- Anisoil**, *m*-amido-. See Anisidine.
- m-p*-**di**amido-, hydrochloride (HÄULE), 1891, A., 431.

- Anisoil**, *tetramido-* (NITZKI and KURTENACKER), 1892, A., 596.  
*bromonitr-* (SRADEL), 1883, A., 662.  
*chloro-*derivatives of (HUGOUNENQ), 1887, A., 923; 1890, A., 240.  
*chloronitro-*derivatives of (HUGOUNENQ), 1890, A., 240.  
*nitr-*, derivatives of, preparation of (WILLERODT and FERKO), 1886, A., 345.  
*p-nitr-*, reduction of (GATTERMANN and RITSCHKE), 1890, A., 1120.  
*ε-dinitr-* (WENDER), 1890, A., 752.  
*nitro/amido-* (NITZKI and KURTENACKER), 1892, A., 596.
- Anisoilisatin** (v. BAAYER and LAZARUS), 1886, A., 155.
- Anisolphthaloylic acid** (NOURRISSON), 1886, A., 1029.
- Anisolsulphonic acid** (HAFFINGER), 1883, A., 990.
- Anisonitrile** (*methoxybenzonitrile*) (HUCHHEIM), 1890, A., 1265; (GARELLI), 1891, A., 712.
- Anisotropic structures**, difference between crystalline and (v. EBNER), 1885, A., 631.
- Anisoylcotaine** (LIEBERMANN), 1889, A., 419.
- Anisoyldiacetonamine** (ANTRICK), 1885, A., 503.
- Anisoyldichlorhydrin** (FRITSCH), 1891, A., 708.
- Anisoylcegonine** (LIEBERMANN), 1889, A., 419.
- Anisoyl-oxime and -dioxime** (STIERLIN), 1889, A., 512.
- Anisyl-disulphide** (*dimethoxydibenzyl-disulphide*) and -mercaptan (BAUMANN and FROMM), 1891, A., 1051.
- p-Anisyl pentadecyl ketone** (KRAFFT), 1888, A., 1087.
- o-Anisylacetamide** (*methoxybenzylacetamide*) (GOLDSCHMIDT and ERNST), 1890, A., 1411.
- o-Anisylamine** [b.p. 224° at 724 m.m.] (GOLDSCHMIDT and ERNST), 1890, A., 1411.
- Anisylamine** [b.p. 234°] and its derivatives (GOLDSCHMIDT and POLONOWSKA), 1887, A., 1041.
- Anisylamines** (STEINHART), 1888, A., 51.
- Anisylaniline** (STEINHART), 1888, A., 51.
- Anisylarsenic acid and anhydride** (MICHAELIS and WEITZ), 1887, A., 367.
- Anisylarsine di- and tetra-chloride and oxide** (MICHAELIS and WEITZ), 1887, A., 367.
- Anisyl-γ-butyrolactone and anisyl-β-bromo-γ-butyrolactone** (FITTIG and POLITIS), 1890, A., 771.
- o-Anisylcarbamide** (*methoxybenzylcarbamide*) (GOLDSCHMIDT and POLONOWSKA), 1887, A., 1041; (GOLDSCHMIDT and ERNST), 1890, A., 1411.
- Anisylisocrotonic acid** (*methoxyphenylisocrotonic acid*) (FITTIG), 1890, A., 584; (FITTIG and POLITIS), 1890, A., 770.
- Anisylidimethyl-p-phenylenediamine** (STEINHART), 1888, A., 52.
- Anisylhydro-p-toluidide** (STEINHART), 1888, A., 51.
- Anisylidene**. See *o-Methoxybenzylidene*.
- Anisylmethylnitrosamine**, *p-nitr-* (BEST), 1890, A., 608.
- Anisyl-β-naphthylamine** (STEINHART), 1888, A., 52.
- Anisylthiocarbamide** (*methoxyphenylthiocarbamide*) (v. HOFMANN), 1887, A., 824; (GOLDSCHMIDT and POLONOWSKA), 1887, A., 1041.
- Anisylthiocarbimide and its thio- and dithio-**derivatives (v. HOFMANN), 1887, A., 823.
- Anisyl-p-toluidide** (STEINHART), 1888, A., 51.
- Anisyltrimethyleneimidothiocarbamate** (FOERSTER), 1888, A., 947.
- Ankerite** from the coal measures (WEISS), 1886, A., 775.
- Annerödite** from the pegmatite vein at Moss (BRÜGGER), 1886, A., 27.
- Anniversary Dinner** (first), 1890, P., 46. (second), 1892, P., 49, 66.
- Annual General Meeting**, 1883, T., 224; 1884, T., 209; 1885, T., 300; P., 43; 1886, T., 329; P., 179; 1887, T., 452; P., 47; 1888, T., 479; P., 41; 1889, T., 250; P., 55; 1890, T., 428; P., 41; 1891, T., 434; P., 53; 1892, T., 474; P., 59.
- Anodonța**, examination of the organs of Bojanus in (GRIFFITHS and FOLLOWS), 1885, A., 921.
- Anodoncygnea**, blood of (GRIFFITHS), 1892, A., 648.
- Anorthite** (v. CHURTSCHOFF), 1890, A., 19.  
 formation of (C. and G. FRIEDEL), 1890, A., 1080.  
 synthesis of (MEUNIER), 1885, A., 960.  
 from the basalt of Iceland (BRÜSON), 1886, A., 602.  
 from Miyakejima, Japan (KIKUCHI), 1890, A., 718.  
 from St. Clément (GONNARD), 1884, A., 411; (LACROIX), 1888, A., 432.  
 from St. Thomas (v. SIEMIANOWSKI), 1886, A., 993.  
 See also Felspar.

- "Anoxygenhæmia" (ZWEIFEL), 1883, A., 939.
- Ant oil**, composition of (SCHALI), 1892, A., 918.
- Anthemene** (*octadecylene*), a hydrocarbon from Roman chamomile (NAUDIN), 1885, A., 37.
- Anthochroite**, identity of violan and (IGELSTRÖM), 1891, A., 407.  
from Piedmont (SCHLUTTIG), 1887, A., 784.  
from Sweden (IGELSTRÖM), 1890, A., 114.
- Anthophyllite** after olivine (BECKE), 1883, A., 444.  
alteration of talc into (GENTH), 1884, A., 272.  
from Franklin, North Carolina (PENFIELD), 1891, A., 529.  
from the Lizard (TEALL), 1891, A., 276.
- Anthracene** (ELBS), 1890, A., 511.  
from tetrachlorophthalic acid (KIRCHER), 1884, A., 1039.  
from petroleum residues (ANON.), 1883, A., 534.  
from water-gas tar (ELLIOT), 1885, A., 549.  
formation of (HENZOLD), 1883, A., 1137.  
remarkable formation of (KÜHLER), 1885, A., 806.  
conversion of cinnamene derivatives of aromatic hydrocarbons into (KRAEMER, SPILKER, and EDEHART), 1891, A., 207.  
new synthesis of (ANSCHÜTZ and EITZBACHEL), 1883, A., 809.  
formula of (v. MEYER), 1884, A., 1186; (ARMSTRONG), 1890, P., 102.  
boiling-point of (SCHWEITZER), 1891, A., 1240.  
heats of combustion and formation of (STOHMANN, KLEBER, and LANGBEIN), 1889, A., 1042.  
molecular volume of (GROSHANS), 1889, A., 336.  
action of nitric acid on (PERKIN), 1889, P., 13; 1891, T., 634; (PERKIN and MACKENZIE), 1892, T., 865; P., 144.  
reduction of (BAMBERGER and KITSCHULT), 1890, A., 1146.  
benzylic, isobutylic, and propylic nitrates (PERKIN and MACKENZIE), 1892, T., 867, 871.  
methyl and ethylic nitrates (PERKIN), 1891, T., 643.  
homologues (ELBS), 1890, A., 511.  
hydrides. See Dihydro-, Octahydro-, Decahydro-, and Tetradecahydro-anthracenes.
- Anthracene**, amido-. See Anthramine.
- di*amido- (PERKIN), 1889, P., 13.  
bromo-derivatives of (HAMMERSCHLAG), 1886, A., 717.  
*di*- and *tetra*-chlor- (HAMMERSCHLAG), 1886, A., 717; (KIRCHER), 1887, A., 831.  
*mono*- and *di*-nitro- (PERKIN), 1889, P., 13.  
**Paranthracene** (ELBS), 1892, A., 347.
- Anthracene- $\gamma$ -carboxylic acid** from methylantraquinone and its derivatives (BORNSTEIN), 1884, A., 329.  
chlor- and brom- (BEHLA), 1886, A., 248; 1887, A., 594.
- Anthracene- $\gamma$ -carboxylic acid** *mono*- and *di*-sulphonic acids (BEHLA), 1887, A., 594.
- Anthracene-1:4-dicarboxylic acid** (ELBS), 1890, A., 512.
- Anthracene-1:3- and -2:3-dicarboxylic acids** (ELBS and BURCH), 1887, A., 841.
- Anthracene-1:2:4-tricarboxylic acid** (ELBS), 1890, A., 512.
- Anthrachryson** (NOAH), 1886, A., 556.
- Anthracite** from Chili, New Granada, and Brazil, analysis of (BOUSSINGAULT), 1883, A., 941.
- Anthracoumarin** (v. KOSTANECKI), 1888, A., 291.
- Anthracoumarins**, synthesis of, from cinnamic and *m*-hydroxybenzoic acids (v. KOSTANECKI), 1888, A., 291.
- Anthracylpiperidine**, tertiary (LELLMANN and BÜTTNER), 1890, A., 1003.
- Anthraflavanthranol** (LIEBERMANN), 1888, A., 493.
- Anthragalanthranol** (LIEBERMANN), 1888, A., 493.
- Anthragallol**, action of ammonia on, and its amide and nitro-derivatives of (v. GEORGIEVICS), 1886, A., 69.
- Anthragallosulphonic acid** (v. GEORGIEVICS), 1886, A., 69.
- Anthramine**, derivatives of (BOLLERT), 1883, A., 1139.
- meso*-**Anthramine** and its hydride (GOLDMANN), 1890, A., 1426.
- Anthranil** (FRIEDLÄNDER and HENRIQUES), 1883, A., 188.  
constitution of (FRIEDLÄNDER), 1883, A., 332; (FRIEDLÄNDER and WLEÜGEL), 1884, A., 61.
- Anthranilamide**, chlor- (DORSCH), 1886, A., 360.  
*di*chlor- (FRANKE), 1892, A., 335.
- Anthranilamidide**, amido- (v. MEYER and BELLMANN), 1886, A., 358.
- Anthranilcarboxylic acid**. See Isatoic acid.

- Anthranilhydroxylamide** (v. MEYER and BELLMANN), 1886, A., 358.
- Anthranilic acid** (*o*-amidobenzoic acid) (FRIEDLÄNDER and HENRIQUES), 1883, A., 188; (HOOGEWERFF and VAN DORP), 1891, A., 1217.  
preparation of (KOLBE), 1885, A., 159.  
chloro- and bromo-derivatives of (DORSCH), 1886, A., 359.  
nitro-, bromine derivatives of (DORSCH), 1886, A., 359.
- Anthranol** (GOLDMANN), 1888, A., 714.  
preparation of (LIEBERMANN and GIMBEL), 1887, A., 965.  
derivatives (GOLDMANN; HALLGARTEN), 1888, A., 1202.  
propyl derivatives of (HALLGARTEN), 1889, A., 894.  
brom- (GOLDMANN), 1887, A., 1049.
- Anthranol- $\alpha$ -carboxylic acid** (GRAEBE and JULLARD), 1888, A., 156.
- Anthrapinacone** (SCHULZE), 1886, A., 248.
- Anthrapurpuranthranol** (LIEBERMANN), 1888, A., 493.
- Anthrapurpurin**, conversion of anthraquinone- $\beta$ -disulphonic acid into (SCHMIDT), 1891, A., 934.
- Anthrapurpurin diethyl ether** (LIEBERMANN and JELINEK), 1888, A., 717.
- Anthraquinoline**, synthesis of (GRAEBE), 1884, A., 759; (PANAJOTIĆ), 1884, A., 1039.
- Anthraquinone**, formation of, from *o*-benzoylbenzoic acid (PERKIN), 1891, T., 1012.  
formation of, under certain conditions (FRIEDBURG), 1890, A., 1425.  
chemical constitution of (v. MEYER), 1884, A., 1186.  
*o*-quinone derived from (A. G. and W. H. PERKIN), 1885, T., 684; (RICHARDSON), 1888, A., 1308.  
*di*chromide and *dichloride* (GOLDMANN), 1887, A., 1049; 1888, A., 714.  
derivatives of (A. G. and W. H. PERKIN), 1885, T., 679; P., 97; 1888, T., 831.  
preparation of (ENGELSING), 1884, A., 945.  
homologues of (ELBS), 1890, A., 511.  
synthesis of (ELBS), 1886, A., 557.
- Anthraquinone**, amido- (ROEMER), 1883, A., 71.  
*di*amido- (ROEMER), 1883, A., 737.  
*m*-chlor- (GRAEBE and IRÉN), 1886, T., 531; P., 212.  
*dichlor*- (HAMMERSCHLAG), 1886, A., 717.  
*tetrachlor*- (KIRCHER), 1884, A., 1039; (HANTZSCH and ZÜRCHER), 1887, A., 831.
- Anthraquinone**, *octochlor*- (HANTZSCH and ZÜRCHER), 1887, A., 831.  
nitro- (ROEMER), 1883, A., 71.  
action of concentrated sulphuric acid on (LIEBSCHUTZ), 1881, A., 1187.  
*di*nitro- (ROEMER), 1883, A., 737.  
action of concentrated sulphuric acid on (LIEBERMANN and HAGEN), 1883, A., 72; (LIEBERMANN), 1883, A., 597.
- Anthraquinonecarboxylic acid** and its derivatives (LIEBERMANN and GLOCK), 1884, A., 1188.
- Anthraquinone-1:3-dicarboxylic acid** (ELBS and GUNTHER), 1887, A., 841.
- Anthraquinone-1:4-dicarboxylic acid** (ELBS), 1890, A., 512.
- Anthraquinone-2:3-dicarboxylic acid** (ELBS and EHRICH), 1887, A., 811.
- Anthraquinonedisulphonic acid** and sodium nitrite, dye from (WALDER), 1888, A., 961.  
*tetrachlor*- (KIRCHER), 1887, A., 831.
- Anthraquinonedisulphonic acids**,  $\alpha$ - and  $\beta$ -, conversion of, into flavopurpurin and anthrapurpurin (SCHMIDT), 1891, A., 934.
- Anthraquinone-dyes** (SCHMIDT; GATTERMANN), 1891, A., 935.  
leuco-compounds from (LIEBERMANN), 1888, A., 492, 717.
- Anthraquinoneoxime** (GOLDSCHMIDT), 1884, A., 62.
- Anthraquinonesulphonic acid**, products obtained in the dry distillation of the sodium salt of (A. G. and W. H. PERKIN), 1885, T., 679; 1888, T., 831.  
 $\alpha$ -nitro- and its derivatives (CLAUS), 1884, A., 1040.  
action of strong sulphuric acid on, and the constitution of the latter (LIEBSCHUTZ), 1881, A., 1189.
- Anthraquinone-1:2:4-tricarboxylic acid** (ELBS), 1890, A., 512.
- Anthrarobin**, physiological action of (WEYL), 1889, A., 539.
- Anthrarobins** (LIEBERMANN), 1888, A., 518.
- Anthrarufin**, method of preparing (ROEMER), 1883, A., 737.
- Anthrax**. See *Bacillus*.
- Anthrax-cultures**, albumose isolated from (HANKIN), 1889, A., 1231.
- Anthraxprotein** (NENCKI), 1885, A., 178.
- Anthrol salts**, derivatives of (LIEBERMANN and HAGEN), 1883, A., 73.
- Anthrols**, nitro- (PERKIN and MACKENZIE), 1892, T., 869.

- Anthrone**, nitr- (PERKIN and MAC-KENZIE), 1892, T., 865, 868.  
 nitronitroso- (PERKIN), 1891, T., 639.  
 nitroso- (GIMBEL), 1887, A., 675.  
 action of nitric acid on (PERKIN), 1891, T., 641.  
 $\psi$ -nitroso- (PERKIN), 1891, T., 645.  
**Anthroxane, anthroxanaldehyde, and anthroxanic acid** (SCHILLINGER and WLEUGEL), 1884, A., 60.  
*Anthyllis Vulneraria*, composition of (NILSON), 1892, A., 522.  
**Antialbumid** (KUHN and CHITTENDEN), 1884, A., 849; (NEUMEISTER), 1887, A., 285.  
 "Antibacteride," preparation of (ASCHMANN), 1884, A., 782.  
**Antifebrin** (*acetanilide, phenylacetamide*), detection of (VITALI), 1888, A., 1136; (LINDO), 1888, A., 1350.  
 detection of, in phenacetin (SCHRÖDER), 1889, A., 660.  
 influence of, on digestion (CHITTENDEN and STEWART), 1889, A., 533.  
 See also Acetanilide.  
**Anti-incrustators**, secret (BELLMEYER), 1884, A., 1087.  
**Antimonic acid**. See Antimony oxides.  
**Antimonite**. See Stibnite.  
**Antimonous chloride**. See Antimony trichloride.  
 oxide. See Antimony oxides.  
 sulphide. See Antimony trisulphide.  
**Antimony** known to the ancients (BERTHELOT), 1887, A., 443.  
 amorphous (HÉRAND), 1888, A., 1256.  
 native, from Queensland (MACIVOR), 1888, A., 560.  
 native, from New Brunswick (KUNZ), 1886, A., 311.  
 atomic weight of (BONGARTZ), 1883, A., 1056; (POPPER), 1886, A., 856.  
 molecular weight of (RAMSAY), 1889, T., 532, 533.  
 electrolytic extraction of (BORCHERS), 1888, A., 230.  
 recovering and refining (HELM-HACKER), 1881, A., 516.  
 electric resistance of, in a magnetic field, variations in (FAE), 1887, A., 760.  
 specific heat of (v. PEBAL and JAHN), 1886, A., 655; (NACCARI), 1888, A., 1236.  
 volatility of (MEYER), 1887, A., 415.  
 vapour density of, at a white heat (MENSCHING and MEYER), 1887, A., 415; (BILTZ and MEYER), 1889, A., 673.  
 action of chlorine on (COWPER), 1883, T., 154.  
**Antimony**, action of nitric acid on (MONTEMARTINI), 1892, A., 1402.  
 action of nitrosyl chloride on (SUD-BOROUGH), 1891, T., 661.  
 evidence of the occurrence of a new element in (GRUNWALD), 1890, A., 434.  
 influence of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 387.  
 lowering of the freezing-point of metals by (HEYCOCK and NEVILLE), 1892, T., 896.  
 distribution of, in the organs and tissues (CHITTENDEN and BLAKE), 1888, A., 81.  
 influence of, on the glycogenic function and fatty degeneration of the liver (CHITTENDEN and BLAKE), 1889, A., 537.  
**Antimony alloys** with copper (BALL), 1888, T., 167; P., 136.  
 with copper, electric conductivity and other properties of (KAMENSKY), 1885, A., 323.  
 with sodium (JOANNIS), 1892, A., 773.  
 See also Type-metal.  
**Antimony compounds, inorganic, specific heat of** (v. PEBAL and JAHN), 1886, A., 655.  
 bromide, heat of formation of (GUNTZ), 1885, A., 1101.  
 chlorides, heat of formation of (THOMSEN), 1883, A., 544; (GUNTZ), 1884, A., 707, 1246.  
 hydrochlorides of (ENGEL), 1888, A., 1042.  
 trichloride, sublimation of (HENSEN), 1891, A., 1160.  
 equilibrium in the reaction of hydrogen sulphide on a solution of (LANG), 1886, A., 20.  
 solution of, in saturated solutions of sodium chloride (CAUSSE), 1892, A., 413.  
 action of sodium thiosulphate on (VORTMANN), 1889, A., 1109.  
 pentachloride (ANSCHUTZ and EVANS), 1886, T., 708; P., 229.  
 vapour density of (ANSCHUTZ and EVANS), 1890, A., 16.  
 action of water and oxalic acid on (ANSCHUTZ and EVANS), 1888, A., 424.  
 compounds of, with nitric oxide and nitric peroxide (BENSON), 1889, A., 834.  
 caesium and rubidium chlorides (SAUNDERS), 1892, A., 788.  
 potassium chlorobromide (ATKINSON), 1883, T., 239.

- Antimony**, potassium chlorobromide, crystallographic examination of the crystals of (SOLLY), 1883, T., 293.  
 oxychloride, heat of formation of (GUNTZ), 1884, A., 707, 1216.  
 fluoride, thermochemistry of (GUNTZ), 1884, A., 884.  
 double (STEIN), 1890, A., 216.  
 iodide, heat of formation of (GUNTZ), 1885, A., 1101.  
 pentaiodide (PENDLETON), 1884, A., 19.  
 halogen salts, double (SAUNDERS), 1892, A., 788.  
 hydride (*hydrogen antimonide*) (BRUNN), 1890, A., 209.  
 heat of formation of (BERTHELOT and PERIT), 1889, A., 666.  
 liquefaction and solidification of (OLSZYŃSKI), 1886, A., 977.  
 action of iodine on (BRUNN), 1888, A., 1224.  
 molybdates (GIBBS), 1886, A., 427, 511.  
 oxides, heat of formation of (THOMSEN), 1883, A., 544.  
 antimonous oxide, isodimorphism of (RINDAL), 1886, A., 503.  
 prismatic, transformation of, into the octahedral oxide (GUNTZ), 1884, A., 894.  
 hydrate of, dehydration of, by heat (CARLLELEY and WALKER), 1888, T., 72, 86.  
 See also Senarmontite.  
 antimony pentoxide (KÜHLER), 1886, A., 428.  
 colour reactions of (LEVY), 1887, A., 305.  
 phosphorescence of (CROOKES), 1887, A., 1067.  
 action of, on potassium chlorate (FOWLER and GRANT), 1890, T., 275; P., 20.  
 antimonie acid (KÜHLER), 1886, A., 428.  
 basicity of (BEHSTEIN and v. BLASE), 1889, A., 1123.  
 potassium and sodium salts of (v. KNORRE and OLSCHESKY), 1885, A., 1181.  
 thio-derivatives of (FEIT and KUBIERSCHKY), 1888, A., 789.  
 antimonates (v. KNORRE and OLSCHESKY), 1888, A., 231; (EBER), 1890, A., 216.  
 Swedish (GUSTAFSON) 1889 A., 218.  
 sulphates (HENSEN), 1886, A., 513; (ADIE), 1890, T., 3510; P., 5.  
 sulphides, action of hydrogen peroxide on (RASCHIG), 1886, A., 20.
- Antimony** sulphides, precipitated, composition of (ANTONY and LUCHEST), 1890, A., 1217.  
 disulphide (DITTE), 1886 A., 429; (BERTHELOT), 1886, A., 512.  
 equilibrium in the reaction of hydrochloric acid on (LANG), 1886, A., 20.  
 colloidal solutions of (PICTON), 1892, T., 142.  
 in aqueous solution (SCHULZE), 1883, A., 784.  
 decomposition of, by hydrochloric acid (BERTHELOT), 1886, A., 308.  
 decomposition of, by boiling water (EBER), 1889, A., 108.  
 action of potassium sulphide on (DITTE), 1886, A., 309.  
 detection of stannic sulphide in presence of (GRIFFITH), 1887, A., 183.  
 See also Stibnite.  
 pentasulphide (WILM), 1891, A., 1132.  
 potassium sulphide (DITTE), 1886, A., 429.  
 hydrosulphide (LINDER and PICTON), 1892, T., 133.  
 thiophosphate (GLATZEL), 1892, A., 413.  
 tungstates (GIBBS), 1886, A., 511.  
 stibiographic acid (BARTOLI and PAPAIOGLI), 1883, A., 592.  
 antimonoso-tungstates (GIBBS), 1886, A., 497.
- Antimony compounds, aromatic** (MICHAELIS and REESE), 1883, A., 327; 1886, A., 884.  
 stibiomellogen (BARTOLI and PAPAIOGLI), 1883, A., 591.
- Antimony detection, estimation, and separation:—**  
 detection of (RIDGAL), 1885, A., 1013; (THIEL), 1890, A., 1193.  
 detection of, electrolytic (KOHN), 1892, A., 541.  
 detection of, microchemical (v. HAUSHOFER), 1887, A., 300.  
 detection of, in corpses (SHYDA), 1891, A., 120.  
 detection of, in minerals (JOHNSTONE), 1889, A., 414.  
 detection of arsenic and (DENIGS), 1891, A., 364.  
 detection of arsenic, tin, and (PIESZCZEK), 1892, A., 918.  
 precipitation of, from solutions of tatar emetic (LONG and SAUTER), 1891, A., 1139.  
 estimation of (DOUGHERTY), 1885, A., 297; (MUCK), 1888, A., 197; (LESSER), 1888, A., 751; (LOVITON), 1888, A., 992; (BEILSTEIN and

**Antimony detection, estimation, and separation:—**

- v. BRÄSE, 1890, A., 830; (THIELE), 1890, A., 1193, 1295; (GOOCH and GRUENNER), 1892, A., 212.  
 estimation of, electrolytic (GLASSUN), 1885, A., 191; (CLASSEN and LUDWIG), 1886, A., 493; (BRAND), 1890, A., 294; (LECRENIER), 1890, A., 421.  
 estimation of, volumetric (v. KNORR), 1889, A., 312; (JOLLES), 1889, A., 311, 444.  
 estimation of compounds of (QUINCKE), 1892, A., 526.  
 estimation of, by Marsh's method (BIJLERT), 1891, A., 115.  
 estimation of, by Weil's method (ANON.), 1883, A., 509.  
 estimation of, electrolytic, as amalgam (VORTMANN), 1891, A., 1554.  
 estimation of traces of, in copper (JUNGFER), 1888, A., 324.  
 estimation of, in corpses (SEYDA), 1891, A., 120.  
 estimation of, in organic compounds (MESSINGER), 1889, A., 81.  
 estimation of, in siliceous slags and alloys (WARREN), 1888, A., 632.  
 estimation of, in tartar emetic (DUNSTAN and BOOLE), 1889, A., 445; (LONG and SAUER), 1891, A., 1139.  
 estimation of, volumetric, in presence of tin (GIRAUD), 1887, A., 400.  
 separation of (THIELE), 1891, A., 1295.  
 separation of, from arsenic (ZAMBELLI and LUZZATO), 1887, A., 78; (KÖHLER), 1889, A., 926; (WILM), 1891, A., 1433; (GOOCH and DANNER), 1892, A., 541.  
 separation of, from arsenic and tin (CARNOT), 1886, A., 1078; (LESSER), 1888, A., 751; (CLARK), 1892, T., 424; P., 68.  
 separation, electrolytic, of arsenic and tin from (CLASSEN and LUDWIG), 1885, A., 932.  
 separation, qualitative, of arsenic and tin from (BERGLUND), 1884, A., 777; 1885, A., 839.  
 separation of, from arsenic, tin, and gold and platinum (DE KONINCK and LECRENIER), 1888, A., 1344.  
 separation of, from tin (CARNOT), 1886, A., 1077; (WARREN), 1888, A., 632; 1891, A., 366; (LOVITON), 1888, A., 992; (CLASSEN and SCHELLE), 1889, A., 77.

**Antimony minerals, assay of (CARNOT), 1892, A., 918.****Antipeptone (KÜHNE and CHITTENDEN), 1884, A., 849; 1886, A., 820.****Antipyretics, physiological action of (RICHTER), 1891, A., 602.****Antipyrin (KNORR), 1881, A., 1378; 1887, A., 601.**

- action of sodium and carbonic anhydride on (BRUHL), 1892, A., 110.  
 influence of, on digestion (CHITTENDEN and STEWART), 1889, A., 533.  
 test for (LINDO), 1888, A., 1350; (STARK), 1890, A., 309.  
 derivatives of (KNORR), 1887, A., 603.  
*p*-alkyloxy-derivatives of (ALTSCHUL), 1892, A., 1080.  
 nitro- (KNORR), 1884, A., 1378; (JANDRIER), 1892, A., 730.  
 oxime of (KNORR), 1884, A., 1378.  
 See also Phenylidimethylpyrazolone.

**"Antipyrin alcohol" (KNORR and TAUFKIRCH), 1892, A., 708; (BRUHL), 1892, A., 730, 1106; (LEDERER), 1892, A., 965.****isoAntipyrin (LEDERER), 1892, A., 635.****Antisepsis, scientific basis of (ZWEIFEL), 1883, A., 937.****Antiseptic power, relation of, to chemical constitution (DUGGAN), 1885, A., 1016.****Antiseptic or antiseptics (MAYER), 1883, A., 249; (RATIMOFF), 1885, A., 612.  
 preparation of an (ASCHMANN), 1884, A., 782.****properties of (LE BON), 1884, A., 225.  
 action of (MIQUEL), 1884, A., 1220.****action of, on higher organisms (MAIRET, PILATTE, and COMBEMALE), 1885, A., 1085, 1253.****nseptol as an (SERREANT), 1885, A., 1166.  
 mercuric zinc cyanide as an (DUNSTAN), 1892, T., 666; P., 53.****methylene fluoride as an (CHARBIE), 1891, A., 353.** **$\alpha$ -naphthol as an (MAXIMOVITCH), 1888, A., 621, 978.** **$\beta$ -naphthol as an (BOUCHARD), 1888, A., 183.****isomeric organic substances as (CARNELLEY and FREW), 1890, T., 636.  
 phloroglucinol as an (ANDEER), 1885, A., 454.****sodium benzenesulphinate as an (HECKEL), 1888, A., 182.****sodium fluoride as an (HEWELKE), 1891, A., 237.****Antlerite (HILLEBRAND), 1891, A., 1435.****Apatite (GONNARD; WEISBACH), 1883, A., 432.****chemical composition of (VOELCKER), 1881, A., 162; (WEIBULL), 1887, A., 781.****effect of heat on the optical properties of (DOELTER), 1885, A., 26.**

- Apatite**, manganese in (v. SANDBERGER), 1885, A., 610.  
 from Amelia Co., Virginia (ROWAN), 1885, A., 126.  
 from Ciply, Belgium (KLEMENT), 1891, A., 528.  
 from Horrsjöberg, Sweden (IGELSTRÖM), 1884, A., 269.  
 from the granite of Kynpusan Mountain, Kai, Japan (WADA), 1885, A., 221.  
 from Logrozan, Spain (VIVIER), 1885, A., 30.  
 from the pegmatite of Lyons (GONNARD), 1883, A., 432.  
 from Pisek (VRBA), 1889, A., 837.  
 from Turkestan (v. JEREMÉEFF; NIKOLAEFF), 1886, A., 600.  
 from Yonkers, New York (KUNZ), 1889, A., 24.  
 See also Calcium phosphate.
- Apatite**, brom-, and iod- (DITTE), 1883, A., 648, 783.
- Apatite group**, synthesis of minerals of (WEINSCHENK), 1890, A., 709.
- Aphrosiderite**, from Königshain, Oberlausitz (WOITSCHACH), 1883, A., 446.
- Apiolaldehyde** (CIAMICIAN and SILBER), 1888, A., 847, 1100.
- Apiole** (CIAMICIAN and SILBER), 1888, A., 606, 847, 1100; 1889, A., 407; 1890, A., 35; (GINSBERG), 1890, A., 518.  
 constitution of (CIAMICIAN and SILBER), 1890, A., 1294.  
 molecular weight of (PATERNO and NASINI), 1890, A., 725.  
 derivatives of (GINSBERG), 1888, A., 722, 1206.  
*tribrom-* (GINSBERG), 1888, A., 1206.
- isoApiole** (CIAMICIAN and SILBER), 1888, A., 847.  
 molecular weight of (PATERNO and NASINI), 1890, A., 725.  
 derivatives of (BARTOLUCCI), 1892, A., 1315.  
 bromine derivatives of (CIAMICIAN and SILBER), 1890, A., 1294.  
*tribrom-* (GINSBERG), 1888, A., 1206.  
 nitrosite (ANGELI), 1892, A., 447.
- Apiolic acid** (CIAMICIAN and SILBER), 1888, A., 847, 1100.
- Apione** (CIAMICIAN and SILBER), 1888, A., 818.  
 constitution of (CIAMICIAN and SILBER), 1890, A., 1295.  
 reduction of (CIAMICIAN and SILBER), 1891, A., 1500.  
*diamido-* (CIAMICIAN and SILBER), 1890, A., 1295.
- Apione**, *di*brom- (CIAMICIAN and SILBER), 1888, A., 1100.  
*dimitr-* (CIAMICIAN and SILBER), 1890, A., 1295.
- Apioneacrylic acid** (CIAMICIAN and SILBER), 1889, A., 407; 1890, A., 36.
- Apionecrotonic acid** (CIAMICIAN and SILBER), 1890, A., 36.
- Apioneketonic acid** (CIAMICIAN and SILBER), 1890, A., 1294.
- Apionitrile** (GAIRELLI), 1891, A., 712.
- Apionol** (1:2:3:4-*tetrahydroxybenzene*) (CIAMICIAN and SILBER), 1890, A., 35.  
 constitution of (CIAMICIAN and SILBER), 1890, A., 1295.
- Apionylglyoxylic acid** (CIAMICIAN and SILBER), 1890, A., 1294.  
 hydrazone of (GAIRELLI), 1891, A., 711.
- Apionylloximidacetic acid** (GAIRELLI), 1892, A., 328.
- Aplysiae**, blood of the (CUÉNOT), 1890, A., 810.  
 pigments of the (SAINT-LOUP), 1891, A., 96.
- Apo-compounds, organic**. See under word to which apo- is prefixed.
- Apocynin** and **apocynin** (SCHMIEDEBERG), 1883, A., 1142.
- Apocynum cannabinum**, active principle of the root of (SCHMIEDEBERG), 1883, A., 1141.
- Aponic acid** (GINSBERG), 1890, A., 518.
- Apophyllite** (SADLER), 1883, A., 411; (CROSS and HILLEBRAND), 1883, A., 957.  
 from Colorado (CROSS and HILLEBRAND), 1883, A., 165.  
 from Lancaster Co., Pa. (SMITH), 1885, A., 960.  
 from the French Creek mines and from the United States (EYERMAN), 1890, A., 113.  
 from Wernland (IGELSTRÖM), 1886, A., 28.
- Aposepine** (NIEMIŁOWICZ), 1886, A., 933.
- Apple tree leaves**, analyses of (SHUTT), 1892, A., 1372.
- Apple-must**, examination of, and of the cider obtained therefrom (KAYSER), 1884, A., 98.
- Apples**, cider, analysis of some (LEZÉ), 1881, A., 203.
- Apricot oil** (MABIN), 1886, A., 611.
- Aqueous humour** (GRUENHAGEN), 1889, A., 535.  
 presence of sugar in (KUHN), 1889, A., 177.
- Aqueous vapour**. See Water vapour.

- Arabic acid**, composition of, formula of, and action of sulphuric acid on (O'SULLIVAN), 1881, T., 11.
- Arabin group**, gums of the (O'SULLIVAN), 1891, T., 1029; P., 131.
- Arabinantrigalactangeddic acids** (O'SULLIVAN), 1891, T., 1039.
- Arabino-*o*-diamidobenzene** (GRIESS and HARROW), 1888, A., 267.
- Arabino- $\gamma$ -diamidobenzoic acid** (GRIESS and HARROW), 1888, A., 268.
- Arabino-*m-p*-diamidotoluene** (GRIESS and HARROW), 1888, A., 268.
- Arabinoxon** (O'SULLIVAN), 1889, P., 166; 1890, T., 59.
- Arabinose**. See Carbohydrates.
- Arabinosecarboxylamide** (KILLIAN), 1887, A., 230.
- Arabinosecarboxylic acid** (*l-mannonic acid*) (FISCHER), 1890, A., 1389. constitution of (KILLIAN), 1887, A., 465. reduction of (FISCHER), 1889, A., 1149. phenylhydrazide of (FISCHER and PAMMOIRE), 1890, A., 151.
- Arabinosecarboxyllactone** (KILLIAN), 1887, A., 230.
- Arabinosic acids** (O'SULLIVAN), 1884, T., 56.
- Arabitol** (KILLIAN), 1887, A., 714. thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.
- Arable land**. See Agricultural chemistry.
- Arabonic acid** (*tetrahydroxyglutaric acid*) (BAUER), 1885, A., 500; 1886, A., 869; (KILLIAN), 1887, A., 230. phenylhydrazide of (FISCHER), 1890, A., 1398.
- Arachidic acid** (SCHWEIZER), 1885, A., 508. in earth nut oil (KREILING), 1888, A., 578.
- Aragonite**, altered, from Vesuvius (SCACCHI), 1887, A., 18. from Lower Silesia (TRAUBE), 1886, A., 212. zinc bearing, from Tarnowitz (TRAUBE), 1889, A., 763. See also Calcium carbonate.
- Aragonite-pseudomorph** (KUNZ), 1889, A., 25.
- Araucarias**, oleo-gum-resin secreted by (HECKEL and SCHLAGDENHAUFFEN), 1889, A., 1236.
- Arbutin** (SCHIFF), 1883, A., 317; 1884, A., 432; (HABERMANN), 1884, A., 175 (DALMON); 1885, A., 1096. behaviour of, in the animal organism (LEWIN), 1884, A., 915.
- "Arbutose"** (DALMON), 1885, A., 1096.
- Arc**, electric. See Electrochemistry.
- Archil**, detection and estimation of magenta in (KERTTIN), 1885, A., 1015; (LAWSON), 1888, A., 877. detection of, in wine (PALMIERI and CASORIA), 1889, A., 655.
- Arecaidine** (JAHNS), 1891, A., 91; 1892, A., 739.
- Arecaine** (JAHNS), 1889, A., 421.
- Areca nut**, alkaloids of the (JAHNS), 1889, A., 420; 1891, A., 94, 1520; 1892, A., 737.
- Arecoline** and its salts (JAHNS), 1889, A., 420; 1891, A., 94; 1892, A., 739.
- Arfvedsonite** (KENNIGOTT), 1886, A., 123. chemical composition of (BERWERTH), 1886, A., 23.
- Arganin** (COTTON), 1889, A., 160.
- Argentammonium compounds**. See Silver ammonium compounds.
- Argentie and Argentous compounds**. See under Silver.
- Argentine** (PUTSCHER), 1883, A., 405.
- Arginine** and its salts (SCHULZE and STEIGER), 1886, A., 725. formation of carbamide by the decomposition of (SCHULZE and LIKIERNIK), 1891, A., 1521.
- Argol**, analysis of (KLEIN), 1886, A., 182; (v. LORENZ), 1890, A., 303. See also Tartaric acid, potassium hydrogen salt of.
- Argyrodite**, a silver ore (WINKLER), 1886, P., 197; (WEISBACH), 1886, A., 774.
- Aricine** (MOISSAN and LANDRIN), 1890, A., 803.
- Aristolochia argentinea**, alkaloid from (HESSE), 1892, A., 894.
- Aristolochia reticulata**, volatile oil from (PEACOCK), 1892, A., 70.
- Aristolochia Serpentaria**, chemical nature of (SPICA), 1888, A., 52.
- Aristolochine** (POHL), 1892, A., 874; (HESSE), 1892, A., 894.
- Arksutite** (GROTH), 1884, A., 265. from Ivigtut in Greenland (NORDENSKIÖLD), 1888, A., 231.
- Arnimite** (WEISBACH), 1888, A., 1259.
- Aromatic acids**. See Acids, aromatic.
- Aromatic amines**. See Amines, aromatic.
- Aromatic bases**. See Bases, aromatic.
- Aromatic compounds**, synthesis of (FRIEDEL and CRAFTS), 1889, A., 241.

- Aromatic compounds**, isomeric changes occurring in the synthesis of, by means of aluminium chloride (SCHRAMM), 1889, A., 127.  
 action of halogens on, in presence of light (SCHRAMM), 1887, A., 807; 1891, A., 898.  
 action of nitrous acid on unsaturated (ANGELL), 1892, A., 447.  
 bromination of, influence of light on the course of chemical reactions in the (SCHRAMM), 1885, A., 888.  
 chlorination of (PETRICU), 1890, A., 882.  
 exhaustive chlorination of (MERZ and WEITZ), 1884, A., 588.  
 partially hydrogenised, characteristics of (BAMBERGER and LODTER), 1888, A., 604.  
 iodation of (ISTRATI), 1891, A., 1197.  
 nitration in the side-chains of (ERDMANN), 1885, A., 662.  
 in the animal organism (SALKOWSKI), 1886, A., 730.  
 mercury nitrate as a test for (PLUGGE), 1890, A., 669.
- Aromatic hydrocarbons**. See Hydrocarbons, aromatic.
- Aromatic series**, bromo-substitution compounds of the (WEINER), 1886, A., 1015.  
 chloronitro-derivatives of (HINSCH), 1887, A., 834.
- Aromine** (THUDICHUM), 1888, A., 1120.
- Aromite** from Atacama (DARAPSKY), 1890, A., 455.
- Arrack**, analyses of (FRESSENIUS), 1890, A., 1195.
- Arrhenatherum avenaceum*, analyses of (WILSON), 1889, A., 1078.
- Arrow poison** (ARNAUD), 1888, A., 818.
- Arsenanilidodichloride** (ANSCHÜTZ and WEYER), 1891, A., 901.
- Arsenanilidodi-ethoxide and methoxide** (ANSCHÜTZ and WEYER), 1891, A., 901.
- Arsendianilido-bromide and -chloride** (ANSCHÜTZ and WEYER), 1891, A., 901.
- Arsenic**, native, from Copiapo (HINTZE), 1886, A., 773.  
 native, from Valtellina (BIZZARRI and CAMPANI), 1886, A., 206.  
 allotropic (ENGEL), 1883, A., 551; 1889, A., 211; (PETERSEN), 1892, A., 405.  
 allotropic, thermochemistry of (BERTHELOT and ENGEL), 1890, A., 679.  
 analogy between the allotropic modifications of phosphorus and (ENGEL), 1883, A., 901.
- Arsenic**, amorphous, modifications of (GEUTHER), 1887, A., 888.  
 vapour density of, at a white heat (MENSCHING and MEYER), 1887, A., 888; (BILTZ and MEYER), 1889, A., 674.  
 action of air on (GEUTHER), 1887, A., 888.  
 action of chlorine on (COWPER), 1883, T., 154.  
 action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 662.  
 action of aqueous silver nitrate on (SENDERENS), 1887, A., 332.  
 influence of, on steel (OSMOND), 1890, A., 567.  
 lowering of the freezing point of metals by (HEYCOCK and NEVILLE), 1892, T., 894.  
 in alkali hydroxides (MARSHALL and POTTS), 1889, A., 341.  
 in bleaching powder and in potassium chlorate (GARNIER), 1886, A., 99.  
 in bone phosphate used for cattle feeding (FRESSENIUS), 1889, A., 518.  
 in glass (FRESSENIUS), 1884, A., 220; (MARSHALL and POTTS), 1889, A., 341.  
 in wines free from artificial colouring matter (BARTHELEMY), 1884, A., 526.  
 distribution of, in a human body (CHITTENDEN), 1884, A., 349.  
 influence of, on the glycogenic function and fatty degeneration of the liver (CHITTENDEN and BLAKE), 1889, A., 537.  
 post-mortem imbibition of (SUTTON), 1886, A., 89.  
 localisation of, in a case of poisoning (GUARESCHI), 1884, A., 199.
- Arsenic anhydride**. See Arsenic oxide.
- tribromide** (*arsenious bromide*), action of ammonia and amines on (LANDAU), 1889, A., 211.  
*trichloride*, heat of formation of (THOMSEN), 1883, A., 514.  
 freezing point of (BESSON), 1890, A., 331.  
 combination of iridium phosphochlorides with (GEISENLEIMER), 1890, A., 1069.  
*trifluoride* (MOISSAN), 1885, A., 121; 1891, A., 265.  
 halogen compounds, action of ammonia and hydrogen phosphide on (BESSON), 1890, A., 1052.  
*trihydride* (*arsenic; arsenic trihydride*) (BRUNN), 1890, A., 209.

**Arsenic trihydride**, preparation of (CAVAZZI), 1888, A., 221.  
 temperature of solidification of (OISZEWSKI), 1881, A., 816.  
 action of iodine on (BRUNN), 1888, A., 1221.  
 action of potassium permanganate on (TIVOLI), 1890, A., 1210.  
 action of silver nitrate on (MARCHELEWSKI), 1891, A., 1154.  
 arsenides, formation of, by pressure (SPRING), 1888, A., 650.  
 nitride (BACHMAN), 1888, A., 650.  
 oxides:—  
   arsenious oxide, isodimorphism of (RIDEAL), 1886, A., 503.  
   prismatic, monoclinic form and optical properties of (DES CLOIZEAUX), 1887, A., 1015.  
   change of, from the amorphous to the crystalline condition (WINKLER), 1885, A., 871.  
   action of acid chlorides on (FOHL), 1889, A., 767.  
   action of nitric acid on (RAMSAY and CUNDALL), 1885, T., 196; (ARMSTRONG), 1885, T., 197.  
   action of potassium chlorate on (FOWLER and GRANT), 1890, T., 277.  
   action of sodium hydrosulphide on (PREIS), 1890, A., 1053.  
   solubility of (CHODOŮNSKÝ), 1889, A., 945.  
   solutions (CLAYTON), 1891, A., 1418.  
   colour reactions of (LÉVY), 1887, A., 305.  
   compounds of, with halogen salts (SCHIFF and SESTINI), 1885, A., 723; (RÜDOFF), 1887, A., 107; 1889, A., 103.  
   compounds of, with sulphuric anhydride (WEBER), 1887, A., 212; (ADIE), 1889, T., 157; P., 4.  
 arsenious acid, action of arsenic trihydride on (TIVOLI), 1888, A., 221.  
 action of sodium thiosulphate on (VORTMANN), 1889, A., 1109.  
 compounds of, with arsenic acid (JOLY), 1885, A., 871.  
 volumetric analysis with (NAMIAS), 1892, A., 1874.  
 arsenites in alkaline salts, use of oxalic acid as a test for (PATROUILLARD), 1888, A., 243.  
 arsenic oxide (*arsenic anhydride*), colour reactions of (LÉVY), 1887, A., 305.

# **Arsenic oxides:—**

arsenic acid, preparation of (JOLY), 1885, A., 871.  
 action of hydrogen sulphide on (BRAUNER and TOMÍČEK), 1887, P., 130; 1888, T., 115; (McCAY), 1889, A., 15.  
 reduction of solutions of, by means of sulphurous anhydride (McCAY), 1885, A., 634.  
 saturation of, with barium hydroxide (BLAREZ), 1887, A., 7.  
 saturation of, with calcium and strontium oxides (BLAREZ), 1887, A., 8.  
 saturation of, with magnesia (BLAREZ), 1887, A., 204.  
 reduction of, in analysis (GOOCH and BROWNING), 1891, A., 244.  
 compounds of arsenious acid with (JOLY), 1885, A., 871.  
 hydrates of (JOLY), 1886, A., 202.  
 thio-, separation of thioxyarsenic acid from (McCAY), 1892, A., 1519.  
 arsenates, phosphates and vanadates, analogous (HALL), 1886, P., 259; 1887, T., 94.  
 arsenates, alkaline, action of, on the alkaline earths (LEFÈVRE), 1889, A., 826.  
 crystallized (COLORIANU), 1886, A., 771.  
 thio- (PREIS), 1890, A., 1053.  
   from Långban (LINDGREN), 1883, A., 434.  
 o-arsenates of the alkalis, action of hydrogen sulphide on (McCAY), 1891, A., 265.  
 phosphide (CAVAZZI), 1884, A., 155.  
 hydrosulphides (LINDER and PICTON), 1892, T., 127.  
 iodosulphide (SCHNEIDER), 1887, A., 213.  
 trisulphide (*arsenious sulphide*), action of, on iodine (SCHNEIDER), 1888, A., 414.  
 colloidal solutions of (PICTON), 1892, T., 140, 144; (PICTON and LINDER), 1892, T., 160.  
 solubility of, in water (SCHULZE), 1883, A., 295; (CROSS and HIGGIN), 1883, A., 900; (CHODOŮNSKÝ), 1889, A., 945.  
 pentasulphide (McCAY), 1887, A., 213.  
 sulphides, method for decomposing (WARREN), 1888, A., 26.  
 See also Orpiment and Realgar.  
**Arsenic organic compound:—**  
 cyanide (BLYTHE), 1888, A., 1047; (GUERNEZ), 1892, A., 1164.

**Arsenic detection, estimation, and separation:—**

- detection of (HAGER), 1883, A., 381; 1887, A., 397; (NAYLOR and BRAITHWAITE), 1883, A., 513; (REICHAUPT), 1881, A., 368; (CARTER), 1885, A., 1013; (FLUCKIGER), 1889, A., 650; (V. KLOBUKOFF), 1890, A., 922; (THIELE), 1890, A., 1193; (LOOFF), 1890, A., 1313. Bettendorf's test for (WARNECKE), 1891, A., 1290.
- the Marsh-Berzelius test for (HEADEN and SADLER), 1886, A., 489.
- microchemical test for (V. HAUSHOFFER), 1887, A., 300.
- Reinsch's test for (HAGER), 1887, A., 397.
- Swedish method of testing for (ATTERBERG), 1886, A., 100.
- detection of, in presence of antimony (HAGER), 1885, A., 838.
- detection of, in corpses (SEYDA), 1891, A., 121.
- detection of, in metallic iron (SALTENMEISTER), 1892, A., 1030.
- detection of, by induction spark (V. KLOBUKOFF), 1890, A., 922.
- detection of antimony and (DENIGES), 1891, A., 364.
- estimation of (FROST), 1884, A., 115; (LOW), 1884, A., 116; (HOLTHOF), 1884, A., 1423; (McCAY), 1886, A., 579; (LEHMANN and MAGER), 1886, A., 920; (REICH and RICHTER), 1886, A., 1073; (LESSNER), 1888, A., 754; (POLENSKE), 1890, A., 83; (CANDY), 1890, A., 923; (BOAM), 1890, A., 1026; (THIELE), 1890, A., 1193.
- estimation of, volumetric (McCAY), 1883, A., 1034; (JOLLES), 1889, A., 311; (FRANCESCHI), 1892, A., 1519.
- estimation of, as sulphide (McCAY), 1888, A., 528.
- estimation of, by an alkaline solution of potassium ferricyanide (QUINCKE), 1892, A., 526.
- estimation of, in corpses (SEYDA), 1891, A., 121.
- estimation of, in fabrics and yarn (FRESSENIUS and HINTZ), 1888, A., 754.
- estimation of, in judicial cases (DEGURTS), 1885, A., 439.
- estimation of, in iron and iron ores (LUNDIN), 1885, A., 838; (V. REIS), 1890, A., 194.
- estimation of, in mineral waters (FRESSENIUS), 1886, A., 649.

**Arsenic detection, estimation, and separation:—**

- estimation of, in minerals and metals (CLARK), 1882, A., 530.
- estimation of, in ores, mattes, and metallic copper (LEHMANN and MAGER), 1886, A., 100, 920.
- estimation of, in organic compounds (MESSINGER), 1889, A., 81.
- estimation of, in pyrites (CLARK), 1888, A., 194; (FRESSENIUS), 1888, A., 322.
- estimation of, in wall paper (FRESSENIUS and HINTZ), 1888, A., 751; (SANGER), 1892, A., 382.
- estimation of, by copper reduction test (CAHMICHAEL), 1886, A., 1074.
- estimation of, by Marsh's method (KÜHN and SANGER), 1890, A., 1187.
- estimation of, by oxidation with the electric current (FRANKEL), 1892, A., 752.
- estimation of, by Pearce's method (FROST), 1884, A., 115; (LOW), 1888, A., 116.
- estimation of, by Reich's method (McCAY), 1886, A., 742.
- estimation of copper in presence of (CLAESSEN), 1888, A., 528.
- separation of, from the alkaline earths (McCAY), 1886, A., 393.
- separation of, from antimony (ZAMBELLI and LUZZATO), 1887, A., 78; (KOEHLER), 1889, A., 926; (WILM), 1891, A., 1433; (GOUGH and DANNEUR), 1892, A., 541.
- separation of, from antimony, tin, and (HUTSCHMIDT), 1885, A., 86; (CARNOT), 1886, A., 1078; (LESSNER), 1888, A., 754; (CLARK), 1892, T., 424; P., 68.
- separation of, electrolytic, from antimony and tin (CLAESSEN and LUDWIG), 1885, A., 932.
- separation of, qualitative, from antimony and tin (BEUGLUND), 1884, A., 777; 1885, A., 839.
- separation of antimony and tin from gold and platinum (DE KONINCK and LECRENIER), 1888, A., 1311.
- separation of, from copper (GUERT), 1888, A., 630.
- separation of, electrolytic, from copper (McCAY), 1891, A., 114.
- separation of, electrolytic, from gold (SMITH and WALLACE), 1892, A., 920.
- separation of, from hydrochloric acid (OTTO), 1886, A., 850.

- Arsenic detection, estimation, and separation:**—  
 separation of, from mercury, sodium, chlorine, and nitric acid (HAWK), 1892, A., 530.  
 separation of, from saline solutions (ANON.), 1881, A., 1083.
- Arsenical pyrites.** See Mispickel.
- Arseniophosphates** of Pontgibaud (GONNARD), 1888, A., 429.
- Arseniopleite**, a new Swedish mineral (JUELSTROM), 1889, A., 22.
- Arsenious anhydride.** See Arsenic oxides.  
 bromide. See Arsenic tribromide.  
 sulphide. See Arsenic trisulphide.
- Arsenobenzene** (MICHAELIS and SCHULTE), 1883, A., 187.
- Arsenomolybdic acid** (PUFAHL), 1884, A., 715.
- Arsenonaphthalene** (MICHAELIS and SCHULTE), 1883, A., 187.
- Arsenopyrite.** See Mispickel.
- Arsenosarseniotungstates** (GIBBS), 1886, A., 427.
- Arsenosomolybdates** (GIBBS), 1886, A., 427.
- Arsenosophosphotungstates** (GIBBS), 1886, A., 427.
- Arsenotungstic acids** (FREMERY), 1884, A., 965; (KEHRMANN), 1888, A., 788.
- Arsenovanadates** (GIBBS), 1886, A., 205; (FRIEDHEIM and SCHMITZ-DUMONT), 1890, A., 1380.
- Arsenovanadic acid** (FERNANDEZ-KRUG), 1884, A., 1266.
- Arsenovanadicovanadates** (GIBBS), 1886, A., 205.
- Artar root**, constituents of the bark of (GIACOSA and MONARI), 1888, A., 167; (GIACOSA and SOAVE), 1890, A., 918.
- Artarine** (GIACOSA and SOAVE), 1890, A., 918.
- Artemisia Absinthium**, absinthin from (SENGER), 1892, A., 1210.
- Artemisia gallica**, chemical composition of (HECKEL and SCHLAGDENHAUFEN), 1885, A., 684.
- Arterin** (HOPPE-SEYLER), 1889, A., 787.
- Artichokes** a source of spirit (ANON.), 1884, A., 526.
- Artichokes**, Jerusalem, composition and cultivation of (LECHIARTIER), 1892, A., 1024.  
 cooked, composition of (WILLIAMS), 1892, T., 227.  
 germination of (GREEN), 1890, A., 656.
- Arum italicum**, chemical and physiological study of (SPICA and BISCARO), 1886, A., 91.
- Asafetida**, ethereal oil of (SEMMLER), 1891, A., 322, 161.  
 vanillin in (SCHMIDT), 1886, A., 906.
- Asaprol** (STACKLER), 1892, A., 1116.
- Asarite** (RIZZA and BUTLEROFF), 1884, A., 1042.
- Asarone** (RIZZA and BUTLEROFF), 1884, A., 1012; 1885, A., 669; (POLECK), 1884, A., 1191.  
 constitution of (RIZZA and BUTLEROFF), 1888, A., 458; (EIJKMAN), 1890, A., 244.  
 oxidation of (RIZZA and BUTLEROFF), 1888, A., 458.
- Asarum europaeum**, ethereal oil of (POLECK), 1881, A., 1191; (PETERSEN), 1888, A., 680.
- Asbestos**, use of, for assisting the subsidence of suspended matters (FRIESENHUS), 1888, A., 320.  
 use of, in filtration (BARDA), 1892, A., 751.
- Asbestos-filters**, preparation of (CANAMAJOR), 1883, A., 506.
- Asbolin** (BÉHAL and DENVIGNES), 1892, A., 1312.
- Ascaris**, respiration of various species of (BUNGE), 1890, A., 274.
- Ascharite**, a new borate (FEIT), 1892, A., 792.
- Ascitic fluid**, mucoid substance in (HAMMARSTEN), 1891, A., 1127.  
 sugar and allantoin in (MONCATELLI), 1889, A., 291.
- Asclepiadin** (GRAM), 1887, A., 377.
- Asclepias cupressavica** and *A. incarnata*, active principles of (GRAM), 1887, A., 377.
- Asebotoxin** (EIJKMAN), 1883, A., 215, 349.
- Aselline** (GAUTIER and MOURGUES), 1888, A., 1315.
- Aseptol** (SERIANT), 1885, A., 1016, 1166; 1886, A., 707.  
 See also o-Phenolsulphonic acid.
- Ash** in bones of different ages (MASON), 1888, A., 80.  
 of *Pistia Stratiotes* (Pina salt) (WARDEN), 1883, A., 822.  
 estimations (JAY), 1885, A., 598; (REENE), 1888, A., 753; (FLÜCKIGER), 1889, A., 80; (LECHIARTIER), 1890, A., 196.  
 estimation of, in food and drugs (Kwasnick), 1890, A., 833.  
 estimation of, in organic substances (KÖBRICH), 1888, A., 325.  
 See also Agricultural chemistry.

**Asiminine** (LLOYD), 1887, A., 981.

**Asparagine** (PIUTTI), 1886, A., 870, 1013.

in hops (BUNGENER), 1886, A., 387.

in dahlia tubers (LEITGER), 1889, A., 433.

chemistry of (SCHULZE), 1881, A., 42.

transformation of fumaric and maleic acids into (KÖRNER and MENOZZI), 1887, A., 1109.

synthesis of (PIUTTI), 1889, A., 381; 1891, A., 175.

extraction of, from liquids (SCHULZE), 1883, A., 315.

heats of combustion and formation of (BERTHELOT and ANDRÉ), 1890, A., 936.

action of *Bacillus pyocyaneus* on (ARNATD and CHARRIN), 1891, A., 1132.

action of methylic iodide on (MICHAEL and WING), 1885, A., 968.

decomposition of, by water and dilute acids (BERTHELOT and ANDRÉ), 1887, A., 236.

picrate (SMOLKA), 1886, A., 453.

assimilation of, by plants (BAESLER), 1886, A., 1061.

as a plant constituent (SCHULZE and BOSSHARD), 1885, A., 1007.

influence of carbohydrates on the accumulation of, in plants (MONTEVERDE), 1892, A., 91.

decomposition of, in the human body (GRAFFENBERGER), 1892, A., 904.

importance of, for feeding (WEISKE), 1888, A., 80; (KÖNIG), 1891, A., 1525.

influence of, on the animal organism (WEISKE and SCHULZE), 1885, A., 409.

influence of, on the elimination of albumin (MUNK; v. VORT), 1885, A., 412.

detection of, in vegetable juices and extracts (SCHULZE), 1884, A., 373.

estimation of (SCHULZE), 1885, A., 935.

**isoAsparagine** (PIUTTI), 1889, A., 382, 384.

**$\alpha$ -isoAsparagine** (KÖRNER and MENOZZI), 1888, A., 133.

**Asparagines**, constitution of (PIUTTI), 1889, A., 383.

reciprocal transformation of the optically active (PIUTTI), 1887, A., 802.

substituted (PIUTTI), 1889, A., 591.

**Asparagus**, coniferin and vanillin in (v. LIPPMANN), 1886, A., 387.

**Aspartic acid**, preparation of, from asparagine (SCHULZE), 1881, A., 42. conversion of fumaric and maleic acids into (ENGEL), 1887, A., 917; (KÖRNER and MENOZZI), 1887, A., 1100.

synthesis of (PIUTTI), 1888, A., 677. electrical conductivities and multiple affinities of (BERTHELOT), 1890, A., 201.

thermochemistry of (BERTHELOT and ANDRÉ), 1890, A., 936; (BERTHELOT), 1891, A., 967.

condensation of, with benzenesulphonic chloride (HENIN), 1891, A., 202.

hydrochlorides of normal ethereal salts of (CURTIUS and KOCH), 1885, A., 885.

imide of (KÖRNER and MENOZZI), 1887, A., 1031.

**Aspartic acids** (MICHAEL and WING), 1885, A., 377, 968; (SCHIFF), 1885, A., 377; (ENGEL), 1888, A., 1065.

**$\alpha$ -isoAspartic acid** (KÖRNER and MENOZZI), 1887, A., 801.

**"Aspartic colloid, amido-"** (GRIMAU), 1884, A., 957.

**Aspergillin** (LINOSIER), 1891, A., 751, 1089.

*Aspergillus niger*, action of, on fumarates and maleates (BÜCHNER), 1892, A., 820.

**Asphalt**, manufacture of (DIETRICH), 1885, A., 309.

Bentheim, geological and chemical investigation of, with reference to analogous occurrences in Italy (STRIPPELMANN and ENGLER), 1884, A., 522.

Egyptian, analysis of (BOUSSINGAULT), 1883, A., 941.

of Judea (DELAGHANAL), 1884, A., 231.

of Utah and Colorado (STONE), 1892, A., 21.

See also Bitumen.

**Asphyxia**, effect of, on the glycolytic and saccharific powers of the blood (LÉPINE and BARRAI), 1892, A., 517.

*Aspidium felix mas*, products from (DACCOMO), 1888, A., 521.

**Aspidole** (DACCOMO), 1888, A., 522.

**Aspirator**, an (GAWALOWSKI), 1886, A., 15.

with constant flow (BINDER), 1888, A., 1244.

**Association** (MENDELÉEFF), 1887, T., 782. *versus* dissociation in solutions (PICKERING), 1891, A., 972.

**Association hypothesis** (TRAUBE), 1891, A., 1110.  
and its relation to the theories of Clausius and van't Hoff (TRAUBE), 1891, A., 390.  
*Alstous flavicollis*, blood of (GRIFFITHS), 1892, A., 648.  
uric acid from the green glands of (GRIFFITHS), 1885, A., 680.  
**Astracanite**. See Blodite.  
**Astragalus**, analyses of (NILSON), 1892, A., 522.  
**Astrophyllite**, analyses of (BRÜGGER), 1890, A., 1079; (EAKINS), 1892, A., 22.  
in a rock from Colorado (LACROIX), 1889, A., 1054.  
**Atacamite**, action of water on (ROUSSEAU and TITE), 1891, A., 1423.  
from Chili (DARANSKY), 1890, A., 111; (GENTH and PENFIELD), 1891, A., 275.  
**Atelestite** from Schneeberg, Saxony (BRÜGGER), 1890, A., 18.  
**Atmidalbusose** (NEUMEISTER), 1889, A., 911.  
**Atmospheric air**, absorption spectrum of (EGOROFF), 1883, A., 137; 1886, A., 139; (OLSZEWSKI), 1887, A., 625.  
constituents of, spectroscopic examination of the (JANSSSEN), 1886, A., 1.  
relation between potential difference and striking distance in, at different pressures (PASCHEN), 1889, A., 806.  
electrical conductivity of, under reduced pressure (HOMIN), 1886, A., 3.  
electrical conductivity of, illuminated (ARRHENIUS), 1888, A., 544.  
electrical conductivity of, due to the formation of ozone (ELSTER and GEITEL), 1890, A., 676.  
constituent of, which absorbs radiant heat (HILL), 1883, A., 7.  
temperature in relation to soil temperature (HOSEFELD), 1884, A., 357.  
dilatation and compression of (ANTOINE), 1889, A., 460.  
compressibility of, at 20° to 300° under 1 to 8 atmospheres' pressure (AMAGAT), 1884, A., 146.  
compressibility of, at low pressures (AMAGAT), 1884, A., 146.  
compressibility of, at very high pressures (AMAGAT), 1889, A., 8.  
compressibility of mixtures of carbonic anhydride and (LALA), 1891, A., 253.  
compressibility of mixtures of hydrogen and (LALA), 1891, A., 634.  
liquid (v. WROBLEWSKI), 1886, A., 8.  
density of liquid (v. WROBLEWSKI), 1886, A., 661.

**Atmospheric air**, boiling point of, under atmospheric pressure (v. WROBLEWSKI), 1884, A., 817.  
critical temperature and pressure of; relation between its boiling point and the pressure (OLSZEWSKI), 1884, A., 1257.  
absorption of the gases of, by water at various temperatures (PETERSSON and SONDÉN), 1889, A., 935.  
action of, on haloid salts of the alkalis (GORGÉU), 1886, A., 644.  
combustion of, in coal gas (CRAIG), 1888, A., 1244.  
action of moist phosphorus and, on carbonic oxide (REMSEN and KEISER), 1884, A., 149, 711; (LEEDS), 1884, A., 660; (BAUMANN), 1884, A., 1092.  
composition of (LEDUC), 1890, A., 1370; 1891, A., 1416.  
analysis of (PETERSSON), 1887, A., 180; (UFFELMANN), 1889, A., 209; (PETERSSON and HÜGLUND), 1890, A., 412.  
analysis of, hygienic (SONDÉN), 1888, A., 192.  
examination of, for sanitary purposes, with remarks on disinfection (HITCHCOCK), 1883, A., 514.  
at Cape Horn (MUNTZ and AUDIN), 1886, A., 418.  
of dwellings, influence of artificial lighting on (FISCHER), 1884, A., 122.  
of sewers (CARNELLEY and HALDANE), 1888, A., 532.  
of the Tropics, ammonia in (MARCANO and MUNTZ), 1892, A., 381; (MUNTZ), 1892, A., 909.  
carbon monoxide in (DE LA HARPE and REVERDIN), 1889, A., 1087.  
carbonic anhydride in (MUNTZ and AUDIN), 1883, A., 121; 1884, A., 659, 710; (COOK), 1883, A., 284; (WOLLNY), 1883, A., 614; 1886, A., 594; (BALLU), 1884, A., 1076; (SPRING and ROLAND), 1886, A., 504; (VAN NUYEN), 1886, A., 835; 1887, A., 300; (VAN NUYEN and ADAMS), 1887, A., 549; (BLOCHMANN), 1887, A., 214; (PETERSSON and PALMQUIST), 1887, A., 999; (LUNGE and ZECKENDORF), 1889, A., 440; (SCHIDLowski), 1889, A., 651; (HALDANE and PEMBREY), 1890, A., 1188; (LEBEDINZEFF), 1891, A., 1290; (SCHULZ), 1892, A., 533.  
influence of climate and weather on the amount of carbonic anhydride in (WOLLNY), 1883, A., 614.

- Atmospheric air**, rapid absorption of carbonic anhydride from (D'ARSONVAL), 1888, A., 512.  
 moisture in (HALDANE and PEMBREY), 1890, A., 1188.  
 nitrous acid in (ILOSVAY), 1890, A., 406.  
 organisms in, around Carlsberg (HANSEN), 1884, A., 126.  
 organic matter in (CARNEILEY and MACKIE), 1887, A., 532; (ARCHANOW), 1892, A., 542.  
 organic matter, combustible, in (MÜNTZ and AUBIN), 1885, A., 118.  
 oxygen in (VOGLER), 1883, A., 284, 551.  
 percentage of oxygen in (HEMPFL), 1885, A., 1091; 1887, A., 885; (KREUSLER), 1886, A., 199; 1887, A., 634; (WANKLYN), 1891, A., 362.  
 oxygen in, of forests (EBERMEYER), 1886, A., 1066.  
 formation of active oxygen in (WURSTER), 1887, A., 211.  
 sodium sulphate in (PARMENTIER), 1889, A., 826; (MARGUERITE-DELACHARLOIS), 1889, A., 945.  
 sulphurous anhydride in, at Lille (LADUREAU), 1884, A., 710.  
 sulphurous anhydride in, of towns (WITZ), 1885, A., 953.  
 effect of rarefied, on the animal organism (FRAENKEL and GERPERT), 1884, A., 470.  
 respiration in superoxygenated (DE SAINT-MARTIN), 1884, A., 911.  
 deficient in oxygen, influence of, on animals (KEMPNER), 1884, A., 344.  
 charged with petroleum vapour, respiration of (POINCARÉ), 1884, A., 1057.  
 expired, poisonous action of (BROWN-SÉQUARD and D'ARSONVAL), 1889, A., 629.  
 vitiated by respiration (HERMANS), 1884, A., 510; (HALDANE and SMITH), 1892, A., 1502.  
**Atmospheric dust** (SCHUSTER), 1884, A., 225.  
**Atomic coefficients**, critical (GUYE), 1890, A., 444.  
**Atomic hypothesis**, a certain (PEARSON), 1888, A., 902.  
**Atomic union and molecular union**, can Raoult's method distinguish between? (ANSCHÜTZ), 1890, A., 105.  
**Atomic volume and specific volume** (LOSSEN), 1886, A., 972.  
**Atomic volume of elements**, relation between the allotropic modifications of iron and the (OSMUND), 1890, A., 567.  
**Atomic weight and the density of liquids** (MOULIN), 1891, A., 1315.  
**Atomic weight and gravitation** (DULK), 1885, A., 722; 1886, A., 591.  
**Atomic weight and magnetism** (ERRERA), 1891, A., 518; (LACHMETTEFF), 1892, A., 672.  
**Atomic weight and physiological function** (SESTINI), 1885, A., 1150.  
**Atomic weights in general** (BUTTEROFF), 1883, A., 846; (CLARKE), 1891, A., 877.  
 their approximation to whole numbers (DEWAR), 1892, P., 208.  
 basis of (BRAUNER), 1889, A., 819.  
 definition of, and its relation to the periodic law (HARTLEY), 1888, P., 66.  
 the logarithmic law of (STONE), 1888, P., 55.  
 numerical relations of (STRANSKY), 1889, A., 567.  
 relations between (ATKINS), 1892, A., 938.  
 standard of (BRAUNER), 1889, A., 335.  
 unit of (MEYER and SEUBERT), 1885, T., 426; 1889, A., 753; (OSTWALD), 1889, A., 819; (VAN'T HOFF), 1889, A., 932; (NOYES), 1891, A., 523.  
 verification of some (MARIGNAC), 1884, A., 813.  
 work of Stas on (MALLER), 1892, P., 204.  
**Atomic weight of aluminium** (BAUBIGNY), 1884, A., 395.  
 of antimony (BONGARTZ), 1883, A., 1056; (POPPER), 1886, A., 856.  
 of beryllium (*glucinum*) (HUMPHREY), 1884, A., 261; 1885, A., 1184; 1886, A., 506; (REYNOLDS), 1884, A., 261; (HARTLEY), 1885, A., 484; (KRÜSS and MORAFF), 1890, A., 698, 1375; 1891, A., 881.  
 of bismuth (LOEWE), 1884, A., 558; (MARIGNAC), 1884, A., 814; (SCHNEIDER), 1885, A., 354; 1891, A., 271, 1324; (CLAANEN), 1890, A., 706; 1891, A., 525.  
 of boron (ABRAHAM), 1892, T., 650; P., 74; (ASTON and RAMSAY), 1892, P., 165.  
 of cadmium (CLARKE), 1891, A., 390; (PARTRIDGE), 1891, A., 399; (MORSE and JONES), 1892, A., 1397.  
 of carbon (VAN DER PLAATS), 1885, A., 318.  
 of carbon and oxygen with reference to Prout's law (GROSHANS), 1889, A., 463.

- Atomic weight** of cerium (BRAUNER), 1885, T., 580; (ROBINSON), 1885, A., 217.
- of chromium (BAUBIGNY), 1884, A., 891; (LUFTON), 1888, P., 81; (RAWSON), 1889, T., 213; P., 31; (MEINEKE), 1891, A., 882.
- of cobalt (ZIMMERMANN), 1886, A., 596; (WINKLER), 1889, A., 759; (SCHÜTZENDERGER), 1892, A., 1159.
- of copper (BAUBIGNY), 1884, A., 256; (SHAW), 1887, A., 444; (RICHARDS), 1888, A., 916, 917; 1891, A., 805.
- of copper and silver, relation of the (RICHARDS), 1888, A., 916.
- of didymium (CLEVE), 1883, A., 852.
- of the elements (BASAROFF), 1888, A., 406; (DELAUNAY), 1889, A., 1104.
- of fluorine (CHRISTENSEN), 1886, A., 854; 1887, A., 892; (MOISSAN), 1891, A., 15.
- of germanium (LECOQ DE BOISBAUDRAN), 1886, A., 768.
- of gold (THORPE and LAURIE), 1887, T., 565, 866; P., 57, 106; (WESTMORELAND), 1887, A., 81; (KRÜSS), 1887, A., 340, 1019; 1888, A., 345; (MALLET), 1890, A., 708; (SEUBERT), 1891, A., 885.
- of hydrogen (AMAGAT), 1885, A., 631.
- of hydrogen, carbon as an impurity affecting the determination of (MORLEY), 1890, A., 1869.
- of hydrogen and oxygen, relative values of (COOKE and RICHARDS), 1888, A., 647, 910.
- of iridium (JOLY), 1890, A., 1067; (SEUBERT), 1891, A., 885.
- of lanthanum (CLEVE), 1883, A., 553; (BRAUNER), 1891, A., 881.
- of magnesium (MARIIGNAC), 1884, A., 815; (BURTON and VOICE), 1890, A., 850.
- of manganese (DEWAR and SCOTT), 1883, A., 856; (MARIIGNAC), 1884, A., 814.
- of nickel (BAUBIGNY), 1884, A., 256; (ZIMMERMANN), 1886, A., 596; (WINKLER), 1889, A., 759; (SCHÜTZENDERGER), 1892, A., 1158.
- of osmium (SEUBERT), 1888, A., 921; 1891, A., 884, 885.
- of oxygen (HILDTICH), 1884, A., 659; (KEISER), 1887, A., 1078; 1891, A., 1154; (RAYLEIGH), 1888, A., 643; 1890, A., 830; (COOKE and RICHARDS), 1888, A., 647, 910; (MORLEY), 1888, A., 649; (GROSHANS), 1889, A., 643; (JOHNSON), 1889, A., 935; (NOYES), 1889, A., 672; 1890, A., 1370; (LEDUC), 1892, A., 1388.
- Atomic weight** of palladium (KEISER), 1890, A., 17; (SEUBERT), 1891, A., 885; (BAILEY and LAMB), 1892, T., 715; P., 138.
- of phosphorus (VAN DER PLAATS), 1885, A., 348.
- of platinum (HALBERSTADT), 1885, A., 355; (DITTMAR and McARTHUR), 1888, A., 425; (SEUBERT), 1888, A., 1043; 1891, A., 885.
- of rhodium (SEUBERT and KOBBE), 1891, A., 646; (SEUBERT), 1891, A., 885.
- of ruthenium (JOLY), 1889, A., 352, 835; (SEUBERT), 1891, A., 885.
- of samarium (CLEVE), 1883, T., 365; (BETTENDORFF), 1891, A., 985.
- of silicon (THORPE and YOUNG), 1887, T., 576; P., 60.
- of silver (MEYER and SEUBERT), 1885, T., 434; (SHAW), 1887, A., 444; (RICHARDS), 1888, A., 916; (STAS), 1890, A., 561; (SEUBERT), 1891, A., 885.
- of tellurium (BRAUNER), 1889, T., 382; P., 94.
- of thorium (NILSON), 1883, A., 649; (KRÜSS and NILSON), 1887, A., 704.
- of tin (VAN DER PLAATS), 1885, A., 348; (BONGARTZ and CLASSEN), 1889, A., 19.
- of titanium (THORPE), 1884, A., 395; 1885, T., 108; P., 1.
- of tungsten (WADELL), 1887, A., 111.
- of uranium (ZIMMERMANN), 1886, A., 598.
- of yttrium (CLEVE), 1883, A., 292.
- of yttrium metals, in their natural compounds (RAMMELSBERG), 1888, A., 112.
- of zinc (BAUBIGNY), 1884, A., 256; (MARIIGNAC), 1884, A., 315; (VAN DER PLAATS), 1885, A., 348; (MORSE and BURTON), 1888, A., 1247; (GLADSTONE and HILBERT), 1889, T., 443; P., 101.
- of zirconium (BAILEY), 1890, A., 705.
- Atomic weight determinations**, concordance in (CLARKE), 1891, A., 390.
- from specific heat (JANEČEK), 1887, A., 419.
- by means of metallic sulphates (BAUBIGNY), 1884, A., 256.
- by means of the normal sulphate (BAILEY), 1887, T., 676.
- Atoms**, arrangement of, in space (LOSSEN), 1888, A., 218; (WISLICIENUS), 1888, A., 405, 1058; 1889, A., 576;

- (WISLICIENUS, TEISLER and LANGBEIN), 1889, A., 236; (WISLICIENUS and BLANK), 1889, A., 261.
- Atoms**, arrangement of, in space in carbon compounds containing nitrogen (HANTZSCH and WERNER), 1890, A., 348.
- arrangement of, in space in the molecules of organic compounds (WISLICIENUS), 1888, A., 35; (MICHAEL), 1888, A., 1147.
- stereochemical and mechanical views with reference to single and multiple union of, and the changes of one into the other (NAUMANN), 1890, A., 555.
- unstable equilibrium of (PRINGSHEIM), 1889, A., 672.
- combinations of molecules with (TRAUBE), 1886, A., 661.
- Atropaic acid**, a new organic acid from the sugar-cane (SAVARY), 1885, A., 653.
- Atrolactyl tropeine**, and some of its salts (LADENBURG), 1883, A., 671; (LIEBERMANN and LIMPACH), 1892, A., 891.
- Atropa Belladonna**, alkaloids of (HESSE), 1891, A., 748; 1892, A., 1498; (SCHÜTTE), 1892, A., 231; (MERCK), 1892, A., 1255.
- constituents of (KUNZ), 1886, A., 255; (PASCHKE), 1886, A., 156, 577.
- estimation of the alkaloids of (DUNSTAN and RANSOM), 1885, A., 418; 1886, A., 105.
- Atropamine** and its derivatives (HESSE), 1891, A., 228, 748; (MERCK), 1892, A., 1256.
- Atrophy**, decrease in weight of individual organs in children dying from (OHL-MÜLLER), 1883, A., 606.
- Atropic acid** (*α-phenylacrylic acid*), heat of combustion of (OSSIPOFF), 1889, A., 460.
- iso***Atropic acids**,  $\gamma$ - and  $\delta$ -. See Truxillie acids.
- Atropine**. See Alkaloids.
- iso***Atropylcocaine** (LIEBERMANN), 1888, A., 1210.
- poisonous properties of (HESSE), 1889, A., 732.
- iso***Atropylcocaines**,  $\delta$ - and  $\gamma$ -. (LIEBERMANN and DRORY), 1889, A., 733.
- iso***Atropylegonines**,  $\delta$ - and  $\gamma$ -. (LIEBERMANN and DRORY), 1889, A., 733.
- Atropyltropine** (LADENBURG), 1883, A., 672; (MERCK), 1892, A., 1255.
- Atroxindole** (TRINIUS), 1885, A., 529.
- Auerite**, a new thorium mineral (HIDDEN and MACKINTOSH), 1889, A., 221.
- Avalite** (LOS ANUTSCH), 1881, A., 1272.
- Avenine**, existence of (WRAMPPELMAYER), 1889, A., 1223.
- from oats (SANSON), 1881, A., 915.
- Aventurine glass** and green aventuring quartz from Asia (FISCHER), 1883, A., 435.
- Avidity formula**, critical remarks on (HAGEMANN), 1887, A., 633.
- Avogadro's hypothesis**, demonstration of (KREIS), 1885, A., 13; (SCHALL), 1887, A., 698.
- Aze**, jadeite, from Rabber, Hanover (ALZRUNI), 1883, A., 437.
- Azinite** (WHITFIELD), 1888, A., 319; (GENTH, PENFIELD and PINSON), 1891, A., 1329.
- formula of (KENNEDY), 1891, A., 1168; 1892, A., 125.
- from New South Wales (LIVERSIDGE), 1886, A., 774.
- Augite** (*pyroxene*) (v. CHRISTSCHOFF), 1886, A., 776, 990.
- synthesis of (DOELTER), 1881, A., 1105.
- relation between the optical properties and chemical composition of (WIK), 1883, A., 560; 1884, A., 971; (DOELTER), 1885, A., 229.
- paramorphosis of, to hornblende in rocks (WILLIAMS), 1885, A., 492.
- cupriferous variety of (FRED.), 1881, A., 272.
- of secondary origin (CROSS), 1890, A., 1081.
- from Ascension (VOM RATH), 1883, A., 436.
- (green) from the diamond mines of the Cape, analysis of (JANNETTAZ), 1883, A., 1067.
- from Dognieska (LOCZKA), 1886, A., 513.
- from Krakatoa ashes (REUTERS), 1886, A., 603.
- from the Krimlerthal (v. ZEPHAROVICH), 1887, A., 902.
- (crystals) from New York (WILLIAMS), 1888, A., 351.
- from Weiler, near Weissenberg, analysis of (LINCK), 1886, A., 212.
- from the Whin Sill (TEALL), 1887, A., 1022.
- analyses of (CHATARD), 1892, A., 1109.
- Augite-andesites**, European (CROSS), 1884, A., 568.
- from the Dutch Indian Archipelago (VERBECK), 1885, A., 1120.
- Augite-granites** from the Cheviot districts (TEALL), 1886, A., 520.
- Augite-group** (WULFING), 1892, A., 1408.

- Augites** of noteworthy composition (DONITZ), 1885, A., 735.  
 from Finland, calculation of analyses of (KENNEDY), 1883, A., 1065.  
 of the Kaiserstuhl mountains in Baden (KNOP), 1885, A., 731.  
 from phonolites and similar rocks, chemical composition of (MANN), 1885, A., 34.
- Augitic rock**, azure blue, from New Mexico (MERRILL and PACKARD), 1892, A., 1057.
- Augitite** from S. Vicente, analysis of (DOELTER), 1883, A., 723.
- Augitites** of Morbihan (BARROIS), 1889, A., 109.
- Auramine** and its derivatives (ANON.), 1884, A., 1150; (FEHRMANN), 1888, A., 156; (GRABBE), 1888, A., 158.
- Aurania**, physiological action of (WETL), 1888, A., 1122.
- Aurantiamarin** (TANRET), 1886, A., 577.
- Aurantiol** (SEMMER and TREMANN), 1892, A., 868.
- Auric, auro, and aurous**. See Gold.
- Aurichalcite** (*barutite*) (JANNETTAZ), 1887, A., 644; (BELAR), 1890, A., 218; (PENFIELD), 1891, A., 886.
- Aurin**. See Rosolic acid.
- "Aurin red,"** or "peonine" (DALE and SCHORLEMMER), 1883, T., 186.
- Aurintricarboxylic acid** (CARO), 1892, A., 855.
- Aurora borealis**, spectrum of (KOCI), 1890, A., 313.
- Australene** (BARBIER and HILT), 1889, A., 616.  
 change of rotation of (MARSH and GARDNER), 1891, T., 727.  
 hydrochloride (MARSH and GARDNER), 1891, T., 728.
- isoAustralene** (BARBIER and HILT), 1889, A., 616.
- Austrum**, a new metallic element (LINDEMANN), 1886, A., 773.
- Auto-accumulator** (JABLONCHOFF), 1885, A., 854.
- Autocatalysis** (ONTWALD), 1891, A., 1151; (COLLAN), 1892, A., 1270.
- Autoclaves** for chemical laboratories (MUENCKE), 1886, A., 112.
- Autoxidation** (TRAUBE), 1889, A., 937; 1890, A., 208; (HOPPE-SEYLER), 1889, A., 1106.  
 in plant cells (REINKE), 1883, A., 819.
- Autoxydabel** (TRAUBE), 1883, A., 709.
- Azaurolic acids** (MEYER and UNSTAM), 1883, A., 40.
- Azelaic acid**, action of bromine on (BUJARD and HELL), 1889, A., 375.
- Azelaic acid**, boiling points of (KRAFFT and NOERDLINGER), 1889, A., 691.  
 thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097.
- Axial symmetry**, criteria of (ARMSTRONG), 1888, P., 93.
- Azidines** (PINNER), 1884, A., 743.
- Azimidazoles** (HANTZSCH), 1892, A., 313.
- Azines** (JAPP and BURTON), 1886, P., 268; 1887, T., 98; (HINSBERG), 1887, A., 383.  
 formation of, from *o*-diamines and polyamines (NIETZKI), 1890, A., 178.  
 preparation of (WITT), 1887, A., 590.
- Azines** of the uric acid group (KUHNING), 1891, A., 1341; 1892, A., 70.
- Azinsuccinic acids**,  $\alpha$ - and  $\beta$ -, and their derivatives (CURTIUS), 1885, A., 886.
- Azo-colouring matters**. See Colouring matters.
- Azo-compounds**—
- Azo-compounds** (GIRARD and PABST), 1883, A., 583; (WALLACH), 1883, A., 584; 1887, A., 40; (LIEBERMANN and v. KOSTANECKI), 1884, A., 1146; (NÖLTING and BAUMANN), 1885, A., 385; (MAZZARA), 1885, A., 904; (STAEDEL and BAUER), 1886, A., 943; (JANOVSKY), 1887, A., 663; (LIMPHICHT), 1891, A., 1036.  
 preparation of (WITT), 1886, A., 145.  
 constitution of (MELDOLA and STREETFELD), 1886, T., 624; P., 222, 263; 1887, T., 102, 434; P., 50; 1888, T., 604; P., 63; (MELDOLA and EAST), 1888, T., 460; P., 47; (MEYER), 1888, A., 366; (MELDOLA and MORGAN), 1889, T., 114; P., 11.  
 condensation of aldehydes with (BARSILOWSKY), 1892, A., 854.  
 action of carbon disulphide on (JACOBSON and SCHENCKE), 1890, A., 248.  
 oxidation of (LAUTH), 1892, A., 48.  
 reduction products of (JACOBSON and FISCHER), 1892, A., 839.  
 substitution in (NÖLTING), 1888, A., 270.  
 with mixed and substituted radicles and their derivatives (KANONNIKOFF), 1886, A., 145.  
 relation between hydrazides and (BERNTHSEN), 1888, A., 469.  
 of chrysanthine, dyes from (TRILLAT and RACKOWSKI), 1892, A., 1095.  
 of cyanocamphor (MINGUIN), 1892, A., 1343.

## AZO-COMPOUNDS—

- Azo-compounds** of the fatty series, constitution of (CURTIUS), 1889, A., 586.  
 of  $\beta$ -naphthol and  $\beta$ -naphthylamine, constitution of (MELDOLA), 1889, A., 101.  
 mixed (BAMBERGER), 1885, A., 157; (BAMBERGER and CALMAN), 1886, A., 62; (MEYER), 1888, P., 79; (BEYER and CLAISEN), 1888, A., 827; (CLAISEN), 1892, A., 710.  
 constitution of certain so-called (JAPP and KLINGEMANN), 1888, T., 519.  
 secondary and tertiary (MELDOLA), 1883, T., 425; 1884, T., 106; 1885, T., 657.  
**Azo-compounds, amido-** (GOLDSCHMIDT and ROSELL), 1890, A., 614.  
 cryoscopic experiments with (GOLDSCHMIDT), 1891, A., 1211.  
 action of hydrochloric acid on (WALLACH and KOLLIKER), 1884, A., 1014.  
 of the three xylenes (NÖLTING and FOREL), 1886, A., 58; (ZINCKE and JAENKE), 1888, A., 469.  
 secondary, preparation of (HENRIQUES), 1885, A., 168.  
**Azo-compounds, o-amido-** (NÖLTING and WITT), 1884, A., 742; (ZINCKE), 1886, A., 236; (ZINCKE and LAWSON), 1886, A., 795; 1887, A., 731; 1888, A., 159; (GOLDSCHMIDT and POLTZER), 1891, A., 839.  
**Azo-compounds, nitroso-**, constitution of (WILLGERODT), 1892, A., 1453.  
**Acetamidobenzeneazoacetanilide** (MIXTER), 1884, A., 301.  
**Acetamidobenzeneazoaniline** (NITZKI), 1884, A., 1016.  
**Acetamidobenzene-m-azodimethylaniline** (WALLACH), 1887, A., 41.  
**Acetamidobenzene-m-diazopiperidide** (WALLACH), 1887, A., 131.  
**Acetamidobisazobenzene** (NITZKI and DIESTERWEG), 1888, A., 1082.  
**p-Acetamidotoluene-o-azodiethylaniline** (WALLACH), 1887, A., 41.  
**4:3:1-Acetazimidotoluene** (BOTTSNECK), 1886, A., 874.  
**Acetoneazobenzene.** See Pyruvaldehydephenylhydrazine.  
**Acetonebisazobenzene** (CLAISEN), 1892, A., 710.  
**Acetophenoneazonaphthol** (KLINGEL), 1886, A., 61.

## AZO-COMPOUNDS—

- Aceto-p-toluidide-o-diazodiethylamide** (WALLACH), 1887, A., 137.  
**Aceto-p-toluidide-o-diazonitroethane** (WALLACH), 1887, A., 137.  
**Aceto-p-toluidide-o-diazopiperidide** (WALLACH), 1887, A., 138.  
**Acetylbenzeneazo-p-cresol** (GOLDSCHMIDT and BRUBACHER), 1891, A., 1209.  
**Acetylbenzeneazo- $\psi$ -cumaldehyde** (GOLDSCHMIDT and BRUBACHER), 1891, A., 1209.  
**Acetyl-m-chlorobenzene-p-azo-p-cresol** (GOLDSCHMIDT and POLLAK), 1892, A., 975.  
**Acetyl-p-chlorobenzeneazo-p-cresol** (GOLDSCHMIDT and POLLAK), 1892, A., 974.  
**Acetyl- $\psi$ -cumeneazophenol** (GOLDSCHMIDT and BRUBACHER), 1891, A., 1210.  
**Acetylenedicarboxylodiazooacetic acid** (BUCHNER), 1889, A., 694.  
**Acetyl-o-nitrohydroxyazobenzene** (GOLDSCHMIDT and BRUBACHER), 1891, A., 1211.  
**Acetylphenolbisazotoluene, 1:2:1-** (GOLDSCHMIDT and POLLAK), 1892, A., 976.  
**Acetylphenylazoacetone** (GOLDSCHMIDT and POLLAK), 1892, A., 977.  
**Acetyl-p-tolueneazo-p-cresol** (GOLDSCHMIDT and POLLAK), 1892, A., 974.  
**Acetyl-p-tolueneazophenol** (GOLDSCHMIDT and BRUBACHER), 1891, A., 1210.  
**Alkyldiazoamides**, synthesis of (MELDOLA and STREATFIELD), 1890, T., 785.  
 mixed, nature of the combination between (MELDOLA and STREATFIELD), 1890, T., 798.  
**Alkyldiazoamido-compounds**, synthesis of heterogeneous mixed (MELDOLA), 1889, T., 610; P., 127.  
**Anhydrosazohemipinic acid** (GRUNE), 1887, A., 49.  
**Anilidobenzeneazobenzene polysulphonic acids**, preparation of (ANON.), 1884, A., 237.  
**Anisenzylazoximebenzenyl** (MILLER), 1890, A., 115.  
**Anisenzylazoximecarbonyl** (MILLER), 1890, A., 145.  
**Anisenzylazoximeethenyl** (MILLER), 1890, A., 145; (HOCHHEIM), 1890, A., 1265.

## AZO-COMPOUNDS—

- Anisenzylazoximepropenyl- $\alpha$ -carboxylic acid** (MILLER), 1890, A., 115; (HOCHHEIM), 1890, A., 1265.
- Azimides and  $\psi$ -Azimides** (ZINCKE and CAMPBELL), 1890, A., 787.
- Azimidobenzene** (GRIESS), 1883, A., 184.
- Azimidobenzene**, brom- and trichlorobrom- (ZINCKE and ARZBERGER), 1889, A., 501.
- Azimidobenzoic acid** (GRIESS), 1883, A., 57.
- Azimidodibromodiamidodiphenyl** (SCHULTZ), 1884, A., 903.
- Azimido-compounds** (ZINCKE and ARZBERGER), 1889, A., 501; (ZINCKE and CAMPBELL), 1890, A., 787.
- constitution of (GRIESS), 1883, A., 56; (NÖLTING and APT), 1888, A., 278.
- formula of (ZINCKE), 1890, A., 990.
- Azimidophenyl- $\alpha$ -naphthylamine**, nitr- (HEIM), 1888, A., 1097.
- Azimidophenyl- $\beta$ -naphthylamine**, nitr- (HEIM), 1888, A., 488.
- Azimidotoluene** (NÖLTING and APT), 1888, A., 274.
- 2:3-Azimido-*p*-toluic acid** (CLAUS and BEYSEN), 1892, A., 177.
- Azimido-*p*-[*p*]-Ictuidobenzoic acid** (HEIDENSLER), 1891, A., 306.
- Azimidouramidobenzoic acid** (GRIESS), 1883, A., 57.
- Azoacetanilide** (MITTER), 1884, A., 301.
- Azoacetosaceticbenzoic acid** (GRIESS), 1885, A., 788.
- Azoamidobenzene**, *m*-nitr-. See Benzeneazoaniline, *m*-nitro.
- Azoamidobenzenesulphonic acids**. See Benzeneazoanilinesulphonic acids.
- Azoamidonaphthalenebenzenesulphonic acids**. See Sulphobenzeneazonaphthylaminesulphonic acids.
- p*-Azoaniline**. See Benzeneazoaniline, amido-.
- Azobenzene**, spectrum of (HARTLEY), 1887, T., 176.
- colour of (ARMSTRONG), 1892, P., 194.
- action of heat on the vapour of (FERRO), 1887, A., 572.
- action of benzaldehyde on (BARSIŁOWSKY), 1886, A., 148.
- action of bromine on (ARMSTRONG), 1892, P., 194.
- nitration of (JANOVSKY), 1885, A., 789.
- ethylxanthate and disulphide (LEUCKART), 1890, A., 605.

## AZO-COMPOUNDS—

- Azobenzene**, substitution products of (JANOVSKY), 1883, A., 324; 1884, A., 1115.
- amido-. See Benzeneazoaniline.
- diamido-. See Benzeneazophenylenediamine.
- p*-diamido-. See Benzeneazoaniline, amido-.
- triamido-. See Benzeneazophenylenediamine, amido-.
- bromo-derivatives (JANOVSKY and ERB), 1887, A., 478; (JANOVSKY), 1887, A., 663.
- o*-brom- (JANOVSKY), 1886, A., 795; (JANOVSKY and ERB), 1886, A., 1024.
- m*-brom- (JANOVSKY and ERB), 1886, A., 1024; 1887, A., 478.
- p*-brom- (JANOVSKY and ERB), 1887, A., 478; (JANOVSKY), 1887, A., 663; (NÖLTING and WERNER), 1891, A., 211.
- tetra*- and *hexa*-brom-, disulphochlorides (RODITZ), 1883, A., 479.
- bromonitro-derivatives of (JANOVSKY), 1887, A., 478.
- bromonitr- (WILLGERODT), 1888, A., 949.
- bromonitroso- (WILLGERODT), 1888, A., 949.
- p*-chlor-, and its derivatives (HEUMANN and MENTHA), 1886, A., 874; 1887, A., 247.
- allo*-*m*-chlorodibromo-*o*-nitroso- (WILLGERODT and ELLON), 1891, A., 1361.
- chloro-*p*-nitr- (DANM and GASIOROWSKI), 1887, A., 248.
- m*-chloro-*o*-nitr- (WILLGERODT and FERRO), 1888, A., 830.
- allo*-*m*-chloro-*o*-nitr- (WILLGERODT and ELLON), 1891, A., 1361.
- chlorodinitr-, and chlorotritr- (WILLGERODT and ELLON), 1891, A., 1361.
- p*-chlorodinitr-, *p*-chlorotritr-, and *p*-chlorotetritr- (WILLGERODT), 1890, A., 1118.
- p*-chloronitronitroso-derivatives (WILLGERODT), 1890, A., 1118.
- m*-chloro-*o*-nitroso- (WILLGERODT and FERRO), 1888, A., 830.
- p*-chlorodinitroso- (WILLGERODT), 1890, A., 1119.
- p*-cyan- (MENTHA and HEUMANN), 1887, A., 248.
- p*-iod- (NÖLTING and WERNER), 1891, A., 211.
- di*-*p*-iod-, colour of (LING), 1892, P., 194.

## AZO-COMPOUNDS—

**Azobenzene**, nitro-derivatives of (JANOVSKY), 1883, A., 867; 1887, A., 663.

nitr. (JANOVSKY and ERB), 1887, A., 478.

reduction of (JANOVSKY), 1885, A., 789.

*o*-nitr. (JANOVSKY), 1886, A., 794.

*p*-nitr. (JANOVSKY and ERB), 1885, A., 894.

dinitro-compounds (JANOVSKY), 1886, A., 794.

dinitr., reduction of (JANOVSKY), 1885, A., 789.

*o*- and *m*-trinitr. (KLINGER and ZUURDEG), 1890, A., 762.

*p*-trinitr., and *o*-*p*-tetranitr. (WILLGERODT and HERMANN), 1890, A., 1259.

dinitro-*m*- and -*p*-amido- (ODDO), 1891, A., 554.

nitronitroso- (WILLGERODT and HERMANN), 1889, A., 1161.

reduction of (WILLGERODT), 1892, A., 1322.

nitrodinitroso- (WILLGERODT and FERKO), 1888, A., 829; (WILLGERODT), 1891, A., 689.

dinitronitroso-, conversion of trinitrohydrazobenzene into (FREUND), 1889, A., 977.

dinitrodinitroso-, and trinitronitroso- (WILLGERODT and HERMANN), 1890, A., 1259.

dinitroso- (WILLGERODT and FERKO), 1888, A., 830; (WILLGERODT and HERMANN), 1889, A., 1160; (KEHRMANN and MESSINGER), 1892, A., 889; (WILLGERODT), 1892, A., 1079; (KEHRMANN), 1892, A., 1198.

preparation of (WILLGERODT), 1892, A., 1321.

**Azobenzeneazo-*p*-chloronitrobenzene**, trinitronitroso- (WILLGERODT), 1890, A., 1119.

**Azobenzeneazo-*p*-cresol** (NÜLTING and KOHN), 1884, A., 901.

**Azobenzeneazonaphthol**, *m*-nitr. (nitrobenzeneazobenzeneazonaphthol) (MELDOLA), 1881, T., 113.

**Azobenzeneazo- $\beta$ -naphthylethylamine** (HENRIQUES), 1885, A., 168.

**Azobenzene-*o*-carboxylic acid**, and its *p*-bromo- and *p*-chloro-derivatives (PAAL), 1892, A., 67.

**Azobenzene-*p*-carboxylic acid** (MENTHA and HEUMANN), 1887, A., 248.

## AZO-COMPOUNDS—

**Azobenzene-*p*-chlorazobenzene**, nitro-*tr*initroso- (WILLGERODT and BÖHM), 1891, A., 907.

*tr*initronitroso- (WILLGERODT), 1890, A., 1119; (WILLGERODT and BÖHM), 1891, A., 907.

**Azobenzenechlorobenzamide** (LIMPRICHT), 1891, A., 1037.

**Azobenzene-*m*-chlorophenylhydrazine**, *tr*initr- and *tr*initronitroso- (CURTIUS and LANG), 1892, A., 455, 456.

**Azobenzene-*p*-chlorophenylhydrazine**, *tetra*nitr- (WILLGERODT and BÖHM), 1891, A., 907.

*tr*initronitroso- (WILLGERODT), 1890, A., 1119; (WILLGERODT and BÖHM), 1891, A., 907.

**Azobenzeneacyanacetophenone** (HALLER), 1889, A., 873.

**Azobenzenediazine sulphite** (GRIESS), 1883, A., 181.

**Azobenzenedisulphonamides**, *tetra*- and *hexa*-brom- (RODATZ), 1883, A., 479, 480.

**Azobenzene-3:3-disulphonamide** (LIMPRICHT and MEYER), 1892, A., 973.

**Azobenzenedisulphonic acid** (GRIESS), 1883, A., 182.  
from "acid-yellow" (EGER), 1889, A., 709.

**Azobenzenedisulphonic acids**, constitution of (RODATZ), 1883, A., 477.  
brominated, and their derivatives (RODATZ), 1883, A., 478.

**Azobenzene-*m*-hydroxybenzoic acid** (LIMPRICHT), 1891, A., 1037.

**Azobenzeneinduline**, amido- (FISCHER and HEPP), 1891, A., 1016.

**Azobenzene-*o*-methyleyanacetophenone** (HALLER), 1889, A., 874.

**Azobenzenenitrolic acids** (JANOVSKY and ERB), 1885, A., 891.

**Azobenzenephenylenediaminebenzene** (GRIESS), 1883, A., 1102.

**Azobenzenephenylenediamine-*p*-toluene**,  $\alpha$ - and  $\beta$ - (GRIESS), 1883, A., 1102, 1103.

**Azobenzenephenylhydrazine**, chloronitro- (and nitro-derivatives of (WILLGERODT and MÜHLE), 1892, A., 456.

*tr*initronitroso- (WILLGERODT), 1890, A., 1119; (WILLGERODT and BÖHM), 1891, A., 907.

**Azobenzenephenylthiocarbamide** (BERKE), 1884, A., 1149.

**Azobenzene- $\beta$ -resorcylic acid** (LIMPRICHT), 1891, A., 1037.

## AZO-COMPOUNDS—

**Azobenzenesalicylaldehyde** (TUMMLELEY), 1889, A., 780.

**Azobenzenesalicylamide** (TUMMLELEY), 1889, A., 780.

**Azobenzenesalicylic acid** and its derivatives (LIMPRICHT), 1891, A., 1036.

**Azobenzenesalicylic alcohol** (TUMMLELEY), 1889, A., 780.

**Azobenzenesulphinic acids** (LIMPRICHT), 1885, A., 984; (BAUER), 1885, A., 1139.

**Azobenzenesulphonic acid**, nitro/dinitroso- (WILLGERODT and FERRO), 1888, A., 829.

**Azobenzenesulphonic acid**, substitution products of (JANOVSKY), 1883, A., 1101.

*p*-amido- (GRIESS), 1883, A., 181. and its salts (JANOVSKY), 1883, A., 867, 1101.

*m*-brom- (JANOVSKY and ERB), 1887, A., 478.

*p*-brom-, and its salts (JANOVSKY), 1884, A., 1116; (JANOVSKY and ERB), 1887, A., 478.

chlor-, and its derivatives (MENTHA and HEUMANN), 1887, A., 248.

dichlor-, salts of (CALM), 1883, A., 341.

*o*-nitro- (LERCHE), 1889, A., 881.

*p*-nitro-, and its salts (JANOVSKY), 1883, A., 867.

*d*-nitro- and its salts (JANOVSKY), 1884, A., 1145.

**Azobenzenesulphonic acids** and their salts and nitro-compounds (JANOVSKY), 1883, A., 321.

**Azobenzenethiosulphonic acids** (LIMPRICHT), 1885, A., 981; (BAUER), 1885, A., 1139.

**Azobenzenyl peroxide** (BECKMANN), 1889, A., 980.

*p*-Azobenzylidisulphonic acid (MOHR), 1884, A., 69.

**Azobenzil** (*benzilum*), Zinin's (JAPP), 1883, T., 17; 1884, A., 313; (HENRIUS), 1885, A., 1067.

**Azobenzoic acids**, action of alcohol on (REMSEN and GRAHAM), 1889, A., 975.

*p*-Azobenzoic acids, *mono*- and *di*-nitro- (ROZIANKO), 1889, A., 141.

**Azobenzoylcarbinol** (*syn.* for isatin) (GUMPERT), 1886, A., 342.

**Azobenzylethylamidophenol** (LELLMANN and BOYE), 1890, A., 1116.

*p*-Azobenzylidisulphonic acid. See Toluenediazotoluene-di-*o*-sulphonic acid.

## AZO-COMPOUNDS—

*o*-Azo-*p*-bromacetanilide (MATTHIESSEN and MIXTER), 1887, A., 251.

**Azocamphene** (TANGLI), 1888, A., 720.

**Azocarboxylic acid** (OSPL), 1883, A., 792.

**Azocresol-compounds** (NOLTING and KOHN), 1884, A., 900.

**Azo-*p*-cresol** (LIEBERMANN and v. KOSTANECKI), 1884, A., 736.

**Azocumene** (POSPECHOFF), 1886, A., 459.

**Azo- $\psi$ -cumene** ( $\psi$ -*cumenecarboxy-cumene*) (POSPECHOFF), 1888, A., 110.

*o*-amido- (ZINCKE and JÄNKE), 1888, A., 469.

**Azocumic acid**, derivatives of (ALEXÉEFF), 1885, A., 390.

**Azocumic chloride** (ALEXÉEFF), 1890, A., 891.

**Azocymene** (*cymeneazocymene*) (SCHTUMOFF), 1888, A., 469.

**Azodiacetamidotoluene** (BANKIEWICZ), 1889, A., 865.

**Azodibenzenephenylenediamine** (*benzenecarboxenecarboxyphenylenediamine*) (GRIESS), 1883, A., 1103.

*o*-Azodibenzylamine (LELLMANN and ARNOLD), 1892, A., 316, 890.

**Azodicarbonamide** and its salts (THIELE), 1892, A., 1297. preparation of (THIELE), 1892, A., 1430.

**Azodicarboxylic acid** (THIELE), 1892, A., 1429.

**Azodihydrobenzene**, *p*-*d*-nitro- (WILLGERODT), 1890, A., 1116.

**Azodihydroxyquinoline** (BISCHOFF), 1889, A., 519.

**Azodimethoxyphenylpyrazole** (KNORR and BLANK), 1884, A., 1380.

**Azodimethylquinol** and its *d*-bromoderivatives (BÄRSSLER), 1884, A., 1230; 1887, A., 361.

**Azoethylbenzenes**, *o*- and *p*-, and their reduction (SCHULTZ), 1884, A., 903.

**Azoimide** (*nitrogen hydride; hydrazic acid*) (CURTIUS), 1891, A., 56; 1892, A., 112; (MENDLÉEFF), 1891, A., 394; (CURTIUS and RADENHAUSEN), 1891, A., 521. preparation of (MAUMENÉ), 1891, A., 262.

formation of (MELNOLA and HAWKINS), 1892, P., 133.

formation of, from dinitrotriazobenzene (NOLTING and GRANDMOUGIN), 1891, A., 1173.

## AZO-COMPOUNDS—

- Azoimide** (*nitrogen hydride; hydrazoic acid*), synthesis of (WISLIZENUS), 1892, A., 1151,  
thermochemistry of (BACH), 1892, A., 933.  
heat of formation of (BENTHELOF and MATIGNON), 1892, A., 261.  
action of, on living organisms (LOEW), 1892, A., 90.
- Azoisatin** (CURTIUS and LANG), 1892, A., 451.
- Azomalonibenzoic acid** (GRIESS), 1885, A., 788.
- Azomesitylene** (SCHULTZ), 1884, A., 901.
- Azomethoxyphenylethylpyrazole** (KNORR and BLANK), 1884, A., 1380.
- Azo-*p*-methoxytoluene** (SCHULHÖFER), 1891, A., 1232.  
amido- (LIMPACH), 1889, A., 499.
- Azo-2'-methylindole** (WAGNER), 1888, A., 284.
- Azomethylphenyl** (*benzenearomethane*) (TAFEL), 1885, A., 1061.
- Azo-1-methylquinoline** (NÖLTING and TRAUTMANN), 1891, A., 328; 1892, A., 729.
- Azo- $\alpha$ -naphthalene** (*naphthaleneazo- $\alpha$ -naphthalene*) and its derivatives (NIETZKI and GOLL), 1885, A., 545; 1886, A., 215.  
preparation and reduction of (FRIEDLÄNDER), 1889, A., 607.  
amido-, spectrum of (HARTLEY), 1887, T., 190.  
melting-point of (NIETZKI and GOLL), 1885, A., 545.  
formation of pyridine from (v. BUCHKA and SPRANCK), 1889, A., 728.
- Azo- $\beta$ -naphthalene**, derivatives of (NIETZKI and GOLL), 1886, A., 714; (MELDOLA and EAST), 1888, T., 460; P., 47.  
amido- (NIETZKI and GOLL), 1886, A., 714.  
spectrum of (HARTLEY), 1887, T., 191.  
derivatives of (ZINCKE and LAWSON), 1888, A., 159.
- $\beta$ - $\alpha$ -Azonaphthalene** and its amido-compound (NIETZKI and GÖTTIG), 1887, A., 590.
- Azonaphthalenesalicylic acids**,  $\alpha$ - and  $\beta$ - (GEREK), 1889, A., 780.
- $\alpha$ -Azo- $\alpha$ -naphthol compounds** (NÖLTING and GRANDMOUGIN), 1891, A., 1074.

## AZO-COMPOUNDS—

- Azo- $\beta$ -naphthol compounds** containing acid radicles, reduction of (MELDOLA and MORGAN), 1889, T., 117.  
acetyl derivatives of (MELDOLA), 1888, A., 187.  
alkyl derivatives of (MELDOLA and MORGAN), 1889, T., 603.  
benzoyl derivatives of (MELDOLA and MORGAN), 1889, T., 111.
- Azonaphthol-dyes**, constitution of (LIEBERMANN), 1884, A., 609.
- Azonaphthols** (MELDOLA and MORGAN), 1889, T., 603; P., 127.
- Azo- $\beta$ -naphthylphenylamine** (ZINCKE and LAWSON), 1887, A., 730; (ZINCKE), 1890, A., 990.
- Azonitrobenzenesalicylic acid** (GEREK), 1889, A., 780.
- Azonitrolic acids**, reduction of (JANOVSKY), 1885, A., 789.
- Azonitromethanebenzoic acid** (GRIESS), 1883, A., 788.
- Azo-opianic acid**. See *o*-Amidohemipinic anhydride.
- m*-Azophenetol** (BUCHSTAN), 1881, A., 1147.
- o*-Azophenol**, trichlor- (BOHN and HEUMANN), 1884, A., 1015.
- p*-Azophenol** and its sulphonic acid (BOHN and HEUMANN), 1883, A., 583.
- Azophenols**, behaviour of, towards various reagents (BOHN and HEUMANN), 1884, A., 1014.
- Azo-*o*-phenoxyacetic acid** and its salts (THATB), 1881, A., 1170.
- Azophenylacetic acid** and its salts (WITTENBERG), 1885, A., 661.
- Azophenylacetoacetamide** (LEUCKART and HOLTZAPFEL), 1889, A., 864.
- Azophenylallyl** (*benzenearopropylene*) (FISCHER and KNOEVENAGEL), 1887, A., 933.
- Azophenylene**. See Phenazine.
- Azophenylenediaminebenzene-*m*-benzoic acid** (GRIESS), 1883, A., 1103.
- m*-Azophenylglyoxylic acid** and its salts (THOMPSON), 1883, A., 998.
- Azophenylhydrazine compounds** (WILGHEMOOT), 1890, A., 1118.
- Azophthalic acid**, action of stannous chloride on (CLAUSS and HEMMANN), 1883, A., 1126.
- Azoresorcinol** and its derivatives (BRUNNER and KRAEMER), 1881, A., 1333; (BRUNNER), 1885, A., 776.

## AZO-COMPOUNDS—

- Azoresorufin** and its derivatives (BRUNNER and KRAEMER), 1881, A., 1333, 1351; (BRUNNER), 1885, A., 776.  
 dimethyl ether (KRAEMER), 1881, A., 1311.  
**Azoresorufylhydrochloride** (BRUNNER and KRAEMER), 1881, A., 1334.  
**Azosulphimecarbohydrosulphides** (TIEMANN), 1891, A., 557.  
**Azo-*p*-sulphobenzene- $\delta$ -diamidobenzoic acid** (GRIESS), 1883, A., 184.  
**Azo-*p*-sulphobenzene-phenylenediamine** (*phenylenediamineazobenzeneazobenzenesulphonic acid*) (GRIESS), 1883, A., 1103.  
**Azo-*p*-sulphobenzene-phenylenediaminebenzene** (*benzeneazophenylenediamineazobenzenesulphonic acid*) (GRIESS), 1883, A., 1103.  
**Azosulphobenzene-toluenediamine.** See Tolylendiamineazobenzeneazobenzenesulphonic acid.  
**Azoterephthalic acid** (HOMOLKA and LÖW), 1886, A., 702.  
**Azotetrahydro- $\alpha$ -naphthalene**, *ar-amido-* (BAMBERGER and LENG-FELD), 1890, A., 1305.  
**Azotoline** (FISCHER and HEPP), 1891, A., 1016.  
***o*-Azotoluene** (SCHULTZ), 1884, A., 903; (POSPECHOFF), 1888, A., 825.  
*o*-amido-, oxidation of (ZINCKE), 1886, A., 236.  
 nitro-derivatives of (POSPECHOFF), 1889, A., 501.  
***m*-Azotoluene**, *dinitro-* (v. BUCHKA and SCHACHTERBECK), 1889, A., 701.  
***p*-Azotoluene** (PIERSON and HEUMANN), 1883, A., 915; (JANOVSKY), 1889, A., 250.  
 substitution products of (JANOVSKY and ERB), 1887, A., 479; (JANOVSKY and REIMANN), 1888, A., 686.  
 amido-, and its derivatives (NÖLTING and WITT), 1881, A., 742.  
*o*-bromo-, *m*-bromo-, and *di-m*-bromo- (JANOVSKY and REIMANN), 1888, A., 686.  
 chloro- (MENTHA), 1887, A., 218.  
 nitro-derivatives of (JANOVSKY and ERB), 1887, A., 479; (JANOVSKY), 1889, A., 251; 1890, A., 140.  
***m-p*-Azotoluene** (ZINCKE and LAWSON), 1886, A., 795.  
**Azotoluenes** (JANOVSKY), 1890, A., 140.  
*tri-nitr-*, isomerism of (HANTZSCH and WERNER), 1890, A., 350.

## AZO-COMPOUNDS—

- o*-Azotoluene-*p*-disulphonamide** (HELLE), 1892, A., 1168.  
**Azotoluenedisulphonic acids** and their derivatives (KORNAITZKI), 1881, A., 71.  
**Azo-*p*-toluenephenylenediaminebenzene** (GRIESS), 1883, A., 1103.  
**Azo-*p*-toluenephenylenediamine- $\beta$ -naphthalene** (GRIESS), 1883, A., 1103.  
***p*-Azotoluene-*m*-sulphonic acid** (JANOVSKY), 1888, A., 370.  
*o*-bromo- (JANOVSKY and REIMANN), 1888, A., 686.  
**Azotoluidine** and its salts (LIMPRICHT), 1885, A., 975; (GRAEFF), 1885, A., 1123.  
***o*-Azo-*o*-toluidine** (GREEN and LAWSON), 1891, T., 1016.  
**Azo-*o*-toluquinoline.** See Azo-1-methylquinoline.  
**Azotolyl** (BARSKOWSKY), 1888, A., 140.  
**Azoxazocarboxylic acid** (SODERBAUM), 1891, A., 827; (WOLFF and GANS), 1891, A., 896.  
**Azoximes** (TIEMANN and KRÜGER), 1881, A., 1325; (TIEMANN), 1885, A., 895; 1890, A., 41, 140, 141, 253; 1891, A., 538; 1892, A., 135, 317.  
***p*-Azoxyacetanilide** (MIXTER), 1884, A., 301.  
**Azoxy-*p*-acetotoluidide** (BANKIEWICZ), 1889, A., 865.  
***p*-Azoxyaniline** and its derivatives (MIXTER), 1881, A., 301.  
**Azoxybenzanilide**, *o*- and *m*- (MIXTER), 1884, A., 301.  
***p*-Azoxybenzanilide** (MIXTER), 1884, A., 666.  
**Azoxybenzene**, Klinger's method of preparing (MOLTSCHANOWSKI), 1883, A., 180.  
 resolution of (FRISWELL and GREEN), 1885, T., 923.  
***m*-Dichloro-** (SCHULTZ), 1884, A., 903.  
 chloronitronitroso- (WILLGERODT and MÜHE), 1892, A., 455.  
*p*-chlorodinitroso- (WILLGERODT and BÖHM), 1891, A., 905.  
 nitr- (JANOVSKY and ERB), 1887, A., 479, 661.  
*m-dinitr-* (KLINGER and PITTSCHKE), 1886, A., 53.  
*o*- and *m-trinitr-* (KLINGER and ZUURDEG), 1890, A., 761.  
**Azoxybenzenesulphonic acids**, and their salts (LIMPRICHT), 1885, A., 981.

## AZO-COMPOUNDS—

- Azoxybenzotoluidide** (MIXTER), 1881, A., 666.
- p*-Azoxybenzoylformic acid** (ENGLER and ZIEGLER), 1889, A., 506.
- o*-Azoxybenzylethylaniline** (LELLMANN and BOYLE), 1890, A., 1116.
- p*-Azoxy-*o*-dichlorostilbene** (WITT), 1892, A., 441.
- Azoxydiphenylamine** (FISCHER and WACKER), 1888, A., 1286.
- Azo-*o*-xylene**, 1:2:3- (NÖLTING and STRICKER), 1889, A., 135.
- Azo-*m*-xylene**, 1:3:1- (NÖLTING and STRICKER), 1889, A., 136.
- Azo-*p*-xylene**, 1:1:2- (SAMANOFF), 1883, A., 780; (NÖLTING and STRICKER), 1889, A., 136.
- m-p*-Azoxylene** (ZINCKE and JAENKE), 1888, A., 470.
- Azo-xylenes and colouring matters** derived therefrom (NÖLTING and STRICKER), 1889, A., 135.
- amido-** (NÖLTING and FOREL), 1886, A., 58.
- Azo-*m*-xylenedisulphonic acid** (1:3:4.6-) and its salts (JACOBSEN and LEIDEBROGE), 1883, A., 593.
- Azoxy-*p*-methoxytoluene** (BRASCH and FREYSS), 1891, A., 1231.
- Azoxymethylethylisooxazole** (HANNOT), 1892, A., 79.
- Azoxy-1-methylquinoline** (NÖLTING and TRAUTMANN), 1891, A., 328.
- Azoxymethylquinolines** (NÖLTING and TRAUTMANN), 1892, A., 727, 729.
- α*-Azoxy-naphthalene-*α*-sulphonic acid** and its salts (ALEX), 1886, A., 555.
- α*-Azoxy-*β*-naphthylamine** (HARDEN), 1890, A., 631.
- p*-Azoxyphenetol** (KINZEL), 1892, A., 159.
- Azoxyphenol ethers** (GATTERMANN and RITSCHKE), 1890, A., 1119.
- p*-Azoxyphenol** (FISCHER and WACKER), 1888, A., 1286.
- Azoxy-*o*-phenoxyacetic acid** (THIATE), 1881, A., 1170.
- Azoxypropylbenzoic acid** (WIDMAN), 1883, A., 330.
- Azoxyisopropylbenzoic acid** (ALEX-LEFF), 1885, A., 390.
- Azoxyterephthalaldehydic acid** (HOMOLKA and LOW), 1886, A., 701.
- Azoxyterephthalic acid** (HOMOLKA and LOW), 1886, A., 702.
- "Azoxytoluene"** [Petrieff's] (POSPECHOFF), 1888, A., 826.
- o*-Azoxytoluene** (KLINGER and PITSCHKE), 1886, A., 53; (GUTERMANN), 1887, A., 932.

## AZO-COMPOUNDS—

- m*-Azoxytoluene** (v. BUCHKA and SCHACHLEBECK), 1889, A., 701.
- Azoxytoluenes** (JANOVSKY), 1890, A., 110.
- two isomeric (JANOVSKY and REIMANN), 1889, A., 392.
- α*- and *β*-, and their bromo- and nitro-derivatives (JANOVSKY), 1889, A., 865.
- p*-Azoxytoluenes**, isomerism of (HANTZSCH and WERNER), 1890, A., 350.
- Azoxytoluenesulphonic acid** (JANOVSKY and REIMANN), 1889, A., 392.
- Azoxytoluidine** (LIMPRICHT), 1885, A., 974.
- p*-Azoxy-*o*-toluidine** (GREEN and LAWSON), 1891, T., 1016.
- salts of (GRAEFF), 1885, A., 1128.
- o*-Azoxy-*p*-toluonitrile** (NIESEN-TOWSKI), 1889, A., 1005.
- m*-Benzamidoazophenol** (SCHULZE), 1889, A., 778.
- Benzazimide** (FINGER), 1888, A., 918.
- Benzeneazo-**. See also Phenylazo- and Azobenzene.
- Benzeneazoacetone**. See Pyruvaldehydphenylhydrazone.
- Benzeneazoaniline**, preparation of (WITT and THOMAS), 1883, T., 113; (FISCHER), 1884, A., 1011.
- action of acetone on (ENGLER and SCHESTOPAL), 1887, A., 180.
- action of aniline hydrochloride on (WITT and THOMAS), 1883, T., 112; (STERL), 1892, A., 492.
- action of hydrochloric acid on (FISCHER), 1881, A., 1011.
- by-products in the manufacture of (GATTERMANN and WICHMANN), 1888, A., 829.
- relation of diazobenzeneimide to (FRISWELL and GREEN), 1885, T., 917; P., 102; 1887, P., 26.
- Wallach's explanation of the isomeric transformation of diazoamidobenzene into (MELDOLA), 1887, P., 27.
- derivatives of (JANOVSKY), 1883, A., 867; (BERNU), 1884, A., 1148; 1885, A., 660; (NÖLTING and BAUMANN), 1885, A., 386.
- Benzeneazoaniline**, amido- (MIXTER), 1889, A., 666; (NIEZKI), 1881, A., 1016; (JANOVSKY), 1885, A., 1131.
- m*-nitro- (MELDOLA), 1884, T., 112.
- Benzeneazoaniline mono- and di-sulphonic acids** (GRIESS), 1883, A., 181.

## AZO-COMPOUNDS—

- Benzeneazobenzaldehyde** (BEYER and CLAISEN), 1888, A., 828.  
**Benzeneazobenzeneazo-*p*-cresol** (NÖLTING and KOHN), 1881, A., 901.  
**Benzeneazobenzeneazonaphthol, nitro-** (MELDOLA), 1884, T., 113.  
**Benzeneazobenzeneazophenylenediamine** (GRIFFIN), 1883, A., 1103.  
**Benzeneazobenzoic acid** (MENTHA and HEUMANN), 1887, A., 248.  
**Benzeneazobenzonitrile** (MENTHA and HEUMANN), 1887, A., 248.  
**Benzeneazobenzoylactic acid, and *o*-nitro-** (BAMBERGER and CALMAN), 1886, A., 62.  
**Benzeneazobenzoylacetone** (BEYER and CLAISEN), 1888, A., 828.  
**Benzeneazobenzylidene- $\beta$ -naphthylamine** (GOLDSCHMIDT and ROSELI), 1890, A., 616.  
**Benzene-*o*-azobromobenzene** (JANOVSKY), 1886, A., 795; (JANOVSKY and ERB), 1886, A., 1024.  
**Benzene-*m*-azobromobenzene** (JANOVSKY and ERB), 1886, A., 1024; 1887, A., 478.  
**Benzene-*p*-azobromobenzene** (JANOVSKY and ERB), 1887, A., 478; (JANOVSKY), 1887, A., 663; (NÖLTING and WERNER), 1891, A., 211.  
**Benzeneazo-bromonitrobenzene and -bromonitrosobenzene** (WILLGERODT), 1888, A., 949.  
**Benzeneazo-*i*/bromobenzene, *i*/bromo- and benzeneazo-*r*/bromobenzene, *r*/bromo-, disulphochlorides** (RODATZ), 1883, A., 479.  
**Benzeneazo-*p*-bromobenzene, nitro- and nitroso-derivatives of** (WILLGERODT and ELLEN), 1891, A., 1362.  
**Benzeneazocarvacrol** (MAZZARA), 1885, A., 1132.  
**Benzeneazo-*p*-chlorobenzamide** (LIMPRICH), 1891, A., 1037.  
**Benzeneazochlorobenzene, and its derivatives** (HEUMANN and MENTHA), 1886, A., 874; 1887, A., 247.  
**Benzeneazo-*o*-chlorobenzene, *d*/nitro-nitroso-** (WILLGERODT), 1891, A., 1013.  
**Benzeneazo-*m*-chlorobenzene, nitro- and nitronitroso-derivatives of** (WILLGERODT and MÜHE), 1892, A., 454.  
**Benzeneazo-*p*-chlorobenzene, nitro- and nitronitroso-derivatives of** (WILLGERODT and BÖHM), 1891, A., 905.

## AZO-COMPOUNDS—

- Benzeneazo-chloronitrobenzene and -chloronitrosobenzene** (WILLGERODT and FERRO), 1888, A., 830.  
**Benzeneazo-*m*-chlorodimethylaniline, *m*-nitro-** (STAEDEL and BAUER), 1886, A., 911.  
 **$\beta$ -Benzeneazo- $\alpha$ -chloronaphthalene** (ZINCKE and KEGEL), 1889, A., 267.  
**Benzeneazo-*o*- and -*p*-cresotoils** (NÖLTING and WERNER), 1891, A., 212.  
**Benzeneazo-*m*-cresol** (NÖLTING and KOHN), 1884, A., 902.  
**Benzeneazo-*o*- and -*p*-cresols, and their acetic and benzoic derivatives** (LIEBERMANN and V. KOSTANECKI), 1884, A., 736; (NÖLTING and KOHN), 1884, A., 900.  
**Benzeneazo-*p*-cresol, *m*- and *p*-chloro-** (GOLDSCHMIDT and POLLAK), 1892, A., 974, 975.  
***o*-nitro-** (GOLDSCHMIDT and BRUBACHER), 1891, A., 1210.  
**Benzeneazocresols, reduction of** (LIEBERMANN and V. KOSTANECKI), 1884, A., 1116.  
**Benzeneazo-*p*-cresolsulphonic acid** (NÖLTING and KOHN), 1884, A., 901.  
**Benzeneazocumenol, and its reduction** (LIEBERMANN and V. KOSTANECKI), 1884, A., 1117.  
**Benzeneazocyanacetophenone** (HALLER), 1889, A., 873.  
**Benzeneazocyanocamphor** (MINGUIN), 1892, A., 1313.  
**Benzeneazo-2-2'-dianilidonaphthalene** (CLAUSIUS), 1890, A., 629.  
**Benzeneazodibenzoylmethane** (BEYER and CLAISEN), 1888, A., 828.  
**Benzeneazodibenzoylmethane-*p*-sulphonic acid, sodium salt of** (BEYER and CLAISEN), 1888, A., 828.  
**Benzeneazodihydroxynaphthalene, 1:2-2'** (CLAUSIUS), 1890, A., 628.  
**Benzeneazodimethylaniline, *m*-amido-** (WALLACH), 1887, A., 41.  
***p*-amido-** (MELDOLA), 1884, T., 107.  
***r*/bromo-** (SILBERSTEIN), 1883, A., 661.  
***m*-chloro-** (STAEDEL and BAUER), 1886, A., 911.  
**nitro-derivatives of** (NÖLTING), 1888, A., 270.  
***m*-nitro-** (MELDOLA), 1884, T., 120; 1887, A., 152; (STAEDEL and BAUER), 1886, A., 914.  
***p*-nitro-** (MELDOLA), 1884, T., 107.  
 See also Dimethylanidoazobenzene.

## AZO-COMPOUNDS—

- Benzeneazodimethylanilinesulphonic acid** (NÖLTING), 1888, A., 271.
- Benzeneazo- $\alpha$ -dinaphthylamine** (FISCHER and HLEP), 1890, A., 912.
- $\alpha$ -Benzeneazo- $\alpha\beta$ -dinaphthylamine** (MATTHEUS), 1890, A., 385, 993.
- Benzeneazo- $\beta\beta$ -dinaphthylamine** (MATTHEUS), 1890, A., 993.
- Benzeneazodiphenyl** (LOCHER), 1888, A., 589.
- Benzeneazodiphenylamine**, *m*-nitro- (MELDOLA), 1884, T., 118, 119.
- p*-nitro- and *p*-amido- (MELDOLA), 1883, T., 440.
- m*- and *p*-nitroso- (MELDOLA), 1884, T., 118, 119.
- Benzeneazodiphenylcarbamide** (GOLDSCHMIDT and ROSELT), 1890, A., 616.
- Benzeneazodiphenyldisulphonic acid** (GRIESS), 1888, A., 827.
- Benzeneazodiphenylthiocarbamide** (BERJT), 1884, A., 1149.
- o*-Benzeneazoethylresorcinol** (PUKALL), 1887, A., 662.
- Benzeneazo-*m*-hydroxybenzoic acid** (LIMPRICHT), 1891, A., 1037.
- Benzeneazohydroxybenzyl alcohol** (TUMMELEY), 1889, A., 780.
- m*-Benzeneazo-*o*-hydroxymethylquinoline** (GANGLIN and V. KOSTANECKI), 1892, A., 506.
- Benzeneazo-*o*- and -*p*-hydroxyquinolines** (MATHEUS), 1888, A., 851.
- Benzeneazo-*p*-hydroxyquinolinesulphonic acid** (MATHEUS), 1888, A., 851.
- Benzeneazoindoxyl** (V. BAeyer), 1884, A., 74.
- Benzeneazoidobenzene** (NÖLTING and WERNER), 1891, A., 211.
- iodo-, colour of (LING), 1892, P., 198.
- Benzeneazo-ketones** (V. RICHTER and MUNZER), 1884, A., 1312.
- Benzeneazomalonic acid** (MEYER), 1888, A., 369; 1891, A., 922.
- Benzeneazomethane** (*crumethyphenyl*) (TAFEL), 1885, A., 1061.
- Benzeneazomethylaniline**, *p*-nitro- (NÖLTING), 1888, A., 273.
- and its acetyl derivative (BERJT), 1884, A., 1149.
- Benzeneazo-*o*-methylcyanacetophenone** (HALLER), 1889, A., 874.
- 1"-Benzeneazo-2"-methyl-*ar*-octohydro- $\beta$ -naphthaquinoline** (BAMBERGER and MÜLLER), 1891, A., 1512; (BAMBERGER and STRASSER), 1891, A., 1513.

## AZO-COMPOUNDS—

- 2'-Benzeneazo-2"-methyl-*ar*-octohydro- $\beta$ -naphthaquinoline** (BAMBERGER and STRASSER), 1891, A., 1513.
- Benzeneazo- $\alpha$ -naphthaleneazo- $\alpha$ - and - $\beta$ -naphthols**, *m*-nitro- (MELDOLA), 1884, T., 114, 116.
- Benzeneazo- $\alpha$ -naphthaleneazoresorcinol**, *m*-nitro- (MELDOLA), 1884, T., 116.
- Benzeneazonaphthalenes**, nitro-, nitroso-, and nitronitroso-derivatives of (WILLAGRODT and SCHULTZ), 1891, A., 572.
- Benzeneazonaphtharesorcinol**, nitroso- (V. KOSTANECKI), 1890, A., 261.
- Benzeneazo- $\alpha$ -naphthol**, action of *m*-diazobenzoic acid and of diazosulphanilic acid on (NÖLTING and GRANDMOUGIN), 1891, A., 1076.
- identity of, with  $\alpha$ -naphthaquinonehydrazido (ZINCKE and BINDERWALD), 1885, A., 391.
- amido-, methyl and ethyl ethers of (WITT and SCHMIDT), 1892, A., 862.
- Benzeneazo- $\beta$ -naphthol**, action of carbon disulphide on (JACOBSON), 1888, A., 487.
- reduction of (MELDOLA and MORGAN), 1889, T., 122; P., 12.
- m*-nitro-, acetyl derivative of (MELDOLA and EAST), 1888, T., 464.
- Benzeneazo- $\alpha$ - and - $\beta$ -naphthols** (LIEBERMANN), 1884, A., 610; (ZINCKE and RATHGEN), 1887, A., 54.
- p*-nitro- and *p*-amido- (MELDOLA), 1885, T., 661, 662.
- Benzeneazo- $\alpha$ -naphthol-*m*-carboxylic acid**, *o*- and -*p*- (NÖLTING and GRANDMOUGIN), 1891, A., 1074.
- Benzeneazo- $\beta$ -naphtholdisulphonic acid**, oxidation of (LAUTH), 1892, A., 48.
- Benzeneazonaphtholsulphonic acid**, spectrum of (HARTLEY), 1887, T., 196.
- Benzeneazo- $\alpha$ -naphthylamidoacetic acid** (DONNER), 1892, A., 191.
- o*-, *m*-, and *p*-nitro- (DONNER), 1892, A., 1100.
- Benzeneazo- $\alpha$ -naphthylamine**, *p*-amido- (MELDOLA), 1883, T., 432.
- m*-nitro- (MELDOLA), 1884, T., 114.
- p*-nitro- (MELDOLA), 1883, T., 430.
- Benzeneazo- $\beta$ -naphthylamine** and its derivatives (LAWSON), 1885, A., 803; (ZINCKE and LAWSON), 1888, A., 159.

## AZO-COMPOUNDS—

- Benzeneazo- $\beta$ -naphthylamine**, action of aldehydes and of nitric acid on (MELDOLA and HUGHES), 1891, T., 379.  
 action of dimethylaniline on (GOLDSCHMIDT and BARDACH), 1892, A., 980.  
 derivatives (MELDOLA and HUGHES), 1891, A., 372; P., 83.  
 triazine from (MELDOLA), 1890, T., 329.  
*o*-nitro- (MELDOLA and HUGHES), 1891, T., 373.  
*m*-nitro-, action of nitrous acid on (MELDOLA and EAST), 1888, T., 463.  
*p*-nitro-, and its reduction (MELDOLA), 1888, T., 430.  
 formation of  $\psi$ -azinides from (MELDOLA and HUGHES), 1891, T., 378.
- Benzeneazo- $\beta$ -naphthylamines**, nitro-, constitutional formulae of (MELDOLA), 1884, T., 118.  
 acetyl derivatives of (MELDOLA and HUGHES), 1891, T., 375.
- Benzeneazo- $\alpha$ -naphthylidimethylamine** (EICKER), 1891, A., 470.
- Benzeneazo- $\alpha$ -naphthylethylamine** (HENRIQUES), 1885, A., 168; (FISCHER and HEPP), 1890, A., 911; (EICKER), 1891, A., 470.
- Benzeneazo- $\beta$ -naphthylethylamine** (HENRIQUES), 1885, A., 168.
- Benzeneazo- $\alpha$ -and- $\beta$ -naphthylacetates**, nitration of (MELDOLA and MORGAN), 1889, T., 609.
- Benzeneazo- $\beta$ -naphthyl acetate** (MELDOLA and EAST), 1888, T., 466; (MELDOLA and MORGAN), 1889, T., 609.  
 reduction of (MELDOLA and MORGAN), 1889, T., 117, 122; P., 12.
- Benzeneazo- $\alpha$ -naphthyl benzoate** (MELDOLA and MORGAN), 1889, T., 606.
- Benzeneazo- $\beta$ -naphthyl benzoate**, its reduction, and its *m*-nitro-derivative (MELDOLA and MORGAN), 1889, T., 115.
- Benzeneazo- $\alpha$ - and - $\beta$ -naphthyl ethylates**, nitration of (MELDOLA and MORGAN), 1889, T., 608.
- Benzeneazo- $\alpha$ -naphthylphenylamine** (FISCHER and HEPP), 1890, A., 912.
- Benzeneazo- $\beta$ -naphthylphenylamine** (HENRIQUES), 1885, A., 168; (ZINCKE and LAWSON), 1887, A., 730.

## AZO-COMPOUNDS—

- Benzeneazo- $\alpha$ -naphthyl-*p*-tolylamine** (FISCHER and HEPP), 1890, A., 912.
- Benzeneazo- $\beta$ -naphthyltolylamine** (MATTHEW), 1890, A., 992; (FISCHER), 1892, A., 1476.
- Benzeneazonitrilaniline**, nitro- (ODDO), 1891, A., 554.
- Benzene-*o*-azonitrobenzene** (JANOVSKY), 1886, A., 794.
- Benzene-*p*-azonitrobenzene** (JANOVSKY and ERE), 1885, A., 894; 1887, A., 478.  
 reduction of (JANOVSKY), 1885, A., 789.  
 chloro- (DAHME and GASIOROWSKI), 1887, A., 248.
- Benzeneazonitrobenzenes** (JANOVSKY), 1888, A., 867; 1887, A., 663.
- Benzeneazo-*d*-nitrobenzene**, *o*- and *m*-nitro- (KLINGER and ZUTRDEEG), 1890, A., 762.  
*p*-nitro- and *o*-*p*-*d*-nitro- (WILLGERODT and HERMANN), 1890, A., 1259.
- Benzeneazonitrosobenzene-*p*-azochlorobenzene**, nitro-*d*-nitroso- (WILLGERODT and BÖHM), 1891, A., 907.  
*d*-nitro-*d*-nitroso- (WILLGERODT), 1890, A., 1119; (WILLGERODT and BÖHM), 1891, A., 907.
- Benzeneazonitrosobenzeneazodinitro-nitrosobenzene**, chloronitro- (WILLGERODT), 1890, A., 1119.
- Benzene-*p*-azonitrobenzene**, *p*-nitro-, reduction of (JANOVSKY), 1885, A., 789.
- Benzeneazonitrosobenzeneazo-*r*-nitrobenzene**, chloro- (WILLGERODT and BÖHM), 1891, A., 907.
- Benzeneazonitrosoresorcinol** (v. KOSTANJECKI), 1889, A., 137.
- Benzeneazo-*ar*-octohydro- $\alpha$ -naphthoquinoline** (BAMBERGER and STETTENHEIMER), 1891, A., 1261.
- Benzeneazophenetol**. See Elhoxyazobenzene.
- Benzeneazophenetolsulphonic acid** (FEER and MÜLLER), 1889, A., 258.
- Benzeneazophenol**, chloro- (HEUMANN and ORCONOMIDES), 1887, A., 664.  
*p*-nitro-, and *p*-amido- (MELDOLA), 1885, T., 658, 659.  
 See also Hydroxyazobenzene.
- Benzeneazophenylbiazolon** (FREUND and KUH), 1890, A., 1441.
- Benzeneazophenyldimethylpyrazole** [4:1:3:5-] (BEYER and CLAISEN), 1888, A., 828.

## AZO-COMPOUNDS—

- Benzeneazophenylenediamino** and homologues, formation of (FRISWELL and GREEN), 1885, T., 923.  
**amido-** (JANOVSKY), 1885, A., 1131.  
**Benzeneazo-*m*-phenylenediamine.** See Chrysoidine.  
**Benzeneazophenylenediamineazo-benzene** (GRIESS), 1883, A., 1102.  
**Benzeneazophenylenediamineazobenzenesulphonic acid** (*azobenzophenylenediaminebenzene*) (GRIESS), 1883, A., 1103.  
**Benzeneazophenylenediamineazobenzoic acid** (GRIESS), 1883, A., 1103.  
**Benzeneazophenylenediamineazotoluenes** (GRIESS), 1883, A., 1102, 1103.  
**Benzeneazophenylic phosphate** (HELMANN and PAGANINI), 1891, A., 301.  
**Benzeneazophenylisoxalzone** (CLAISEN and ZIMMEL), 1891, A., 468.  
**Benzeneazophenylthio-, dithio-, and  $\psi$ -thio-biazolones** (FIEBUND and KUHN), 1890, A., 1440.  
**Benzeneazopropylene** (*azophenylallyl*) (FISCHER and KNOEVENAGEL), 1887, A., 933.  
**Benzeneazquinoline** (EPHRAIM), 1891, A., 1509.  
**Benzeneazoresorcinol**, and its purification (MEYER and KERN), 1883, A., 982.  
*p*-nitro-, and *p*-amido- (MELDOLA), 1885, T., 660.  
 nitroso- (v. KOSTANECKI), 1889, A., 137.  
*p*-**Benzeneazoresorcinol** (GOLDSCHMIDT and POLLAK), 1892, A., 977.  
**Benzeneazoresorcinylic mono- and dimethyl ethers, o- and *p*-** (BEHMOLD), 1889, A., 1155.  
 conversion of, into hydroxyquinol-derivatives (BEHMOLD), 1889, A., 1155.  
**Benzeneazo- $\beta$ -resorcylic acid** (LIMPRICHT), 1891, A., 1037.  
**Benzeneazosalicylamide and benzeneazosalicylic aldehyde** (TUMMELEY), 1889, A., 780.  
**Benzeneazosalicylic acid** (v. KOSTANECKI and ZIEBEL), 1891, A., 1038.  
 and its derivatives (LIMPRICHT), 1891, A., 1036.  
*p*-amido-, and *p*-nitro- (MELDOLA), 1885, T., 666, 667.  
 nitro- (GEBEL), 1889, A., 780.

## AZO-COMPOUNDS—

- Benzeneazotetrahydro- $\alpha$ -naphthaquinoline** (BAMBERGER and STEINHEIMER), 1891, A., 1259.  
**1'-Benzeneazotetrahydro- $\beta$ -naphthaquinoline** (BAMBERGER and MULLER), 1891, A., 1510.  
**Benzeneazo- $\alpha$ -tetrahydro- $\alpha$ -naphthol** (BAMBERGER and BORDT), 1890, A., 509.  
**Benzeneazo- $\alpha$ -tetrahydronaphthylamine** (BAMBERGER and BORDT), 1889, A., 715.  
**Benzeneazothymol** (MAZZARA and POSSETTO), 1885, A., 891.  
 constitution of (MAZZARA), 1885, A., 1131; 1890, A., 884.  
**Benzeneazo-*p*-toluene** (SCHULTZ), 1881, A., 903.  
**Benzeneazotriphenylpyrazole** [1:1:3:5-] (BEYER and CLAISEN), 1888, A., 828; (DE NEUFVILLE and v. PECHMANN), 1891, A., 319.  
**Benzeneazoxazole** (RUSSANOFF), 1892, A., 322.  
**Benzeneazoximidobenzene, *o*-trinitro-** (WILLGERODT), 1892, A., 1154.  
**Benzeneazo-*m*-xyleneazo- $\alpha$ - and - $\beta$ -naphthols, *p*-nitro-** (MELDOLA), 1883, T., 431.  
**Benzeneazo-*m*-xyleneazo- $\alpha$ - and - $\beta$ -naphtholsulphonic acid, *p*-nitro-** (MELDOLA), 1883, T., 435.  
**Benzeneazo-*m*-xyleneazophenol, *p*-nitro-** (MELDOLA), 1883, T., 435.  
**Benzeneazo-*m*-xyleneazoresorcinol, *p*-nitro-** (MELDOLA), 1883, T., 436.  
**Benzeneazo-*m*-xylenol** (GIERVINGK), 1886, A., 348.  
**Benzeneazo-*o*-xyldine** (MENTON), 1891, A., 1205.  
**Benzeneazo-*m*-xyldine, *p*-amido- and *p*-nitro-** (MELDOLA), 1883, T., 428, 432.  
**Benzenebisazo-*o*- and -*m*-cresols** (NOLTING and KOHN), 1881, A., 902.  
**Benzenebisazomethoxybenzene** (NOLTING and KOHN), 1881, A., 902.  
**Benzenebisazo- $\alpha$ -naphthol** (NOLTING and GRANDMOUGIN), 1891, A., 1076.  
**Benzenebisazoresorcinol** (LIEBERMANN and v. KOSTANECKI), 1881, A., 1147.  
**Benzenebisazothymol**, constitution of (MAZZARA), 1890, A., 884.  
**Benzene-*p*-bromoxybenzene**, nitro- and nitroso-derivatives of (WILLGERODT and ELLON), 1891, A., 1362.  
**Benzene-*m*-chlorazoxybenzene**, nitro-nitroso- (WILLGERODT and MUMF), 1892, A., 455.

## AZO-COMPOUNDS—

- Benzenes-*p*-chloro-*o*-nitrazobenzene**, *o*-nitronitroso- (WILLGERODT and BOHM), 1891, A., 906.
- Benzenediazoacetanilide** (HEUSLER), 1892, A., 458.
- Benzenediazobenzylanilide**, dry decomposition of (HEUSLER), 1891, A., 555.
- Benzenediazoconiine** (WALLACH), 1887, A., 137.
- Benzenediazodimethylamide**, preparation of (HEUSLER), 1891, A., 556.
- Benzenediazonitrosodiphenylamine** (FISCHER and WACKER), 1888, A., 1286.
- Benzenediazonitrosophenyltolylamine** (REICHOLD), 1890, A., 610.
- Benzenediazophenol** (WALLACH and SCHULZE), 1883, A., 583.
- Benzenediazopiperidide** (WALLACH), 1887, A., 137.  
dry decomposition of (HEUSLER), 1891, A., 555.
- Benzenes-*p*-diazopiperidide**, fluoro- (WALLACH and HEUSLER), 1888, A., 362.  
nitro- (WALLACH), 1887, A., 131.
- Benzenediazoresorcinols**, isomeric (V. KOSTANECKI), 1889, A., 133.
- Benzenediazothiazole hydrate** (SCHATZMANN), 1891, A., 745.
- Benzenediazothymol** (MAZZARA and POSSETTO), 1885, A., 894.
- Benzenediazo-*p*-toluidide**, *p*-bromo- and *p*-chloro-, methylation of (MELDOLA and STREITFEILD), 1889, T., 433, 437; P., 98.
- Benzenylazosulphimecarbanilide** (TIEMANN), 1891, A., 558; (KOCH), 1891, A., 560.
- Benzenylazosulphimecarbo-*p*-bromo- and -nitroso-anilides** (KOCH), 1891, A., 561.
- Benzenylazosulphimecarbohydro- and -di-sulphides** (CRAYEN), 1891, A., 559.
- Benzenylazosulphimecarbothioethyl-ic ether** (CRAYEN), 1891, A., 560.
- Benzenylazoximeacetylenyl** (TIEMANN), 1890, A., 44.  
*p*-nitro- (WEISE), 1890, A., 46.
- Benzenylazoximeisobutenyl** (ZIMMER), 1890, A., 254.
- Benzenylazoximebenzenyl, *m*-amido-, and its derivatives** (SCHOPFF), 1885, A., 1217.  
*m*-nitro-, and its derivatives (SCHOPFF), 1885, A., 897, 1217.  
*p*-nitro- (WEISE), 1890, A., 45.

## AZO-COMPOUNDS—

- Benzenylazoximebenzenyl-*o*-carboxylic acid and its salts** (SCHULZ), 1885, A., 1219.
- Benzenylazoximeisobutenyl** (ZIMMER), 1890, A., 254.
- Benzenylazoximecarbinol and its derivatives** (FALCK), 1885, A., 1217.
- Benzenylazoximecarbo-*p*-toluidide** (KOCH), 1891, A., 561.
- Benzenylazoxime-ethenyl** (TIEMANN and KRUGER), 1884, A., 1326.  
*m*-nitro- (SCHOPFF), 1885, A., 897.  
*p*-nitro- (WEISE), 1890, A., 45.
- Benzenylazoximeethenylcarboxylic acid** (WURM), 1890, A., 258.
- Benzenylazoxime-*m*-nitrobenzenyl, *m*-nitro-** (STIEGLITZ), 1890, A., 256.
- Benzenylazoximephenylethenyl** (ZIMMER), 1890, A., 253.
- Benzenylazoximepropenyl** (ZIMMER), 1890, A., 254.
- Benzenylazoximepropenyl-*o*-carboxylic acid and its salts** (SCHULZ), 1885, A., 1219.
- Benzenylazoximesalicenyl** (ZIMMER), 1890, A., 254.
- Benzidineazo-dyes**, colouring properties of (MOHLAU), 1886, A., 947.
- Benzoylbenzeneazoacetone** (GOLDSCHMIDT and POLLAK), 1892, A., 977.
- Benzoylchlorobenzeneazocresols** (GOLDSCHMIDT and POLLAK), 1892, A., 975.
- Benzoylphenylazimethylene** (CURTIUS and THUN), 1891, A., 1357.  
reactions of (CURTIUS and LANG), 1892, A., 451.
- Benzylamidobenzeneazo- $\alpha$ - and - $\beta$ -naphthols** (MELDOLA and COSTE), 1889, T., 596.
- Benzylazimidobromobenzene** (ZINCKE and ARZBERGER), 1889, A., 502.
- Benzylidazoamidobenzene** (FRISWELL and GREEN), 1886, T., 749.
- Benzylideneamidoazobenzene** (BERJU), 1884, A., 1149.
- Benzylidene-*o*-amidoazotoluene** (GOLDSCHMIDT and ROSELL), 1890, A., 616.
- Benzylmalonic azimide** (RUHEMANN and MORRELL), 1892, T., 796.
- Benzylmethylbromobenzeneazammonium iodide** (ZINCKE and ARZBERGER), 1889, A., 502.
- Bisazobenzene** (NIETZKI and DIESTERWEG), 1888, A., 1082.  
chloronitro-, chloronitronitroso-, and nitronitroso-derivatives of (WILLGERODT and MUHE), 1892, A., 455, 456.

## AZO-COMPOUNDS—

- Bisazobenzene-*p*-chlorophenylhydrazine**, *tetranitronitroso-* (WILLGERODT), 1890, A., 1119; (WILLGERODT and BÖHM), 1891, A., 907.
- Bisazobenzene-phenylhydrazine**, *pentanitro-* (WILLGERODT and MÜHE), 1892, A., 456.
- Bisazo-compounds** (NIETZKI and DIESTERWEG), 1888, A., 1082.  
of  $\alpha$ -naphthol, molecular change in the formation of (NÖLTING and GRANDMOUGIN), 1891, A., 1075.
- Bisbenzeneazacetone** (v. PECHMANN and JENISCH), 1892, A., 161.
- Bis-*o*- and -*p*-diazoisolmethyl- and -ethyl-amines** (GOLDSCHMIDT and BADL), 1889, A., 774.
- m*-Bisdiazobenzene compounds** (GRIESS), 1886, A., 459.
- Bisdiazobenzene-allylamine, -ethylamine, and -methylamine** (GOLDSCHMIDT and BADL), 1889, A., 774.
- Bis-*p*-diazotolueneallylamine** (GOLDSCHMIDT and BADL), 1889, A., 775.
- Bis-*p*-diazotoluene-ethylamine** (GOLDSCHMIDT and HOLM), 1888, A., 686.
- Bis-*p*-diazotoluene-methylamine** (GOLDSCHMIDT and BADL), 1889, A., 774.
- Bisdiethylazimethylene** (CURTIUS and THUN), 1891, A., 1355.
- Bisdimethylazimethylene** (CURTIUS and THUN), 1891, A., 1355.
- Bisdiphenylazimethylene** (CURTIUS and RAUTERBERG), 1891, A., 1359.
- Bispropylmethylazimethylene** (CURTIUS and THUN), 1891, A., 1355.
- Bismethylphenylazimethylene** (CURTIUS and THUN), 1891, A., 1355.
- Bisphenylazophenol** (v. BAeyer and KOCHENDORFER), 1889, A., 1162.
- Carbamidoazobenzene, and thio-** (BERJU), 1884, A., 1149; 1885, A., 660.
- Carbanilidoamidoazobenzene, Carbanilidoamidoazotoluene, Carbanilidobenzene-*o*-*o*-naphthylamine, Carbanilidohydroxyazobenzene and Carbanilidophenolbisazobenzene** (GOLDSCHMIDT and ROSELL), 1890, A., 614.
- Carboxybenzeneazacetacetic acid** (*azacetacetibenzonic acid*) (GRIESS), 1885, A., 788.
- m*-Carboxybenzenylazoximebenzenyl** (MÜLLER), 1886, A., 808.
- Carboxybenzenylazoximepropenyl- $\omega$ -carboxylic acids, *m*- and -*p*-** (MÜLLER), 1886, A., 808.

## AZO-COMPOUNDS—

- Carboxybenzenylazoxime-ethenyl, *m*- and -*p*-** (MÜLLER), 1886, A., 802.
- Carvacrolbisdiazotriphenylmethane** (MAZZARA), 1886, A., 59.
- Cinnamenylazoximebenzenyl** (WOLFF), 1886, A., 798.
- Cinnamenylazoxime-ethenyl** (WOLFF), 1886, A., 798.
- Cinnamenylazoximepropenyl- $\omega$ -carboxylic acid** (WOLFF), 1886, A., 799.
- "Cinnamiediazocetic acid"** (BUCHNER), 1888, A., 1275.
- Cinnamoylphenylazimide, formation and reduction of** (RUHMANN), 1892, T., 282.
- Cresolbisazotoluenes, *o*- and -*p*-** (NÖLTING and WERNER), 1891, A., 212.
- $\psi$ -Cumeneazo- $\psi$ -cumene.** See Azo- $\psi$ -cumene.
- $\psi$ -Cumeneazocumenol** (LIEBERMANN and v. KOSTANECKI), 1884, A., 1147.
- Cumeneazo- $\beta$ -naphthol-mono- and -di-sulphonic acids, spectrum of** (HARTLEY), 1887, T., 187.
- $\psi$ -Cumeneazophenol** (GOLDSCHMIDT and BRUBACHER), 1891, A., 1210.
- $\psi$ -Cumenediazopiperidide** (WALLACH and HEUSLER), 1888, A., 362.
- $\psi$ -Cumeneazoresorcinol** (LIEBERMANN and v. KOSTANECKI), 1884, A., 736, 1147; (v. KOSTANECKI), 1889, A., 137.  
nitroso- (v. KOSTANECKI), 1889, A., 137.
- $\psi$ -Cumeneazoresorcinolazocumene** (LIEBERMANN and v. KOSTANECKI), 1884, A., 736.
- $\psi$ -Cumenebisazoresorcinol** (LIEBERMANN and v. KOSTANECKI), 1884, A., 1147.
- Cumylenediazosulphide** (JACOBSON and NEY), 1889, A., 772.
- Cyanazocamphene** (TANRET), 1888, A., 720.
- Cymeneazocymene** (*azocymene*) (SCHUMOFF), 1888, A., 469.
- Dianilido-*o*-diazothiole** (HECTOR), 1889, A., 872; 1890, A., 526.
- Diazacetamide** (CURTIUS), 1884, A., 988; 1885, A., 883.
- $\psi$ -Diazacetamide** (CURTIUS), 1885, A., 883.
- Diazacetates, ethereal, action of, on ethereal salts of unsaturated acids** (BUCHNER), 1888, A., 1274.
- Diazocetic acid, and its salts** (CURTIUS), 1885, A., 883.

## AZO-COMPOUNDS—

**Diazoamides**, normal and mixed (MELDOLA and STREATFEILD), 1890, T., 785; P., 139.

*m*-**Diazoamidobenzamide** (SCHULZE), 1889, A., 778.

**Diazoamidobenzene** (*diazobenzene-amide*) (FISCHER), 1884, A., 1014. preparation of (STAEDEL and BAUER), 1886, A., 943.

conditions of formation of (FRISWELL and GREEN), 1885, T., 919; P., 102.

constitution of (FRISWELL and GREEN), 1886, T., 746; P., 229.

dry decomposition of (HEUSLER), 1891, A., 555.

action of phenol on (HEUMANN and OECONOMIDES), 1887, A., 480.

action of *p*-toluidine on (GOLDSCHMIDT and BARDACH), 1892, A., 978.

relation of, to amidoazobenzene (FRISWELL and GREEN), 1885, T., 917; P., 102; 1886, T., 746; P., 229; 1887, P., 26.

Wallach's explanation of the isomeric transformation of, into amidoazobenzene (MELDOLA), 1887, P., 27.

formation of diamidoazobenzene and its homologues from (FRISWELL and GREEN), 1885, T., 923.

**Diazoamidobenzene** (*diazobenzene-amide*), *p*-bromo-, and its methyl derivative (MELDOLA and STREATFEILD), 1889, T., 435.

*tri* and *hexa*-bromo- (SILBERSTEIN), 1883, A., 661.

*p*-bromo-*m*- and *p*-nitro- (GOLDSCHMIDT and MOLINARI), 1888, A., 1285.

ethylation and methylation of (MELDOLA and STREATFEILD), 1889, T., 420, 421.

*di*bromodinitro- (MELDOLA and STREATFEILD), 1888, T., 669.

*m*- and *p*-dichloro-, action of *p*-toluidine on (GOLDSCHMIDT and BARDACH), 1892, A., 978.

*p*-dichloro-, and its ethyl derivative (MELDOLA and STREATFEILD), 1888, T., 670.

*m*-nitro- (GOLDSCHMIDT and MOLINARI), 1888, A., 1285.

*m*-dinitro- (MELDOLA and STREATFEILD), 1887, T., 107.

*p*-dinitro- (MELDOLA and STREATFEILD), 1886, T., 626; 1887, T., 102.

## AZO-COMPOUNDS—

**Diazoamidobenzene** (*diazobenzene-amide*), *m*- and *p*-dinitro-, methylation of (MELDOLA and STREATFEILD), 1888, T., 666.

*p*-*m*-dinitro-, and its alkyl derivatives (MELDOLA and STREATFEILD), 1889, T., 415.

**Diazoamidobenzene- $\beta$ -naphthalene** (*diazobenzene-naphthylamide*) *p*-bromo- (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.

**Diazoamidobenzene-toluene** (*diazobenzene-toluidide*), *p*-bromo- and *m*-nitro- (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.

**Diazoamidobromo- $\beta$ -phenylpropionic acid** (GABRIEL), 1883, A., 195.

**Diazoamido-*m*- and *p*-chlorobenzene-*p*-toluenes** (*diazochlorobenzene-p-toluidides*) (GOLDSCHMIDT and BARDACH), 1892, A., 979.

**Diazoamido-compounds** (NÖLTING and BINDER), 1885, A., 385; 1888, A., 271; (MELDOLA and STREATFEILD), 1886, P., 263; 1887, T., 102, 434, 448; P., 50; 1888, T., 664; P., 63; (WALLACH), 1887, A., 137; (FISCHER and WIMMER), 1887, A., 819; (GOLDSCHMIDT and MOLINARI), 1888, A., 1283; (GOLDSCHMIDT and BADL), 1889, A., 774; (GOLDSCHMIDT and BARDACH), 1892, A., 977.

constitution of (MELDOLA and STREATFEILD), 1887, T., 434, 448; P., 50; (MELDOLA), 1887, A., 818. cryoscopic experiments with (GOLDSCHMIDT), 1891, A., 1211.

dry decomposition of (HEUSLER), 1891, A., 555.

action of acetic anhydride on (HEUSLER), 1892, A., 458.

action of aniline hydrochloride on (GOLDSCHMIDT and BARDACH), 1892, A., 979.

action of phenol on (HEUMANN and OECONOMIDES), 1887, A., 664.

conversion of, into azoamido-compounds (GOLDSCHMIDT and BARDACH), 1892, A., 977.

ethylene derivatives of (MELDOLA and STREATFEILD), 1892, P., 119.

of ethyl-*p*-toluidine (GASTIGER), 1885, A., 381.

of the paraffin series (CURTIUS), 1884, A., 987.

mixed, new method of determining the constitution of (GOLDSCHMIDT and HOLM), 1888, A., 685.

## AZO-COMPOUNDS—

**Diazoamido-compounds**, mixed, synthesis of alkyl heterogeneous (MELDOLA), 1889, T., 610; P., 127.

isomerism of the alkyl derivatives of (MELDOLA and STREATFIELD), 1889, T., 412; P., 98.

nitrated (NIEMENTOWSKI), 1890, A., 39.

dinitro-, decomposition of, by cold hydrochloric acid (MELDOLA and STREATFIELD), 1887, T., 436.

**Diazoamido- $\psi$ -cumene**, action of  $p$ -toluidine on (GOLDSCHMIDT and BARDACH), 1892, A., 978.

**Diazoamido- $\psi$ -cumene- $p$ -toluene** (GOLDSCHMIDT and BARDACH), 1892, A., 979.

**Diazoamidodiphenylmethane** (MANNS), 1889, A., 261.

**Diazoamidonitrobenzene** (NIEMENTOWSKI), 1890, A., 39.

**Diazoamidonitrotoluene** (NIEMENTOWSKI), 1890, A., 39.

**Diazoamido- $o$ -toluene** (*diazotoluene-toluidide*) (FISCHER and WIMMER), 1887, A., 819; (HEUSLER), 1892, A., 459.

**Diazoamido-xylene** (*diazoxyleneazylidide*) (FISCHER and WIMMER), 1887, A., 819.

**$o$ -Diazoazotoluene** (*diazotolueneazotoluene*), action of  $\alpha$ - and  $\beta$ -naphthols and  $\beta$ -naphthylamine on (ZINCKE and LAWSON), 1887, A., 731.

derivatives of (ZINCKE and LAWSON), 1886, A., 795.

**$p$ -Diazoazotoluene salts** (ZINCKE and LAWSON), 1887, A., 732.

**$p$ -Diazoazotolueneimide** (ZINCKE and LAWSON), 1887, A., 732.

**$o$ -Diazoazaldehyde** (ELLASBERG and FRIEDLÄNDER), 1892, A., 1106.

**Diazobenzene** (SANDMEYER), 1890, A., 1115.

action of, on acetonedicarboxylic acid (v. PECHMANN and JENISCH), 1892, A., 161.

action of phenol on (HIRSCH), 1891, A., 437.

acid salts of, action of alkalis on (CURTIUS), 1891, A., 55.

salts, action of stannous chloride on (CULMANN and GASTOROWSKI), 1889, A., 1156.

perbromide (SAUNDERS), 1892, A., 316.

## AZO-COMPOUNDS—

**Diazobenzene chloride**, action of acetone on (BAMBERGER and WULZ), 1891, A., 1450.

action of benzaldoxime on (MAI), 1892, A., 163.

action of hydroxylamine on (MAI), 1892, A., 710.

action of sodium thiosulphate on (PURGOTTI), 1890, A., 1419.

reaction of (ODDO), 1891, A., 553.

nitrate, action of potassium ferrocyanide on (LOCHER), 1888, A., 589.

stannochloride (GRIESS), 1885, A., 789.

sulphates,  $o$ - and  $m$ - (REMSEN and GRAHAM), 1889, A., 975.

**Diazobenzene**, amido- (GRIESS), 1884, A., 1148.

*tribromo*-, nitrate and other salts of (SILBERSTEIN), 1888, A., 660.

**Diazobenzeneamidocarbazole** (ZATTI and FERRATINI), 1892, A., 617.

**Diazobenzeneanilide**. See **Diazoamidobenzene**.

**Diazobenzeneazobenzene**, combination of, with aniline (NIETZKI and DIESTERWEG), 1888, A., 1082.

**Diazobenzeneazobenzene-mono- and -di-sulphonic acids** (GRIESS), 1883, A., 182.

**Diazobenzenebenzamidine** (PINNEN), 1889, A., 1005.

**Diazobenzenebenzylamide** (GOLDSCHMIDT and HOLM), 1888, A., 685.

**Diazobenzenebenzylanilide** (FRISWELL and GREEN), 1886, T., 749.

**Diazobenzene- $p$ -bromodiphenylcarbamide** (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.

**Diazobenzene- $p$ -bromophenyl- $p$ -tolylcarbamide** (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.

**Diazobenzene cumylamide** (GOLDSCHMIDT and GESSNER), 1889, A., 773.

**Diazobenzenediphenylcarbamide** (GOLDSCHMIDT and MOLINARI), 1888, A., 1283.

**Diazobenzene- $p$ -ditolylcarbamide** (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.

**Diazobenzene-ethyl- $\beta$ -tetrahydronaphthylamide** (BAMBERGER and MÜLLER), 1889, A., 889.

**Diazobenzene-ethyl- $p$ -toluidide** (NÖLTING and BINDER), 1888, A., 273.

## AZO-COMPOUNDS—

- Diazobenzeneglyoxaline** (RUNG and BEHREND), 1892, A., 1493.
- Diazobenzenesimide**, action of stannous chloride on (CULMANN and GASIOROWSKI), 1889, A., 1157.
- tribromo-** (SILBERSTEIN), 1883, A., 661.
- p-nitro-** (CULMANN and GASIOROWSKI), 1889, A., 1157.
- Diazobenzenemethylanilide** (FRISWELL and GREEN), 1886, T., 748; (NÖLTING and BINDER), 1888, A., 273.
- Diazobenzene-o- and -p-methylbenzylamides** (KRÖBER), 1890, A., 969.
- Diazobenzenenaphthylamide**, **p-bromo-** (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.
- Diazobenzene-β-naphthylamine**. See Benzeneazo-β-naphthylamine.
- Diazobenzene-β-naphthylphenylcarbamide** (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.
- Diazobenzene-m- and -p-nitrodiphenylcarbamide**, **m- and -p-bromo-** (GOLDSCHMIDT and MOLINARI), 1888, A., 1285.
- Diazobenzene-m-nitrophenylcarbamide** (GOLDSCHMIDT and MOLINARI), 1888, A., 1285.
- Diazobenzenenitrosodimethylaniline** (FISCHER and WACKER), 1889, A., 702.
- Diazobenzenephenyl-p-tolylcarbamide** (GOLDSCHMIDT and MOLINARI), 1888, A., 1283.
- Diazobenzenepiperazine** (SCHMIDT and WICHMANN), 1892, A., 211.
- Diazobenzenepiperidide** (NÖLTING and BINDER), 1888, A., 273.
- p-Diazobenzenesulphonic acid**, action of, on primary amido-compounds, and on isomeric toluidines (GRIESS), 1883, A., 181.
- behaviour of aldehyde, glucose, peptone, albuminous bodies, and acetone towards (PETRI), 1884, A., 1322.
- o-nitro-** (NITZKI and LERCH), 1889, A., 144.
- Diazobenzene-α-tetrahydronaphthylamide** (BAMBERGER and BAMMANN), 1889, A., 784.
- Diazobenzenetetrahydroquinolide** (NÖLTING and BINDER), 1888, A., 273.
- Diazobenzenetoluidide**, **p-bromo- and m-nitro-** (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.

## AZO-COMPOUNDS—

- Diazobenzene-p-tolylphenylcarbamide** (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.
- 4-Diazobenzidine-2,2'-disulphonic acid**, **4'-amido-** (LIMPRICHT), 1891, A., 929.
- Diazobenzimide**, **m-amido-**, and its derivatives (GRIESS), 1885, A., 789.
- 6-Diazobenzoic acid**, **3-amido-**, and its derivatives (GRIESS), 1884, A., 1148.
- Diazobenzoic acids**, action of alcohols on (GRIESS), 1888, A., 588.
- Diazobenzylamidobenzene**, **m- and p-dinitro-** (MELDOLA and STREATFIELD), 1887, T., 112, 113.
- Diazodibromobenzene sulphate** (HEINICHEN), 1890, A., 165.
- Diazo-p-bromobenzenemethyl-p-toluidide**, combination of diazo-β-naphthalenemethyl-p-toluidide, and of diazo-m-nitrobenzenemethyl-p-toluidide with (MELDOLA and STREATFIELD), 1890, T., 793, 797.
- Diazoisobutylbenzene**, action of stannous chloride on (CULMANN and GASIOROWSKI), 1889, A., 1157.
- o-Diazoacinnamic acid**, hydrochloride and nitrate of (FISCHER and KUZEL), 1884, A., 441.
- p-Diazoacinnamic acid**, decomposition of (GABRIEL), 1883, A., 196.
- Diazo-compounds** (GRIESS), 1883, A., 180, 1102; 1884, A., 1148; 1885, A., 788; 1887, A., 817; 1888, A., 588, 826; (WALLACH), 1883, A., 584; 1887, A., 40, 137.
- constitution of (MELDOLA and STREATFIELD), 1888, T., 664; P., 63.
- thermochemistry of (VIGNON), 1888, A., 774.
- molecular weights of (GOLDSCHMIDT), 1891, A., 193.
- action of alcohol on (HALLER), 1884, A., 1822; (REMSEN), 1885, A., 525.
- action of finely divided copper on (GATTERMANN, HAUSKNECHT, CANTZLER and EHRHARDT), 1890, A., 970.
- action of, on hydroxybenzoic acids (ZIBELL), 1891, A., 1473.
- action of oximes on (MAI), 1892, A., 163, 1079.
- application of, to the detection of organic matter in water (GRIESS), 1888, A., 993.

## AZO-COMPOUNDS—

- Diazo-compounds**, decomposition of (REMSEN and ORNDORFF), 1888, A., 268; (REMSEN and GRAHAM), 1889, A., 975.
- decomposition of, by alcohol (v. HOFMANN), 1884, A., 1315; (v. WROBLEWSKI), 1885, A., 257; (REMSEN and PALMER), 1887, A., 136.
- decomposition of some, by formic and acetic acids (ORNDORFF), 1889, A., 45.
- double decompositions of (ODDO), 1891, A., 554.
- velocity of decomposition of, by water (MULLER and HAÜSSER), 1892, A., 768.
- stability of, in aqueous solution (HIRSCH), 1891, A., 554.
- synthesis by means of (HIRSCH), 1891, A., 437; 1892, A., 1198.
- chlorides of, action of stannous salts on the (GASIOROWSKI and WAJSS), 1885, A., 525.
- mixed (GOLDSCHMIDT and HOLM), 1888, A., 685.
- of the aromatic series (ODDO), 1891, A., 553.
- of *s-tri*bromaniline (SILBERSTEIN), 1883, A., 660.
- of the fatty series (CURTIUS), 1884, A., 987; 1885, A., 883.
- constitution of (CURTIUS), 1889, A., 586; 1891, A., 39.
- of the thiazole series (WOHMANN), 1891, A., 225.
- Diazo-*m*- and -*p*-chlorobenzene-*p*-toluidides** (GOLDSCHMIDT and BAR-DACH), 1892, A., 979.
- Diazoecresol compounds** (NÖLTING and KOHN), 1884, A., 900.
- Diazo- $\alpha$ -cymenesulphonic acid** (ERRERA), 1891, A., 1067.
- Diazo-deoxybenzoin chloride** (NEY), 1888, A., 1197.
- o*-Diazodibenzylamine** (LELLMANN and ARNOLD), 1892, A., 890.
- Diazodiphenylamine sulphate** (IKUTA), 1888, A., 467.
- Diazoethylamidobenzene, *m*- $\delta$ -nitro-** (MELDOLA and STREATFIELD), 1887, T., 108.
- p*- $\delta$ -nitro-** (MELDOLA and STREATFIELD), 1887, T., 630.
- Diazoethylresorcinol chloride** (PUKALL), 1887, A., 661.
- Diazo-group**, introduction of, into so-called aromatic para-compounds (GRIESS), 1884, A., 1013.

## AZO-COMPOUNDS—

- Diazoguanidine salts** (THIELE), 1892, A., 1298.
- Diazohippurylamide** (CURTIUS), 1892, A., 113.
- Diazo-hydrocarbons**, action of stannous chloride on salts of (CULMANN and GASIOROWSKI), 1889, A., 1156.
- Diazo-hydroxyquinaldine anhydride** (CONRAD and LIMPACH), 1888, A., 1110.
- Diazoimido-hydrocarbons**, some reactions of (CULMANN and GASIOROWSKI), 1889, A., 1156.
- Diazomethylamidobenzenesulphonic acid**, sodium salt of (BERTHSEN and GOSKE), 1887, A., 666.
- Diazomethyluracil derivatives** (BEHREND), 1888, A., 809.
- $\beta$ -Diazonaphthalene nitrate**, decomposition of, with alcohol (ORNDORFF and KORTWRIGHT), 1891, A., 1073.
- sulphate, action of stannous chloride on (CULMANN and GASIOROWSKI), 1889, A., 1157.
- $\beta$ -Diazonaphthalenebenzylamide** (GOLDSCHMIDT and HOLM), 1888, A., 685.
- $\beta$ -Diazonaphthalene-*p*-bromodiphenylcarbamide** (GOLDSCHMIDT and MOLINARI), 1888, A., 1285.
- Diazonaphthaleneimide** (FISCHER), 1886, A., 555.
- Diazo- $\beta$ -naphthalenemethyl-*p*-toluidide**, combination of, with diazo-*p*-bromobenzenemethyl-*p*-toluidide (MELDOLA and STREATFIELD), 1890, T., 797.
- sulphates, decomposition of, with alcohol (ORNDORFF and KORTWRIGHT), 1891, A., 1073.
- $\beta$ -Diazonaphthalene- $\beta$ -naphthylamine and its derivatives** (LAWSON), 1885, A., 1238.
- Diazonaphthalenes**, nitro-, salts of, decomposition of, with alcohol (ORNDORFF and CAUFFMAN), 1892, A., 622.
- Diazonaphthalenesulphonic acid** (FORSLING), 1887, A., 375, 963.
- Diazonaphthalenesulphonic acid[1:2-]** (CLEVE), 1892, A., 345.
- Diazonaphthalenesulphonic acids  $\delta$ - and  $\gamma$ -** (CLEVE), 1889, A., 155.
- $\alpha\alpha$ -Diazonaphthalenesulphonic acids**, isomeric (ERDMANN), 1889, A., 156.
- Diazonaphtholsulphonic acid** (SEIDEL), 1892, A., 721.

## AZO-COMPOUNDS—

- Diazonitrobenzene chlorides**, decomposition of, by hydrochloric acid (MELDOLA and STREATFEILD), 1887, T., 106.
- Diazo-*m*- and *p*-nitrobenzene-ethyl-*p*-toluidides** (NOLTING and BINDER), 1888, A., 273.
- Diazo-*m*-nitrobenzenemethyl-*p*-toluidide**, combination of, with diazo-*p*-bromobenzenemethyl-*p*-toluidide (MELDOLA and STREATFEILD), 1890, T., 793.
- m*-Diazo-*p*-nitrobenzenesulphonic acid** (ÉGER), 1889, A., 708.
- Diazonitro- $\psi$ -cumesulphonic acid** (MAYER), 1887, A., 953.
- Diazoisonitrosomethyluracil** (BEHREND), 1888, A., 809.
- p*-Diazonitroso-oxindole chloride** (MEYER), 1886, A., 64.
- m*-Diazophenetol and its derivatives** (WAGNER), 1885, A., 1212.
- p*-Diazophenol, *di*-*m*-bromo-** (SILBERSTEIN), 1883, A., 660.
- m*-nitro-** (HAHLE), 1891, A., 431.
- Diazophenols**, compounds from  $\beta$ -naphthylamine and (SACHS), 1886, A., 235.
- Diazophenolsulphonic acid**, chloro- (KALLREPP), 1886, A., 1019.
- trichloro-*** (LAMPERT), 1886, A., 617.
- Diazo-reaction** (GATTERMANN, HAUSKNECHT, CANTZLER, and EHRHARDT), 1890, A., 971.
- Diazoresorcinol and its derivatives** (BRUNNER and KRAEMER), 1884, A., 1333; (EHRlich), 1888, A., 145; (NIETZKI, DIETZE, and MAECKLER), 1890, A., 156.
- Diazoresorufin and its derivatives** (FEVRE), 1883, A., 733; (BRUNNER and KRAEMER), 1884, A., 1333; (EHRlich), 1888, A., 145; (NIETZKI, DIETZE, and MAECKLER), 1890, A., 156.
- Diazo-salt-group and a phenol-residue**, intramolecular transformation between (LELLMANN and BOYE), 1890, A., 1116.
- Diazo-salts**, anhydrous, preparation of (KNOEVENAGEL), 1891, A., 54.
- of amido-3'-hydroxyquinoline**, action of, on phenols and tertiary bases (RIEMERSCHMIED), 1883, A., 1148.
- Diazosuccinic acid and its derivatives** (CURTIUS and KOCH), 1885, A., 885; 1887, A., 33; 1889, A., 376.
- p*-Diazo-*o*-sulphobenzoic acid** (HEDRIK), 1888, A., 280.

## AZO-COMPOUNDS—

- Diazosulphonic acids**, improvement in Sandmeyer's reaction with (TOBIAS), 1890, A., 1149.
- Diazothiazole hydrate** (NAR), 1891, A., 1515.
- Diazothio-dimethyl- and -diethyl-anilines** (BERNTSEN), 1889, A., 775.
- Diazotised-*p*-bromaniline**, action of, on methyl- and ethyl-*m*- and *p*-nitranilines (MELDOLA and STREATFEILD), 1889, T., 419, 423; P., 98.
- action of, on methyl-*p*-toluidine** (MELDOLA and STREATFEILD), 1889, T., 432; P., 98.
- p*-chloraniline**, action of, on methyl-*p*-toluidine (MELDOLA and STREATFEILD), 1889, T., 436; P., 98.
- m*-nitraniline**, action of, on methyl- and ethyl-*p*-bromanilines (MELDOLA and STREATFEILD), 1889, T., 425, 428; P., 98.
- action of, on *p*-nitraniline** (MELDOLA and STREATFEILD), 1887, T., 102.
- m*- and *p*-nitranilines**, action of, on monamines (MELDOLA), 1883, T., 428, 440; 1884, T., 107, 112, 118.
- p*-nitraniline**, action of, on methyl- and ethyl-*p*-bromanilines (MELDOLA and STREATFEILD), 1889, T., 418; P., 98.
- Diazotoluene, *o*- and *p*-**, action of sodium sulphide on (PURGOTTI), 1890, A., 1420.
- o*-Diazotoluene salts**, action of stannous chloride on (CULMANN and GASIOROWSKI), 1889, A., 1156.
- p*-Diazotoluene chloride**, action of hydroxylamine on (MAI), 1892, A., 710.
- Diazotolueneazotoluene**. See Diazotoluene.
- Diazotoluenebenzylamide, *o*- and *p*-** (GOLDSCHMIDT and HOLM), 1888, A., 685.
- p*-Diazotoluene-*p*-bromodiphenylcarbamide** (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.
- p*-Diazotolueneecumylamide** (GOLDSCHMIDT and GESSNER), 1889, A., 773.
- p*-Diazotoluenedimethylamide** (GOLDSCHMIDT and BADL), 1889, A., 774.
- Diazotoluenedisulphonates** (HASSE), 1886, A., 150.
- p*-Diazotoluene-*p*-ditolylcarbamide** (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.

## AZO-COMPOUNDS—

- p*-Diazotoluene- $\beta$ -naphthylphenylcarbamide (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.
- p*-Diazotoluene-*m*-nitrodiphenylcarbamide (GOLDSCHMIDT and MOLINARI), 1888, A., 1285.
- p*-Diazotoluenepheryl-*p*-tolylearbamide (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.
- Diazotoluenetoluidide (*diazotoluenetoluene*) (FISCHER and WIMMER), 1887, A., 819.
- p*-Diazotylene-*o*-sulphonic acid (REMSEN and PALMER), 1887, A., 136.
- p*-Diazotylethylanilide (NÖLTING and BINDER), 1888, A., 272.
- Diazo-*p*-tolylethyl-*p*-toluidide (NÖLTING and BINDER), 1888, A., 273.
- m*-Diazotriazoamidobenzene (GRIESS), 1888, A., 827.
- p*-Diazotriazobenzene (GRIESS), 1888, A., 826.
- Diazotriazobenzenesulphonic acid (LIMPRICHT), 1889, A., 398.
- m*-Diazotriazobenzoic acid (GRIESS), 1888, A., 827.
- h*-Diazo- $\alpha$ -truxillic acid (HOMANS, STELTZNER, and SUKOW), 1891, A., 1496.
- Diazouracil (BEHREND and ERNERT), 1890, A., 1241.
- Diazouracilcarboxylic acid (BEHREND and ERNERT), 1890, A., 1240.
- Diazovinylamine (BUCHNER and CURTIUS), 1886, A., 635.
- Diazoxybenzoic acid (GRIESS), 1887, A., 485.
- Diazoxylenesulphonic acids (NÖLTING and KOHN), 1886, A., 356; 1889, A., 611.
- Diazoxylenehydride (*diazoxymethylene*) (FISCHER and WIMMER), 1887, A., 819.
- Dibenzenyldiazosulphime (V. HOFMANN and GABRIEL), 1892, A., 1109.
- Dibenzenyldiazoximeoxalene (WURM), 1890, A., 259.
- Diethylresorcinol-*o*- and -*p*-azoresorcinols (PUKALL), 1887, A., 662.
- Dihydroxydiphenyldimethyldiazobenzophenylmethane (MAZZARA), 1885, A., 904.
- Dimethylamidoazobenzene (*benzeneazodimethylaniline*) (BERJU), 1884, A., 1149.
- as an indicator in alkalimetry (FISCHER and PHILIPP), 1885, A., 1159.

## AZO-COMPOUNDS—

- Dimethylamidoazobenzene (*benzeneazodimethylaniline*), *p*-bromo- (GOLDSCHMIDT and BARDAU), 1892, A., 980.
- nitro-derivatives of (NÖLTING), 1888, A., 270.
- Dimethylamidoazobenzenesulphonic acid (NÖLTING and BAUMANN), 1885, A., 385.
- Dimethylamidoazotribromobenzene (*benzeneazodimethylaniline, tribromo-* (SILBERSTEIN), 1888, A., 661.
- Dimethylamidobenzeneazobenzenesulphonic acid (MÖHLAU), 1884, A., 1149.
- spectrum of (HARTLEY), 1887, T., 192.
- Dimethylamidobenzeneazodimethylaniline (NÖLTING and KOHN), 1885, A., 386; (BARBIER and VIGNON), 1888, A., 54.
- Dimethylamidobenzene- $\alpha$ -azonaphthalene (BISCHOFF), 1890, A., 1148.
- Dimethylamidobenzeneazotoluene, and its sulphonic acid (MÖHLAU), 1884, A., 1150.
- Dimethylanilineazobenzylpiperidine (LELLMANN and PEKRUN), 1891, A., 89.
- Dimethylazethane (CURTIUS and THUN), 1891, A., 1356.
- Dimethylazobenzene, tetranitro- (MERTENS), 1886, A., 1022.
- Dimethylbromobenzeneazammonium compounds (ZINCKE and ARZBERGER), 1889, A., 502.
- Dimethyltrichlorobromobenzeneazammonium iodide (ZINCKE and ARZBERGER), 1889, A., 502.
- Dimethylethylazimethylene (CURTIUS and THUN), 1891, A., 1355.
- Dimethylhexylazimethylene (CURTIUS and THUN), 1891, A., 1355.
- Diphenylazocarsacrol (MAZZARA), 1885, A., 1132.
- Diphenyl-*p*-azophenylene (V. BANDROWSKI), 1886, A., 1023; 1888, A., 269, 1081.
- Diphenylazothymol, constitution of (MAZZARA), 1885, A., 1131.
- Diphenylbisazonaphtharesorcinol (V. KONTANECKI), 1890, A., 261.
- Diphenyldiisindoleazobenzenesulphonic acid (MÖHLAU), 1883, A., 343.
- Diphenyldiisindoleazotribromobenzene hydrochloride (MÖHLAU), 1883, A., 342.
- Diphenyldiisindoleazotribromophenol (MÖHLAU), 1883, A., 342.

## AZO-COMPOUNDS—

- Diphenyldimethylazimethylene** (CURTIUS and RAUTERBERG), 1891, A., 1359.
- Diphenylenebisazodimethylaniline** (REULAND), 1890, A., 167.
- Diphenylenebisazo- $\beta$ -naphthol** (REULAND), 1890, A., 167.
- Diphenylenebisazoresorcinol** (REULAND), 1890, A., 167.
- p*-Diphenylhydrazohexamethylene** (v. BAEYER and NOYES), 1889, A., 1148.
- Diphenylmethylcinnamaldazimethylene** (CURTIUS and RAUTERBERG), 1891, A., 1360.
- Diphenylnaphthaleneazammonium hydroxide** and its salts (ZINCKE and LAWSON), 1887, A., 731.
- Diphenylpyrazoloneazobenzene** (KNORR and KLOTZ), 1887, A., 1121.
- Di-*o*- and -*p*-tolylidiamido-*o*-diazothioles** and their derivatives (HECTOR), 1890, A., 527.
- p*-Ditriazobenzene** (GRIESS), 1888, A., 826.
- m*-Ditriazobenzoic acid** (GRIESS), 1888, A., 827.
- m*-Dixylidiamido-*o*-diazothiole** (HECTOR), 1890, A., 528.
- Ethenylazoximebenzenyl** (NORMAN), 1885, A., 239.
- Ethoxyazobenzene** (*benzeneazophenol*), base from (NÖLTING and WERNER), 1891, A., 211.
- p*-Ethoxyazobenzene**, preparation, nature, and reduction of (JACOBSEN and FISCHER), 1892, A., 839.
- Ethoxyazobenzenesulphonic acid** (*benzeneazophenolsulphonic acid*) (FEER and MÜLLER), 1889, A., 258.
- Ethylamidazobenzenesulphonic acid** (*benzeneazothylanilinesulphonic acid*), sodium salt of (BERNSTEIN and GOSKE), 1887, A., 666.
- Ethylazimidobenzene** (HEMPER), 1890, A., 612.
- Ethylazimidotoluene** (NÖLTING and ABR), 1888, A., 273.
- Ethyl azobenzene- $\alpha$ -methylphenylpyrroline- $\beta$ -carboxylate** (PAAL and SCHNEIDER), 1887, A., 274.
- azopyromellitate** (NEF), 1886, A., 64; 1887, A., 257; 1888, T., 443.
- azoxypropionate** (CURTIUS and KOCH), 1889, A., 376.
- benzeneazocamphocarboxylate** (HALLER), 1892, A., 1344.

## AZO-COMPOUNDS—

- Ethyl benzenediazo- $\Delta^1$ - $\Delta^4$  and - $\Delta^2$ - $\Delta^5$  dihydroterephthalates** (v. BAEYER and v. BRUNING), 1891, A., 1487.
- benzenediazoterephthalate** (v. BAEYER and BRUNING), 1891, A., 1487.
- benzenylazoximemethenylcarboxylate** (WURM), 1890, A., 259.
- cinnamic diazoacetate** (BUCHNER), 1888, A., 1275.
- diazoacetate and its derivatives** (CURTIUS), 1884, A., 987.
- constitution of** (CURTIUS), 1889, A., 586.
- action of, on aromatic hydrocarbons** (BUCHNER and CURTIUS), 1885, A., 1207.
- diazobenzoate** (CURTIUS), 1891, A., 55.
- diazosuccinamate and diazosuccinates** (CURTIUS and KOCH), 1885, A., 885.
- diphenylazimethylenedicarboxylate** (CURTIUS and LANG), 1892, A., 453.
- methylthiazolecarboxylate diazohydrate** (WOHMANN), 1891, A., 225.
- $\beta$ -naphtholazophenyllutidinedicarboxylate** (LEPETIT), 1887, A., 1053.
- $\alpha$ -naphthylazooacetate** (ODDO), 1891, A., 1381; 1892, A., 367.
- phenylaz-acetyl- and -benzoylpyruvates** (BEYER and CLAISEN), 1888, A., 829.
- phenyl- $\beta$ -azocrotonate** (BENDER), 1888, A., 53; (NEF), 1892, A., 143.
- triazacetate** (CURTIUS and LANG), 1889, A., 370.
- Ethylpyrrolineazo- $\beta$ -naphthalene** (FISCHER and HEPP), 1886, A., 1042.
- Ethylpyrrolineazo-*p*-toluene** (FISCHER and HEPP), 1886, A., 1042.
- Ethylpyrrolinediazo-*p*-toluene** (FISCHER and HEPP), 1886, A., 1042.
- Glutarediazoximediethenyl** (BIEDERMANN), 1890, A., 126.
- p*-Hexazobenzene** (GRIESS), 1888, A., 826.
- Hexazobenzoic acid** (GRIESS), 1888, A., 827.
- Hexaoxybenzene** (JANOVSKY and ERB), 1887, A., 479; (JANOVSKY), 1887, A., 664; (WILLGERODT), 1890, A., 1117.
- Homobenzenyl-**. See Tolenyl-.

## AZO-COMPOUNDS—

- Homo-*o*-phthalethylimidoazobenzene** (PULVERMACHER), 1887, A., 1111.
- Homo-*o*-phthalimidoazobenzene** (GABRIEL), 1887, A., 726.
- Homoterephthalenediazoximedibenz-**enyl (ROSENTHAL), 1890, A., 147.
- Homoterephthalenediazoximedieth-**enyl (ROSENTHAL), 1890, A., 147.
- Hydroxyazobenzene** (*benzeneazophen-*ol), action of phosphoric chloride on (HEUMANN and PAGANINI), 1891, A., 301.
- m*-**nitro-** (KLINGER and FITSCHKE), 1886, A., 53.
- Hydroxy-*p*-azobenzenesulphonic** acid, salts of (LIMPRICHT), 1891, A., 1037.
- Hydroxyazo-compounds** (MEYER and KREIS), 1883, A., 982; (FISCHER and WIMMER), 1887, A., 819; (GOLDSCHMIDT and ROSEIL), 1890, A., 614; (GOLDSCHMIDT and BRUBACHER), 1891, A., 1209.
- o*-Hydroxyazo-dyes.** See under Colouring matters.
- 3-Hydroxy-4-azo-1-methylquinoline** (NÖLTING and TRAUTMANN), 1891, A., 328.
- Hydroxyazotoluidine** and its salts (LIMPRICHT), 1885, A., 975; (GRAEFF), 1885, A., 1128.
- m*-Hydroxybenzenylazoximebenzenyl** (SCHÖPFF), 1885, A., 1217.
- p*-Hydroxybenzenylazoximebenzenyl** (KRONE), 1891, A., 700.
- m*-Hydroxybenzenylazoxime-ethenyl** (CLEMM), 1891, A., 700.
- p*-Hydroxybenzenylazoxime-ethenyl** (KRONE), 1891, A., 700.
- m*-Hydroxybenzenylazoximeprop-**enyl-*ω*-carboxylic acid (CLEMM), 1891, A., 699.
- p*-Hydroxybenzenylazoximeprop-**enyl-*ω*-carboxylic acid (KRONE), 1891, A., 700.
- p*-Hydroxy-*o*-tolenylazoximebenz-**enyl (PASCHEN), 1892, A., 320.
- p*-Hydroxy-*m*-tolenylazoximebenz-**enyl (GOLDBECK), 1892, A., 319.
- o*-Hydroxy-*p*-tolenylazoxime-ethenyl** (GOLDBECK), 1892, A., 319.
- p*-Hydroxy-*o*-tolenylazoxime-ethenyl** (PASCHEN), 1892, A., 321.
- p*-Hydroxytolenylazoximepropenyl-***ω*-carboxylic acid (GOLDBECK), 1892, A., 319.
- Ketazodiphenyl ketone** (CURTIUS), 1889, A., 1157.
- Leucazocamphene** (TANRET), 1888, A., 720.

## AZO-COMPOUNDS—

- Levulinicphenylhydrazonazobenz-**ene (VOIGARD), 1892, A., 436.
- Methaneazobenzene**, iodonitro- (RUS-SANOFF), 1892, A., 1416.
- Methaneazobenzoic acid**, nitro- (GRUBER), 1885, A., 788.
- Methoxybenzenylazoximebenzenyl**, *o*- and *p*- (MILLER), 1889, A., 254.
- p*-Methoxybenzenylazoxime-ethenyl** (MILLER), 1889, A., 254.
- p*-Methoxybenzenylazoximeprop-**enyl-*ω*-carboxylic acid (MILLER), 1889, A., 255.
- o*-Methoxycinnamic acid diazo-**chloride (SCHNELL), 1887, A., 140.
- p*-Methoxydiazobenzenesulphonic** acid (ALTSCHUL), 1892, A., 1081.
- Methylamidoazobenzene** (*benzeneazo-*methylamidine) and its acetyl derivative (BERJU), 1884, A., 1149.
- Methylamidoazobenzenesulphonic** acid, sodium salt of (BERNTSEN and GOSKE), 1887, A., 666.
- Methylazimidothiazolecarboxylic** acid (WOHMANN), 1891, A., 226.
- Methyltrichlorobromazimidobenzene** (ZINCKE and ARZBERGER), 1889, A., 502.
- Methylidiazamidobenzene** (*diazobenz-*enemethylamido) (FRISWELL and GREEN), 1886, T., 748.
- Methylic acetylenedicarboxylodiaz-**oacetate (BUCHNER), 1889, A., 694.
- benzeneazocyanacetate** (HALLER), 1888, A., 824.
- benzeneazodinitrophenylacetate** (MEYER), 1888, A., 693.
- azomethylenecarboxylate** (CURTIUS and LANG), 1892, A., 452.
- toluenecazocyanacetates**, 1:2- and 1:4- (HALLER), 1888, A., 824.
- benzeneazocamphocarboxylate** (HALLER), 1892, A., 1344.
- diaoacetate**, action of, on the ethereal salts of unsaturated acids (BUCHNER), 1889, A., 694; 1890, A., 736.
- α*-diazopropionate** (CURTIUS and LANG), 1892, A., 452.
- diazosuccinamate** (CURTIUS and KOCH), 1887, A., 34.
- fumaric diazoacetate** (BUCHNER), 1888, A., 1274.
- 2'-Methylindoleazobenzene** (WAGNER), 1888, A., 284.
- Methyl-*o*-nitro-*p*-diazobenzene chlor-**ide, nitroso- (*p*-*diazotoluenechloride*, *o*-nitro-*ω*-nitroso-) (MEYER), 1886 A., 63.

## AZO-COMPOUNDS—

- Methyl*d*-nitrophenylacetateazobenzenesulphonic acid, sodium salt of (HAUSSKNECHT), 1889, A., 507.
- Methyl*d*-nitrophenylacetateazonaphthalene (HAUSSKNECHT), 1889, A., 506.
- Methyl*d*-nitrophenylacetateazotoluene (HAUSSKNECHT), 1889, A., 506.
- Methyl*d*-nitrophenylacetateazoxylene (HAUSSKNECHT), 1889, A., 506.
- Methylpyrrolinebisazobenzene (FISCHER and HEPP), 1886, A., 1041.
- Methyltetrahydroquinoline-1-and-3-azobenzenesulphonic acids, 1- and 3- (BAMBERGER and WULZ), 1891, A., 1254.
- Methyl-*p*-toluidine-*o*-azobenzene-sulphonic acid (BAMBERGER and WULZ), 1891, A., 1203.
- $\alpha$ -Naphthaleneazoacetic acid (ODDO), 1891, A., 1382.
- Naphthaleneazoacetoacetic acids,  $\alpha$ - and  $\beta$ - (ODDO), 1891, A., 1381.
- $\alpha$ -Naphthaleneazoacetone (ODDO), 1891, A., 1382.
- 1:2:2'- $\beta$ -Naphthaleneazodihydroxynaphthalene (CLAUSIUS), 1890, A., 628.
- $\alpha$ -Naphthaleneazo- $\alpha$ -hydroxynaphthoic acid (BISCHOFF), 1890, A., 1148.
- $\beta$ -Naphthaleneazo-*o*- and -*p*-hydroxyquinolines (MATHÉUS), 1888, A., 851, 852.
- Naphthaleneazonaphthalene. See Azonaphthalene.
- Naphthaleneazo- $\beta$ -naphthylanilines,  $\alpha$ - and  $\beta$ - (MATTHES), 1890, A., 998.
- Naphthaleneazophenylenediamineazotoluene (GRIENS), 1888, A., 1108.
- Naphthaleneazosalicylic acids (GEBEK), 1889, A., 780.
- Naphthalenebisazobenzenes,  $\alpha$ - and  $\beta$ - (NIETZKI and DIESTERWEG), 1888, A., 1088.
- $\alpha$ -Naphthalenebisazobenzene (KROHN), 1889, A., 152.
- $\beta$ -Naphthylazoximeacetylenyl (RICHTER), 1890, A., 63.
- $\beta$ -Naphthylazoximebenzenyl (RICHTER), 1890, A., 62.
- Naphthylazoxime-ethenyls,  $\alpha$ - and  $\beta$ - (EKSTRAND), 1887, A., 373.
- $\beta$ -Naphthylazoximenaphthyl (EKSTRAND), 1887, A., 374.
- Naphtholazobenzenes (DENARO), 1886, A., 246.
- derivatives of (MARGARY), 1884, A., 326; 1885, A., 546.

## AZO-COMPOUNDS—

- Naphthol-*p*-azobenzeneazodimethylanilines,  $\alpha$ - and  $\beta$ - (MELDOLA), 1884, T., 109, 110.
- $\beta$ -Naphthol-*p*-azobenzeneazodiphenylamine (MELDOLA), 1883, T., 441.
- $\beta$ -Naphthol-*p*-azobenzeneazodiphenylethylamine (MELDOLA), 1884, T., 111.
- $\beta$ -Naphthol-*p*-azobenzeneazo- $\alpha$ -naphthaleneazo-*p*-naphthol (MELDOLA), 1883, T., 437.
- $\beta$ -Naphthol-*p*-azobenzeneazo- $\alpha$ -naphthaleneazo-*p*-naphtholdisulphonic acid (MELDOLA), 1883, T., 438.
- $\beta$ -Naphthol-*p*-azobenzeneazo- $\alpha$ -naphthaleneazophenol (MELDOLA), 1883, T., 439.
- $\beta$ -Naphthol-*p*-azobenzeneazo- $\alpha$ -naphthaleneazoresorcinol (MELDOLA), 1883, T., 439.
- $\alpha$ -Naphtholazobenzeneazo- $\beta$ -naphthol, and its disulphonic acid (sodium salt) (MELDOLA), 1885, T., 664.
- Naphtholazobenzeneazo- $\alpha$ - and - $\beta$ -naphthols,  $\alpha$ - and  $\beta$ - (MELDOLA), 1885, T., 663, 664.
- Naphtholazobenzeneazophenols,  $\alpha$ - and  $\beta$ - (MELDOLA), 1885, T., 665, 666.
- Naphtholazobenzeneazoresorcinols,  $\alpha$ - and  $\beta$ - (MELDOLA), 1885, T., 665, 666.
- $\beta$ -Naphtholazobenzeneazosalicylic acid (MELDOLA), 1885, T., 667.
- $\beta$ -Naphthol-*p*-azobenzeneazo-*m*-xyleneazo- $\beta$ -naphthol (MELDOLA), 1883, T., 439.
- $\beta$ -Naphtholazonitro- $\psi$ -cumenesulphonic acid (MAYER), 1887, A., 953.
- $\alpha$ -Naphtholbisazo-*p*-benzene-*o*-toluene (benzeneazonaphtholazotoluene) (GOLDSCHMIDT and POLLAK), 1892, A., 977.
- Naphthol-*p*-azodiphenylsulphonic acids,  $\alpha$ - and  $\beta$ -, sodium salts of (CARNELLEY and SCHLESELMANN), 1886, T., 383.
- $\alpha$ -Naphtholbisdiazobenzene (KROHN), 1889, A., 152.
- $\beta$ -Naphthylamine, azo-derivatives of (MELDOLA and HUGHES), 1891, T., 372; P., 83.
- constitutional formula for the azo-derivatives of (MELDOLA), 1884, T., 118.
- $\beta$ -Naphthylamines, secondary, azo-derivatives of (MATTHES), 1890, A., 992.

## AZO-COMPOUNDS—

Naphthylphenylethylazammonium iodide (ZINCKE and CAMPBELL), 1890, A., 787.

Nicotenylazosulphimecarbanilide (MICHAELIS), 1892, A., 208.

Nicotenylazoximebenzenyl (MICHAELIS), 1892, A., 207.

Nicotenylazoximepropenyl- $\omega$ -carboxylic acid (MICHAELIS), 1892, A., 207.

Oxaleneanilidoximeazoxime-ethenyl (ZINKEISEN), 1890, A., 124.

Oxalenediazoximediobenzenyl (ZINKEISEN), 1890, A., 123.

Oxalenediazoximediopropenyldicarbonylic acid (ZINKEISEN), 1890, A., 123.

Oxyazo-compounds (GOLDSCHMIDT and POLLAK), 1892, A., 974.  
action of phosphoric chloride on (PAGANINI), 1891, A., 556.

*p*-Phenetolazo-*p*-cresol (LIEBERMANN and V. KOSTANECKI), 1884, A., 1147.

*m*-Phenetolazo- $\beta$ -naphtholsulphonic acid (WAGNER), 1885, A., 1212.

*p*-Phenetolazoresorcinol (LIEBERMANN and V. KOSTANECKI), 1884, A., 1147.

Phenylazimidonaphthalenes, *o*- and *p*- (ZINCKE), 1886, A., 244, 245.

Phenylazoacetyl-*m*-amidobenzene (WALLACH and SCHULZE), 1888, A., 588.

Phenylazoamidobenzene hydrochloride (WALLACH and SCHULZE), 1888, A., 588.

Phenol-*p*-azobenzeneazo-*p*-dimethylaniline (MELDOLA), 1884, T., 111.

Phenylazobenzeneazo-*p*-phenol (MELDOLA), 1885, T., 659.

Phenol-*p*-azodiphenylsulphonic acid, sodium salt of (CARNELLEY and SCHLESSELMANN), 1886, T., 382.

Phenylazobenzene-*p*-sulphonic acid (GRIESS), 1888, A., 181.

Phenylbisazobenzene, constitution of (GOLDSCHMIDT and POLLAK), 1892, A., 976.

Phenylbisazo-*o*- and *p*-benzenes, and *o*- and *p*-toluenes (GOLDSCHMIDT and POLLAK), 1892, A., 976.

Phenylbisazotoluene (NÖLTING and WERNER), 1891, A., 212.

Phenylbisazo-*o*-toluene (PAGANINI), 1891, A., 557.

Phenylbisazo-*p*-toluene (GOLDSCHMIDT and POLLAK), 1892, A., 976.

## AZO-COMPOUNDS—

*o*-Phenylazimidobenzene (SCHOPFF), 1890, A., 1113; (KEHRMANN and MESSINGER), 1892, A., 889.  
amido- (WILLGERODT), 1892, A., 1322.

tetranitro- (WILLGERODT), 1892, A., 1454.

3:4-Phenylazimidobenzoic acid (SCHOPFF), 1890, A., 374.

1:2-Phenylazimido-3-chlorobenzene (ERNST), 1891, A., 300.

$\alpha\beta$ -Phenylazimidonaphthalene (ZINCKE), 1886, A., 244; (ZINCKE and CAMPBELL), 1890, A., 787.

$\psi$ -Phenylazimidonaphthalene (CLAUS), 1890, A., 788.

Phenylazimidotolylamine, *d*-nitro- (ERNST), 1891, A., 300.

Phenylazo-. See also Benzeneazo-.

Phenylazoacetoacetaldehyde (*benzeneazocetoacetaldehyde*) (BEYER and CLAISEN), 1888, A., 827.

Phenylazoacetoacetic acid (*benzeneazocetoacetic acid*), *o*-nitro-, and its derivatives (BAMBERGER), 1885, A., 157.

Phenylazoacetone. See Pyruvaldehydphenylhydrazone.

Phenylazoacetophenone (*benzeneazacetophenone*), and *o*-nitro- (BAMBERGER and CALMAN), 1886, A., 62.

Phenylazoacetylacetone (*benzeneazacetylacetone*) (BEYER and CLAISEN), 1888, A., 828.

Phenylazoxazolecarboxylic acid (NUSSBERGER), 1892, A., 1178.

Phenyl-*p*-chloronitrazobenzene (*benzeneazo-p-chloronitrobenzene*), 2:4-*d*-nitro- (WILLGERODT and BÖHM), 1891, A., 906.

*o*-Phenylenediazo sulphide (JACOBSON), 1889, A., 135.

Phenylenediazosulphidecarboxylic acid (PFITZINGER and GATTERMANN), 1889, A., 868.

Phenylethenylazoximebenzenyl (KNUDSEN), 1885, A., 897.

*p*-cyano- (ROSENTHAL), 1890, A., 148.

Phenylethenylazoxime-ethenyl (KNUDSEN), 1885, A., 898.

Phenylethenylazoximepropenyl- $\omega$ -carboxylic acid (KNUDSEN), 1885, A., 1218.

Phenylethylamidobenzeneazophenylethylaniline (LIPPMANN and FLEISSNER), 1884, A., 180.

Phenyllic diazobenzenesalicylate (LIMPRICHT), 1891, A., 1036.

## AZO-COMPOUNDS—

Phenylmethaneazobenzene, *o*-nitro- (PAAL and BODEWIG), 1892, A., 1456.

Phenylmethylamidobenzeneazotri-bromobenzene (SILBERSTEIN), 1883, A., 662.

Phenylmethylpyrazoloneazobenzene (KNORR), 1887, A., 602; (v. BUCHKA and SPRAGUE), 1890, A., 29; (SPRAGUE), 1891, T., 336.

identity of, with phenylhydrazine-ketophenylmethylpyrazolone (KNORR), 1888, A., 724.

1-Phenyl-3,5-pyrazolidone-4-azobenzene (MICHAELIS and BURMEISTER), 1892, A., 1005.

Phenylpyrrolazineazobenzene (FISCHER and HEPP), 1886, A., 1042.

Picrylazonaphthalenes (*benzeneazoonaphthalenes, trinitro-*) (WILLGERD and SCHULZ), 1891, A., 572.

Picryl-*m*-chlorazobenzene (*benzene-m-chlorazobenzene, trinitro-*) (WILLGERD and MUHE), 1892, A., 454.

Picryl-*p*-chlorazobenzene (*benzene-p-chlorazobenzene, trinitro-*) (WILLGERD and BOHM), 1891, A., 905.

Picryl-*p*-chloronitrazobenzene (*benzeneazochloronitrobenzene, trinitro-*) (WILLGERD and BOHM), 1891, A., 906.

Polyazo-compounds (WILLGERD), 1890, A., 1118.

Propane-*p*-bisazoanisole, *d*-nitro- (KEPPLER and MEYER), 1892, A., 1062.

Propanebisazobenzene, *d*-nitro- (KEPPLER and MEYER), 1892, A., 1062.

Propanebisazotoluene, *d*-nitro- (KEPPLER and MEYER), 1892, A., 1062.

Propionyl- $\alpha$ -naphtholazobenzene (GOLDZWEIG and KAISER), 1891, A., 448.

Propyleneazobenzene, nitro- (MEYER), 1892, A., 575.

Propylene-*p*-azoanisole, propyleneazobenzene, propylene-*m*-azobenzoic acid, propyleneazo-*m*-bromobenzene, propyleneazo- $\psi$ -cumene, propylene-*p*-azophenetole, and propylene-*o*- and -*p*-azotoluenes, nitro-, derivatives of (ASKENASY and MEYER), 1892, A., 1062.

Pyrrolazineazobenzene, pyrrolazineazobenzeneazo- $\beta$ -naphthalene, pyrrolazineazo-*p*-dimethylamidobenzene, pyrrolazineazo- $\alpha$ - and - $\beta$ -naphthalenes, pyrrolazineazo-*p*-toluene,

## AZO-COMPOUNDS—

pyrrolinebisazobenzene, and pyrrolinebisazo- $\alpha$ - and - $\beta$ -naphthalenes (FISCHER and HEPP), 1886, A., 1041.

Quinol-*p*-azodiphenylsulphonic acid, sodium salt of (CARNELLEY and SCHLESELMANN), 1886, T., 382.

Resorcinol-*p*-azobenzeneazodimethylaniline (MELDOLA), 1884, T., 110.

Resorcinolazobenzeneazoresorcinol (MELDOLA), 1885, T., 661.

Resorcinol-*p*-azodiphenylsulphonic acid, sodium salt of (CARNELLEY and SCHLESELMANN), 1886, T., 382.

Resorcinolbisazobenzenes, 1:3:2:4- and 1:3:4:6- (GOLDSCHMIDT and POLLAK), 1892, A., 977.

Salicenyloximebenzenyl (SPILKER), 1890, A., 143.

Salicenyloxime-ethenyl (SPILKER), 1890, A., 143.

Salicenyloximepropenyl- $\omega$ -carb-oxylic acid (MILLER), 1890, A., 146.

Salicylaldehyde-*m*- and -*p*-azobenzenesulphonic acids (TUMMELEY), 1889, A., 779, 780.

Salicylamide-*p*-azobenzenesulphonic acid (TUMMELEY), 1889, A., 780.

Succinenylazoxybenzene (SEMBRITZKI), 1888, A., 935.

Succinenyldiazoximedibenzenyl (SEMBRITZKI), 1890, A., 125.

Sulphanilazocumenol, potassium salt of (LIEBERMANN and v. KOSTAN-ECKI), 1884, A., 1147.

Sulphobenzeneazodiamidobenzoic acid (GRIESS), 1883, A., 184.

Sulphobenzeneazoamidotetrahydronaphthol (BAMBERGER and BAMMAN), 1889, A., 784.

Sulphobenzenediazoamido-3-methyl-tetrahydroquinoline (BAMBERGER and WULZ), 1891, A., 1255.

Sulphobenzenediazoamidomethyl-*p*-toluidine (*sulphobenzeneazomethyl-toluidide*) (BAMBERGER and WULZ), 1891, A., 1203.

Sulphobenzeneazoethyl- $\alpha$ -naphthylamine (BAMBERGER and GOLDSCHMIDT), 1891, A., 1239.

*p*-Sulphobenzeneazo- $\alpha$ -naphthol (NOLTING and GRANDMOUGIN), 1891, A., 1074.

Sulphobenzeneazonaphthylaminesulphonic acids (*azocamidosisulphonaphthalenebenzenesulphonic acids*) (GRIESS), 1883, A., 182, 183.

## AZO-COMPOUNDS—

- p*-Sulphobenzeneazo-*o*-nitrophenol, Griess' (MEYER and KREIN), 1888, A., 982.
- Sulphobenzeneazo-*ar*-octohydro- $\alpha$ -naphthaquinoline (BAMBERGER and STETTENHEIMER), 1891, A., 1260.
- Sulphobenzeneazo-*ar*-octohydro- $\beta$ -naphthaquinoline (BAMBERGER and STRASSER), 1891, A., 1514.
- Sulphobenzeneazo- $\beta$ -naphthylphenylamine (WITT), 1887, A., 590.
- Sulphobenzeneazotetrahydro- $\alpha$ -naphthaquinoline (BAMBERGER and STETTENHEIMER), 1891, A., 1259.
- Sulphobenzeneazo-*ar*-tetrahydro- $\alpha$ -naphthol (BAMBERGER and BORDT), 1890, A., 509.
- Sulphobenzeneazo- $\alpha$ -tetrahydronaphthylamine (BAMBERGER and BORDT), 1889, A., 715.
- Sulphobenzeneazotetrahydroquinoline (BAMBERGER), 1890, A., 1302.
- Sulphonamidobenzeneazobenzenesulphonamide (LIMPRICHT and MEYER), 1892, A., 973.
- Sulphonamidobenzeneazodibromobenzenesulphonamide, dibromo-, and sulphonamidobenzeneazotribromobenzenesulphonamide, tribromo- (RODATZ), 1888, A., 479, 480.
- Sulpho-*o*- and -*p*-tolylazo-*m*- and -*p*-cresols (*sulphotoluenaeazocresols*) and salts (NOLTING and KOHN), 1884, A., 901, 902.
- Sulphoxylenazo- $\beta$ -naphtholdisulphonic acid, spectrum of (HARTLEY), 1887, T., 188.
- Tetrahydronaphthaleneazo- $\alpha$ -naphthylamine (BAMBERGER and BORDT), 1889, A., 715.
- Tetrahydronaphthaleneazo- $\beta$ -naphthylamine, amido- (BAMBERGER and BAMMANN), 1889, A., 733.
- Tetrahydronaphthaleneazoresorcinol (BAMBERGER and BORDT), 1889, A., 716.
- Tetramethyldiamidoazobenzene (*dimethylamidobenzeneazodimethylamine*) (NOLTING and KOHN), 1885, A., 386; (BARBIER and VIGNON), 1888, A., 54.
- Tetrazodiphenol (KUNZE), 1889, A., 262.
- Tetrazodiphenyl (TÄUBER), 1891, A., 570.
- Tetrazodiphenyldisulphonic acid (LIMPRICHT), 1891, A., 930.

## AZO-COMPOUNDS—

- Tetrazoleazodimethylaniline (THIELE), 1892, A., 1299.
- Tetrazoleazo- $\beta$ -naphthylamine (THIELE), 1892, A., 1299.
- Tetrazostilbene, dyes from (BENDER and SCHULTZ), 1887, A., 268.
- p*-Tolenyamidine-*p*-tolenyazosulphimecarbohydrosulphide (CRAYEN), 1891, A., 560.
- p*-Tolenyazosulphimecarbo-di- and -hydro-sulphides (CRAYEN), 1891, A., 560.
- p*-Tolenyazoximeacetylenyl (SCHUBART), 1890, A., 48.
- o*-Tolenyazoximebenzenyl (SCHUBART), 1890, A., 49.
- p*-Tolenyazoximebenzenyl (SCHUBART), 1886, A., 798.
- p*-Tolenyazoxime-ethenyl (SCHUBART), 1890, A., 47.
- p*-Tolenyazoximepropenyl- $\omega$ -carboxylic acid (SCHUBART), 1890, A., 48.
- o*-Tolenyazoxime-*o*-tolenyl (STIEGLITZ), 1890, A., 256.
- p*-Tolenyazoxime-*p*-tolenyl (SCHUBART), 1890, A., 48.
- Tolueneazimidotoluene (ZINCKE and LAWSON), 1887, A., 731.
- p*-Tolueneazacetone (V. RICHTER and MUNZER), 1884, A., 1342.
- Tolueneazochlorobenzenes, *o*- and -*p*- (PAGANINI), 1891, A., 556, 557.
- Tolueneazocyanocamphors, *o*- and -*p*- (MINGUIN), 1892, A., 1343.
- Tolueneazodimethylaniline, and its *p*-azo- $\beta$ -naphthol and *p*-azophenol compounds (WALLACH), 1887, A., 41.
- Toluene-*o*- and -*p*-azodimethylanilines, *o*- and -*p*-acetamido- and *o*- and -*p*-amido- (WALLACH), 1887, A., 41.
- p*-Tolueneazo-*o*- and -*p*-hydroxyquinolines (MATHIEU), 1888, A., 851, 852.
- Tolueneazo- $\alpha$ -naphthol, amido-, methyl and ethyl ethers of (WITT and SCHMIDT), 1892, A., 863.
- Tolueneazo- $\alpha$ - and - $\beta$ -naphthols, *o*- and -*p*-, and their derivatives (ZINCKE and KATHGEN), 1887, A., 55.
- p*-Tolueneazo- $\beta$ -naphthylphenylamine (MATTHEW), 1890, A., 992.
- Tolueneazophenols, *o*- and -*m*- (PAGANINI), 1891, A., 556, 557.
- Tolueneazophenylenediamineazobenzene (GRIESS), 1883, A., 1103.
- Tolueneazophenylic phosphates, *o*- and -*p*- (PAGANINI), 1891, A., 556, 557.

## AZO-COMPOUNDS—

- p*-Toluenearoresorcinol (HEUMANN and OECONOMIDES), 1887, A., 664.  
 Toluenearozotoluene. See also Azo-toluene.  
 Toluenearozotoluene-di-*o*-sulphonic acid (*p*-azobenzylidene-sulphonic acid) (MOHR), 1884, A., 69.  
*o*-Toluenearo-*m*-toluene (SCHULTZ), 1884, A., 908.  
 Toluenediazoacetotoluidide (HEUSLER), 1892, A., 459.  
 Toluene-*p*-diazoconiine (WALLACH), 1887, A., 137.  
 Toluene-*o*- and *p*-diazopiperidides and their nitro-derivatives (WALLACH), 1887, A., 137.  
 Toluylazimide (NIEMENTOWSKI), 1888, A., 837.  
*p*-Tolylazimidobenzene, amido- (WILLGERODT), 1892, A., 1322.  
 Toluene-*p*-azoacetoacetic acid, *m*-nitro-, and *m*-amido- (BAMBERGER), 1885, 157, 158.  
 Toluene-*p*-azoacetone, *m*-nitro- (BAMBERGER), 1885, A., 158.  
 Toluene-*p*-azobenzoylacetic acid, *m*-nitro-, the corresponding acetophenone, and the ketoxime (BAMBERGER and CALMAN), 1886, A., 62.  
*p*-Toluenearo-*p* cresetol (NOLTING and WERNER), 1891, A., 214.  
*p*-Toluenearo-*p*-cresol, and its acetic and benzoic derivatives (NOLTING and KOHN), 1884, A., 901.  
 Toluenearo-*o*- and *p*-cresols, *o*- and *p*- (NOLTING and WERNER), 1891, A., 212.  
*p*-Toluenearo-azodibenzylamine (LELLMANN and ARNOLD), 1892, A., 316, 890.  
*p*-Toluenearozodimethylaniline, nitro-derivatives of (NOLTING), 1888, A., 270.  
*p*-Toluenearozodimethylanilinesulphonic acid (NOLTING), 1888, A., 271.  
 Toluenearophenetoils, *o*- and *p*- (NOLTING and WERNER), 1891, A., 212.  
*o*-Toluenearophenol (NOLTING and WERNER), 1891, A., 212.  
*o*-Toluenearo-*o*-tolylthio- and -dithio-biazolones (FREUND), 1892, A., 513.  
*p*-Toluenearo-*p*-tolylthio-biazolone and *p*-toluenearo-*p*-tolyl- $\psi$ -thio-biazolone (FREUND), 1892, A., 512.  
 Tolylenediamineazobenzeneazobenzene-sulphonic acid (*azosulphobenzene-tolylenediamine*) (GRIESS), 1883, A., 1103.  
 Tolylenic diazosulphide (JACOBSON and NEY), 1889, A., 772.

## AZO-COMPOUNDS—

- Triazimidacetamide (CURTIUS and LANG), 1889, A., 370.  
 Triazoacetamide (CURTIUS and LANG), 1889, A., 370.  
 Triazoacetic acid (CURTIUS and LANG), 1889, A., 369.  
 constitution of (CURTIUS), 1889, A., 587.  
 Triazobenzene (GRIESS), 1886, A., 459; (ODDO), 1891, A., 696.  
 physiological action of (ODDO), 1892, A., 366.  
*p*-amido- (GRIESS), 1888, A., 826.  
 Triazobenzenedisulphonic acid (LIMPRICHT), 1889, A., 399.  
*m*-Triazobenzenesulphonic acid (LIMPRICHT), 1889, A., 397.  
*p*-Triazobenzenesulphonic acid and its derivatives (GRIESS), 1887, A., 817.  
*m*-Triazobenzoic acid (GRIESS), 1886, A., 459.  
*m*-amido- (GRIESS), 1888, A., 826.  
 Triazobromobenzenesulphonic acid (LIMPRICHT), 1889, A., 399.  
 Triazonaphthalenesulphonic acid and its derivatives (GRIESS), 1887, A., 818.  
*m*-Triazo-oxalamidobenzoic acid (GRIESS), 1888, A., 827.  
 Triazo-*o*-toluenesulphonic acids, *o*- and *p*- (LIMPRICHT), 1889, A., 398.  
 Trimethylazobenzeneammonium iodide (BERJU), 1884, A., 1149.  
 Triphenylmethylazimethylene (CURTIUS and RAUTENBERG), 1891, A., 1360.  
 Xylenearoresorcinol (FISCHER and WIMMER), 1887, A., 820.  
 Xylenearoxylene. See Azoxylene.  
*m*-Xylenediazopiperidide, nitro- (AHRENS), 1892, A., 1437.  
 Xylenic diazosulphide (JACOBSON and NEY), 1889, A., 772.  
 Azo-group, intramolecular formation of (LELLMANN and ARNOLD), 1892, A., 316.  
 substitution of, for ketonic oxygen (CURTIUS), 1889, A., 1157; (CURTIUS and LANG), 1892, A., 451.  
 Azoles (HANTZSCH), 1889, A., 413.  
 Azonium bases (WITT), 1887, A., 729; 1891, A., 1108; (KEHRMANN and MESSINGER), 1891, A., 945, 1109; 1892, A., 1108; (WITT and SCHMIDT), 1892, A., 1246.  
 Azophenine (WITT and THOMAS), 1883, T., 115; (WITT), 1887, A., 821; 1888, A., 54; (FISCHER and HEPP), 1887, A., 1105; 1888, A., 472, 1291,

- Azophenine**, constitution of (FISCHER and HEPP), 1887, A., 1105.  
 formation of (FISCHER and HEPP), 1890, A., 614.  
 synthesis of (V. BANDROWSKI), 1888, A., 1081.  
 derivatives of (FISCHER and HEPP), 1888, A., 472.  
*tetrabrom-* and *chlor-* (FISCHER and HEPP), 1887, A., 1105.  
**Azotine** (DEHÉRAIN), 1885, A., 424.  
**Azotometer**, Scheibler's, modification of (SONDÉN), 1888, A., 508.  
 Zulkowsky's, modification of (GAWALOWSKI), 1885, A., 593.  
**Azotometry** and the azotometer (KNOP), 1886, A., 1072.  
**Azulene** (HOCK), 1884, A., 82.  
**Azulmic matter**, oxidation of, obtained by electrolysis of ammonia with carbon electrodes (MILLOT), 1888, A., 242.  
**Azurite**, crystallised, from Arizona (FARRINGTON), 1891, A., 992.  
**Azylines** (LIPPMANN and FLEISSNER), 1883, A., 53, 184, 868, 1100; 1884, A., 178, 179; (NOLTING), 1885, A., 895.

## B.

- Bacillus**, investigation of (KUNZ), 1888, A., 1122.  
*Bacillus acidi laevolactici* (SCHARDINGER), 1891, A., 666.  
*amylolyticus* (PERDRIX), 1892, A., 90.  
*anthracis* (KLEIN), 1886, T., 200; (HANKIN), 1889, A., 1234.  
 chemical pathology of (MARTIN), 1892, A., 744.  
 in man (MARTIN), 1892, A., 1117.  
*butylicus*, nature of the alcohols formed in the fermentation by (MORIN), 1888, A., 125.  
 products of fermentation with (FITZ), 1884, A., 765.  
 cattle plague (METZDORF), 1884, A., 1398.  
 cholera, formation of ptomaines by (POEHL), 1886, A., 731.  
 reduction of nitrates by (PETRI), 1890, A., 76.  
 comma (KUNZ), 1888, A., 1123.  
 odour and poisonous effects of the products of the fermentation produced by (NICATI and RIETSCH), 1885, A., 180.  
 poisonous product of the culture of (NICATI and RIETSCH), 1886, A., 169.  
 from *Erythema nodosum*, chemical composition of (BOVER), 1889, A., 539.

- Bacillus ethaceticus* (FRANKLAND and Fox), 1890, A., 916.  
 fermentation of arabinose by (FRANKLAND and MACGREGOR), 1892, T., 737; P., 132.  
 fermentation of calcium glycerate by (FRANKLAND and FREW), 1890, P., 173; 1891, T., 81.  
 fermentation of mannitol and dextrose by (FRANKLAND and LUMSDEN), 1892, T., 442; P., 70.  
*ethacetosuccinicus*, fermentation of mannitol and dulcitol by (FRANKLAND and FREW), 1892, T., 254.  
 morphological characterisation of (FRANKLAND), 1892, T., 275.  
*floccus* (WARINGTON), 1888, T., 729.  
*fluorescens putridus* and *B. f. liquefaciens*, chromogenic functions of (GESSARD), 1890, A., 655.  
*frugi* (WARINGTON), 1891, T., 501.  
 glands (ISRAEL; WASSILIEFF), 1884, A., 914.  
*intestinalis* (WARINGTON), 1888, T., 729.  
*leprae*, cultivation of (RAKE), 1888, A., 1124.  
*liquefaciens magnus* (NENCKI), 1890, A., 78.  
 decomposition of gelatin by (SELTRENNY), 1890, A., 543.  
 malignant cedema, action of, on carbohydrates and on lactic acid (KERRY and FRAENKEL), 1890, A., 1454; 1892, A., 91.  
 decomposition of albumin by (KERRY), 1890, A., 542.  
 panary fermentation (LAURENT), 1887, A., 70.  
*pyocyaneus* (KUNZ), 1888, A., 1122.  
 chromogenic functions of (GESSARD), 1890, A., 655.  
 colouring matters and aromatic products from (BABÈS), 1890, A., 189.  
 transformation and elimination of nitrogenous organic matter by (ARNAUD and CHARRIN), 1891, A., 1132, 1394.  
*radicicola*, accumulation of atmospheric nitrogen in cultivations of (BEYERINCK), 1892, A., 1019.  
*Rauschbrand* (*symptomatic anthrax*) (NENCKI and SIEBER), 1890, A., 78.  
 decomposition of gelatin by (SELTRENNY), 1890, A., 543.  
*spinosus* (NENCKI), 1890, A., 78.  
 splenic fever, albumin of (NENCKI), 1885, A., 177.

- Bacillus strumitis* (KUNZ), 1888, A., 1122.  
*suaveolens* (SCLAVO and GOSIO), 1891, A., 1284.  
*subtilis*, chemistry of (VANDEVELDE), 1885, A., 287.  
*sulphureus* (WARINGTON), 1888, T., 730.  
 swine fever, ptomaines formed in the cultivation of (V. SCHWEINITZ), 1891, A., 476.  
*tardecrensens* and *B. toruliformis* (WARINGTON), 1888, T., 730, 731.  
*tuberculosis* (KLEIN), 1886, T., 201.  
   composition of (HAMMERSCHLAG), 1889, A., 638.  
   influence of culture fluids and reagents on the growth of (WILLIAMS), 1885, A., 578.  
   cultivation products of (CROOKSHANK and HERROUN), 1891, A., 762.  
*viscosus sacchari* and *B. v. vini* (KRAMER), 1890, A., 77.  
 See also Bacterium, Fermentation, Ferments, Microbes, Micrococcus.  
**Bacteria** (MAHPMANN), 1883, A., 364;  
 (BRIEGER), 1885, A., 578.  
   chemical constituents of (VINCENZI), 1887, A., 393.  
   osmotic experiments with living (W. ADIMIROFF), 1891, A., 1131.  
   reducing and oxidising properties of (HERAËUS), 1888, A., 313.  
   ferment action of (BRUNTON and MACFADYEN), 1890, A., 916.  
   diastatic ferment of (WORTMANN), 1883, A., 930.  
   action of, on starch (WORTMANN), 1883, A., 931.  
   influence of light on the development of (JAMIESON), 1884, A., 475.  
   substances which favour the development of (ROGER), 1891, A., 100.  
   changes induced in water by development of (LEONE), 1887, A., 615.  
   soluble colouring matters produced by, in distilled medicinal waters (VIRON), 1892, A., 907.  
   comparative toxic action of metals on (RICHTER), 1884, A., 351.  
   toxic action of tobacco smoke on (TASSINARI), 1888, A., 1327.  
   anaërobic, culture of (GRUBER), 1887, A., 1135.  
*emphysem* (NENCKI and SIEBER), 1890, A., 78.  
   from flour (BOUTROUX), 1891, A., 1532.  
   of normal milk feces (BAGINSKY), 1888, A., 865.
- Bacteria**, putrefactive, ferment from, which dissolves fibrin (SALKOWSKI), 1888, A., 1326.  
   of the genus *Tyrophthrix* and their spores, action of various compounds on (CHAIRY), 1885, A., 289.  
**Bacterial** life in relation to oxygen (LIBORIUS), 1887, A., 291.  
**Bacteriological** research from a biologist's point of view (KLEIN), 1886, T., 197; P., 148.  
**Bacterio-purpurin** (ENGELMANN), 1889, A., 180.  
*Bacterium aceti*, action of, on alcohol, on cane-sugar, on carbohydrates, on dextrose, and on mannitol (BROWN), 1886, T., 178.  
   action of, on erythritol, on glycerol, and on glycol (BROWN), 1887, T., 638, 641.  
   chemical action of pure cultivations of (BROWN), 1886, T., 173; P., 136.  
   oxidation of acetic acid by (BROWN), 1886, T., 172; P., 136.  
*gliscrogenum*, viscous material formed by (MALERBA), 1891, A., 1391.  
*phosphorescens* (KUNZ), 1888, A., 1123.  
   souring (STORCH), 1891, A., 603.  
   which ferments starch and produces amylic alcohol (PERDRIX), 1892, A., 90.  
*xylinum*, cellulose formed by (BROWN), 1887, T., 643; P., 87.  
 See also Bacillus, Fermentation, Microbes, Micrococcus.
- Balance**, gas (LUX), 1890, A., 823.  
   modified, for rapid weighing (COLLOT), 1892, A., 270.  
   voltaic. See Electrochemistry.
- Balance sheets** of the Chemical Society, 1883, T., 265; 1884, T., 225; 1885, T., 347; 1886, T., 355; 1887, T., 467; 1888, T., 506; 1889, T., 286; 1890, T., 438; 1891, T., 448; 1892, T., 484.  
   of the Research Fund, 1883, T., 266; 1884, T., 226; 1885, T., 348; 1886, T., 356; 1887, T., 468; 1888, T., 507; 1889, T., 287; 1890, T., 439; 1891, T., 449; 1892, T., 485.
- Balsam**, American (FLÜCKIGER; v. MILLER), 1883, A., 407.  
   copaiba, oxidation of (LEVY), 1886, A., 250; (LEVY and ENGLÄNDER), 1888, A., 133.  
   examination of (PRAËL), 1886, A., 284.  
   estimation of (HAGER), 1884, A., 377.

**Balsam**, copaliba, estimation of volatile oil in (CRIPPS), 1892, A., 244.

Peru, testing (MacEWAN), 1885, A., 602; (ANDRIÉ), 1886, A., 181; (DENNER), 1889, A., 196.

**Balsams**, excretion of, in the urine (SROCKMAN), 1891, A., 600.  
analysis of (BAMBERGER), 1890, A., 1032.

**Banana**, composition of, at different stages of maturity (RICCIARDI), 1883, A., 231.

**Barbituric acid**, derivatives of (CONRAD and GUTHRIE), 1883, A., 314.

dibromo-, action of, on thiocarbamide and thiocyanates (TIZZIANI), 1883, A., 913.

dibromo- and dichloro-, mode of formation of (BEHREND), 1887, A., 129.

nitro- and nitroso- (CHERNOLE), 1883, A., 913.

thiocyano-, salts of (TIZZIANI), 1883, A., 914.

*iso*Barbituric acid (BEHREND and ROSEN), 1888, A., 581.

**Baregin** (*glairin*) (JOLY), 1883, A., 302.

**Barium**, molecular weight of (RAMSAY), 1889, T., 530, 533.

phosphorescence of (CROOKER), 1887, A., 1067.

localisation of, in the organism after chronic barium poisoning (LINOSIER), 1888, A., 183.

**Barium salts**, molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.

aluminates (BECKMANN), 1883, A., 289, 649.

antimonate (EBEL), 1890, A., 216.

arsenates (LEFÈVRE), 1889, A., 826.

bromide (RAMMELSBERG), 1889, A., 951.

carbide (MAQUENNE), 1892, A., 685.

carbonate, impurities in, commercial (WEGSCHEIDER), 1890, A., 826.

influence of pressure on the action of sodium sulphate on (SPRING), 1887, A., 332.

See also Witherite.

chloride, preparation of (WACKENRODER), 1885, A., 19.

electrolysis of (LAMB), 1891, A., 1421.

insolubility of, in presence of lithium chloride (DRAPER), 1886, A., 422.

combination of, with ammonia (JOANNIS), 1891, A., 643.

hydrates of (LASSAULT), 1887, A., 766.

**Barium chloride and dithionate**, double (FOCK and KLUS), 1891, A., 16.

subchloride (LAMB), 1891, A., 1421.

oxychloride (ANDRIÉ), 1884, A., 712.

mercury oxychloride (ANDRIÉ), 1887, A., 447.

cobaltite (ROUSSEAU), 1889, A., 1115.

ferrate, decomposition of, at high temperatures (ROUSSEAU and BERNHEIM), 1888, A., 1034.

fluoride, crystalline, preparation of (MOTSMAN), 1891, A., 1155.

halogen salts, basic (BECKMANN), 1883, A., 289, 649.

hydride (WINKLER), 1891, A., 1156.

hydroxide (BECKMANN), 1883, A., 289, 649.

decomposition of, by heat (BRÜGELMANN), 1890, A., 850.

hydrates of (LEWIS and MAUMENÉ), 1883, A., 1052; (DE FOURCAND), 1886, A., 850; (MÜLLER-ERZBACH), 1887, A., 765.

analysis of commercial (HINTZ and WEBER), 1891, A., 499.

mercury iodide, application of a solution of, to petrographical purposes (ROHRBACH), 1883, A., 1060.

manganate, preparation of (DONATH), 1887, A., 552.

permanganate, new method for preparing (ROUSSEAU and BRUNEAU), 1884, A., 891.

manganite, crystallised (ROUSSEAU and SAGLIER), 1884, A., 1261.

formation and dissociation of (ROUSSEAU), 1886, A., 425, 507.

perinolybdate (PÉCHARD), 1892, A., 1160.

nitrate, natural (GROTH), 1883, A., 431.

nitride (MAQUENNE), 1892, A., 566, 776.

rhodium nitrite (LEIDIE), 1890, A., 1382; 1891, A., 809.

oxides, action of, on potassium chlorate (FOWLER and GRANT), 1890, T., 280.

monoxide, dimorphism of (BRÜGELMANN), 1890, A., 850; 1892, A., 17.

action of magnesium on (WINKLER), 1890, A., 452.

dioxide, action of, on metallic salts (KWANLIK), 1892, A., 408.

use of, in analysis (DONATH), 1892, A., 1031.

phosphates, their applications in acidimetry (VILLERS), 1887, A., 701.

**Barium hydrogen phosphates**, decomposition of, by water (JOLY), 1884, A., 891.  
**potassium phosphate** (DE SCHULTEN), 1883, A., 711; (OUVRARD), 1888, A., 1033.  
**sodium phosphate** (DE SCHULTEN), 1883, A., 711.  
**hypophosphate** (RAMMELSBERG), 1892, A., 403.  
**ammonium, and silver phosphotungstates** (KEHRMANN and FREINKEL), 1892, A., 1160.  
**platinite** (ROUSSEAU), 1889, A., 1125.  
**plumbate** (KASSNER), 1890, A., 561.  
**ruthenate** (DEDRAY and JOLY), 1888, A., 921.  
**selenate** (MICHEL), 1888, A., 650.  
**silicate**, crystallised, hydrated (COSSA and LA VALLE), 1886, A., 594.  
**silicates** (LE CHATELIER), 1888, A., 1031.  
**silicofluoride**, solubility of (FRESENIUS), 1890, A., 925.  
**sulphamate** (DIVERS and HAGA), 1892, T., 966.  
**sulphate** (HANLAM), 1886, A., 422.  
     deposits of, from mine water (CLOWES), 1890, A., 853.  
     from Perkins' Mill, Quebec (DANA), 1890, A., 572.  
     dimorphism of (LACROIX), 1889, A., 838.  
     reduction of, to barium sulphide on ignition with filter paper (MARSH), 1889, A., 1032.  
     solubility of, in acids (OSTWALD), 1884, A., 813.  
     as a cementing material in sandstone (CLOWES), 1886, A., 85.  
     estimation of. See Barium, estimation of.  
     See also Barytes.  
**nitrososulphate**, existence of (DIVERS and HAGA), 1885, T., 364.  
**persulphate** (MARSHALL), 1891, T., 779; (BERTHELOT), 1892, A., 12.  
**sulphide** (VELEY), 1886, T., 369, 370.  
**hydrosulphide and hydroxyhydro-sulphide** (DIVERS and SHIMIDZU), 1884, T., 278; (VELEY), 1886, T., 370, 375, 376.  
**sulphite** (HODGES), 1889, A., 16.  
**imidosulphonate and hydrogen imidosulphonate** (DIVERS and HAGA), 1892, T., 964.  
**ammonium, mercury, potassium, and sodium imidosulphonates** (DIVERS and HAGA), 1892, T., 966, 967.

**Barium oxyamidodisulphonate** (DIVERS and HAGA), 1889, T., 764.  
**thiocarbonate** (VELEY), 1886, T., 370, 378.  
**dithionate and chloride**, double (FOCK and KLÜSS), 1891, A., 16.  
**rubidium dithionate** (BODLÄNDER), 1891, A., 802.  
**cadmium thiosulphates** (FOCK and KLÜSS), 1890, A., 1058.  
**cuprous thiosulphate** (COHEN), 1887, T., 39.  
**titanate** (BOURGEON), 1886, A., 985.  
**tungstate** (v. KNORRE), 1885, A., 486.  
**tungstovanadates** (ROTHENBACH), 1891, A., 18.  
**vanadates** (MANASSE), 1887, A., 339.  
**zirconate** (OUVRARD), 1891, A., 1432.  
**Barium organic compounds**:—  
     **acetohypnitrite** (MAQUENNE), 1889, A., 945.  
     **acetothiosulphate** (PURGOTTI), 1892, A., 1419.  
     **alcoholate**, heat of solution of (DE FORCRAND), 1884, A., 4.  
     **chromoxalates** (WERNER), 1887, T., 388.  
     **mercury chlorocyanide**, action of ammonia on (VARET), 1891, A., 1442.  
     **ferricyanide** (RAMMELSBERG), 1889, A., 951.  
     **isophthalate**, composition and crystalline form of (LOSSEN and RAHNEN-FÜHRER), 1892, A., 179.  
     **thiocyanate**, water of crystallisation of (TOCHERNIAC), 1892, A., 1418.  
**Barium, detection, estimation, and separation**:—  
     testing for (PICKERING), 1883, A., 240.  
     test for, microchemical (v. HAUSSOEFER), 1887, A., 301.  
     estimation of (BAUMANN), 1892, A., 539.  
     estimation of, volumetric (VITALI), 1892, A., 1521.  
     estimation of, as sulphate (MAR), 1891, A., 1137.  
     estimation of, in foods (DE KONINGH), 1890, A., 195.  
     estimation of, in rock analysis (CHARTARD), 1891, A., 768.  
     sulphate, analysis of (BURGHARDT), 1890, A., 1027.  
     precipitation of, in presence of bromine (LUCIEN), 1889, A., 187.  
     separation of, from calcium (FRESENIUS), 1891, A., 500, 1552; 1892, A., 100; (BROWNING), 1892, A., 915.

- Barium**, detection, estimation, and separation:—  
 separation of, from strontium (MUCK), 1884, A., 394; (FRIESENUS), 1890, A., 826, 924; 1891, A., 110.  
 separation of, from strontium and calcium (RUSSMANN), 1888, A., 629; 1891, A., 111; (KUPFFER-SCHLÄGER), 1889, A., 77; (FILETI), 1892, A., 660.
- Barium-group**, analysis of (LUEDEKING), 1891, A., 364; (FILETI), 1892, A., 660.
- "Barking"** to preserve nets and sails (STOKER), 1884, A., 800.
- Barks**, tannin-yielding (COUNCLER), 1885, A., 946.  
 estimation of gallotannic and gallic acids and tannin in (HINSDALE), 1892, A., 390.
- Barley**, change in during malting and in the manufacture of spirits (BEHREND), 1885, A., 617.  
 malting properties of (MÄRCKER), 1885, A., 1169.  
 estimation of the value of, for brewing purposes (ANON.), 1883, A., 632.  
 See also *Agricultural Chemistry*.
- Barley-fat**, composition of (STELLWAAG), 1886, A., 1065.
- Barley-flour** and **barley-malt**, estimation of starch in (O'SULLIVAN), 1884, T., 4, 6.
- Barley-wort**, action of *Saccharomyces ellipsoideus* on (JACQUEMIN), 1888, A., 738.
- Bursera orenata*, examination of the leaves of (SPICK), 1885, A., 1142.
- Barysite**, a new lead silicate (SJOEHLEN and LUNDSTRÖM), 1890, A., 456.
- Baryta-raffinose** (BEYTHIEN and TOLLENN), 1890, A., 580.
- Barytes** (*heavy-spar*) (DANA), 1890, A., 572.  
 occurrence, association, and probable mode of formation of (DIEULAFAIT), 1884, A., 25.  
 artificial production of (GORGEU), 1883, A., 1062.  
 identity of, with dreedite (LACROIX), 1888, A., 33.  
 treating (KONTHOR), 1886, A., 108.  
 in the Carnathians (v. HAUSER), 1888, A., 33.  
 from Missouri (LUEDEKING and WHEELER), 1892, A., 792.  
 from Mittelagger (BUEZ), 1885, A., 733.  
 from Pésey (FÉNYES), 1885, A., 733.  
 from Rumelange (CESARO), 1891, A., 1436.
- Barytes** (*heavy-spar*) in the porphyry district of Teplitz (LAUBE), 1886, A., 24.  
 near Torda (KOCII), 1890, A., 713.  
 See also *Barium sulphate*.
- Barytocalcite**, chemical constitution of (BECKER), 1887, A., 18.
- Baryto-celestine**, from Werfen in Salzburg (HATLE and TAUSS), 1889, A., 22.
- Basalt**, origin of primary quartz in (IDDINGS), 1889, A., 26.  
 orthoclase in geodes in (v. ZEPHAROVICH), 1886, A., 518.  
 from Alsace (LINCK), 1888, A., 567.  
 from the Dachberg, a volcano of the Rhone (RINNE), 1889, A., 110.  
 from Naurod, near Wiesbaden (v. SANDBERGHE), 1884, A., 414.  
 from S. Thiago (DOELTER), 1883, A., 722.  
 of the Stempel, near Marburg (BAUER), 1891, A., 1410; 1892, A., 126.
- Basalt-glass** of the Western Isles of Scotland (JUDD and COLE), 1884, A., 570.
- Basaltic rocks** containing hornblende (SOMMERLAIN), 1883, A., 169.  
 from the Faroe Islands (OSANN), 1884, A., 415.  
 of Hesson (WOLFF), 1891, A., 1440.
- Basanites** (DOELTER), 1883, A., 721.
- Base**, division of, between two acids (SABATIER), 1886, A., 973.  
 $C_6H_8N_2$  and  $C_8H_{12}N_2$  from glycerol and ammonium salts (STOEHR), 1891, A., 581.  
 $C_7H_{10}N_2$  from fusel oil (MORIN), 1888, A., 572.  
 toxic action of (TANNET), 1888, A., 573; (WURTZ), 1888, A., 622.  
 $C_8H_{16}N_2O$  from crotonaldehyde (COMBES), 1883, A., 1079.  
 $C_9H_{12}N_2O$  from epichlorhydrin and phenylhydrazine (GERHARD), 1891, A., 582.  
 $C_9H_{14}N$  (WAAGE), 1883, A., 39.  
 $C_{13}H_{16}N$  (BERNTHSEN), 1883, A., 1099.  
 $C_{11}H_{11}N$  (BESTHORN and FISCHER), 1883, A., 600; (BERNTHSEN), 1883, A., 1099.  
 $C_{19}H_{13}N$  (BERNTHSEN), 1883, A., 580, 1099.
- Bases**, electrical conductivity of (OSTWALD), 1886, A., 585.  
 study of the chemical neutralisation of acids and, by means of their electrical conductivities (BERTHELOT), 1892, A., 2.

- Bases**, affinity-coefficients of (OSTWALD), 1887, A., 324.  
of neutral salts, mutual displacement of, in homogeneous systems (MENSCHUTKIN), 1883, A., 550, 708.
- Bases**, alkaloid-like, in Galician petroleum and paraffin oil (BANDROWSKI; WELLER), 1887, A., 979.
- Bases**, aromatic, Schiff's (v. MILLER and PLÖCHL), 1892, A., 1189.
- Bases**, inorganic, relative affinities of organic and (MENSCHUTKIN), 1890, A., 1367; (COLSON), 1890, A., 1368.  
velocity-coefficients of (BUGARZKY), 1891, A., 1413.  
diffusion of acids and, into one another (STEFAN), 1889, A., 1046.
- Bases**, nitrogenous, in seeds (SCHULZE), 1891, A., 490.  
organic, formation of, by the decomposition of proteids in the vegetable organism (SCHULZE), 1891, A., 856.
- Bases**, organic, formed by putrefaction, (GAUTIER and ETARD), 1883, A., 100, 224; (BRIEGER), 1883, A., 924; (E. and H. SALKOWSKI), 1883, A., 925.  
affinity of (LELLMANN), 1889, A., 1104; (WALKER), 1890, A., 5; (LELLMANN and GROSS), 1891, A., 638, 1149.  
relative affinities of inorganic and (MENSCHUTKIN), 1890, A., 1367; (COLSON), 1890, A., 1368.  
endothermic and exothermic reactions of (COLSON), 1891, A., 377.  
action of acid chlorides on, in presence of alkalis (MARCKWALD), 1891, A., 181; (SCHOTTEN), 1891, A., 295.  
determination of the number of amidogroups in (MELDOLA and HAWKINS), 1892, P., 138.
- Bases**, volatile, in blood and breath (WURTZ), 1888, A., 616.  
equilibrium and reciprocal displacements between (BERTHELOT), 1890, A., 1362.
- Basic salts**. See Salts, basic.
- Basic slag**. See Slag, basic.
- Bassia latifolia**, juice of (CHURCH), 1886, A., 389; (HECKEL and SCHLAGDENHAUFFEN), 1889, A., 434.
- Bassia longifolia**, seeds of, and the fat contained therein (VALENTA), 1884, A., 919.
- Bassia Parkii**, gutta percha from (HECKEL and SCHLAGDENHAUFFEN), 1886, A., 249.
- Bastin**, tetrachloro- (CROSS and BEVAN), 1883, T., 20.
- Bastonite**, analysis of (RENARD), 1883, A., 959.
- Batatas edulis**, carbohydrates of the (STONE), 1890, A., 1022.
- Baths**, hot, influence of, on the excretion of nitrogen and uric acid from the human system (FORMÁNEK), 1892, A., 1503.  
hot and cold, action of, on the temperature of the animal body (PLETZER), 1884, A., 621.
- Batrachians**, poison of (GAUTIER and ETARD), 1884, A., 764.
- Battery**. See Electrochemistry.
- Bauxite** (IWAN), 1883, A., 397.  
formation of (MEUNIER), 1883, A., 1065; 1884, A., 406.  
from Langsdorf (LANG), 1885, A., 357.  
analyses of (MAYER and WAGNER), 1883, A., 888.
- Bay oil** (MITTMANN), 1889, A., 1072.
- Beakers**, toughened glass, action of sulphuric acid on (FRISWELL), 1885, P., 86, 87.
- Beans**, digestion of, in the human alimentary canal (PRAUSNITZ), 1889, A., 1226.  
broad (*Vicia faba*) (RITTHAUSEN), 1884, A., 1405.  
broad and haricot, cooked, composition of (WILLIAMS), 1892, T., 227.  
soja. See Soja bean.  
See also Agricultural Chemistry.
- Bebeerine** (*bebirine*), reactions of (VITALI), 1892, A., 756.
- Beech**, boric acid in (BECHI), 1890, A., 656.  
wood of the (HARTIG and WEBER), 1889, A., 1084.
- Beech-tar oil** (PASTROVICH), 1883, A., 1005.
- Beef**, influence of cooking on the digestion of (POPOFF), 1890, A., 1450.
- Beef-extract**, changes produced by the growth of bacilli in solutions of (VAN DEVELDE), 1885, A., 287.
- Beef-fat**. See Fat.
- Beegerite** (KÜNIG), 1886, A., 515.
- Beer**, carbonic acid in (LANGER), 1883, A., 535; 1884, A., 1233.  
nitrogenous constituents of (ULLIK), 1883, A., 821.  
nitrogenous constituents of American (ANON.), 1885, A., 204.  
non-nitrogenous extract-substance from (LINTNER), 1891, A., 957.  
pasteurising (SCHWARZ), 1884, A., 527; (BEHREND), 1884, A., 789.  
preservation of (BAUER), 1883, A., 136; (WEINGÄRTNER), 1884, A., 1447.

- Beer**, reddening of white (DELBRUCK), 1885, A., 1169.  
 analysis of (ELION), 1891, A., 368.  
 detection of hop-substitutes in (ALLEN), 1887, A., 1146; (ARNOLD), 1888, A., 763.  
 detection of picrotoxin in (PALM), 1888, A., 877.  
 detection of "saccharin" in (ALLEN), 1889, A., 322.  
 detection of salicylic acid in (BARRAL), 1884, A., 778; (ROSE), 1886, A., 924; (ELION; SNIDERS), 1889, A., 195; (HOORN), 1889, A., 446.  
 detection of sulphurous anhydride in (ANON.), 1884, A., 1440.  
 estimation of alcohol in (KLEINERT), 1884, A., 641; (BOHME), 1886, A., 493.  
 estimation of carbonic anhydride in (CRAMPTON and TRESCOTT), 1887, A., 1144.  
 estimation of dextrin, dextrose, and maltose in (ELION), 1892, A., 248.  
 estimation of fusel oil in (HAMLET), 1888, A., 1263.  
 estimation of glycerol in (AMTHOR), 1883, A., 385; (SKALWEIT), 1887, A., 306; (v. TORRING), 1890, A., 426.  
 ratio of glycerol to alcohol in (BURGMANN), 1884, A., 641.  
 estimation of salicylic acid in (ELION), 1889, A., 195.  
 estimation of sulphurous acid in (HERZ), 1886, A., 102.
- Beer, chica**, the ferment of (GRIENMAYER), 1883, A., 535.
- Beer-grains**, estimation of wort removed from and starch left in (ANON.), 1883, A., 136.
- Beer-wort**, nitrogenous combinations in (BUNGENER and FRIES), 1884, A., 1446.  
 estimation of dextrose, dextrin, and maltose in (ELION), 1892, A., 248.
- Beer-yeast**. See Yeast.
- Bees**, larval, food of (v. PLANTA), 1888, A., 733; 1889, A., 1022.
- Bees' wax**. See Wax.
- Beet**, extraction of juice from (KLEWITZ and KRIEGER), 1884, A., 647.
- Beet juice**, recovery of, by lime, etc. (FROMENTIN; MANOURY), 1885, A., 709; (v. EHRENSTEIN), 1885, A., 1170.  
 purification of (SCHOTT), 1883, A., 136; (JUNEMANN), 1885, A., 1021.  
 influence of lead acetate on the optical behaviour of certain nonsaccharine substances present in (DEGENER), 1886, A., 111.
- Beet juice**, defecation of, with strontium saccharate (SCHEIDLEN), 1883, A., 756.  
 analysis of (CRAMPTON), 1887, A., 751.  
 organic constituents of (v. LIPP-MANN), 1883, A., 913; 1884, A., 939; 1888, A., 314; 1892, A., 231.
- Beet-molasses**, leucine and tyrosine in (v. LIPPMANN), 1885, A., 245.
- Beetroot**, cooked, composition of (WILLIAMS), 1892, T., 227.  
 See also Agricultural Chemistry and Sugar.
- Beet-red** (REINKER), 1883, A., 881.
- Beet, sugar**. See Agricultural Chemistry and Sugar.
- Beet syrup**, discrimination of fruit syrup and (KONIG and WESENER), 1889, A., 1089.  
 limel, ready method of estimating the alkalinity of (DESPRAX), 1883, A., 689.  
 See also Beet-juice.
- Behenic acid**, conversion of erucic acid into (REYCHLER), 1889, A., 1140.  
 heats of combustion and formation of (STOIMANN and LANGHEIN), 1891, A., 11.
- Behenolic acid**, heats of combustion and formation of (STOIMANN and LANGHEIN), 1891, A., 11.  
 action of reducing agents and of bromine on (HOLT), 1892, A., 812.  
 anilide and phenyl- and diphenylhydrazides of (HOLT), 1892, A., 1427.  
 tetrachloride of (HOLT), 1892, A., 1427.
- Behenolic acid, diiodo-** (LIEBERMANN and SACHSE), 1892, A., 471.
- Belladonnine** and its derivatives (LADENBURG and ROTI), 1884, A., 761; (MERLING), 1884, A., 1055; (DÜRRKOPF), 1890, A., 271.
- Belludonnine**, alkaloids of (HENSEN), 1891, A., 748; 1892, A., 1498; (MERCK), 1892, A., 1255.  
 wild, alkaloids of (SCHÜTTE), 1892, A., 231.
- Bellamarine** (FRAGNER), 1891, A., 1122.
- Bementite**, from Franklin, New Jersey (KÖNIG), 1889, A., 473.
- Benevolent Fund** for chemists, report against establishment of, 1892, P., 60.
- Bengal lights**, use of magnesium for (ANON.), 1885, A., 1172.
- Benic acid**. See Behenic acid.
- Benolic acid**. See Behenolic acid.
- Benzacetamide** (PINNER), 1892, A., 982.

**Benzacetonitrile** and its derivatives (HALLER), 1886, A., 240; 1887, A., 826; 1888, A., 873; (BARTHE), 1888, A., 951; (CLAISEN and STOCK), 1891, A., 451; (O'BRIEN), 1892, A., 324; (GARELLI), 1892, A., 845.

**Benzal.** See Benzylidene.

**Benzaldehyde** and its derivatives (CLAISEN and FISCHER), 1887, A., 940; 1888, A., 690; (PINNER), 1889, A., 983.

dispersive power of (BARBIER and KOUTX), 1889, A., 805.

action of acetic chloride on, in presence of zinc dust (PAAL), 1889, A., 62, 805.

action of ammonium formate on (LEUCKART and BAUE), 1886, A., 1023.

action of, on azobenzene (BARSILOW-SKY), 1886, A., 148.

action of benzoic chloride on, in presence of zinc dust (PAAL), 1884, A., 1163.

action of diacetyl on, in presence of ammonia (WADSWORTH), 1880, P., 161; 1890, T., 8.

condensation of, with ethylic mono- and di-ethylacetoacetates (MATTHEWS), 1883, T., 205, 206.

condensation of, with ethylic cyanacetate (CARRICK), 1890, A., 1270; 1892, A., 1086.

action of hypophosphorous acid on (VILLE), 1889, A., 141.

action of, on 2:6-lutidine (SCHUSTER), 1892, A., 1360.

condensation of, with malonic and isosuccinic acids (STUART), 1883, T., 408.

condensation of, with *p*-nitrobenzylidene cyanide (REMSE), 1891, A., 208.

action of, on nitromethane and nitroethane (PRIEBES), 1884, A., 313; 1885, A., 160.

condensation of, with phenol and thymol (RUSSANOFF), 1889, A., 1188; 1891, A., 1234.

action of, on phenylthiocarbimide (COHEN), 1891, T., 67.

action of phosphonium iodide on (LITTHAUER), 1889, A., 1168.

condensation of, with pyrotartaric acid (FITTIG and LIEBMANN), 1890, A., 775.

action of sodium on (BECKMANN and PAUL), 1892, A., 171.

action of sodium alkyl oxides on (CLAISEN), 1887, A., 574.

**Benzaldehyde**, action of sulphur on (GAZZARRINI), 1888, A., 950; (BAGLIA and MARQUARDT), 1891, A., 1049.

action of zinc and ethylic chloracetate on (REFORMATSKY), 1892, A., 1300.

compound of, with aniline hydrochloride, and with stannic chloride (ELBERN), 1885, A., 528.

compounds of, with polyhydric alcohols (MAQUENNE), 1889, A., 116.

compound of, with mannitol anhydride (MEUNIER), 1888, A., 950.

cyanhydrin, action of hydroxylamine hydrochloride on (TIEMANN), 1884, A., 734.

indogenides of (V. BAeyer), 1884, A., 75.

toxic action of (LABORDE and MAGNAN), 1888, A., 738.

benzamide in the urine after the administration of (COHN), 1890, A., 188.

action of, with albumin (REICHL), 1890, A., 1350.

**Benzaldehyde**, *o*-amido-, and its derivatives (GABRIEL), 1883, A., 62; (FRIEDLÄNDER), 1883, A., 331; (FRIEDLÄNDER and GÖHRING), 1884, A., 1019.

condensation of (ELIASBERG and FRIEDLÄNDER), 1892, A., 1106.

*m*- and *p*-amido- (GABRIEL and HERZBERG), 1883, A., 1104; (GABRIEL), 1883, A., 1105.

*p*-bromo-*m*-nitro- (SCHÖPF), 1892, A., 336.

*m*-chloro-, preparation of (ANON.), 1885, A., 1136.

*o*-, *m*- and *p*-chloro-, and their derivatives (ERDMANN and SCHWECHTEN), 1891, A., 448.

2:5-dichloro- and its derivatives (GNEHM), 1884, A., 1028; (SCHWECHTEN), 1890, A., 619; (ERDMANN and SCHWECHTEN), 1891, A., 450.

3:4-dichloro- (SCHWECHTEN), 1890, A., 619.

2:4- and 3:4-dichloro-, and their derivatives (ERDMANN and SCHWECHTEN), 1891, A., 450.

2:4:5-trichloro-, action of dimethyl-aniline on (FISCHER), 1884, A., 944.

2:3:4 and 2:4:5-trichloro- (SEELIG), 1885, A., 770.

2:5:6-dichloramido- (GNEHM), 1884, A., 1028.

2:4-chloronitro- (TIEMANN), 1891, A., 704.

- Benzaldehyde, 5:2-chloronitro-** (EICHENGRÜN and EINHORN), 1891, A., 1098.  
**2:5:6-dichloronitro-** (GNEHM), 1884, A., 1028.  
*m*- and *p*-cyano- (REINGLASS), 1891, A., 1845, 1846.  
 nitrated, action of potassium cyanide on (HOMOLKA), 1884, A., 1842.  
*o*-nitro-, preparation of (EINHORN), 1884, A., 744.  
 action of, on acetaldehyde (v. BAEYER and DREWSEN), 1884, A., 58.  
 condensation of, with aniline (RENOUF), 1883, A., 981.  
 reduction of (FRIEDLANDER and HENRIQUES), 1883, A., 187.  
*m*-nitro-, action of acetaldehyde on (GOHRING), 1885, A., 791.  
 condensation of, with bases of the para-series (BISCHLER), 1889, A., 132.  
 condensation of, with benzene and toluene (TSCHACHER), 1887, A., 44; 1888, A., 373.  
 condensation of, with phenol and resorcinol (DE VARDA and ZENONI), 1891, A., 1846.  
 condensation of, with quinaldine (WARTANIAN), 1891, A., 329.  
 action of sodium hydroxide on (BORGMANN), 1886, A., 57.  
*p*-nitro- (HERZBERG), 1885, A., 661.  
 action of acetaldehyde on (GOHRING), 1885, A., 527.  
 action of, on acetone (v. BAEYER and BECKER), 1883, A., 1120.  
 condensation of, with bases of the para-series (BISCHLER), 1889, A., 132.  
 action of, on quinaldine (BULACH), 1887, A., 976; 1889, A., 527.  
 change of, in the system (COHN), 1892, A., 1504.  
*o*-, *m*-, and *p*-nitro-, action of, on ethylic acetoacetate and ammonia (LEPETIT), 1887, A., 845.  
 condensation of, with *p*-nitro-benzyl cyanide (REMSE), 1891, A., 208.  
 behaviour of, in the animal body (SIEBER and SMIRNOW), 1887, A., 684.  
 $\alpha$ -,  $\beta$ -, and  $\gamma$ -thio- (BAUMANN and FROMM), 1890, A., 25; 1891, A., 1050; (BARBAGLIA and MARQUARDT), 1891, A., 1049.  
**Benzaldehydeacetic acids,  $\alpha$ thio- and nitro $\alpha$ thio-** (BONGARTZ), 1886, A., 937.
- Benzaldehyde-*o*-carboxylic acid.** See *o*-Phthalaldehydic acid.  
**Benzaldehyde-greens.** See under Colouring-matters.  
**Benzaldehydophenylhydrazone,**  
*o*-amido- (ELIASBERG and FRIEDLANDER), 1892, A., 1106.  
*m*-chloro- (EICHENGRÜN and EINHORN), 1891, A., 1098.  
**Benzaldehyde-4-quinolyldiazone** (DUFION), 1892, T., 788.  
**Benzaldehydesulphonic acid** (*sulphobenzaldehyde*) (KAFKA), 1891, A., 720.  
 bromo- and hydroxy- derivatives of (SCHÖPFF), 1892, A., 337.  
**Benzaldine, thio-** (BAUMANN and FROMM), 1891, A., 1050.  
**Benzaldoxime** (PEIRACZEK), 1883, A., 569; (TIEMANN and KRUGER), 1884, A., 1826; (LACHOWICZ), 1890, A., 141.  
 a dimolecular isomide of (BEHREND and KÖNIG), 1890, A., 1122.  
*p*-amido- (GABRIEL and HERZBERG), 1883, A., 1104; (HERZBERG), 1885, A., 662.  
*syn-o*-chloro- (BEHREND and NISSEN), 1892, A., 1200.  
*o*-nitro-, preparation of (GABRIEL), 1883, A., 581.  
 methyl and ethyl derivatives of (MEYER), 1886, A., 63.  
*m*-nitro- (GABRIEL), 1883, A., 581, 919.  
 compounds of, preparation of (GABRIEL), 1883, A., 916.  
*p*-nitro- (GABRIEL and HERZBERG), 1883, A., 1104; (HERZBERG), 1885, A., 662; (BEHREND), 1892, A., 163.  
 $\alpha$ - and  $\beta$ -*p*-nitro-, and their methyl and ethyl ethers (GOLDSCHMIDT and KJELLIN), 1891, A., 1476, 1477.  
**isoBenzaldoxime** (*synbenzaldoxime*) (BECKMANN), 1888, A., 55.  
*o*-chloro- (BEHREND and NISSEN), 1892, A., 1200.  
*m*-nitro- (GOLDSCHMIDT), 1890, A., 1262.  
*p*-nitro- (BEHREND and KÖNIG), 1891, A., 1035; (BEHREND), 1892, A., 163.  
**Benzaldoximes** (BECKMANN), 1889, A., 607, 979; 1890, A., 1121.  
 configuration of (HANTZSCH), 1891, A., 439.  
 constitution of (MEYER), 1890, A., 721; (MINUNNI), 1891, A., 1854.  
 action of phenylcarbamide on (BECKMANN), 1891, A., 193.

**Benzaldoximes**, action of phenylhydrazine on (MINUNNI and CABERTI), 1891, A., 1861.

oxidation of (BECKMANN), 1889, A., 980.

**Benzaldoxime-*o*-carboxylic acid** (RACINE), 1887, A., 951.

**Benzaldoxime-*o*-carboxylic anhydride** (ALLENDORFF), 1891, A., 1369.

**Benzaldoximesulphonic acid** (*sulphobenzaldoxime*), sodium salt of (KAFKA), 1891, A., 720.

**Benzallylamide**, bromo- (*benzobromoallylamide*) (GALEWSKY), 1890, A., 953.

**Benzam-**. See Carboxyphenyl-

**Benzamarone**, formation of (JAPP and KLINGEMANN), 1889, A., 265.

**Benzamide and its derivatives** (KRÜGER), 1885, A., 895.

thermochemistry of (BERTHELOT and FOGH), 1890, A., 1360.

melting-point of (CIAMICIAN and MAGNAGHI), 1885, A., 1143.

action of cyanuric chloride on (SENIER), 1886, T., 312; P., 166.

action of sodium hypobromite on (DENIGES), 1889, A., 139.

mercury derivative of (TAFEL and ENOCH), 1890, A., 974; (SCHIFF), 1890, A., 1123.

salicylate (PINNER), 1891, A., 61.

silver derivative of (TAFEL and ENOCH), 1890, A., 491.

sodium derivatives of (CURTIUS), 1891, A., 58.

physiological action of (ONDO), 1892, A., 367.

in urine after administration of benzaldehyde (COHN), 1890, A., 188.

**Benzamide, *o*-anido-**, action of nitrous acid on (WEDDIGE and FINGER), 1887, A., 667.

action of sulphonic chlorides on (FRANKE), 1892, A., 334.

derivatives of (WEDDIGE), 1885, A., 661.

formyl and oxalyl derivatives of (KNAPPE), 1891, A., 908.

thio-derivatives of (STEWART), 1892, A., 54.

***m*-amido-** (SCHULZE), 1889, A., 778.

action of, with aldehydes (SCHIFF), 1884, A., 455.

derivatives of (SCHIFF), 1884, A., 455; (SCHULZE), 1889, A., 778.

***o*-amidothio-**, derivatives of (STEWART), 1892, A., 54.

***o*-bromo-** (SCHÜFF), 1891, A., 296.

**3:4-dibromo-** (HÜBNER; BURGHARD and BEUTNAGEL), 1884, A., 601.

**Benzamide, *p*-bromo-*m*-nitro-** (GROHMANN), 1891, A., 305.

***m*-nitro-**, silver derivative of (TAFEL and ENOCH), 1890, A., 973.

**3:4-nitramido-** (GROHMANN), 1891, A., 305; (THIRME), 1891, A., 916.

**5:2-nitramido-** (GROHMANN), 1892, A., 326.

**thio-**, action of iodine on (v. HOFMANN and GABRIEL), 1892, A., 1109.

**Benzamidine**. See Benzenylamidine.

**Benzdiamidoacetamidoacetic acid** (CURTIUS), 1883, A., 1087.

**Benzamidoacetic acid**. See Hippuric acid.

**2-Benzamido-6-amidothymol**, anhydride of (MAZZARA), 1891, A., 46.

***o*-Benzamidobenzamide** (KÖRNER), 1887, A., 1044.

***m*-Benzamidobenzamide, *m*-amido-, and *m*-nitro-** (SCHULZE), 1889, A., 779.

***m*-Benzamidobenzoic acid and its derivatives** (PELLIZZARI), 1886, A., 548.

***o*-Benzamidobenzomethylamide** (KÖRNER), 1887, A., 1045.

**6-Benzamido-2-bromothymol** (MAZZARA), 1890, A., 602.

**2:3-Benzamidocarvacrol, 5-amido-** (MAZZARA), 1891, A., 48.

**Benzamidocarbazole** (MAZZARA and LEONARDI), 1892, A., 616.

***o*-Benzamidocinnamic acid** (REBUFFAT), 1890, A., 623.

**$\alpha$ -Benzamidocinnamic acid** (PLÜCHL), 1884, A., 1348.

**Benzamidochrysene** (ABEGG), 1891, A., 730.

**Benzamido-*o*-coumaric acid** (REBUFFAT), 1890, A., 623.

**Benzamidoethylbenzenes** (*benzamido-phenylethane*, *benzoethylphenylamide*), *o*- and *p*- (PAUCKSCH), 1885, A., 256.

**$\delta$ -Benzamidohectic acid** (BUNZEL), 1889, A., 904.

**Benzdiamidophenylpropionic acid** (*benz-diamidophenylpropionic lacum*), lactimide of (PLÜCHL), 1884, A., 1348.

**Benzdiamidohydroxynaphthylphenyl** (*benz-diamidophenyl-naphthol*, *amido-phenylbenzamidonaphthol*) (MELDOLA and MORGAN), 1889, T., 125.

**$\alpha$ -Benzamido- $\beta$ -naphthol** (BÜTTCHER), 1883, A., 1113; 1885, A., 659.

**4:2:6-Benzamidodinitrophenol and its salts** (DARNEY), 1884, A., 308.

***o*-Benzamidophenol** (BÜTTCHER), 1883, A., 800; 1885, A., 658.

***o*-Benzamidophenylacrylic acid** (WALTER), 1892, A., 881.

- p*-Benzamidophenylurethane** (*ethylic benzamidophenylcarbamate*) (HAGER), 1885, A., 150.
- Benzamidopyruvic acid** (WILKENTUS), 1891, A., 923.
- m*-Benzamidosalicylic acid** (*benzamidohydroxybenzoic acid*) and its salts (DABNEY), 1884, A., 308.
- $\delta$ -Benzamidovaleric acid** (*benzoylhomopiperidic acid*), its derivatives and anhydride (SCHOTTEN), 1885, A., 176; 1888, A., 1104.
- Benzamidoxime**. See Benzenylamidoxime.
- o*-Benzaminesulphonic acid** (*sulphobenzamide*), ammonium salt of (FAHLBERG and BARGE), 1889, A., 709.
- Benzamylene-keto- and -nitrol-amides** (WALLACH and WAHL), 1891, A., 1005.
- Benzanilide**, thermochemistry of (BENTHELOT and FOGH), 1890, A., 1360.
- hydrochloride** (NOLTING and WEINGARTNER), 1885, A., 979.
- m*-amido-**, and the action of aniline on (PIUTTI), 1883, A., 999.
- m*-bromo-** (KOTENHAHN), 1891, A., 1237.
- p*-bromo-*m*-nitro-** (GROHMANN), 1891, A., 305.
- p*-chloro-*m*-nitro-** (RAVEILL), 1884, A., 601.
- Benzanilidoimide chloride**, action of, on ethylic sodomalonate (JUNT), 1886, A., 149.
- Benzaniline**. See Benzophenone, *p*-amido-.
- Benzanisoylethylhydroxylamines**, four metamerie (PIEFER), 1883, A., 460.
- Benzein-group**, dyes of the (HEUMANN and REY), 1890, A., 157.
- Benzene**, sources of (MEYER), 1883, A., 315; (LIEBERMANN), 1883, A., 534.
- purity of** (LIEBERMANN and SEYEWITZ), 1891, A., 684.
- constitution of** (LADENBURG), 1888, A., 51; 1886, A., 613; 1887, A., 362; 1888, A., 1181; 1890, A., 881, 1432; (MEYER), 1883, A., 51; (KEKULÉ), 1884, A., 41; (HUBNER), 1884, A., 314; (GEUTHER), 1884, A., 836; (KEKULÉ and STRECKER), 1884, A., 1122; (LELLMANN), 1885, A., 251; (MILLER), 1887, T., 208; P., 5; (THOMSEN), 1887, A., 362; 1891, A., 632; (V. BAeyer), 1887, A., 362, 370; 1888, A., 1069; 1889, A., 1176; 1890, A., 1275; 1892, A., 1211; (CLAUS), 1887, A., 719; 1888, A., 940; 1889, A., 1061; 1890, A., 1283; 1891, A., 44, 897; (SCHRAUF), 1887, A., 922; (TILDEN), 1888, T., 879; P., 89; (HERRMANN), 1888, A., 1026; 1890, A., 1105; (SACTINE), 1888, A., 1181; (ARMSTRONG), 1890, P., 101; (SWORN), 1890, A., 238; (LOSCHMIDT), 1890, A., 602; (MARCKWALD), 1890, A., 1004; (BRUHL), 1891, A., 634; (VAUBEL), 1891, A., 1343.
- Benzene**, physical constants of (LACHOWICZ), 1888, A., 1068; (HORSTMANN), 1888, A., 1069.
- physical properties of** (CIAMICIAN), 1889, A., 387.
- spectrum of** (HARTLEY), 1885, T., 694.
- spectrometrical constants and chemical constitution of, relation between** (BRÜHL), 1891, A., 630.
- molecular refraction and dispersion of, and influence of temperature on** (GLADSTONE), 1891, T., 295.
- dispersive power of** (DARBIER and ROUX), 1889, A., 805.
- as an insulator** (HENTZ), 1884, A., 244.
- molecular heat of combustion and molecular refraction of, compared with those of dipropargyl and** (BRÜHL), 1892, A., 1436.
- heats of combustion and formation of** (STOCHMANN, RONATZ, and HIEZBERG), 1886, A., 499; (THOMSEN), 1886, A., 812; (STOCHMANN, KLEBER, and LANGBEIN), 1889, A., 1042.
- boiling point and expansion of** (YOUNG), 1889, T., 487, 519.
- vapour-pressure and specific gravity of** (YOUNG), 1889, T., 488, 492, 501, 508; P., 103.
- specific volume of** (YOUNG), 1889, T., 488, 504; P., 103; 1891, T., 44.
- molecular volume of** (GROHMANN), 1889, A., 336.
- molecular volumes of the saturated vapour of** (YOUNG), 1890, P., 177; 1891, T., 125.
- molecular depression of the freezing point of, by alcohols and phenols** (PATERNO), 1889, A., 101, 933.
- condensation of, under the influence of the silent discharge** (SCHÜTZENBERGER), 1890, A., 961.
- action of the induction spark on** (DENTREM), 1884, A., 1243.
- action of heat on the mixed vapours of ethylene and** (FERKO), 1887, A., 572.

**Benzene**, action of acetylene on, in presence of aluminium chloride (VARET and VIENNE), 1887, A., 806.  
 action of allylic chloride on, in presence of aluminium chloride (WISPEK and ZUBER), 1883, A., 977.  
 condensation of, with benzyldienic chloride (LINEBARGER), 1892, A., 719.  
 action of bromethylene on, in presence of aluminium chloride (HANRIOT and GUILBERT), 1884, A., 733.  
 action of, on bromethylene and on vinyl tribromide, in presence of aluminium chloride (ANGELIN and ANSCHUTZ), 1884, A., 751.  
 action of *s*-dibromethylene on, in presence of aluminium bromide (ANSCHUTZ), 1883, A., 807.  
 action of isobutylic chloride on (GOSIN), 1884, A., 1312.  
 action of camphoric anhydride on (BURCKER), 1891, A., 324.  
 action of chloroacetonitrile on (GENY-RESSE), 1888, A., 951.  
 action of chloraldehydes on, in presence of aluminium chloride (COMBES), 1884, A., 837.  
 action of chlorine on boiling (SCHÜPFHAUS), 1885, A., 52.  
 action of chlorine on, in presence of sulphuric acid (ISTRATI and PETRICU), 1891, A., 1196.  
 action of ethylic diazoacetate on (BUCHNER and CURTIUS), 1885, A., 1208.  
 action of methylenic chloride on, in presence of aluminium chloride (FRIEDEL and CRAFTS), 1884, A., 1312; 1887, A., 1102.  
 action of nitric anhydride on (MEYER), 1889, A., 341.  
 action of nitrous anhydride on (FRIEDBURG and MANDEL), 1890, A., 1401.  
 action of selenic acid on (ISTRATI), 1890, A., 50.  
 action of sulphur on, in presence of aluminium chloride (FRIEDEL and CRAFTS), 1889, A., 242.  
 action of sulphurous anhydride on (COLBY and McLOUGHLIN), 1887, A., 371.  
 action of heated zinc dust on alcohol and (DENNSTEDT), 1890, A., 1429.  
 chlorination of (PETRICU), 1890, A., 882.  
 iodation of (ISTRATI), 1891, A., 1197; (ISTRATI and GEORGESCU), 1892, A., 1310.

**Benzene**, nitration of (MEYER), 1889, A., 387.  
 nitration of, as a non-reversible chemical change (GIERSBACH and KENLER), 1889, A., 10.  
 oxidation of (NORTON and HOLDER), 1886, A., 49.  
 flames of (SMITHELLS and INGLE), 1892, T., 209.  
 isocyanates in the first running of the distillation of crude (NÖLTING), 1885, A., 463.  
 relation of, to pyridine (BÖTTINGER), 1884, A., 758.  
 removal of thiophen from (WILLGERODT), 1886, A., 692.  
 rule for determining whether a given mono-derivative of, shall give a meta-di-derivative or a mixture of ortho- and para-di-derivatives (BROWN and GIBSON), 1892, T., 367; P., 39.  
 derivatives (KÖRNER and WENDER), 1888, A., 1278.  
 obtained by the action of carbonic oxide on potassium (NIETZKI and BENCKNER), 1885, A., 1127.  
 conversion of pentamethylene derivatives into (HANTZSCH), 1890, A., 129.  
 constitution of (BRÜHL), 1887, A., 1005.  
 rotatory power of (LEWKOWITSCH), 1888, T., 781; P., 87.  
 metamerism in (HAND), 1890, A., 881.  
 conversion of, into fatty compounds (HANTZSCH), 1888, A., 130.  
 nitration of (SPINDLER), 1883, A., 975; 1884, A., 1310; (NÖLTING and COLLIN), 1884, A., 1011.  
 oxidation of, with potassium ferricyanide (NOYES), 1884, A., 299; 1886, A., 142, 304; 1889, A., 394; (NOYES and WALKER), 1887, A., 727; (NOYES and WILEY), 1889, A., 711.  
 of high molecular weight (KRAFFT and GOTTIG), 1889, A., 129.  
 physiological action of (BRUNTON and CASH), 1891, A., 1279.  
*o*-di-substitution derivatives, migrations in (BÖTTCHER), 1885, A., 658.  
*tri*-substitution derivatives (WENDER), 1890, A., 884; (BADER), 1891, A., 1030.  
*pen*ta-substitution derivatives of (NIETZKI and KURTENACKER), 1892, A., 596.  
*hex*a-substitution derivatives of (NIETZKI), 1887, A., 929.

**Benzene, hexabromide**, preparation of (MEUNIER), 1885, A., 1126; (MATTHEWS), 1892, T., 110.  
 *$\beta$ -hexachloride* (MEUNIER), 1884, A., 733; 1885, A., 52, 518.  
 vapour density of (MEUNIER), 1884, A., 886.  
 reduction of (MEUNIER), 1892, A., 594.  
*hexachlorides* (MATTHEWS), 1890, P., 175; 1891, T., 165; (FRIEDEL), 1891, A., 1196.  
 molecular weights of (PATERNO and NASINI), 1890, A., 725.  
 action of aniline on (MOHR), 1890, A., 614.  
 action of potassium cyanide on (MATTHEWS), 1891, P., 181; 1892, T., 108.  
 homologues, preparation of, by aid of aluminium chloride (ANSCHUTZ and IMMENDORFF), 1885, A., 769.  
 heat equivalents of (STOHMANN, RODATZ, and HERZBERG), 1887, A., 427.  
 recovery of, from their sulphonic acids (ARMSTRONG and MILLER), 1884, T., 148.  
 physiological action of (BRUNTON and CASH), 1891, A., 1280.  
 isomeride of (GRINER), 1887, A., 1033.  
 isomeride, solid, of, heat of combustion of (LUGININ), 1888, A., 893.  
 physiological action of (BRUNTON and CASH), 1891, A., 1279.  
 estimation of, in coal gas (TREADWELL and STOKES), 1889, A., 190.  
 vapour, estimation of, in coal gas (BERTHELOT), 1889, A., 1036.  
 estimation of light hydrocarbons, etc., in (NICKELS), 1886, A., 394.  
**Benzene, amido-**. See Aniline.  
*diamido-*. See Phenylenediamine.  
 1:4:2:5-*diamido*/*diimido-*, nitrate (NIETZKI), 1887, A., 930.  
 1:2:4-*tri*amido- (JANOVSKY), 1884, A., 1145.  
 oxidation product of (MÜLLER), 1889, A., 700.  
 1:2:3:4-*tetra*mido- (NIETZKI and SCHMIDT), 1889, A., 974.  
 1:2:4:5-*tetra*mido-, and its derivatives (NIETZKI and HAGENBACH), 1887, A., 475; (NIETZKI and MÜLLER), 1889, A., 604.  
*pentamido-* (PALMER and JACKSON), 1888, A., 825; 1890, A., 247.  
 hydrochloride (BARR), 1888, A., 828.

**Benzene, bromo-derivatives of**, action of sodium on (GOLDSCHMIEDT), 1886, A., 541.  
 action of sulphuric acid on (HERZIG), 1888, A., 1275.  
*bromo- (phenylic bromide)* (LEROY), 1888, A., 258.  
 preparation of, from aniline (SANDMEYER), 1885, A., 149.  
 refractive power of, at different temperatures (PERKIN), 1892, T., 299.  
 dispersive power of (BARBIER and ROUX), 1889, A., 805.  
 boiling point of (YOUNG), 1889, T., 487; P., 103.  
 vapour pressure of (RAMSAY and YOUNG), 1885, T., 646, 655; (YOUNG), 1889, T., 490, 497, 503, 509.  
 specific gravity and specific volume of (YOUNG), 1889, T., 488, 506.  
 action of sodium methoxide on (BLAU), 1887, A., 242.  
 a second (FITTICA), 1887, A., 134; 1890, A., 962; (HAND), 1890, A., 881.  
*p-bromo-*, and *tri*bromo-, iododichlorides (WILLGERODT), 1886, A., 342.  
*o-*, *m-* and *p-dibromo-* (LEROY), 1888, A., 258.  
*o-dibromo-*, derivatives of (SCHIFF), 1891, A., 44.  
*hexabromo-*, preparation of (MENZ and WEITH), 1884, A., 588.  
 1:3:5:6-*tri*bromiodo- (SILBERSTEIN), 1883, A., 661.  
 bromonitro-derivatives, compounds prepared from (JACKSON), 1890, A., 983.  
 3:1:2-*bromo*/*di*nitro- (WENDER), 1890, A., 885.  
 *$\alpha$ -* and  *$\beta$ -di*bromo/*di*nitro-, 1:2:4:5- and 1:2:3:5- (SCHIFF), 1891, A., 45.  
*tribromo*nitro- (JACKSON and BENTLEY), 1892, A., 1182.  
 2:4:6:1:3-*tri*bromo/*di*nitro-, action of ethylic sodacetacetate on (JACKSON and MOORE), 1890, A., 772.  
 action of ethylic sodomalonate on (JACKSON and ROBINSON), 1890, A., 377.  
 action of sodium alkyl oxides and phenoxides on (JACKSON and WARREN), 1891, A., 1024.  
 additive product of, with *tetra*bromo/*di*nitrobenzene (JACKSON and MOORE), 1888, A., 821.  
*tribromo*/*tri*nitro- (JACKSON and WING), 1888, A., 1276.

**Benzene**, *tribromotrinitro*-, action of ethylic sodomalonate on (JACKSON and MOORE), 1890, A., 497.  
 action of sodium alkyl oxides and phenoxides on (JACKSON and WARREN), 1891, A., 1024.  
 1:2:3:5-*tetrabromodinitro*-, (JACKSON and WING), 1888, A., 1276; (JACKSON and BANCROFT), 1889, A., 696; 1890, A., 982.  
*pentabromonitro*-, (JACKSON and BANCROFT), 1890, A., 983.  
 bromoxy-derivative of (BENEDIKT), 1883, A., 984.  
 chloro-derivatives of, thermochemistry of (BERTHELOT and MATIGNON), 1889, A., 1311.  
 chloro- (*phenylic chloride*), refractive power of, at different temperatures (PEKIN), 1892, T., 298.  
 dispersive power of (BARDIER and ROUX), 1889, A., 805.  
 boiling point of (YOUNG), 1889, T., 487.  
 vapour pressure of (RAMSAY and YOUNG), 1885, T., 642, 654; (YOUNG), 1889, T., 490, 495, 502, 509.  
 specific gravity and specific volume of (YOUNG), 1889, T., 488, 505.  
 action of bromine on (MATTHEWS), 1892, T., 111.  
 hexachloride,  $\alpha$ - and  $\beta$ - modifications of (MATTHEWS), 1891, P., 181; 1892, T., 103.  
 $\sigma$ - and  $p$ -*dichloro*-, (FRIEDEL and CRAFTS), 1887, A., 1101.  
 $p$ -*dichloro*-, conversion of, into  $m$ -*dichlorobenzene* (ISTRATI), 1890, A., 882.  
 1:2:4-*trichloro*-, hexachloride (WILLGERMONT), 1887, A., 806.  
 1:3:5-*trichloro*-, action of nitric acid on (JACKSON and WING), 1888, A., 136.  
 1:2:4:5-*tetrachloro*-, from anisole (HUGOUNENQ), 1890, A., 365.  
 1:3:4:5-*tetrachloro*-, (ISTRATI), 1886, A., 229.  
 properties of (MATTHEWS), 1892, T., 109.  
 new francin from (GEORGESCU and MINCU), 1889, A., 970.  
*pentachloro*-, (ISTRATI), 1886, A., 229.  
 from anisole (HUGOUNENQ), 1890, A., 365.  
 action of sulphuric acid on (ISTRATI), 1888, A., 259.  
*hexachloro*-, (ISTRATI), 1886, A., 229; (MERZ and WEITH), 1884, A., 589.

**Benzene**, *hexachloro*-, from anisole (HUGOUNENQ), 1890, A., 365.  
 action of fuming nitric acid on (ISTRATI), 1890, A., 882.  
 chloro-2:4:6-*tribromo*-, (SILBERSTEIN), 1883, A., 661.  
 chloro-*pentabromo*-, (MACKEEROW), 1892, A., 155.  
 1:3:4:5-*dichlorodibromo*-, (GARZINO), 1888, A., 585.  
*dichlorotetrabromo*-, and *tetrachlorodibromo*-, (MACKEEROW), 1892, A., 155.  
*pentachloriodo*-, (ISTRATI), 1891, A., 1197.  
 $m$ - and  $p$ -*chloronitro*-, sulphonation of (CLAUS and MANN), 1891, A., 1488.  
 1:3:5-*chlorodinitro*-, (BADER), 1891, A., 1031.  
 1:2:4-*chlorodinitro*-, action of, on polyhydric phenols (NIETZKI and SCHÜNDELEN), 1892, A., 310.  
 chloro-*trinitro*-, See Picric chloride.  
 1:3:5-*trichlorodi*- and *tri*-*nitro*-, (JACKSON and WING), 1888, A., 137.  
 $p$ -*dichloro*- $p$ -*dinitroso*-, (KEHRMANN), 1889, A., 245.  
 chloroxy-, derivatives of (BENEDIKT), 1883, A., 984.  
 chloroxy-*pentachloro*-, (BENEDIKT and V. SCHMIDT), 1883, A., 1119.  
 $m$ -*dicyano*-, (*isophthalonitrile*), properties of (GOLDBERG), 1890, A., 147.  
 fluoro- (*phenylic fluoride*) (WALLACH), 1887, A., 130.  
 refraction and dispersion of (J. H. and G. GLANSTONE), 1891, A., 774.  
 boiling point of (YOUNG), 1889, T., 487.  
 vapour-pressure of (YOUNG), 1889, T., 490, 493, 502, 509.  
 specific volume and specific gravity of (YOUNG), 1889, T., 488, 505.  
 $p$ -*difluoro*-, (WALLACH and HEUSLER), 1888, A., 362.  
 $p$ -*fluorochloro*-,  $p$ -*fluorobromo*-, and  $p$ -*fluoriodo*-, (WALLACH and HEUSLER), 1888, A., 362.  
 $p$ -*fluoronitro*-, (WALLACH), 1887, A., 131; (WALLACH and HEUSLER), 1888, A., 362.  
 halogen-derivatives, physical constants of (SEUBERT), 1890, A., 2.  
 specific volumes and vapour pressures of (RAMSAY and YOUNG), 1885, T., 640; (YOUNG), 1889, T., 486; P., 103.

- Benzene**, molecular volumes of the saturated vapours of (YOUNG), 1890, P., 177; 1891, T., 125.  
 action of acetic and benzoic chlorides on (SCHOFFE), 1892, A., 337.  
 action of aluminium chloride on (v. DUMREICHER), 1883, A., 53.  
 haloids (WILLGERODT), 1887, A., 806.  
 hydroxy-derivatives of, test for the (PLUGGE), 1890, A., 669.  
 iodo- (*phenylic iodide*) (ISTRATI and GEORGESCU), 1892, A., 1310.  
 preparation of, from phenylhydrazine (v. MEYER), 1887, A., 1042.  
 refractive power of, at different temperatures (PERKIN), 1892, T., 300.  
 boiling point and vapour pressure of (YOUNG), 1889, T., 487, 490, 510.  
 specific gravity and specific volume of (YOUNG), 1889, T., 488, 506.  
 action of, on silver nitrate (GEUTHER), 1883, A., 821.  
 dichloride (WILLGERODT), 1886, A., 341.  
 1:4- and 1:2- diiodo- (KÖRNER and WENDEL), 1888, A., 1280; (ISTRATI and GEORGESCU), 1892, A., 1310.  
 tri- and tetra-iodo- (ISTRATI and GEORGESCU), 1892, A., 1310.  
 o-diiodonitro- (KÖRNER and WENDEL), 1888, A., 1280.  
 3:1:2- and 4:1:3-diiododinitro- (WENDEL), 1890, A., 886.  
 2:1:3:5-iodotrininitro- (HEPP), 1883, A., 816.  
 iodoxydiiodo- (MESSINGER and VORTMANN), 1889, A., 1150.  
 nitro-gen-derivatives, thermochemistry of (PETIT), 1888, A., 1013; (BERTHELOT and MATIGNON), 1892, A., 4.  
 physiological action of (BRUNTON and CANN), 1891, A., 1280; (GIBBS and REICHERT), 1891, A., 1281; (HUBER), 1892, A., 366.  
 nitro-, dispersive power of (BARBIER and ROUX), 1889, A., 805.  
 displacement of the nitro-group in, by chlorine or bromine (LOBRY DE BRUYN), 1892, A., 806.  
 action of benzaldehyde and sulphuric acid on a mixture of aniline and (MAZZARA), 1884, A., 442.  
 action of chromyl dichloride on (HENDERSON and CAMPBELL), 1890, T., 258; P., 10.
- Benzene**, nitro-, action of light on alcoholic solutions of (CIAMICIAN and SLUBER), 1887, A., 240.  
 action of zinc ethyl on (BEWAD), 1889, A., 113.  
 detection of (MORPURGO), 1890, A., 1194.  
 detection of, in presence of oil of bitter almonds (LIST), 1889, A., 552.  
 p-nitro-, iododichloride (WILLGERODT), 1886, A., 342.  
 o-dinitro-, separation of, from its isomerides (LOBRY DE BRUYN), 1885, A., 657.  
 m-dinitro- (WILLGERODT), 1892, A., 704.  
 bromination of (MAC KERROW), 1892, A., 155.  
 reduction of (WILLGERODT), 1892, A., 595.  
 compound of, with naphthalene (HEPP), 1883, A., 318.  
 o-, m- and p-dinitro-, action of potassium cyanide on (LOBRY DE BRUYN), 1885, A., 656.  
 1:2:4-trinitro- (LOBRY DE BRUYN), 1891, A., 429.  
 1:3:5-trinitro-, bromination of (MAC KERROW), 1892, A., 155.  
 compounds of, with aniline and with dimethylaniline (HEPP), 1883, A., 316.  
 1:3:2:4:6-dinitrotri-amido- (PALMER and JACKSON), 1890, A., 247.  
 s-trinitrotri-amido- (JACKSON and WING), 1888, A., 1276.  
 reduction of (PALMER), 1892, A., 1193.  
 p-dinitroso- (NIETZKI and KEHRMANN), 1887, A., 575.  
 disulphoxide (*phenylic benzenethio-sulphonate*) (ESCALES), 1885, A., 798.  
**Benzeneazo-**. See Azo.  
**Benzenecarboxylic acids**. See Benzoic, Mellitic, Phthalic, Prehnitic, Pyromellitic, Trimellitic and Trimesic acids.  
**Benzene- $\alpha$ -dimethyl- $p$ -difurfuran- $\beta$ -dicarboxylic acid,  $p$ -dichloro-** (IKUTA), 1892, A., 610.  
**Benzenedimethyldifurfuran** (NUTH), 1887, A., 803.  
**o-Benzenedimethyldifurfurandicarboxylic acid** (NUTH), 1887, A., 804.  
**Benzene- $m$ -disulphonetetra-bromamide** (HOOGWERFF and VAN DOORN), 1889, A., 981.  
**Benzenedisulphothiosulphonic anhydride** (OTTO and TROGER), 1891, A., 925.

- Benzenefurfuran derivatives**, synthesis of (IKUTA), 1892, A., 608.
- Benzenehomo-*o*-phthalopropylimide**, nitro- (LE BLANC), 1889, A., 256.
- Benzenehydrazinesulphonic acid**. See Phenylhydrazinesulphonic acid.
- Benzenesindone** (FISCHER and HERR), 1892, A., 341.
- Benzenesindulines**. See Indulines.
- Benzene- $\beta$ -methylfurfuran**. See  $\beta$ -Methylcoumarilic acid.
- Benzene-ring**, splitting of the, by oxidation (HENRIQUES), 1888, A., 842.
- substitution in the (MORLEY), 1887, T., 579.
- displacement of halogen atoms in the (SCHÜPF), 1891, A., 304; 1892, A., 335.
- identity of the two ortho-positions in the (LOBRY DE BRUYN), 1885, A., 972.
- destruction of the, in the body (JUVAITA), 1889, A., 289.
- Benzene-series**, isomerism in the (BERTHELOT and WERNER), 1885, A., 628.
- isomerism in the: phenols of complex function, thermochemistry of (BERTHELOT), 1886, A., 7.
- alteration of compounds of the, on exposure to air and light (BINDER), 1890, A., 1401.
- selenium and oxygen derivatives in the (CHABRIÉ), 1890, A., 34.
- Benzenesulphanilide**. See Benzenesulphonanilide.
- Benzenesulphinic acid** (AUTENRIETH), 1891, A., 203.
- sodium salt of, action of iodine on mercaptans and (OTTO and TRÜGER), 1891, A., 924.
- action of sodium dibromohydrocinamate on (OTTO and RÜSING), 1889, A., 994.
- as an antiseptic for wounds (HECKEL), 1888, A., 182.
- p*-bromo- (KÖNIG), 1892, A., 1091.
- m*-nitro- (LIMPRICHT), 1887, A., 723.
- Benzenesulphinic acids**, hydrolysis of ethereal salts of (BAUMANN), 1891, A., 1229.
- Benzenesulphonamides**, and mixed secondary amines (HINSBERG), 1892, A., 64.
- Benzenesulphonates of aromatic radicles** (GEORGESCU), 1891, A., 568; (OTTO), 1891, A., 569.
- Benzenesulphone**. See Diphenylsulphone.
- Benzenesulphone- $\beta$ -alanine** (v. PECHMANN), 1891, A., 1459.
- Benzenesulphone-*o*-amidobenzamide**, its anhydride and derivatives (FRANKE), 1890, A., 1289; 1892, A., 334.
- Benzenesulphone-*o*-amidobenzo-methyl- and -phenyl-amides** (FRANKE), 1892, A., 335.
- Benzenesulphone-*o*-amidobenzoyl-phenylhydrazide** (FRANKE), 1892, A., 335.
- Benzenesulphoneanilide** (WALLACH), 1883, A., 48.
- nitro- and amido-derivatives of (LELLMANN), 1883, A., 800.
- Benzenesulphonebenzylamide** (HINSBERG), 1892, A., 65.
- Benzenesulphonocyanamide** and its sodium derivative (HEBENSTREIT), 1890, A., 501.
- Benzenesulphonediphenylamide** (WALLACH), 1883, A., 48.
- Benzenesulphone-*o*-methylamidobenzamide** (FRANKE), 1892, A., 335.
- Benzenesulphonemethylethylamide** (HINSBERG), 1892, A., 64.
- Benzenesulphonenitramide** (HINSBERG), 1892, A., 850.
- Benzenesulphone-*p*-phenetidine** (HINSBERG), 1892, A., 65.
- Benzenesulphonepiperidine** (HINSBERG), 1892, A., 65.
- Benzenesulphone-*o*-toluidide** (HINSBERG), 1892, A., 65.
- Benzenesulphone-*p*-toluidide**, nitro- and amido-derivatives of (LELLMANN), 1883, A., 800.
- Benzenesulphonic acid**, amine salts of (NORTON and WENTENHOFF), 1888, A., 698.
- ammonium salt of, dry distillation of (EGLI), 1885, A., 799.
- calcium salt of, action of iodine on (ISTRATI and GEORGESCU), 1891, A., 1226.
- derivatives of (HÜBNER), 1884, A., 1180.
- metallic salts of (NORTON and SCHMIDT), 1888, A., 697.
- Benzenesulphonic acid**, amido-. See Anilinesulphonic acid.
- 2:4-bromonitro-** (LIMPRICHT), 1885, A., 1234.
- 2:5-chloramido-** (CLAUS and MANN), 1891, A., 1488; (FISCHER), 1892, A., 182.
- 4:3-chloramido-** (FISCHER), 1892, A., 182.
- 2:5-chloronitro-** (CLAUS and MANN), 1891, A., 1488; (FISCHER), 1892, A., 182.
- 4:3-chloronitro-** (FISCHER), 1892, A., 182.

- Benzenesulphonic acid**, 4:3-*dinitro*- (WILLGERODT and MOHR), 1885, A., 665; 1886, A., 1030.  
*trinitro*- (WILLGERODT), 1885, A., 1232.  
 nitroso-, preparation and salts of (LIMPERGUT), 1892, A., 475.
- Benzenesulphonic acids**, action of cyanamide on (VILLE), 1887, A., 833.  
 halogenated, action of ammonia and aniline on (FISCHER), 1892, A., 331.
- Benzenesulphonic anhydride**, 2:5-*di*bromo-, and 2:4:5-*tri*bromo- (ROSENBERG), 1886, A., 551.  
 chloride, condensation products of amido-acids with (HEDIN), 1891, A., 202.  
*p*-bromo-, and *p*-chloro- (KRAFFT and ROOS), 1892, A., 1220.  
 iodide (OTTO and TROGER), 1891, A., 719.  
 thioanhydride (OTTO and TRÖGER), 1891, A., 926.
- Benzenetetracarboxylic acids**, constitution of, and preparation of, from durenene (JACOBSEN), 1885, A., 166.
- Benzenethiosulphonic acid**, reactions of (OTTO and ROSSING), 1892, A., 478.
- Benzenethiosulphonic thioanhydride** (OTTO and TROGER), 1891, A., 925.
- Benzenetribenzoic acid** (CLAUS), 1890, A., 770.
- Benzenetrimethyltrifurfuran** (LANG), 1887, A., 263.
- Benzenetrimethyltrifurfurancarboxylic acid** (LANG), 1887, A., 263.
- Benzenetriphenazine** (NIEZKI and SCHMIDT), 1888, A., 690.
- 1:3:5-Benzenetrisulphonic acid** and its amide and anilide (JACKSON and WING), 1888, A., 152.  
 its amide and chloride (JACKSON and WING), 1886, A., 623.
- Benzenetritolazine** (NIEZKI and KEHRMANN), 1887, A., 474.
- Benzenoid acid chlorides**, action of aluminium chloride on (HUGHES), 1891, P., 70.  
 compounds, an explanation of the laws which govern substitution in (ARMSTRONG), 1887, T., 258, 583; P., 8, 44, 62.  
 nitration of (ARMSTRONG and ROSSITER), 1891, P., 89.
- Benzenylallylthiouramidoxime** (KOCN), 1891, A., 561.
- Benzenylamidethoxime**, action of nitrous acid on (TIEMANN), 1892, A., 328.
- Benzenylamidine** (*benzamidine*), action of acetic anhydride on (PINNER), 1885, A., 158.  
 action of aldehydes on (PINNER), 1891, A., 60.  
 action of, on the ethereal salts of aromatic *o*-hydroxy-acids (PINNER), 1891, A., 60.  
 action of ethylic acetacetate on (PINNER), 1885, A., 159.  
 action of, on ethylic acetylmalonate (PINNER), 1890, A., 496.  
 salts (LOSSEN), 1892, A., 51.  
 benzamidylacetylmalonate (PINNER), 1890, A., 496.  
 benzenyldioxytetrazotato (LOSSEN and MIERAU), 1891, A., 1040.  
 chloracetate and trichlorolactate (PINNER), 1889, A., 1009.  
 ethylic oxalate (PINNER), 1889, A., 1009.  
 hydrochloride, action of benzoic chloride on (PINNER), 1881, A., 1324.  
 nitrite (LOSSEN and MIERAU), 1888, A., 684.  
 picrate (DIECKMANN), 1892, A., 705.  
 pyruvate (PINNER), 1889, A., 1005.  
 salicylate (PINNER), 1891, A., 60.  
 thiosulphate (GRAYEN), 1891, A., 559.
- Benzenylamidine**, *m*-nitro- (TAFEL and ENOCH), 1890, A., 973.  
*d*-nitroso- (LOSSEN and MIERAU), 1888, A., 684.
- Benzenylamidinebenzenylamidine**, *di*-nitroso- (LOSSEN and MIERAU), 1888, A., 684.
- Benzenylamidinechloral** and **benzenylamidineethiocarbamide** (PINNER), 1889, A., 1005.
- Benzenylamididoacetone** (RÜCHTER and MISCHER), 1892, A., 952.
- Benzenyl- $\alpha$ -amido- $\beta$ -naphthol** (WORMS), 1883, A., 69; (BORTCHER), 1883, A., 1113; 1885, A., 659.
- Benzenyl- $\beta$ -amido- $\alpha$ -naphthol** (WORMS), 1883, A., 69.
- Benzenylamido- $\alpha$ - and  $\beta$ -naphthyl mercaptans** (v. HOFMANN), 1887, A., 839.
- Benzenyl-*o*-amidophenyl mercaptan** (TIEMANN and FIEBIGER), 1883, A., 198; (JACOBSON), 1886, A., 700.
- Benzenylamidodisulphide benzenylsulphimide/thiocarbamate** (GRAYEN), 1891, A., 559.
- Benzenylamidoxime** (*benzamidoxime*) (PINNER), 1884, A., 739; (TIEMANN and KRÜGER), 1884, A., 1325; (TIEMANN and FOCK; FAUER), 1886, A., 797; (LOSSEN), 1889, A., 1064.

- Benzenylamidoxime** (*benzamidoxime*), action of acetaldehyde and ethylic acetate on (TIEMANN), 1890, A., 44.  
 action of acetic, propionic, and butyric acids, chlorides, and anhydrides on (SCHULZ), 1885, A., 897.  
 action of aldehydes on (ZIMMER), 1890, A., 253.  
 action of anhydrides of dibasic acids on (SCHULZ), 1885, A., 1219.  
 action of carbon disulphide on (CRAYEN), 1891, A., 559.  
 action of ethylic chloracetate on (KOCH), 1890, A., 260.  
 action of ethylic chlorocarbonate and of carbonyl chloride on (FALCK), 1885, A., 1216.  
 action of sodium amalgam on aqueous solutions of (TIEMANN and NÄGELI), 1885, A., 895.  
 derivatives (KRÜGER), 1885, A., 895.  
     relations of, to the benzhydroxamic group (TIEMANN and KRÜGER), 1885, A., 790.  
 ethylic ether (TIEMANN and KRÜGER), 1885, A., 790; (LOSSEN), 1889, A., 1064.  
 methylic ether (TIEMANN and KRÜGER), 1884, A., 1325.  
 oxalate (TIEMANN), 1891, A., 538.  
**Benzenylamidoxime**, *m*-amido- (SCHÜPF), 1885, A., 1217.  
     *p*-amido- (WEISE), 1890, A., 46.  
     *dicyano*- (NORDENSKIÖLD), 1890, A., 1120.  
     *m*-nitro-, and its derivatives (SCHÜPF), 1885, A., 896, 1217.  
     *p*-nitro- (WEISE), 1890, A., 44.  
**Benzenylamidoximecarboxylic acid**, and its ethylic salt (MÜLLER), 1885, A., 1227; 1886, A., 802.  
**Benzenylamidoxime-ethylidene** (TIEMANN), 1890, A., 44.  
     *p*-nitro- (WEISE), 1890, A., 46.  
**Benzenylamidoximeglycollic acid and anhydride** (KOCH), 1890, A., 260.  
**Benzenylamidoximeoxalic acid** (WURM), 1890, A., 259; (TIEMANN), 1891, A., 538.  
**Benzenylamidoxylyl mercaptan** (GUDEMAN), 1888, A., 1822.  
**Benzenylanilidoxime** (MÜLLER), 1886, A., 875; 1890, A., 43.  
**Benzenylazo**. See under Azo.  
**Benzenylbenzamidolizarin** (ROEMER), 1885, A., 1069.  
**Benzenylchloroxime** and its *p*-nitrobenzylic ether (WERNER), 1892, A., 463.  
**Benzenylchloroximeglycollic acid** (WERNER), 1892, A., 465.  
**Benzenyldicinnylenediamine** (JAPP and WYNNE), 1886, T., 469.  
**Benzenyldioxytetrazotic acid** and its derivatives (LOSSEN and MIERAU), 1891, A., 1040.  
     reduction of (W. and C. LOSSEN), 1891, A., 1041.  
     *m*-nitro- (LOSSEN and NEUBERT), 1891, A., 1040.  
**Benzenyldiphenylazidine** (MARCKWALDT), 1889, A., 392.  
     preparation of (PINNER), 1884, A., 743.  
**Benzenyldiureide** (PINNER), 1889, A., 1005.  
**Benzenylethoxime salts** (TIEMANN), 1892, A., 323.  
     chloride (TIEMANN and KRÜGER), 1885, A., 790.  
**Benzenylethoximidoethylic ether** (TIEMANN and KRÜGER), 1885, A., 790.  
**Benzenylethylenediamine** (v. HOFMANN), 1888, A., 1050; (FORSSELL), 1892, A., 1248.  
**Benzenylethylimidoximecarbonyl** (FALCK), 1886, A., 797.  
**Benzenylhomosalicyl-**. See Hydrobenzenyltolenyl-.  
**Benzenylimidosulphonic acid** (KRAFFT and BOURGEOIS), 1892, A., 701.  
**Benzenylimidoximeamidobenzylidene** (STIEGLITZ), 1890, A., 254.  
     preparation of (TIEMANN), 1892, A., 461.  
**Benzenylimidoxime-isoamylidene, -isobutylidene, and -isopropylidene** (ZIMMER), 1890, A., 254.  
**Benzenylimidoximecarbonyl** (FALCK), 1886, A., 797.  
     *p*-nitro- (WEISE), 1890, A., 45.  
**Benzenyloxytetrazotic acid** (W. and C. LOSSEN), 1891, A., 1042.  
**Benzenylphenylenediamine** (AUWERS and v. MEYENBURG), 1891, A., 1378.  
     ethyl derivative and nitrile of (HOWE), 1884, A., 741.  
**Benzenylphenylimidoximecarbonyl** (MÜLLER), 1886, A., 875.  
**Benzenyltetrazotic acid** (W. and C. LOSSEN), 1891, A., 1042.  
**Benzenyl-*o*-toluidoxime** (STIEGLITZ), 1890, A., 256.  
**Benzenyl-*p*-toluidoxime** (MÜLLER), 1890, A., 43.  
**Benzenyluranilidoxime** (MÜLLER), 1886, A., 875.  
**Benzyethylamide, *o*-amido-** (FINGER), 1888, A., 948.  
**Benzyethylanilide** (HESS), 1885, A., 784.

- Benzethyltoluenesulphonamide** (REMSEN and PALMER), 1887, A., 145.
- Benzhydrylbenzoic acid.** See Hydroxy-*m*-benzylbenzoic acid.
- Benzhydryl** (*diphenylcarbinol*), derivatives of, new method of formation of (ALBRECHT), 1889, A., 263.  
benzilate (KLINGER and STANDKE), 1889, A., 886.  
*α*-diamido- (WICHELHAUS), 1889, A., 781.  
*β*-diamido-, and its compounds (STAEDEL), 1888, A., 991.
- Benzhydryl-di- and -tri-carboxylic acids** (GRAEBE and JULLARD), 1888, A., 154, 1096.
- Benzhydroxamic acid**, preparation of (JEANRENAUD), 1889, A., 870.  
constitution of (LOSSEN), 1884, A., 1324; (MINUNNI), 1890, A., 256; 1891, A., 697.  
stereoisomeric derivatives of (WERNER), 1892, A., 461.
- Benzhydroxamic group**, relations of, to benzenylamidoxime derivatives (TIEMANN and KRÜGER), 1885, A., 790.
- Benzhydroximic acid**, methyl ether of (TIEMANN and KRÜGER), 1884, A., 1325.
- Benzhydrylamine**, homologues of (GOLDSCHMIDT and STOCKER), 1891, A., 1479.
- Benzidine** (*p-p*-diamidodiphenyl) (SCHIFF and VANNI), 1890, A., 1297.  
action of methylic iodide on (MICHLER and PATTINSON), 1884, A., 747.  
action of nascent nitrous acid on (DENINGER), 1890, A., 38.  
synthesis of a diamidocarbazole from (TAUBER), 1891, A., 227.  
derivatives (STERN), 1884, A., 1015; (BRUNNER and WITT), 1887, A., 672.  
chromate (JULIUS), 1884, A., 1181.  
citrate, normal (SCHNEIDER), 1888, A., 465.  
hydrochlorides, decomposition of, by water (PETIT), 1889, A., 260.  
polymethylene bases from (SCHIFF), 1892, A., 1223.  
oxidation of, in the animal organism (KLINGENBERG), 1891, A., 1529.  
reaction of (JULIUS), 1884, A., 1181.
- Benzidine, *m*-amido-** (TÄUBER), 1890, A., 783.  
*m*-diamido- (BRUNNER and WITT), 1887, A., 672; (TÄUBER), 1890, A., 782.  
*o*-bromo- (JANOVSKY and ERB), 1887, A., 479.  
*m*-mono-nitro- and *m*-di-nitro- (TÄUBER), 1890, A., 782.
- Benzidine, *d*-nitro-** (v. BANDROWSKI), 1888, A., 286.
- isoBenzidine** (*diphenyliline*) (BERNTHSEN), 1886, A., 471.  
derivatives of (REULAND), 1890, A., 166.  
iodo-, hydrochloride of (NÖLTING and WERNER), 1891, A., 211.
- Benzidineazo-dyes**, colouring properties of (MÜHLAU), 1886, A., 947.
- Benzidine-*m*-carboxylic acid** (PAAL), 1892, A., 68.
- Benzidine-colouring-matters** (COLSON), 1889, A., 1152; (BRASCH and FREYSS), 1891, A., 1281.
- Benzidine-*o*-disulphonamide** (LIMPRICHT and MEYER), 1892, A., 974.
- Benzidine-*o*-disulphonic acid**, derivatives of (LIMPRICHT), 1891, A., 929.
- Benzidine-di-, -tri-, and -tetra-sulphonic acids** (GRIESS and DUISBERG), 1890, A., 59.
- Benzidine-di- and -semi-urethanes** (SCHIFF and VANNI), 1890, A., 1298.
- Benzidinesulphone** (ANON.), 1886, A., 471; (GRIESS and DUISBERG), 1890, A., 59.
- Benzidinesulphone-mono- and -di-sulphonic acids** (GRIESS and DUISBERG), 1890, A., 59.
- Benzidine-*m*-sulphonic acids**, *m*-diamido-, and *m*-dinitro- (ZEHR), 1891, A., 313.
- Benzidinetetracarboxylic anhydride** and salts of the acid (CLAUS and HEMMANN), 1883, A., 1126.
- Benzidylobromopianic acid** (TUST), 1892, A., 1210.
- Benzidylopianic acid** (BIMTRYCKI), 1888, A., 1209.
- Benzidyolphthalaldehydic acid** (ALLENDORFF), 1891, A., 1370.
- Benzil** (*dibenzoyl*) (KLINGER), 1883, A., 921; (GOLDSMITH and MEYER), 1883, A., 1120; (STERLIN), 1889, A., 512.  
condensation of, with *α*-acetylpyrrolone (ANGELI), 1890, A., 1000.  
action of aldehydes, together with ammonia, on (JAPP), 1883, T., 17; (JAPP and HOOKER), 1884, T., 672; (JAPP and WYNNE), 1886, T., 462; P., 201.  
action of *p*-amidodimethylaniline on (VOGTEBERG), 1892, A., 855.  
condensation of, with *o*-amidodiphenylamine (KEHRMANN and MESSINGER), 1891, A., 945.  
action of triamidodiphenylamine on (KEHRMANN and MESSINGER), 1892, A., 1109.

- Benzil** (*dibenzoyl*), action of primary aromatic amines on (BANDROWSKI), 1889, A., 147.  
 action of ammonium formate on (LEUCKART), 1890, A., 784.  
 action of aniline on (SIEGFELD), 1892, A., 1470.  
 action of  $\alpha$ - and  $\beta$ -benzylhydroxylamines on (AUWERS and DITTRICH), 1889, A., 1193.  
 action of carbamide and thiocarbamide on (ANSCHÜTZ and GELDERMANN), 1891, A., 725; (ANGELI), 1891, A., 726.  
 condensation of, with ethylic alcohol (JAPP and OWENS), 1885, T., 90.  
 condensation of, with ketones (JAPP and BURTON), 1887, T., 431; P., 32.  
 action of lead oxide, and of hydroxylamine on (WITTENBERG and MEYER), 1883, A., 803, 804.  
 action of nitriles on (JAPP and TRESDER), 1884, A., 313.  
 action of potash on a mixture of acetone, acetophenone and (JAPP and MILLER), 1885, T., 21, 34.  
 action of sunlight on (KLINGER), 1886, A., 888.  
 decomposition of, by potassium cyanide (JOURDAN), 1883, A., 805.  
 reduction of (JAPP and KLINGERMANN), 1890, P., 31.  
 base from phenyl-*o*-phenylenediamine and (KEHRMANN and MESSINGER), 1891, A., 1109.  
 compound of, with isopropyl alcohol (JAPP and RASCHEN), 1886, T., 832.  
 derivatives (BURTON), 1884, A., 62; (HENIUS), 1885, A., 1067.  
 ammonia-derivatives of (JAPP), 1884, A., 313.  
 sodium derivative of (BECKMANN and PAUL), 1892, A., 171.  
**Benzil**, chloro- (REDZKO), 1890, A., 783.  
 nitro- and its dioximes (HAUBMANN), 1890, A., 624.  
*isodinitro*-, reduction of (GOLUBEFF), 1885, A., 660.  
*isoBenzil* (KLINGER), 1883, A., 920; 1886, A., 888; (KLINGER and STANDKE), 1891, A., 931.  
 synthesis of (KLINGER and SCHMITZ), 1891, A., 932.  
**Benzilam** (*azobenzil*) (JAPP), 1883, T., 11; 1884, A., 313; (HENIUS), 1885, A., 1067.  
 nitration of (HENIUS), 1885, A., 1067.  
**Benzilamidobenzamidothymol** (MAZZARA and LEONARDI), 1891, A., 1363.  
**Benzilanthydrobenzoyldiamidotoluene** (HINSBERG), 1886, A., 943.  
**Benzilbenzoin** (KLINGER), 1886, A., 888.  
**Benzilbromisobutylbenzene** (GELZER), 1889, A., 45.  
**Benzilisobutylphenazine** (GELZER), 1888, A., 267; 1889, A., 44.  
**Benzil-*o*-carboxylic acid** (JULLARD), 1888, A., 955; (GRAEBE and JULLARD), 1888, A., 1095; (GRAEBE), 1890, A., 989.  
**Benzil-*p*-carboxylic acid** (BUCHER), 1890, A., 168.  
**Benzildianil** (SIEGFELD), 1892, A., 1470.  
**Benzildiguanyl** (WENSE), 1886, A., 556.  
**Benzildisulphonic acid** (KAFKA), 1891, A., 721.  
**Benzilguanyl** (WENSE), 1886, A., 556.  
**Benzilic acid** (*hydroxydiphenylacetic acid*, *diphenylglycollic acid*), and its derivatives (KLINGER and STANDKE), 1889, A., 885; (BICKEL), 1889, A., 999.  
 amide (KLINGER and STANDKE), 1889, A., 886.  
 chloride, nitration of (NÖLTING), 1886, A., 344.  
 dihydrocyanide (JAPP and MILLER), 1887, T., 29.  
 hydrocyanide, saponification of (JAPP and MILLER), 1884, A., 329.  
**Benzilide** (KLINGER and STANDKE), 1889, A., 885.  
**Benzilimide** (JAPP), 1884, A., 313.  
 constitution of (HENIUS), 1885, A., 1067.  
**Benzil-*m*-nitrophenylhydrazine** (BISCHLER and BRODSKY), 1890, A., 151.  
**Benzilmonoxime** (MEYER and OHLKERS), 1888, A., 703.  
 *$\alpha$ -Benzilmonoxime*, intramolecular change of (GÜNTHER), 1889, A., 1067.  
 *$\beta$ -Benzilmonoxime*, action of nascent hydrogen on (ZANETTI), 1891, A., 726.  
**Benzilmonoximes**, two isomeric (AUWERS and MEYER), 1889, A., 611.  
 structure of the oximido-group in (AUWERS and DITTRICH), 1889, A., 1192.  
 reduction of (BRAUN), 1889, A., 613.  
 See also Benziloximes.  
**Benzil/*o*xime**, intramolecular change in (GÜNTHER), 1888, A., 485.  
 action of phosphoric sulphide on (DODGE), 1891, A., 1238.  
 *$\gamma$ -Benzil/*o*xime*, and its derivatives (AUWERS and MEYER), 1889, A., 713.  
**Benzil/*i*oximes** (AUWERS and MEYER), 1888, A., 597.  
 configuration of (HANTZSCH), 1891, A., 441.

- Benzildioximes**, intramolecular change of (GUNTHER), 1889, A., 1067.  
 isomerism of (AUWERS and MEYER), 1889, A., 403.  
 benzyl derivatives of (AUWERS and MEYER), 1889, A., 609.  
 dimethyl ether of, isomeric forms of (AUWERS and MEYER), 1889, A., 403.  
 See also Benziloximes.
- Benziloxime-anil and -hydrazone** (AUWERS and SIEGFELD), 1892, A., 1470.
- Benziloximes** (POLONOWSKA), 1888, A., 485; (AUWERS and SIEGFELD), 1892, A., 1470.  
 Claus' theory of the (AUWERS and MEYER), 1892, A., 186; (CLAUS), 1892, A., 598.  
 constitution of (MEYER), 1890, A., 721.  
 atomic arrangement in (HANTZSCH and WERNER), 1890, A., 349.  
 isomerism of (BEHREND), 1890, A., 575.  
 ethers of (DITTRICH), 1891, A., 317.  
 See also Benzil-monoximes and -dioximes.
- Benziloxime-*p*-tolil** (AUWERS and SIEGFELD), 1892, A., 1470.
- Benzilphenylhydrazine** (PICKEL), 1886, A., 546; (BULOW), 1887, A., 138.
- Benzilphenylhydrazone**, action of heat on (AUWERS and MEYER), 1889, A., 51.
- Benzilphenylmethyl-hydrazone and -osazone** (KOHLEBAUSCH), 1890, A., 24.
- Benzimidazoles** (BAMBERGER and LÖRENZEN), 1892, A., 631; (BAMBERGER and BERLE), 1892, A., 632.
- Benzimidooacetate** (PINNER), 1892, A., 982.
- Benzimido- $\beta$ -chloroethyl ether** (GABRIEL and NEUMANN), 1892, A., 1331.
- Benzimidocinnamic acid**, and its derivatives (PLOCHL), 1884, A., 604, 1348; (REBUFFAT), 1890, A., 623.
- Benzimidocoumarin** (PLOCHL and WOLFRUM), 1885, A., 893.  
 Ploch's, and its isomerides (REBUFFAT), 1890, A., 621.
- Benzimidoethyl ether, *m*-nitro-** (TAFEL and ENOCH), 1890, A., 973.
- Benzimidopropionylethyllic cyanide** (BURNS), 1891, A., 888.  
 derivatives of (BURNS), 1892, A., 450.
- Benzobenzenyamidine** (PINNER), 1889, A., 1005.
- Benzobenzenyl-diamidothymol** (MAZZARA), 1891, A., 47.
- Benzobenzylamide, *p*-nitro-** (HAFNER), 1889, A., 982.
- Benzobenzylanilide, *o*-amido-** (SÖDERBAUM and WIDMAN), 1890, A., 1258.
- Benzobenzylidenehydrazide** (CURTIUS), 1891, A., 56.
- Benzobenzyl-*p*-nitranilide** (MELDOLA and SALMON), 1888, T., 780.
- Benzobenzyl-*p*-toluidide** (RABAUT), 1892, A., 313.
- Benzobenzyl-*m*-xylylide** (JAHN-ROHN), 1892, A., 1320.
- Benzo-*m*-bromanilide** (KOTTENHAHN), 1891, A., 1237.
- Benzo-*p*-bromanilide** (PINNOW), 1892, A., 460.
- Benzo-*p*-bromanilide** (BORRELLI), 1888, A., 1292.
- Benzocamphylamine** (GOLDSCHMIDT and SCHULHOF), 1886, A., 557.
- Benzochloralimide** (MOSCHELES), 1891, A., 1003.
- Benzo-*p*-chloranilide, *p*-chloro-** (DITTRICH), 1891, A., 1237.
- Benzocoumidide** (GUDEMAN), 1888, A., 1282.
- Benzo- $\psi$ -cumidide**, and its derivatives (FRÖHLICH), 1884, A., 1319; 1885, A., 154.
- Benzocoumylamide** (GOLDSCHMIDT and HENNER), 1889, A., 773.
- Benzocyanamide** (BUDDÉUS), 1890, A., 1253.
- Benzoisocoumidide**, and its nitro-compound (KEBE and WARTH), 1884, A., 46, 47.
- Benzodibenzylhydroxylamine** (BEHREND and LEUCHS), 1889, A., 501.
- Benzodimethyldifurfuran**. See Benzene-dimethyldifurfuran.
- Benzodi- $\beta$ -naphthylamide**, action of phosphorus pentachloride and pentoxide on (CLAUS and RICHTER), 1884, A., 1358.
- Benzodiphenylhydrazide** (TAFEL), 1892, A., 711; (GATTERMANN, JOHNSON and HÖLZLE), 1892, A., 843.
- Benzodi-*o*-tolylhydrazide** (GATTERMANN, JOHNSON and HÖLZLE), 1892, A., 843.
- Benzoglycocine**. See Hippuric acid.
- Benzohydrazide** (CURTIUS), 1891, A., 56.
- Benzoic acetic anhydride** (AUTENRIETH), 1888, A., 251.  
 action of hydrochloric acid and of chlorine on (GREENE), 1885, A., 55.  
*m*-nitro- (GREENE), 1890, A., 53.
- Benzoic acid**, in coal tar oils (SCHULZE), 1885, A., 792.  
 preparation of (STARTING), 1889, A., 874.  
 preparation of, from benzene (FRIEDEL and CRAFTS), 1889, A., 242.

**Benzoic acid**, preparation of, from gum benzoin, and substances accompanying (JACOBSEN), 1884, A., 1168.  
 preparation of, from urine (DYMOND), 1884, A., 904.  
 specific heat of (HESS), 1889, A., 93, 94.  
 heat of combustion of (BERTHELOT and LUGININ), 1887, A., 762.  
 heats of combustion and formation of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.  
 action of chromium hexafluoride on (JACKSON and HARTSHORN), 1885, A., 1224.  
 action of hydrogen peroxide on (HANNRIOT), 1886, A., 801.  
 action of nitrous anhydride on (FRIEDBURG and MANDEL), 1890, A., 1401.  
 action of melting potassium hydroxide on (BARTH and SCHREDER), 1883, A., 467.  
 hydrogenation of (ASCHAN), 1891, A., 1053, 1481.  
 inversion of cane sugar by (KORAI), 1886, A., 932.  
 manganese salt of (SEUBERT), 1887, A., 582.  
 detection of, in foods (MOILLER), 1890, A., 1031.  
 detection of, in milk (MEINSL), 1883, A., 385.  
 test for catechol in (JACOBSEN), 1884, A., 1169.  
 separation of, from salicylic acid (SCHAAP), 1892, A., 1532.  
**Benzoic acid, o-amido-**. See Anthranilic acid.  
*m*-amido-, condensation of, with benzaldehyde (HANTZSCH and KRAFT), 1892, A., 339.  
 action of phosphorus pentachloride on (GRIMAU), 1884, A., 905.  
 action of thiocarbimides on (ASCHAN), 1884, A., 907.  
 derivatives of (PELLIZZARI), 1886, A., 548.  
 cyano- (TRAUBE), 1883, A., 192.  
*p*-amido-, action of alkyl iodides on (MICHAEL and WING), 1886, A., 148.  
*m*-, and *p*-amido-, conversion of, into phthalic acids (SANDMEYER), 1885, A., 981.  
 reactions of (OECHSNER DE COINCK), 1892, A., 847, 1380.  
 3:4-diamido- (ZEHRA), 1891, A., 308.  
 3:5-diamido-, action of *p*-diazobenzene sulphonic acid on (GRIESS), 1883, A., 184.  
 2:3:5-triamido- (GRIESS), 1883, A., 184.

**Benzoic acid, m-bromo-**, preparation of (GRIESS), 1885, A., 788.  
*p*-bromo-, and its derivatives (HUBNER; RAVEILL; BURGHARD; BEUTNAHEL; SMITH), 1884, A., 601; (ERRERA), 1887, A., 1107.  
 iodation of (HOUGH), 1892, A., 714.  
*di*bromo- (four) (CLAUS and WEIL), 1892, A., 1205.  
 2:4-*di*bromo-, and its derivatives (HUBNER; BURGHARD; BEUTNAHEL), 1884, A., 601.  
 2:5- and 3:4-*di*bromo-, and 3:4:5-*tri*bromo- (CLAUS and REH), 1892, A., 171.  
 4:2-bromamido- (CLAUS and SCHEULEN), 1891, A., 565.  
 4:3-bromocyano- (SCHÖPFF), 1892, A., 337.  
 2:5-bromonitro-, amide, anilide, and chloride of (GROHMANN), 1892, A., 326.  
 3:4- and 4:2-bromonitro- (CLAUS and SCHEULEN), 1891, A., 564.  
 3:5-bromonitro-, and its derivatives (HUBNER; HESEMANN and KÖHLER), 1884, A., 599.  
 4:3-bromonitro-, and its derivatives (HUBNER; RAVEILL), 1884, A., 600; (GROHMANN), 1891, A., 305; (HOUGH), 1892, A., 714.  
 3:4:2 (or 6)-*di*bromonitro-, and its derivatives (HUBNER; SMITH), 1884, A., 601.  
 3:5:2-*di*bromonitro-, and its derivatives (HESEMANN and KÖHLER), 1884, A., 600.  
 chloro- (CURTIUS), 1883, A., 339.  
 preparation of (GRIESS), 1885, A., 788.  
*o*-chloro-, and its derivatives (HUBNER; WILKENS and RACK), 1884, A., 602.  
*p*-chloro-, and its derivatives (HUBNER; RAVEILL; BURGHARD; BEUTNAHEL; SMITH), 1884, A., 601.  
 2:3-, 2:5-, and 3:4-*di*chloro- (LELMANN and KLOTZ), 1886, A., 452; (CLAUS and BÜCHER), 1887, A., 828; (CLAUS and STAVENHAGEN), 1892, A., 1206.  
 3:4:5-*tri*chloro- (CLAUS and BÜCHER), 1887, A., 828.  
 2:3:4:5-*tetra*chloro- and its derivatives (TUST), 1887, A., 1046.  
 2:4-, 2:6-, 3:4-, 4:2-chlorobromo- (WILLGERODT and SALZMANN), 1889, A., 985.  
 2:4-chloronitro- (TIEMANN), 1891, A., 704.

- Benzoic acid**, 2:4-chloronitro-, chloride, amide, and anilide of (GROHMANN), 1892, A., 327.
- 3:2- and 3:4-chloronitro- (CLAUS and BÜCHER), 1887, A., 828.
- 3:4- and 4:3-chloronitro- (CLAUS and KURZ), 1888, A., 594.
- 4:2-chloronitro- (VARNHOLT), 1887, A., 946.
- 2:3:5(?)-chlorodinitro- (HÜBNER; WILKENS and RACK), 1884, A., 602.
- dichloronitro- (CLAUS and BÜCHER), 1887, A., 828.
- m*-cyano-, and its derivatives (SANDMEYER), 1885, A., 981; (BRÜMME), 1887, A., 484.
- m*- and *p*-cyano-, behaviour of, on distillation (BRÜMME), 1887, A., 484.
- fluoro-, preparation of (GRIESS), 1885, A., 788.
- difluoro-, and some of its salts (JACKSON and HARTSHORN), 1885, A., 1224.
- halogen derivatives (WILLGERODT and SALZMANN), 1889, A., 985.
- p*-iodo- (PAHL), 1884, A., 1009.
- o*-nitro-, derivatives of (BISCHOFF and RACK), 1885, A., 263.
- o*-, *m*-, and *p*-nitro-, conversion of the three nitranilines into (SANDMEYER), 1885, A., 981.
- 3:5-nitramido-, action of potassium cyanate on (GRIESS), 1885, A., 54.
- 4:5-nitramido- (THIEME), 1891, A., 916.
- sulpho-. See Sulphobenzoic acid.
- Benzoic acids**, substituted (HÜBNER), 1884, A., 314, 599.
- Benzoic anhydride**, mode of formation of (MINUNNI and CABERTI), 1891, A., 565.
- behaviour of, in the organism (SALKOWSKI), 1888, A., 861.
- anhydrimide, *m*-nitro- (SCHULZE), 1889, A., 779.
- bromamide and its *o*-, *m*-, and *p*-derivatives (HOOGHEWERFF and VAN DORP), 1889, A., 981.
- chloride, action of, on arsenic trioxide (POHL), 1889, A., 767.
- action of, on silver cyanurate (SENIER), 1886, T., 318.
- action of, on sodium cyanamide (BUDDÉUS), 1890, A., 1253.
- impurities in commercial (MEYER), 1892, A., 604.
- as a reagent (v. UDRÁNSZKY and BAUMANN), 1888, A., 1296.
- o*-bromo- (SCHÖFF), 1891, A., 295.
- Benzoic chloride**, *o*- and *p*-bromo- (SCHOTTEN), 1888, A., 1106.
- fluoride (GUENEZ), 1891, A., 200.
- nitride (CURTIUS), 1891, A., 56.
- peroxide, as a dehydrogenising agent (LIPPMANN), 1887, A., 151.
- Benzoic sulphinide** (REMSEN and PALMER), 1887, A., 144.
- action of acids on (REMSEN and BURTON), 1890, A., 91.
- derivatives of (DE ROODE), 1891, A., 1226.
- sodium derivative of (FAHLBERG and LIST), 1887, A., 835.
- ethereal salts of (BRACKETT), 1888, A., 282.
- Benzoic sulphinide**, *p*-amido-, and *p*-nitro- (NOYES), 1886, A., 804.
- p*-bromo- (REMSEN and BAYLEY), 1887, A., 145; (DE ROODE), 1891, A., 1227.
- p*-chloro-, *p*-fluoro-, and *p*-iodo- (DE ROODE), 1891, A., 1227.
- Benzoid**, amido- (PIUTTI), 1883, A., 999.
- Benzoin**, Siamese (HIRSCHSOHN), 1885, A., 620.
- action of *p*-amidodimethylaniline on (VOGTHER), 1892, A., 855.
- action of ammonium formate on (LEUCKART), 1890, A., 784.
- action of primary aromatic amines on (VOIGT), 1886, A., 887.
- action of carbamide and thiocarbamide on (ANSCHÜTZ and GELDERMANN), 1891, A., 725.
- action of lead oxide, and of hydroxylamine on (WITTENBERG and MEYER), 1883, A., 804.
- substitution in (PÄCKE), 1888, A., 701.
- compound of acetone with (JAPP and RASCHEN), 1890, T., 783; P., 139.
- ammonia derivatives of (JAPP and WILSON), 1886, T., 825.
- isobutyl ether (PÄCKE), 1888, A., 701.
- Benzoinam** (JAPP and WILSON), 1886, T., 825.
- Benzoinanilide**, and its derivatives (VOIGT), 1885, A., 1087.
- Benzoinaldehyde** (OPPENHEIMER), 1886, A., 876.
- Benzoindicarboxylic acid** (OPPENHEIMER), 1886, A., 877.
- Benzoindole**. See Benzoylindole.
- Benzoinidam** (JAPP and WILSON), 1886, T., 830.
- Benzoinimide**. See Ditolaneazotide.
- Benzoinoxime**, a second (WERNER), 1890, A., 1264.

**Benzoinphenylhydrazine**(PICKEL), 1886, A., 545.  
**Benzomethylamide**, *o*-amido- (WEDDIGE), 1887, A., 1043.  
**Benzomethylanilide**, and its nitro-derivatives (HESS), 1885, A., 738.  
**Benzomethyl-*m*- and -*p*-nitranilides** (MELDOLA and SALMON), 1888, T., 776.  
**Benzomethyltoluenesulphonamide** (*toluenesulphonbenzomethylamide*) (REMSEN and PALMER), 1887, A., 145.  
**Benzo-*β*-naphthylamide** (KLOPSCHE), 1885, A., 990.  
**Benzo-*α*-naphthylhydrazide** (FREUND), 1892, A., 509.  
**Benzo-*β*-naphthylhydrazide** (HAUFF), 1890, A., 61.  
**Benzo-*β*-naphthylimido-chloride** (JUST), 1886, A., 617.  
**Benzo-*α*- and -*β*-naphthylmethyamides** (HESS), 1885, A., 784.  
**Benzo-*β*-naphthylphenylamine**, and the action of phosphorus pentachloride and pentoxide on (CLAUS and RICHTER), 1884, A., 1358.  
**Benzo-*o*-nitranilide**, reduction of (MIXTER), 1884, A., 1327.  
**Benzo-*p*-nitranilide**, *o*-chloro- (WILKENS and RACK), 1884, A., 602.  
**Benzonitrile**, preparation of (HEIM), 1883, A., 1111.  
 preparation of, from formanilide (GASIOROWSKI and MEIZ), 1884, A., 734.  
 heats of combustion and formation of (BERTHELOT and PETIT), 1889, A., 812.  
 action of benzoic chloride on (EITNER and KRAFFT), 1892, A., 1183.  
 action of hydroxylamine on (TIEMANN and KRÜGER), 1884, A., 1325.  
 action of hydroxylaminehydrochloride on (TIEMANN), 1884, A., 734.  
 action of organic acids on (COLBY and DODGE), 1891, A., 409.  
 action of sodium hypobromite on (DENIGES), 1889, A., 139.  
 action of fuming sulphuric acid on (PINNER), 1884, A., 1324; 1885, A., 142; (GUMPERT), 1885, A., 52.  
 action of sulphuric anhydride on (EITNER), 1892, A., 718.  
 compound of, with hydrogen iodide (BILTZ), 1892, A., 1449.  
 toxic action of (LABORDE and MAGNAN), 1888, A., 738.  
 transformation of, in the organism (GIACOSA), 1884, A., 1061.

**Benzonitrile**, *o*-, *m*-, and *p*-bromo- (SCHOPFF), 1891, A., 295.  
 2:4-, 2:5-, 3:5-*di*bromo- (CLAUS and WEIL), 1892, A., 1205, 1206.  
*per*bromo- (MERZ and WEIß), 1884, A., 588.  
*m*-bromo-*p*-nitro- and *p*-bromo-*o*-nitro- (CLAUS and SCHEULEN), 1891, A., 565.  
*o*- and *p*-bromo-*m*-nitro- (SCHOPFF), 1891, A., 296.  
 3:5- and 2:6-*di*chloro- (CLAUS and STAVERNHAGEN), 1892, A., 1206.  
*per*chloro- (MERZ and WEIß), 1884, A., 589.  
 chloronitro- (CLAUS and KURZ), 1888, A., 594.  
*o*-nitro- (MEYER), 1886, A., 63.  
*m*-nitro- (GABRIEL), 1883, A., 916; (SCHOPFF), 1885, A., 896.  
**Benzo-*o*-nitrobenzylanilide**, reduction of (LELMANN), 1891, A., 726.  
**Benzo-*o*-nitrodi-*β*-naphthylamide** (RIS), 1888, A., 58.  
**Benzophenone**, action of acetic chloride on, in presence of zinc-dust (PAAL), 1884, A., 1167.  
 action of ammonium formate on (LEUCKART and BACH), 1886, A., 1023.  
 action of heat on (BARBIER and ROUX), 1886, A., 865.  
 action of hydrazine hydrate on (CURTIUS and RAUTERBERG), 1891, A., 1358.  
 action of phosphoric sulphide on (JAPP and RASCHEN), 1886, T., 478; P., 204.  
 action of sodium on (BECKMANN), 1889, A., 781.  
 derivatives (GEIGY and KOENIGS), 1885, A., 1236; (STAEDEL and HAASE), 1890, A., 1422.  
 oximes of (SMITH), 1892, A., 487.  
 homologues of (EIES), 1886, A., 461.  
 sodium compound of (BECKMANN and PAUL), 1892, A., 170.  
**Benzophenone**, *o*-amido- (GEIGY and KOENIGS), 1885, A., 1236.  
*p*-amido- (*benzanilino*) (v. BAeyer and LOHR), 1890, A., 1142.  
 constitution of (FRÖHLICH), 1885, A., 154.  
 sulphite (MICHAELIS), 1891, A., 716.  
 (*α*) 4:4'-*di*amido- (WICHELHAUS), 1889, A., 781.  
 (*γ*) 2:2'-*di*amido-, and its compounds (STAEDEL), 1888, A., 991.  
*o*-bromo- (CATHCART and MEYER), 1892, A., 992.

- Benzophenone**, *m*-bromo- (KOTTENHAHN), 1891, A., 1236.  
*m*-dibromo- (DEMUTH and DITTRICH), 1891, A., 315.  
*p*-dibromo- (HOFFMANN), 1891, A., 1236.  
*o*- and *p*-bromo-*m*-nitro-, *p*-dibromo-*m*-nitro-, and *p*-dibromo-*di*-*m*-nitro- (SCHÖPFF), 1892, A., 336.  
*p*-bromo-*m*-nitro-*p*-amido- (SCHÖPFF), 1892, A., 336.  
 $\alpha$ - and  $\beta$ -*p*-chloro-, benzyl ether (DEMUTH and DITTRICH), 1891, A., 314.  
*p*-dichloro- (DITTRICH), 1891, A., 1237.  
*p*-dicyano- (BRÜMME), 1887, A., 484.  
halogenated, oximes of (AUWERS and MEYER), 1890, A., 1144; (DEMUTH and DITTRICH), 1891, A., 314; (HOFFMANN), 1891, A., 1236.  
imido-hydrochloride (HANTZSCH and KRAFT), 1892, A., 339.  
iodo- and *p*-diiodo- (HOFFMANN), 1891, A., 1236.  
*o*-nitro- (GEIGY and KOENIGS), 1885, A., 1236.  
*m*-nitro- (BROKER), 1883, A., 203.  
*p*-nitro- (BASLER), 1884, A., 310.  
*p*- $\delta$ nitro- (LANGE and ZUFALL), 1892, A., 1460.  
tetranitro- (STAEDEL), 1888, A., 991.  
*m*-nitro-*p*-amido- (SCHÖPFF), 1892, A., 336.  
tetranitrodiamido- (VAN ROMBURGH), 1889, A., 147.  
thio- (BERGHEEN), 1888, A., 445.  
**Benzophenoneacetic acid**, *dithio*- (BONGARTZ), 1886, A., 938.  
**Benzophenone-*p*-amidobenzoic acid** (HANTZSCH and KRAFT), 1892, A., 310.  
**Benzophenonedicarboxylic acid** (*benzoylphthalic acid*) (ROSPENDOWSKI), 1886, A., 626.  
and its lactone (GRAEBE and JULIARD), 1888, A., 155.  
**Benzophenone-*p*-dicarboxylic acid** (BRÜMME), 1887, A., 484.  
**Benzophenoneoxime**, action of nitric peroxide on (SCHOLL), 1891, A., 315.  
action of phosphoric sulphide on (DODGE), 1891, A., 1238.  
**Benzophenoneoximes**, amido- (AUWERS and v. MEYENBURG), 1891, A., 1378; (SMITH), 1892, A., 489.  
*m*-bromo- (KOTTENHAHN), 1891, A., 1236.  
*p*-bromo- (SCHÄFER), 1891, A., 1235.  
dibromo- (DEMUTH and DITTRICH), 1891, A., 315; (HOFFMANN), 1891, A., 1236.  
**Benzophenoneoximes**, *p*-chloro- (DEMUTH and DITTRICH), 1891, A., 314; (HANTZSCH), 1891, A., 445.  
intramolecular change of (WIEGNERHOFF), 1889, A., 1066.  
*s*-*p*-dichloro- (DITTRICH), 1891, A., 1237.  
**Benzophenonephenylhydrazone** (FISCHER), 1884, A., 1151; (PICKEL), 1886, A., 545.  
**Benzophenonesulphone** (GRAEBE and SCHULTZES), 1891, A., 1059.  
**Benzophenonidene pyrothiophosphite** (JAPP and RASCHEN), 1886, T., 481.  
**Benzophenoxyethylamide** (SCHREIBER), 1891, A., 552.  
**Benzophenylacetonehydrazide** (*acetonebenzoylphenylhydrazide*) (RUHEMANN and BLACKMAN), 1889, T., 615.  
**Benzophenylcarbamide** (PINNER), 1889, A., 1005.  
preparation of (KÜHN), 1885, A., 260.  
**Benzo-*o*-phenylenediamine** (MIXTER), 1884, A., 1327.  
**Benzophenylethylthiocarbamide** (DIXON), 1889, T., 305.  
**Benzophenylhydrazide** (PERKIN and STENHOUSE), 1891, P., 42.  
amido- (PELLIZZARI), 1886, A., 1025.  
*p*-nitro- (HAUSSKNECHT), 1889, A., 507.  
*as*-Benzophenylhydrazide, and its derivatives (MICHAELIS and SCHMIDT), 1887, A., 820; 1889, A., 1160.  
**Benzophenylhydrazides**, isomeric (MICHAELIS and SCHMIDT), 1887, A., 865.  
See also Benzoylphenylhydrazide.  
**Benzophenylketodihydro-*m*-diazine**.  
See 3'-Phenyl-2'-ketotetrahydroquinazoline.  
**Benzophenylmethylhydrazide** (TAFEL), 1885, A., 1060.  
**Benzophenylsemicarbazide** (MICHAELIS and SCHMIDT), 1887, A., 820.  
**Benzophenylsemithiocarbazide** (DIXON), 1889, T., 804.  
**Benzophenyltoluenesulphonamide** (*toluenesulphobenzamylide*) (REMSEN and PALMER), 1887, A., 146.  
 **$\beta$ -Benzopinacolone**, constitution of (DELAACHE), 1891, A., 456.  
**Benzopinacolines**,  $\alpha$ - and  $\beta$ - (PAAT), 1884, A., 1167.  
**Benzopiperidylthiocarbamide** (DIXON), 1889, T., 623.  
**Benzopiperylhydrazide** (KNORR), 1884, A., 467.  
**Benzoquinol**. See Quinol.  
**Benzoquinone**. See Quinone.

- Benzothiocarbimide** and aldehyde-ammonia (DIXON), 1892, T., 532.
- Benzothio- $\beta$ -dinaphthylamide** (KYM), 1890, A., 1306.
- Benzothiodiphenylamide** (FRAENKEL), 1885, A., 1130.
- Benzotoluenesulphonamide** (*toluenesulphonbenzamide*) and its derivatives (REMSEN and PALMER), 1887, A., 145.
- Benzo-*o*-toluidide**, thio- (STIEGLITZ), 1890, A., 256.
- Benzo-*p*-toluidide** (MULLER), 1890, A., 48.
- p*-nitro-, and nitrothio- (GATTERMANN and NEUBERG), 1892, A., 839.
- thio- (MÜLLER), 1890, A., 43.
- Benzo-*o*- and -*p*-toluidides** (GUDEMAN), 1888, A., 1282.
- Benzo-*p*-toluidimido-chloride** (JUST), 1886, A., 617.
- "Benzotoluidine sulphite"** (MICHAELIS), 1891, A., 717.
- Benzo-*o*-tolylcarbamide** (GATTERMANN and CANTZLER), 1892, A., 832.
- Benzo-*o*-tolylhydrazide** (GATTERMANN, JOHNSON, and HOLZLE), 1892, A., 843.
- Benzotrichloride**, action of copper on (ONUFROWICZ), 1884, A., 1133.
- action of sodium benzenesulphinate on (R. and W. OTTO), 1888, A., 841.
- compounds of, with phenols and phenylamines (DOEBNER), 1883, A., 861.
- p*-chloro- (KLEPL), 1884, A., 447.
- o*-cyano- (GABRIEL and WEINER), 1888, A., 261.
- Benzotrimethyltrifurfuran**. See Benzotrimethyltrifurfuran.
- Benzoxamidine**. See Benzenylamid-oxime.
- Benzoximido-ether** (PINNER), 1884, A., 739.
- Benzo-*m*-xylylamide** (BRÜMME), 1888, A., 1296.
- Benzoxylidide** and its thio-derivative (GUDEMAN), 1888, A., 1282.
- Benzo-*m*-xylidide** (SMITH), 1892, A., 491.
- Benzo-*p*-xylidide** (PELUG), 1890, A., 606.
- Benzoyl**, amidodicyano-, derivatives of (GRIENS), 1885, A., 1225.
- Benzoylacetalddehyde**, action of hydroxylamine on (CLAISEN and STOCK), 1891, A., 451.
- Benzoylacetaldoxime** (CLAISEN and STOCK), 1891, A., 451.
- Benzoylacetamide** (OBRÉGIA), 1892, A., 325.
- Benzoylacetanilide** (KNORR), 1888, A., 1113.
- Benzoylacetic acid**, and its derivatives (V. BAEYER), 1883, A., 336; (PERKIN), 1881, T., 170, 176; 1885, T., 240, 262; P., 17, 31; (V. BAEYER and PERKIN), 1884, A., 63, 838; (PERKIN and CALMAN), 1886, T., 154; P., 139; (PERKIN and STENHOUSE), 1891, T., 996; P. 190.
- p*-nitro-, and its derivatives (PERKIN and BELLENOT), 1884, A., 1023; 1885, A., 794; 1886, T., 440; P., 193.
- Benzoylacetone** (*acetylacetophenone*) (FISCHER and KUZEL), 1884, A., 60; (GEVEKOHT), 1884, A., 445; (CERESOLE), 1884, A., 1167; (BEYER and CLAISEN), 1887, A., 943; (CLAISEN and LOWMAN), 1888, A., 692.
- preparation of (FISCHER and BÜLOW), 1885, A., 1237.
- magnetic rotation of (PERKIN), 1892, T., 831, 863.
- action of *p*-amidodimethylaniline on (VOGTHER), 1892, A., 855.
- derivatives of (FISCHER and BÜLOW), 1885, A., 1237.
- dicyanhydrin, acids from (CARLSON), 1892, A., 1471.
- methylimide (BEYER), 1891, A., 1091.
- Benzoylacetone**,  $\alpha$ -cyano- (BURNS), 1892, A., 451.
- o*-nitro-derivative of (FISCHER and KUZEL), 1884, A., 59; (GEVEKOHT), 1884, A., 445.
- oxime of (CERESOLE), 1884, A., 1167.
- Benzoylacetoneamine** (FISCHER and BÜLOW), 1885, A., 1237.
- Benzoylacetoneaniline** (BEYER), 1887, A., 849.
- Benzoylacetoneitrile** and its derivatives (HALLER), 1886, A., 240; 1887, A., 826; 1888, A., 873; (BARTHE), 1888, A., 951; (V. MEYER), 1890, A., 849; (CLAISEN and STOCK), 1891, A., 451; (OBRÉGIA), 1892, A., 324; (GARELLI), 1892, A., 845.
- Benzoylacetophenone**, preparation of (PERKIN), 1885, T., 251.
- Benzoylacetyl**. See Phenyl methyl diketone.
- Benzoylacetylacetoneitrile** (*benzoylacetyl-methyl cyanide*) (BURNS), 1892, A., 451.
- Benzoylacetylphosphinous acid** (VILLE), 1890, A., 619.
- Benzoylacetone**, formation of (DUNSTAN and PASSMORE), 1892, T., 401.

- Benzoylallylacetic acid** (*benzoylpentynic acid*) (PERKIN), 1884, T., 185; (BAEYER and PERKIN), 1884, A., 63.
- Benzoylamarine**, and its derivatives (CLAUS and SCHERBEL), 1886, A., 238.
- Benzoylamyl- $\alpha$ -ecgonine hydrochloride** (EINHORN and MARQUARDT), 1890, A., 913.
- $\beta$ -Benzoyl- $\alpha$ -isocamylpropionic acid** (PAAL and HOFFMANN), 1890, A., 1101.
- Benzoylaniline**. See **Benzophenone**, *p*-amido-.
- Benzoylanisensylamidoxime** (MILLER), 1890, A., 145.
- p*-Benzoylanisole** (GATTERMANN, EHRHARDT, and MATSCH), 1890, A., 963.
- Benzoylanthranil**, and **benzoylanthranilic acid**, and its salts (FRIEDLANDER and WLEÜGEL), 1884, A., 61.
- Benzoylazoimide** (CURTIUS), 1891, A., 56.
- Benzoylisobenzaldazine** (CURTIUS and THUN), 1891, A., 1366.
- "**Benzoylbenzeneazacetone**" and "**benzoylbenzenehydrazo-*o*-cresol**" (GOLDSCHMIDT and POLLAK), 1892, A., 975, 977.
- "**Benzoylbenzenehydrazo-*p*-cresol**" and "**benzoylbenzenehydrazo- $\alpha$ -naphthol**" (GOLDSCHMIDT and BRUBACHER), 1891, A., 1209, 1211.
- Benzoylbenzenetetra-carboxylic acid** (ESSNER and GOSSIN), 1885, A., 254.
- Benzoylbenzenylamidoxime** (TIEMANN and KRUGER), 1884, A., 1326.
- Benzoylbenzethylhydroxylamine** (PIEPER), 1883, A., 461.
- o*-Benzoylbenzoic acid** (*benzophenone-*o*-carboxylic acid*) (anthraquinone from (PERKIN), 1891, T., 1012. phenylhydrazine of (ROSEN) 1885, A., 797.
- m*-chloro-** (GRAEBE and RÉE), 1886, T., 530.
- di*chloro-** (LE ROYER), 1887, A., 832.
- tetra*chloro-** (KROCHER), 1887, A., 831.
- m*-Benzoylbenzoic acid** and its reduction products (SENFF), 1884, A., 427.
- Benzoylbenzylamarine** (CLAUS and SCHERBEL), 1886, A., 238.
- Benzoylbromothymol** (MAZZARA), 1890, A., 366.
- Benzoylbutaldehyde** (CLAISEN and MEYEROWITZ), 1890, A., 358.
- Benzoylisobutylecgonine** (NOVY), 1887, A., 1126.
- hydrochloride** (EINHORN and MARQUARDT), 1890, A., 913.
- Benzoylbutylic alcohol** (PERKIN), 1887, T., 733; (KIPPING and PERKIN), 1890, T., 309.
- oxime of** (KIPPING and PERKIN), 1890, T., 310.
- bromide** (PERKIN), 1887, T., 732.
- Benzoylcaproic acid**. See **Benzoylhexoic acid**.
- Benzoylcarbazole** (BIZZARRI), 1891, A., 220; (MAZZARA), 1891, A., 570.
- Benzoylcarbinol** (*hydroxyacetophenone*), constitution of (PLOCHEL and BLUMLEIN), 1883, A., 983.
- phenylhydrazone** (LAUBMANN), 1888, A., 366.
- p*-nitro-** (ENGLER and ZIELKE), 1889, A., 505.
- Benzoylcarvoxime** (GOLDSCHMIDT and ZURRER), 1885, A., 1058.
- "**Benzoyl-*m*- and -*p*-chlorobenzeneazo-*p*-cresols**" and "**benzoyl-*m*-chlorobenzenehydrazo-*p*-cresol**" (GOLDSCHMIDT and POLLAK), 1892, A., 975.
- Benzoyl-compounds**, preparation of (HOFFMANN and MEYER), 1892, A., 604.
- heat equivalents of** (STOHMANN, RODATZ, and HERZBERG), 1887, A., 878; 1888, A., 333.
- of carbohydrates, glucosamine and glucosides** (KUENY), 1890, A., 578.
- Benzoylcotarnine and its oxime** (ROSEN), 1890, A., 528.
- Benzoyl- $\psi$ -cuminol** (FROELICH), 1884, A., 1319.
- Benzoylcyanocamphor** (HALLER), 1891, A., 1499.
- Benzoyldihydropyrrolone** (ANDERLINI), 1890, A., 65.
- derivatives of** (ANDERLINI), 1890, A., 1430.
- Benzoyldihydroxyanhydroecgonine**, derivatives of (EINHORN and RASOW), 1892, A., 1016.
- Benzoyldihydroxybenzenesulphonic acid** (*dihydroxybenzophenonesulphonic acid*), ammonium salt of (KEMSEN and LINN), 1889, A., 710.
- Benzoyldiphenylsemithiocarbazide** (MICHAELIS and SCHMIDT), 1887, A., 820; 1889, A., 1160.
- Benzoylisodurene** (ESSNER and GOSSIN), 1885, A., 253.
- Benzoyllegonine** (MERCK), 1885, A., 997; (SKRAUP), 1885, A., 1249.
- preparation of** (LIEBERMANN and GIESEL), 1889, A., 168.
- conversion of, into cocaine** (SKRAUP), 1885, A., 1249.
- Benzoylenecarbamide**. See **2:4'-Diketodihydroquinazoline**.

- Benzoylethoxyfurfurine** (BAHRMANN), 1883, A., 800.
- Benzoyl- $\alpha$ -ethoxynaphthalene** (*ethoxynaphthylphenylketone*) (GATTERMANN, EHRHARDT, and MAISCH), 1890, A., 964.
- Benzoylethyl-o-carboxylic acid** (*phenyl ethyl ketone o-carboxylic acid*) (ROSER), 1886, A., 243.
- Benzoylethylenecarboxylic acid**, phenylhydrazide of (ROSER), 1885, A., 797.
- $\alpha$ -Benzoylethyl cyanide**. See Benzoylpropionitrile.
- $\beta$ -Benzoyl- $\alpha$ -ethylpropionic acid** (*benzoylvaleric acid*) (DITTRICH and PAAL), 1889, A., 257.
- $\beta$ -Benzoyl- $\alpha$ -ethylsuccinic acid** (DITTRICH and PAAL), 1889, A., 257.
- Benzoyl Eugenol**, dibromo- (WOY), 1890, A., 638.
- Benzoyl isoeugenol** (TIEMANN), 1892, A., 46.
- Benzoylformic acid**. See Phenylglyoxylic acid.
- Benzoylformoxime**, configuration of (SODERBAUM), 1891, A., 1043.
- action of hydroxylamine on (SCHOLL), 1891, A., 288.
- Benzoylglutarimidoxime** (GANNY), 1892, A., 138.
- Benzoylglyoxylic acid**, *o*-amido- (*quinisatic acid*), and its salts (v. BAUER and HOMOLKA), 1884, A., 79.
- $\omega$ -Benzoylhexoic acid** and its oxime (KIPPING and PERKIN), 1889, T., 350; P., 79.
- Benzoylhomobenzenyl-**. See Benzoylhydroxytolenyl-.
- Benzoylhomocoonic acid**, and its salts (SCHOTTEN and BAUM), 1885, A., 176.
- Benzoylhomopiperidic acid**. See  $\delta$ -Benzamidovaleric acid.
- Benzoylhydrochloroacoxime** (WALLACH), 1892, A., 1348.
- $\beta$ -Benzoylhydrocinnamic acid** (JAPP and MILLER), 1885, T., 32.
- Benzoylhydroxyacetylacetic acid** (EINHORN), 1889, A., 168.
- Benzoylhydroxyethylpyridine** (KLEIN), 1890, A., 1437.
- Benzoylhydroxyhydrazobenzene** (GOLDSCHMIDT and BRUBACHER), 1891, A., 1210.
- $\alpha$ -Benzoylhydroxynaphthaquinone** (KEGEL), 1888, A., 1308.
- Benzoylhydroxypropylpiperidine** (LAUN), 1884, A., 1055.
- Benzoyl-*p*-hydroxytolenylamidoxime** (SCHUBART), 1886, A., 798.
- Benzoylhydroxytropine** and its salts (LADENBURG), 1883, A., 671.
- Benzoylindole** (RUHEMANN and BLACKMAN), 1889, T., 617.
- Benzoylindolecarboxylic acid** (RUHEMANN and BLACKMANN), 1889, T., 617.
- Benzoyl-*l*-iodophenol** (SCHALL), 1883, A., 1109.
- Benzoylisatin and benzoylisatinic acid** (SCHOTTEN), 1891, A., 723.
- Benzoylimonene nitrosochloride** (WALLACH), 1892, A., 1348.
- Benzoylmesitylene** (*to imethylbenzophenone*) (LOUISE), 1883, A., 577.
- Benzoylmesitylenic acids** (LOUISE), 1886, A., 353.
- Benzoyl-*p*-methoxybenzenylamidoxime** (MILLER), 1889, A., 254.
- Benzoylmethylegonine**. See Cocaine, under Alkaloids.
- Benzoylmethyl cyanide**, imido-. See Phenylimidopropionitrile.
- Benzoyl-2'-methylindole** (FISCHER and WAGNER), 1887, A., 538.
- 3-Benzoyl-2'-methylquinoline** (*benzoylquinaldine*) (HINZ), 1888, A., 300.
- Benzoylmethylaurine** (GABRIEL and HEYMAN), 1891, A., 701.
- Benzoyl-2'-methyltetrahydroquinoline**, oxidation and nitro-derivatives of (WALTER), 1892, A., 882.
- Benzoylmethyltrimethylene** (PERKIN and STENHOUSE), 1892, T., 86.
- Benzoylmethyltrimethylenecarboxylic acid** and its oxime (PERKIN and STENHOUSE), 1892, T., 84.
- $\alpha$ -Benzoylnaphthaquinol** (KEGEL), 1888, A., 1308.
- Benzoylnaphthaquinones**,  $\alpha$ - and  $\beta$ - (KEGEL), 1888, A., 1307.
- Benzoyl- $\beta$ -naphthenylamidoxime** (RICHTER), 1890, A., 62.
- Benzoylnicotenylamidoxime** (MICHAELIS), 1892, A., 207.
- Benzoylnitrophenylpyrazolecarboxylic acid** (MEYER), 1889, A., 516.
- Benzoylnitrosoresorcinol**, ethyl ether of (KRAUS), 1892, A., 45.
- Benzoyloscine** (HENNE), 1892, A., 1498.
- Benzoylosotriazole** (BALTZER and v. PECHMANN), 1891, A., 1118.
- Benzoyloxybutyric trichloride**, tertiary (WILGERODT and DURR), 1889, A., 690.
- Benzoylparaleucaniline** (RENOUF), 1883, A., 961.
- p*-Benzoylphenetol** (*ethoxybenzophenone*) (GATTERMANN, EHRHARDT, and MAISCH), 1890, A., 964.
- Benzoylphenol**. See Hydroxybenzophenone.
- Benzoylphenylacetaldehyde** (CLAISEN and MEYEROWITZ), 1890, A., 359.

- Benzoylphenylamidoacetic acid** (RE-BUFFAT), 1887, A., 1108.
- Benzoylphenylazimethylene** (CURTIUS and THUN), 1891, A., 1357.  
reactions of (CURTIUS and LANG), 1892, A., 451.
- Benzoylphenylbenzaldehyde hydrazine** (RUHEMANN and BLACKMAN), 1889, T., 615.
- Benzoylphenyl-*o*-benzoic acid** (ELBS), 1890, A., 514.
- Benzoylphenylbenzidinehydrazide** (MICHAELIS and SCHMIDT), 1887, A., 820.
- Benzoylphenyl-carbizine and -thiocarbizine** (FREUND and GOLDSMITH), 1888, A., 1187.
- 2-Benzoyl-1-phenyl-3:4-dimethylpyrazolones** (NEF), 1892, A., 146.
- Benzoylphenylenediphenylmethane** (HANRIOT and SAINT-PIERRE), 1889, A., 882.
- Benzoylphenylhydrazide** (RUHEMANN and BLACKMAN), 1889, T., 612; P., 127.
- Benzoylphenylhydrazide.** See also Benzophenylhydrazide.
- Benzoylphenylhydrazidepyruvic acid** (RUHEMANN and BLACKMAN), 1889, T., 616.
- Benzoylphenylhydrazimethylene** (CURTIUS and THUN), 1891, A., 1356.
- Benzoylphenyldiiodomethane** (*whenyl diiodobenzoyl ketone*) (CURTIUS and LANG), 1892, A., 451.
- 2-Benzoyl-1-phenyl-3-methylpyrazolone and its 4-bromo-derivative** (NEF), 1892, A., 146.
- 4-Benzoyl-1-phenyl-3-methylpyrazolone** (NEF), 1892, A., 146.
- p*-Benzoylphenylphenylsemithiocarbazide** (RUHEMANN and BLACKMAN), 1889, T., 615.
- $\beta$ -Benzoyl- $\beta$ -phenylpropionic acid** (*deoxybenzoinic acid*) (MEYER and OELKERS), 1888, A., 704; (KNOEVENAGEL), 1888, A., 706; 1892, A., 1002.
- Benzoyl-1-phenylpyrazole** (BALBIANO), 1890, A., 798.
- Benzoylphenylsemicarbazide** (RUHEMANN and BLACKMAN), 1889, T., 614.
- Benzoylphthalic acid** (*benzophenonedicarboxylic acid*) (ROSPENDOWSKI), 1886, A., 626.
- Benzoylphthalo- $\psi$ -cumidide** (FRÜHLICH), 1884, A., 1319.
- Benzoylphthalo- $\psi$ -cumidic acid** (FRÜHLICH), 1885, A., 154.
- Benzoylphthalo-*p*-toluidide** (FRÜHLICH), 1885, A., 155.
- $\beta$ -Benzoylpicolinic acid** (BERNTSEN and METTEHANG), 1887, A., 737.
- Benzoylpipecoline** (BUNZEL), 1889, A., 904.
- Benzoylpiperidine, amido- and *m*-nitro-, and their derivatives** (SCHOTTEN), 1888, A., 1105.
- Benzoylpropaldehyde** (CLAISEN and MEYEROWITZ), 1890, A., 358.
- $\beta$ -Benzoylpropion-*o*-carboxylic acid and its salts** (ROSEN), 1885, A., 267.
- $\alpha$ -Benzoylpropionitrile** ( *$\alpha$ -benzoylthyllic cyanide*) and its imido-derivative (v. MEYER), 1889, A., 577.
- Benzoylpropionic acid** (FITTING and LEONTI), 1890, A., 895.  
oximes of (DOLLEUS), 1892, A., 1202.  
phenylhydrazone (KUES and PAAL), 1886, A., 355.
- Benzoyl- $\beta$ -propionic acids, alkylated** (CLAUS), 1887, A., 827.
- Benzoylisopropyl-*o*-carboxylic acid.** See Phenyl isopropyl ketone *o*-carboxylic acid.
- Benzoylpropylecgonine** (NOVY), 1887, A., 1126.
- Benzoylpropyl-*l*-ecgonine hydrochloride** (EINHORN and MARQUARDT), 1890, A., 913.
- Benzoylpropylic alcohol** (*phenyl hydroxypropyl ketone*), and its oxime (MARSHALL and PERKIN), 1891, T., 886.
- Benzoyl- $\alpha$ - and - $\beta$ -pyridyllactic acids** (EINHORN), 1890, A., 521; 1892, A., 76.
- $\psi$ -Benzoylpyrroline** (CIAMICIAN and DENNEDT), 1885, A., 379.
- Benzoylpyruvic acid** (BAYER and CLAISEN), 1887, A., 944.  
preparation of (BROMME and CLAISEN), 1888, A., 691.  
oxime of (SALVATORI), 1892, A., 304.
- Benzoylquinol** (KLINGER and STANDKE), 1891, A., 900.
- Benzoylresorcinol, nitro-** (ERRERA), 1886, A., 51.
- Benzoylretene** (LOUISE and PERRIER), 1892, A., 1205.
- Benzoylsalicylamidoxime** (SPILKER), 1890, A., 143.
- Benzoylscooletin** (TAKAHASHI), 1889, A., 256.
- $\beta$  Benzoylisosuccinic acid** (BISCHOFF), 1883, A., 912; 1886, A., 355; (KUES and PAAL), 1886, A., 354.
- Benzoylsuccinimidoxime** (GARNY), 1892, A., 137.
- Benzoylsulphobenzamidinic anhydride** (EITNER), 1892, A., 713.

- Benzoyltannin** (BOTTINGER), 1890, A., 163.
- Benzoyltetrahydroquinoline** (HOFFMANN and KOENIGS), 1883, A., 1144.
- Benzoyltetramethylene** (PERKIN), 1883, A., 1084.
- Benzoyltetramethylenecarboxylic acid** (PERKIN), 1883, A., 1084.
- Benzoyldithionaphthol**. See Dibenzoyl-disulphhydronaphthalene.
- Benzoyl-p-toluic acid** (ELBS and LARSEN), 1885, A., 261.
- 1'-Benzoyltolylamido-1:4-naphthaquinone** (KEGEL), 1888, A., 1308.
- Benzoyl-o-tolylthiocarbamide** (DIXON), 1889, T., 622.
- Benzoyltrihydroxybenzamidopyrroline** (RUGHEIMER), 1889, A., 1210.
- Benzoyltrimellitic acid** (ELBS), 1887, A., 942.
- Benzoyltrimethylene** (PERKIN), 1885, T., 840.  
reduction of (MARSHALL and PERKIN), 1891, T., 885.  
oxime of (PERKIN), 1884, A., 1155; 1885, T., 845; (PERKIN and STENHOUSE), 1892, T., 86.
- Benzoyltrimethylenecarboxylic acid and its salts** (PERKIN), 1884, A., 64; 1885, T., 836.  
action of hydrobromic acid on (PERKIN), 1885, T., 842.  
action of water on (FREER and PERKIN), 1887, T., 837.  
reduction of (MARSHALL and PERKIN), 1891, T., 884.  
oxime of (MARSHALL and PERKIN), 1891, T., 883.
- Benzoyltriphenylpropiomethylamide, and its distillation** (KLINGEMANN and LAYCOCK), 1891, T., 147.
- Benzoyltropeine** (LADENBURG), 1883, A., 671.
- Benzoyl-ψ-tropeine** (LIEBERMANN), 1891, A., 1265.
- Benzoylvaleric acid** (*β-benzoyl-α-ethyl-propionic acid*) (DITTRICH and PAAL), 1889, A., 257.
- Benzoylxylenylamidoxime** (OPPENHEIMER), 1890, A., 49.
- Benzyl, bis-o-chloronitrosyl-** (BEHREND and NISSEN), 1892, A., 1200.  
nitro-, chlorides of *o*- and *m*- (ABELLI), 1883, A., 1092.  
*bis*-nitrosyl- (*dinitrosotoluene*) (BEHREND and KONIG), 1890, A., 1122.  
*bis-p*-nitronitrosyl- (BEHREND and KÖNIG), 1891, A., 1035.
- Benzyl acetoxime and its hydrochloride** (JANNY), 1888, A., 581.
- Benzyl isoamyl and isobutyl ethers, decomposition of, by heat and by nitric acid** (ERRERA), 1887, A., 1103.
- Benzyl ethyl ether** (MÜLLER), 1886, A., 875.  
*p*-chloro- and *p*-bromo-, and their decomposition by heat and by nitric acid (ERRERA), 1887, A., 1103.  
*o*-chloro-*p*-nitro- (WITTR), 1892, A., 445.
- Benzyl mercaptan, p-bromo-** (JACKSON and HARTSHORN), 1884, A., 665.  
*o*-cyano- (DAY and GABRIEL), 1890, A., 1250.
- Benzyl methyl ether, action of phosphoric chloride on** (COLSON), 1885, A., 252.  
*o*-chloro-*p*-nitro- (WITT), 1892, A., 444.
- Benzyl methyl ketone, bromodinitro-** (JACKSON and MOORE), 1889, A., 781; 1890, A., 773.  
*trinitro-* (DITTRICH), 1890, A., 1419.
- Benzyl selenomercaptan, o-cyano-** (DRORY), 1891, A., 1460.
- Benzyl tolyl ketone**. See Toly benzyl ketone.
- Benzyl o-, m-, and p-xylol ketones** (WEGE), 1892, A., 338.
- Benzylacetamide, o-amido-** (GABRIEL and JANSSEN), 1890, A., 1442.  
*p*-nitro- (AMSEL and V. HOFMANN), 1886, A., 698; (HAFNER), 1889, A., 982; 1890, A., 486.
- Benzylacetanilide** (MELDOLA and SALMON), 1888, T., 780.  
*o*-amido- (PAAL and KRECKE), 1892, A., 80.  
*o*-nitro- (PAAL and KRECKE), 1890, A., 1443.
- Benzylacetoacetic acid** (CERESOLE), 1883, A., 41.
- Benzylacetomethylamide, o-nitro-, and o-amido-** (GABRIEL and JANSSEN), 1892, A., 218.
- Benzylacetone, m-amido-** (V. MILLER and RÖHDE), 1890, A., 1138.  
nitroso- (CERESOLE), 1883, A., 41.
- Benzylacetone-*o*-carboxylic acid** (BÜLOW), 1887, A., 144.
- Benzylaceto-p-nitranilide** (MELDOLA and SALMON), 1888, T., 779.
- Benzylacetophenone** (*phenyl phenylethyl ketone*) (SCHNEIDWIND), 1888, A., 705; (PERKIN and STENHOUSE), 1891, T., 1007.  
reduction of (PERKIN and STENHOUSE), 1891, T., 1008.  
oxime of (PERKIN and STENHOUSE), 1891, T., 1008.

- Benzylaceto-*p*-toluidide**, *o*-amido- (SÖDERBAUM and WIDMAN), 1890, A., 1258.
- Benzylacetoxyposphinous acid** (*acetoxybenzylphosphinous acid*) (VILLE), 1890, A., 619.
- Benzylacetylglutaric acid** (FITTIG and CHRIST), 1892, A., 963.
- Benzylallylthiocarbamide** (DIXON), 1891, T., 559.
- "Benzylalsorbitol"** (MEUNIER), 1890, A., 730.
- Benzylamine**, and its derivatives (CLAUS and ELBS), 1883, A., 982; (CLAUS and KOHLSTOCK), 1885, A., 1132.
- benzoylchloride (CLAUS and SCHERBEL), 1886, A., 238.
- platinochloride (CLAUS and ELBS), 1883, A., 982.
- Benzylamidacetic acid**, benzylamide of (HINSBERG), 1892, A., 1458.
- o*-Benzylamidacetophenone, and its nitroso-derivative (v. BAER), 1884, A., 1021.
- Benzylamidobenzeneazo- $\alpha$ - and - $\beta$ -naphthols** (MELDOLA and COSTE), 1889, T., 596.
- Benzylamidobenzoic acid** (CLAUS and GLYCKHEER), 1883, A., 1009.
- Benzylamidodimethylaniline** (KÖHLER), 1888, A., 50.
- Benzyl-*p*-amidodiphenylamine** (HENCKE), 1890, A., 609.
- Benzylamidosulphonic acid** (SCHMIDT), 1892, A., 476.
- Benzylamine** (CURTIUS and LEDERER), 1887, A., 40.
- preparation of (HOOGWERFF and VAN DORP), 1887, A., 245; (GOLDSCHMIDT), 1887, A., 249.
- heat of formation of (PETIT), 1888, A., 1239.
- action of bromine on (WALLACH), 1891, A., 189.
- action of carbonyl chloride on (KUHNS and RIESENFELD), 1892, A., 312.
- condensation of, with furfuraldehyde (DE CHALMOT), 1892, A., 1452.
- action of, on glycol chlorhydrin (GOLDSCHMIDT and JAHODA), 1891, A., 1351.
- action of, on methylenic chloride (KEMPF), 1890, A., 887.
- action of sulphur on (WALLACH), 1891, A., 189.
- compounds of, with mercuric chloride (ANDRÉ), 1891, A., 1030.
- hydrogen malate, action of heat on (GIUSTINIANI), 1892, A., 820.
- Benzylamine**, *o*-amido- (GABRIEL), 1887, A., 1037.
- m*-amido- (GABRIEL and HENDERS), 1888, A., 111.
- p*-amido-, and its salts (AMSEL and v. HOFMANN), 1886, A., 698; (HAFNER), 1889, A., 982; (SALKOWSKI), 1889, A., 1174.
- di*-iodo- (BILTZ), 1892, A., 1449.
- o*-nitro- (GABRIEL), 1887, A., 1037; (GABRIEL and JANSEN), 1892, A., 217.
- m*-nitro- (GABRIEL and HENDERS), 1888, A., 144.
- primary, and tertiary, and their amido-compounds (BOGMANN), 1886, A., 56.
- p*-nitro- (HAFNER), 1890, A., 486.
- hydrochloride (HAFNER), 1889, A., 982.
- di*-*o*-nitro- (GABRIEL and JANSEN), 1892, A., 218.
- tri*-nitro- (MARQUARDT), 1886, A., 615.
- Benzylamine-*p*-carboxylic acid** (GUNTHER), 1890, A., 977.
- Benzylammonium succinates** and their derivatives (WEINER), 1889, T., 627; P., 127.
- thiocyanate (DIXON), 1891, T., 553.
- Benzylangelicalactone** (ENDMANN), 1890, A., 376.
- Benzylaniline**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 296.
- action of sulphur on (WALLACH), 1891, A., 189.
- Benzylaniline**, amido-. See Benzylphenylenediamine.
- o*-chloro-*p*-nitro- (WITT), 1892, A., 445.
- o*-nitro-, and its derivatives (LEHMANN and STICKEL), 1886, A., 793.
- reduction of (PAAL and KRECKE), 1890, A., 1441.
- p*-nitroso- (FISCHER and HEFT), 1890, A., 614; (BOEDDINGHAUS), 1891, A., 1205.
- Benzylisocanisaldoxime** (GOLDSCHMIDT), 1890, A., 1262.
- $\gamma$ -Benzylanthracene** (BACH), 1890, A., 1145.
- Benzylanthracenesulphonic acid**, barium salt of (BACH), 1890, A., 1145.
- Benzylanthranol** (BACH), 1890, A., 1425.
- Benzylarbutin** (SCHIFF), 1881, A., 432.
- Benzylarsines** (MICHAELIS and PAETOW), 1885, A., 526.

- Benzylbarbituric acid** (CONRAD and GUTHZEIT), 1883, A., 314.
- Benzylbenzaldoximes,  $\alpha$ - and  $\beta$ -** (BECKMANN), 1889, A., 607, 608.
- Benzylsobenzaldoxime** (BEHREND and KÖNIG), 1890, A., 1123.  
constitution of (BEHREND), 1889, A., 979.  
interaction of, with phenylic cyanate (GOLDSCHMIDT), 1890, A., 1412.  
nitro-, isomeric forms of (BEHREND and KÖNIG), 1890, A., 1412; 1891, A., 1034.  
*m*-nitro- (BEHREND), 1892, A., 50.
- Benzylbenzamide, *o*-amido-, and *o*-nitro-** (GABRIEL and JANSEN), 1890, A., 1442.
- Benzylbenzenylamidine** (KEHRMANN and MESSINGER), 1892, A., 1110.
- Benzylbenzenylamine.** See Dibenzylamine.
- Benzylbenziloximes** (AUWERS and MEYER), 1889, A., 609; (AUWERS and DITTRICH), 1889, A., 1192.
- m*-Benzylbenzoic acid, and its salts** (SENF), 1884, A., 428.
- Benzylbenzylidenediamidophenylamine** (MELDOLA and COSTE), 1889, T., 594.
- Benzylborneols** (HALLER), 1892, A., 73.
- Benzylbromazimidobenzene** (ZINKE and ARZBERGER), 1889, A., 502.
- Benzylsobutylamine** (ZAUNSCHIRM), 1888, A., 1077.
- Benzylsobutylcarbamide** (KÜHN and RIESENFELD), 1892, A., 312.
- Benzylcamphor** (HALLER), 1891, A., 1498; 1892, A., 73.
- Benzylcamphoroxime** (HALLER), 1892, A., 73.
- $\gamma$ -Benzyl- $\delta$ -caprolactone.** See  $\delta$ -Hydroxy- $\gamma$ -benzylhexoic acid, lactone of.
- Benzylcarbamide, *o*-nitro-** (GABRIEL and JANSEN), 1892, A., 218.  
*p*-nitro- (HAFNER), 1889, A., 982; 1890, A., 486.
- Benzylcarbamine** (SCHNEIDEWIND), 1888, A., 705.
- Benzylchlorethylamine hydrochloride** (GOLDSCHMIDT and JAHODA), 1891, A., 1351.
- Benzyl-*o*-chlorosobenzaldoxime, *o*-chloro-** (BEHREND and NISSEN), 1892, A., 1199.
- Benzyl-*p*-chlorodeoxybenzoin** (PETRENKO-KRITSCHENKO), 1892, A., 1227.
- Benzylchrysaniine** (TRILLAT and DE RACZKOWSKI), 1892, A., 1095.
- Benzyleinchonidine** (CLAUS), 1892, A., 1251.
- Benzylcinnamic acid** (MICHAEL and PALMER), 1885, A., 987; (OGLIALORO-TODARO), 1891, A., 76.
- Benzyl-*o*- and *p*-cresols, nitro-derivatives of** (STAEDEL), 1883, A., 863.
- Benzyl-compounds, *p*-bromo-** (JACKSON and HARTSHORN), 1884, A., 665.
- Benzylcyanocamphor and its *o*-nitro-derivative** (HALLER), 1891, A., 1499.
- Benzyldeoxybenzoin** (MEYER and OELKERS), 1888, A., 703.  
*p*-amido-, and *o*- and *p*-nitro- (BUDEBERG), 1890, A., 1142.
- Benzyl diazoamidobenzene** (FRISWELL and GREEN), 1886, T., 749.
- Benzyl dihydro-anthracene and -anthranol** (BACH), 1890, A., 1425.
- Benzyl dihydropyrroline** (ANDERLINI), 1890, A., 65, 1430.
- Benzyl dihydroxy-cinchotenidine and -cinchotenine** (CLAUS), 1892, A., 1250, 1251.
- Benzyl dimethylamine** (JACKSON and WING), 1887, A., 721.  
*m*-nitro- (BORGMANN), 1886, A., 57.
- o*-Benzyl-*m*-dimethylbenzoic acid** (GRESLY), 1886, A., 1029.
- Benzyl dimethylcarbamide** (HINRICHSSEN), 1889, A., 391.
- Benzyl dimethylsuccinic acid** (BISCHOFF), 1891, A., 829.
- Benzyl dimethylthiocarbamide** (HINRICHSSEN), 1889, A., 391.
- Benzyl diphenyl-** See Diphenylbenzyl-.
- Benzyl diisopropylamine** (UEBEL), 1888, A., 1079.
- Benzyl durene, preparation of** (BEAUREPAIRE), 1889, A., 966.
- Benzylisodurene** (ESNER and GOSSIN), 1885, A., 253.
- Benzylene.** See Benzylidene.
- "Benzylenes,  $\alpha$ - and  $\beta$ ," and a nitro-derivative of** (GLADSTONE and TRIBE), 1885, T., 450.
- Benzylethanetricarboxylic acid (*phenylpropanetricarboxylic acid*)** (FITTIG and RÜDERS), 1890, A., 896.
- Benzylethylacetic acid.** See Phenylvaleric acid.
- Benzylethylamarine** (CLAUS and KOHLSTOCK), 1885, A., 1133.
- Benzylethylamidobenzenephosphinic chloride** (MICHAELIS and SCHENCK), 1891, A., 437.
- Benzylethyl-*m*-amidophenol, *o*-amido-** (LELLMANN and BOYE), 1890, A., 1116.  
*o*-nitro-, hydrochloride (LELLMANN and BOYE), 1890, A., 1116.
- Benzylethylamine** (ZAUNSCHIRM), 1888, A., 1077; (KRAFT), 1891, A., 51.

- Benzylethylaniline** (FRIEDLÄNDER), 1889, A., 606.
- Benzylethylanilinesulphonic acid**, sodium salt of (MICHAELIS and GONCHAUX), 1890, A., 611.
- Benzylethylglutaric acid** (GUTHRIE and DRESSER), 1891, A., 179.
- s*-Benzylethylsuccinic acid** (BISCHOFF and WALDEN), 1889, A., 959.
- Benzylethylthiocarbamic acid** (ZAUNSCHIRM), 1888, A., 1077.
- Benzylethylthiocarbamide** (DIXON), 1889, T., 300.
- Benzylethyl-*p*-toluidine** (RABAUT), 1892, A., 313.
- Benzylenchylamine** (WALLACH and GRIEPENKERL), 1892, A., 1239.
- Benzylformamide**, *o*-nitro- (GABRIEL and JANSEN), 1890, A., 1443.
- Benzylformanilide** (PIOTET and CRÉPEUX), 1888, A., 689.
- o*-nitro- (PAAL and BUSCH), 1890, A., 72.
- Benzylformimide hydrochloride** (PINNER), 1883, A., 1089.
- Benzylformo-*o*- and -*p*-toluidides**, *o*-nitro- (PAAL and BUSCH), 1890, A., 73.
- Benzylformylcamphor** (CLAISEN), 1891, A., 574.
- Benzylfumaramic acid** (GIUSTINIANI), 1892, A., 821.
- Benzylfumarimide** (GIUSTINIANI), 1892, A., 821.
- Benzylfurfuraldoxime** (WERNER), 1890, A., 1267; (GOLDSCHMIDT and ZANOLI), 1892, A., 1434.
- Benzylfurfuryl**. See Furfurylphenylethane.
- Benzylglyoxaline** (WALLACH), 1883, A., 911.
- Benzylhemipinamic acid** (GOLDSCHMIDT), 1888, A., 1117.
- Benzylhemipinazulimide** (GOLDSCHMIDT), 1888, A., 1117.
- $\alpha$ -Benzylhomophthalimide**. See *o*-Carboxyphenylbenzylacetamide.
- $\alpha$ -Benzylhomopiperidinic acid** (ASCHIAN), 1891, A., 467.
- Benzylhydratropic acid**. See Diphenylbutyric acid.
- Benzylhydroxyanthranol** (LEVI), 1885, A., 1240; (LINEBARGER), 1892, A., 346.
- Benzylhydroxydiphenylmaleide** (COHN), 1892, A., 483.
- Benzylhydroxyhexoic acid**, salts of (FITTIG and CHRIST), 1892, A., 963.
- Benzylhydroxylamine**, formula of (MEYER), 1883, A., 569.
- derivatives of (BEHREND and LEUCHS), 1889, A., 500.
- $\alpha$ -Benzylhydroxylamine** (BECKMANN), 1889, A., 608.
- $\beta$ -Benzylhydroxylamine**, and its derivatives (BECKMANN), 1889, A., 608; (BEHREND and LEUCHS), 1889, A., 704; (BEHREND and KÖNIG), 1891, A., 1033.
- mono*- and *di*-*o*-chloro- (BEHREND and NISSEN), 1892, A., 1199, 1200.
- m*-nitro- (BEHREND), 1892, A., 51.
- p*-nitronitroso-, and nitroso- (BEHREND and KÖNIG), 1891, A., 1034, 1035.
- Benzylhydroxylamines**, oxidation of (KOTHE), 1892, A., 316.
- Benzyllic acetate**, action of chlorine and bromine on, and its reactions (SEMLIG), 1889, A., 598.
- acetoacetate, action of sulphuric acid on (v. RECHMANN), 1883, A., 808.
- alcohol, dispersive power of (BARBIER and ROUX), 1889, A., 805.
- o*-amido-, and its derivatives (SODERBAUM and WIDMAN), 1889, A., 972; 1890, A., 178; (SODERBAUM), 1890, A., 1254.
- p*-amido-, and its derivatives (O. and G. FISCHER), 1891, A., 695.
- p*-bromo- and *p*-chloro-derivatives (ERRERA), 1889, A., 247.
- o*-chloro-*p*-amido-, and *o*-chloro-*p*-nitro- (WITT), 1892, A., 445.
- p*-nitro- (HAFNER), 1890, A., 486.
- preparation and condensation products of (BASLER), 1884, A., 310.
- allophanate and phenylallophanate (TRAUBE), 1889, A., 393, 964.
- bromide, action of the copper-zinc couple on (GLADSTONE and TRUEB), 1885, T., 443; P., 60.
- p*-bromo-, formation of, from *p*-bromotoluene (SCHRAMM), 1885, A., 379.
- o*-chloro-*p*-nitro- (TIEMANN), 1891, A., 704.
- derivatives of (WITT), 1892, A., 444.
- o*-cyano- (DRORY), 1891, A., 1461.
- chloroacetates (SEUBERT), 1888, A., 456.
- chloride, action of bromine on (SRPEK), 1891, A., 44; (ERRERA), 1891, A., 1020.
- action of copper on (ONUFROWICZ), 1884, A., 1133.
- action of potassium carbonate on (MEUNIER), 1883, A., 58.
- action of powdered zinc on (PROST), 1886, A., 1034.
- chloride, amido- (BORGSMANN), 1886, A., 56.

- Benzyl chloride, *o*-cyano-** (GABRIEL and OTTO), 1887, A., 1035; (DAY and GABRIEL), 1890, A., 1249; (DRORY), 1891, A., 1460.  
 action of, on ethylic sodacetate and on ethylic sodomalonate (HAUSMANN), 1889, A., 1172.  
*m*-cyano- (REINGLASS), 1891, A., 1344.  
*p*-cyano- (MELLINGHOFF), 1890, A., 239; (REINGLASS), 1891, A., 1344.  
 derivatives of (GÜNTHER), 1890, A., 977.  
 nitro-, reduction of (PELLIZZARI), 1885, A., 770.  
*o*-nitro- (KUMPF), 1884, A., 1004; (NÜLTING), 1884, A., 1005; 1885, A., 52.  
*p*-nitro- (KUMPF), 1884, A., 1004.  
 cyanide. See Phenylacetone nitrile.  
 ether, *p*-bromo- and *p*-chloro- (ERRERA), 1889, A., 248.  
*o*-, *m*- and *p*-nitro- (ERRERA), 1889, A., 218.  
 hydroxycamphocarboxylate (MINGUIN), 1892, A., 74.  
 imidodicarbothioxylylate (FROMM), 1892, A., 844.  
 imidodiphenylthiocarbamate (WERNER), 1892, P., 97.  
 imidophenylthiocarbamate (WERNER), 1890, T., 296.  
 iodides, *o*- and *p*-nitro- (KUMPF), 1884, A., 1004.  
 methylic selenide, *o*-cyano- (DRORY), 1891, A., 1461.  
 sulphide (OBERMEYER), 1888, A., 124.  
*o*-cyano- (DAY and GABRIEL), 1890, A., 1250.  
 nitrate, *p*-nitro- (STAEDEL), 1883, A., 866.  
 phenylimido phenylbenzylthiocarbamate (WERNER), 1892, P., 97.  
 phenylimido phenylthiocarbamate (WERNER), 1890, T., 298.  
 picrate, *p*-nitro- (KUMPF), 1884, A., 1005.  
 diselenide and selenocyanate, *o*-cyano- (DRORY), 1891, A., 1460, 1461.  
 sodium thiosulphate (PURGOTTI), 1890, A., 1419.  
 sulphide, platinum compounds of (LÖNNDAHL), 1889, A., 368.  
 disulphide, *di*-*o*-cyano- (DAY and GABRIEL), 1890, A., 1251.  
*mono*- and *di*-sulphides, *p*-bromo- (JACKSON and HARTSHORN), 1884, A., 665.
- Benzyl *mono*- and *di*-sulphides, *o*-nitro-** (JAHODA), 1890, A., 488.  
 $\Delta^2$  *diastans* tetrahydrotetraphthalate (v. BAeyer and HERD), 1890, A., 1134.  
 thiocyanate, *o*-cyano- (DAY and GABRIEL), 1890, A., 1249.  
 thiocarbamate, preparation, reactions and properties of (WERNER), 1890, T., 293.  
*o*-toluate, action of sodium on (HODGKINSON), 1891, P., 167.  
*o*-tolylcarbamate (GATTERMANN and CANTZLER), 1892, A., 832.  
 tricarballoylate (DÄUMICHEN), 1889, A., 238.
- Benzylideneacetone.** See Styryl methyl ketone.  
**Benzylideneacetophenone** (CLAISEN and PUNDER), 1884, A., 1167.  
**Benzylideneamidocarbazole** (MAZZARA and LEONARDI), 1892, A., 616.  
***p*-Benzylideneamidodimethylaniline** (CALM), 1885, A., 388.  
**Benzylidene-*p*-amidodiphenylamine** (HENOKE), 1890, A., 609.  
**Benzylideneamidoguanidine** (THIELE), 1892, A., 1297.  
**Benzylidene-*o*-amidophenol** (PICTET and ANKERSMIT), 1892, A., 196.  
**Benzylidene-*p*-amidophenol** (HAEGELE), 1892, A., 1451.  
**Benzylideneamidophenyltolylamine and its *p*-nitro-derivative** (REICHOLD), 1890, A., 610.  
**Benzylideneaniline** (HANTZSCH), 1891, A., 50.  
**Benzylideneanthrone, amido-** (BACH), 1890, A., 1425.  
**Benzylideneantipyrin** (KNORR), 1884, A., 1378.  
**Benzylideneazine, and its *o*-nitro-derivative** (CURTIUS and JAY), 1889, A., 393.  
**Benzylidenebenzamide** (HECKMANN), 1891, A., 194.  
**Benzylidenebenzenylamidine** (PINNER), 1889, A., 1005.  
**Benzylidenebenzidine, *m*-nitro-** (SCHIFF and VANNI), 1890, A., 1298.  
 nitro-derivatives of (BANSILOWSKY), 1892, A., 854.  
**Benzylidenebisdiphenylpyrazolone** (KNORR and KLOTZ), 1887, A., 1121.  
**Benzylidenebishydroxynaphthaquinone** (ZINCKE and THELEN), 1888, A., 1097.  
**Benzylidenebiuret** (ABEL), 1891, A., 702.  
**Benzylideneisobutylamine** (ZAUSCHIRM), 1888, A., 1077.  
**Benzylideneecamphor** (HALLER), 1891, A., 1498.

- Benzylidenecarbinethioglycollic acid (ANDREASCH), 1889, A., 960.  
 Benzylidenecarbinidoacetic acid (ANDREASCH), 1889, A., 960.  
 Benzylidene-*o*-carboxylic acid (RACINE), 1887, A., 951.  
 Benzylidene-*di*- and *tetra*-chlorophthalides (GABRIEL and HENDLESS), 1888, A., 145.  
 4-Benzylidene-2:4:6-collidine-3:5-dicarboxylic acid (EPSTEIN), 1886, A., 258.  
 Benzylidene-cinchonic and -cinchonic acids (CLAUS), 1892, A., 1489.  
 Benzylidene-compounds (*benzyl*-, *benzylidene*-compounds) (KOLLER), 1888, A., 49.  
     reduction products of (FISCHER), 1888, A., 50.  
 Benzylidenecyanacetic acid (FIQUET), 1892, A., 1340.  
 Benzylidenediaetonalkamine, and the action of sulphuric acid on (FISCHER), 1884, A., 54.  
 Benzylidenediaetonamine, and its derivatives (FISCHER), 1884, A., 54, 1291; (ANTRICK), 1885, A., 503.  
 Benzylidenediaetonine (FISCHER), 1884, A., 1291.  
 Benzylidenedibenzoylacetic acid (BUCHNER and CURTIUS), 1885, A., 1238.  
 Benzylidenedibenzylimide (FISCHER), 1886, A., 546.  
 Benzylidenediethyldisulphone (FROMM), 1890, A., 56.  
 Benzylidenediketohydrindene (WILLIGENUS and KOTZLE), 1889, A., 1068.  
 Benzylidenedimethyldisulphone, *m*-nitro- (BONGARTZ), 1886, A., 938.  
 Benzylidenedimethylethylenediamine (MASON), 1887, A., 191.  
 Benzylidene-*p*-dimethylphenylenediamine (CALM), 1885, A., 388.  
 Benzylidenedi- $\alpha$ -naphthol and -naphthyl oxide (CLAISEN), 1887, A., 270.  
 Benzylidenediphenyldisulphone (LAVES), 1892, A., 612.  
 Benzylidenedipiperly (LAUN), 1881, A., 1011.  
 Benzylidenediisopropylindole (DENNSTEDT), 1889, A., 401.  
 Benzylidenediisopropylmethylenediamine (MASON), 1887, A., 493.  
 Benzylidenedisulphone (BONGARTZ), 1886, A., 938.  
 Benzylidene-ethylamine (ZAUNSCHIRM), 1888, A., 1077.  
 Benzylideneglucoheptitol (FISCHER), 1892, A., 1168.  
 Benzylideneglycoldinaphthylacetal (CLAISEN), 1887, A., 270.  
 Benzylidenehomo-*o* phthalethylimide (PULVERMACHER), 1887, A., 1111.  
 Benzylidenehomo-*o*-phthalimide (GABRIEL), 1887, A., 726.  
 Benzylidenehydrazine (CURTIUS and FRIEDL), 1892, A., 456.  
 Benzylidenehydrazineacetic acid (CURTIUS), 1891, A., 56.  
 Benzylidenehydrazinebenzenesulphonic acid (PFUEF), 1887, A., 933.  
 Benzylidenehydrazinebenzoic acid (RODER), 1887, A., 150.  
 Benzylidenehydrazine and its derivatives (CORNELIUS and HOMOLKA), 1886, A., 1026.  
 Benzylideneimine (LELLMANN and STICKEL), 1886, A., 791; (PINNER), 1889, A., 983.  
 Benzylideneimides, formation of (LELLMANN and PEKKUN), 1891, A., 88.  
*o*-Benzylideneindole (HAUSMANN), 1889, A., 1172.  
 Benzylidenelepidine. See Benzylidene-4'-methylquinoline.  
 Benzylidenelevulinic acid (ERDMANN), 1886, A., 241.  
     preparation of (ERLENMEYER), 1890, A., 495.  
     derivatives of (ERDMANN), 1890, A., 375.  
     *th*romide (ERLENMEYER), 1890, A., 496.  
 Benzylidenelevulinic acids,  $\beta$ - and  $\delta$ - (ERDMANN), 1890, A., 1129.  
 Benzylidene-2:6-lutidine and its reduction (SCHUNTER), 1892, A., 1360.  
 Benzylidenemalononic acid (STUART), 1883, T., 405; 1886, T., 357; (CLAISEN and CRISMER), 1884, A., 444.  
     *o*-chloro-, *o*-bromo-, and *o*-iodo- (STUART), 1887, P., 118; 1888, T., 141.  
     *o*-nitro-, reduction of (STUART), 1888, T., 143.  
     *p*-nitro- (STUART), 1883, T., 409.  
     *o*-, *m*-, and *p*-nitro- (STUART), 1885, T., 155; P., 4.  
     decomposition of, by water (STUART), 1886, T., 357; P., 177.  
 Benzylidenementhylurethane (ARTH), 1886, A., 893.  
 Benzylidenemethylamine (ZAUNSCHIRM), 1888, A., 1077.  
 Benzylidene-2'-methylindole (FISCHER), 1887, A., 265.  
     *m*-amido-, and *m*-nitro- (FISCHER), 1888, A., 284.  
 Benzylidene-3'-methylindole (WENZING), 1887, A., 957.

- Benzylidene-2'-methylquinoline** and its salts (JACOBSEN and REIMER), 1884, A., 336; (V. MILLER), 1891, A., 1096.
- amido-** [m.p. 172°] (BULACH), 1889, A., 528.
- m-amido-** [m.p. 158°] (WARTANIAN), 1891, A., 330.
- 3-nitro-** (WARTANIAN), 1891, A., 330.
- 4-nitro-** (BULACH), 1887, A., 976.
- Benzylidene-4'-methylquinoline, m-amido-** (HEYMANN and KOENIGS), 1888, A., 1114.
- m-nitro-** (HEYMANN and KOENIGS), 1888, A., 853.
- Benzylidene-4'-methylquinoline-4-sulphonic acid** (BUSCH and KOENIGS), 1890, A., 1435.
- Benzylidene-p-nitraniline** (V. MILLER and FLOCHL), 1892, A., 1194.
- Benzylidene-m-nitrobenzenylamidoxime, m-nitramido-** (STIEGLITZ), 1890, A., 256.
- Benzylidenephthalaldehydine** (GABRIEL), 1885, A., 1229.
- Benzylidenephthalide** and its derivatives (GABRIEL), 1885, A., 902, 1229; 1888, A., 143.
- di-bromide** (GABRIEL), 1885, A., 165.
- $\alpha$ -cyano-** (GABRIEL), 1885, A., 902.
- iso-Benzylidenephthalide** (GABRIEL), 1885, A., 1230; 1888, A., 144.
- Benzylidenephthalimidine** and its nitro-derivatives (GABRIEL), 1885, A., 1229, 1230.
- iso-Benzylidenephthalimidine** (GABRIEL), 1885, A., 1231; 1886, A., 266.
- amido-** (GABRIEL), 1886, A., 631.
- chloro-** (GABRIEL), 1887, A., 62.
- nitro-** (GABRIEL), 1886, A., 630, 631.
- Benzylidenepinylamine** (WALLACH and LORENTZ), 1892, A., 997.
- Benzylidenepiperazine** (SCHMIDT and WICHMANN), 1892, A., 211.
- $\alpha$ -Benzylidenepropionic acid.** See  **$\alpha$ -Methylcinnamic acid.**
- Benzylidenepropylamine** (ZAUN-SCHIRM), 1888, A., 1077.
- Benzylidenequinoline.** See **Benzylidene-2'-methylquinoline.**
- Benzylidenequinoline-3-carboxylic acid** (V. MILLER), 1890, A., 1325.
- Benzylidenesulphonic acid** and its salts (NENCKI and BOURQUIN), 1885, A., 40; (BONDZYNSKI), 1887, A., 1109.
- $\alpha$ -amido-** (BONDZYNSKI), 1887, A., 1109.
- Benzylidenesemicarbazide** (THIELE), 1892, A., 1297.
- Benzylidenescatole.** See **Benzylidene-3'-methylindole.**
- Benzylidenesulphonaphthionic acid,** sodium salt of (KAFKA), 1891, A., 721.
- Benzylidenesulphonic acid phenylhydrazone,** sodium salt of (KAFKA), 1891, A., 720.
- Benzylidenethiobiuret** (BRODSKY), 1887, A., 580.
- chloro-** (ABEL), 1891, A., 703.
- Benzylidenedithioglycollic acid** (BONGARTZ), 1888, A., 478.
- Benzylidenethiohydantoic acid** (ANDREASCH), 1888, A., 48.
- Benzylidenetolylene** (LIPPMANN), 1887, A., 151.
- 4-Benzylidene-2:4:6-trimethylpyridine-3:5-dicarboxylic acid.** See **4-Styryl-2:6-dimethylpyridine-3:5-dicarboxylic acid.**
- Benzylidene-p-xylylene** and its *m*-nitro-derivative (PFLUG), 1890, A., 606.
- Benzylidene chloride,** condensation of, with benzene (LINDBERGER), 1892, A., 719.
- action of copper on (ONUFROWICZ), 1884, A., 1133.
- action of potassium carbonate on (MEUNIER), 1888, A., 58.
- $\alpha$ - and  $\beta$ -trichloro-** (SEELIG), 1885, A., 770.
- $\alpha$ -cyano-** (GABRIEL and WEINE), 1888, A., 261; (DROUY), 1891, A., 1460.
- m-cyano-** (REINGLASS), 1891, A., 1344.
- p-nitro-** preparation of (ZIMMERMANN and MULLER), 1885, A., 771.
- ethylenic disulphide** (FARBENDER), 1887, A., 462; 1888, A., 805.
- sulphide.** See **Benzaldehyde, thio-**
- Benzylimidobenzylcarbaminoethioethyl** (REIMARUS), 1887, A., 43.
- Benzylindigo** (V. BAeyer), 1884, A., 1021.
- 1'-Benzylindole** (ANTHICK), 1885, A., 543.
- 1'-Benzylindole-2'-carboxylic acid** (ANTHICK), 1885, A., 543.
- Benzylidene, cyano-** (WACHE), 1889, A., 684.
- Benzyl- $\psi$ -isatin** (ANTHICK), 1885, A., 543.
- Benzyllepidine.** See **Benzyl-4'-methylquinoline.**
- Benzyllevulinic acid,** and its bromo-derivative (ERDMANN), 1890, A., 376.
- Benzylmalamic acid** (GIUSTINIANI), 1892, A., 822.
- Benzylmalimides,  $\alpha$ - and  $\beta$ -** (GIUSTINIANI), 1892, A., 821.

- Benzylmalon-*o*-carboxylic acid** (WILCOX), 1888, A., 150.
- Benzylmalondiamide** (BISCHOFF and SIEBERT), 1887, A., 952.
- Benzylmalonic azoimide and phenylhydrazide** (RUHEMANN and MORRELL), 1892, T., 796.
- Benzylmesitylene** (LOUISE), 1883, A., 323.
- Benzylmethylacetone** (*phenyl isopropyl methyl ketone*) (v. MILLER and ROHDE), 1890, A., 1138.
- Benzylmethylacetoximic acid.** See Benzylmethylglyoxime.
- Benzylmethylamazine** (CLAUS and KOHLSTOCK), 1885, A., 1133.
- Benzylmethylamidobenzenephosphinic acid and chloride** (MICHAELIS and SCHENK), 1891, A., 437.
- Benzylmethylaniline, *p*-nitroso-** (BOENDINGHAUS), 1891, A., 1206.
- Benzylmethylanilinesulphonic acid, sodium salt of** (MICHAELIS and GODCHAUX), 1890, A., 611.
- o*-Benzyl-*m*-methylbenzoic acid** (GRESLEY), 1886, A., 1028.
- Benzylmethylbromobenzenesazamonium iodide** (ZINCKE and ARZBERGER), 1889, A., 502.
- Benzylmethylcarbinol** (*phenyl isopropyl alcohol*) (ERRERA), 1887, A., 35.
- Benzylmethylglyoxime** (SCHRAMM), 1883, A., 590.  
diacetyl-derivative of (SCHRAMM), 1884, A., 52.
- Benzylmethylketonesulphonic acid** (KRECKEIER), 1887, A., 141.
- μ*-Benzyl-*β*-methyloxazoline** (ELFELD), 1892, A., 214.
- Benzyl-2'-methylquinoline** (HEYMANN and KOENIG), 1888, A., 858.
- Benzyl-4'-methylquinoline** (HEYMANN and KOENIG), 1888, A., 853.  
nitrate (HEYMANN and KOENIG), 1888, A., 1111.
- Benzylmethylsuccinic acid** (BISCHOFF and KUHLEBERG), 1890, A., 1131.
- Benzylmethylsuccinic anhydride** (BISCHOFF and MINTZ), 1890, A., 774.
- Benzylmethylsulphide-*o*-carboxylic acid** (DAY and GABRIEL), 1890, A., 1251.
- Benzylmethylthiocarbamide** (DIXON), 1889, T., 619.
- Benzylmethyl-*o*- and -*p*-toluidines** (RABAUT), 1892, A., 313.
- Benzylmethyluracil** (HAGEN), 1888, A., 582.
- Benzylmethyl-*m*-xylylidine** (JABLINGONNET), 1892, A., 1320.
- Benzylmorpholine** (GOLDSCHMIEDT and JAHODA), 1891, A., 1351.
- Benzyl-naphthalenes,  $\alpha$ - and  $\beta$ -** (VINGENT and ROUX), 1884, A., 609; (ROUX), 1888, A., 1306.
- Benzyl-narceine and its salts** (CLAUS and RITZELFELD), 1885, A., 997.
- Benzyl-*m*- and -*p*-nitranilines** (MELDOLA and STREATFIELD), 1887, T., 113.
- Benzyl-nitroarbutin** (SCHIFF), 1884, A., 433.
- Benzyl-*p*-nitrobenzaldoxime** (BEHREND and KONTIG), 1891, A., 1035.
- Benzyl-*m*-nitroisobenzaldoxime** (GOLDSCHMIEDT), 1890, A., 1262.
- Benzyl-*p*-nitroisobenzaldoxime, *p*-nitro-** (BEHREND and KONTIG), 1891, A., 1034.
- Benzyl-*m*- and -*p*-nitroisobenzaldoximes, intramolecular change of** (BEHREND), 1892, A., 50.
- Benzyl-*p*-nitro- $\beta$ -benzylhydroxylamine, oxidation of** (BEHREND and KONTIG), 1891, A., 1034; 1892, A., 1156.
- Benzyl-*o*-nitro-*o*-cresol, nitro-** (STAEDTEL), 1883, A., 864.
- Benzyl-*o*-nitrophenol, nitro-** (STAEDTEL), 1883, A., 864.
- Benzyl-nitroquinol** (SCHIFF), 1884, A., 433.
- Benzyl-*o*-nitroquinol** (PELLIZZARI), 1884, A., 437.
- Benzyl-nitrosoacetone, an isomeride of** (MEYER and CERESOLE), 1883, A., 572.
- Benzyl-n-anthaldoxime** (GOLDSCHMIEDT and ZANOLI), 1892, A., 1136.
- Benzyl-oxanthranol** (BACH), 1890, A., 1111, 1125.
- Benzyl-oxycarbamide** (BEHREND and LEUCHS), 1889, A., 501.
- Benzyl-oxo-*p*-chlorobenzophenone** (DEMUTH and DITTRICH), 1891, A., 814.
- Benzyl-oxo- $\alpha$ -naphthylthiocarbamide** (VOLTMER), 1891, A., 559.
- Benzyl-oxo-terephthalic acid** (v. BANYER and TUTTIN), 1889, A., 1181.
- Benzyl-oxo-*o*-tolylthiocarbamide** (VOLTMER), 1890, A., 1127; 1891, A., 558.
- Benzyl-oxo-tribenzylammonium iodide** (WALDER), 1886, A., 796; 1887, A., 246.
- Benzyl-papaveraldinesammonium hydrate** (GOLDSCHMIEDT), 1888, A., 1117.
- μ*-Benzyl-pentoxazoline** (ELFELD), 1892, A., 215.
- Benzylphenol, nitro-derivatives of** (STAEDTEL), 1883, A., 863.

- p*-Benzylphenol and its derivatives (RENNIE), 1886, T., 406; P., 184.
- Benzyl-*o*-phenylenediamine (SODERBAUM and WIDMAN), 1890, A., 1258.
- Benzyl-*m*-phenylenediamine (MELDOLA and COSTE), 1889, T., 597.
- Benzyl-*m*- and -*p*-phenylenediamines, oxidation of a mixture of (MELDOLA and COSTE), 1889, T., 598.
- Benzyl-*p*-phenylenediamine (MELDOLA and COSTE), 1889, T., 591; (BOEDINGHAUS), 1891, A., 1205.
- oxidation of, in the presence of other aromatic amines, and azo- and diazo-derivatives of (MELDOLA and COSTE), 1889, T., 592, 596.
- Benzylphosphines and their derivatives (LETTS and BLAKE), 1890, A., 766.
- Benzylphosphinic acid (LITTHAUER), 1889, A., 1168; (LETTS and BLAKE), 1890, A., 766.
- nitro- (LITTHAUER), 1889, A., 1168.
- Benzylphosphinous acid (LETTS and BLAKE), 1890, A., 766.
- Benzylphthalidine, and its nitroso-derivative (GABRIEL), 1885, A., 903.
- Benzylphthalimide (GABRIEL), 1887, A., 1037.
- o*-cyano- (GABRIEL), 1887, A., 1038.
- m*-cyano- (REINGLAUS), 1891, A., 1345.
- p*-cyano- (GUNTHER), 1890, A., 977.
- o*-nitro- (GABRIEL), 1887, A., 1037.
- m*-nitro- (GABRIEL and HENDERS), 1888, A., 144.
- p*-nitro- (HAFNER), 1889, A., 982; (SALKOWSKI), 1889, A., 1174.
- Benzylphthalimidine (GABRIEL), 1888, A., 143.
- p*-amido- (HAFNER), 1889, A., 982; 1890, A., 487.
- Benzylpimelic acid, attempt to prepare (PERKIN and PRENTICE), 1891, T., 847.
- Benzylpiperidine and its derivatives (LELLMANN and PEKRUN), 1891, A., 88.
- $\beta$ -Benzylpiperidine (ASCHAN), 1891, A., 1247.
- $\beta$ -Benzylpiperidone, and its nitroso-derivative (ASCHAN), 1891, A., 467, 1247.
- Benzylpropylene- $\psi$ -thiocarbamide (DIXON), 1891, T., 560.
- Benzylpropylnitramine (SIMON-THOMAS), 1891, A., 168.
- Benzylpurpuric acid (CONRAD and GUTHZEIT), 1883, A., 315.
- Benzylpyridine and its derivatives (LELLMANN and PEKRUN), 1891, A., 90.
- Benzylpyridyl chloride and platinum-chloride (EDINGER), 1890, A., 794.
- Benzylpyrrolone, and action of acetic anhydride on (CIAMICIAN and SILBER), 1887, A., 843.
- Benzylquinaldine. See Benzyl-2'-methylquinoline.
- Benzylquinine hydrate, action of benzylic chloride on (MAZZARA and POSSETTO), 1884, A., 466.
- Benzylquinoline, bromo-, halogen-derivatives of (CLAUS), 1885, A., 908.
- 3-Benzylquinoline (MANNS), 1889, A., 261.
- Benzylquinolinecarboxylic acid (CLAUS), 1885, A., 908.
- Benzylquinoline- $\gamma$ -carboxylic acid, betaine of (CLAUS), 1892, A., 1488.
- Benzylquinolinium hydroxide (BERNHSEN and HESS), 1885, A., 559.
- Benzylquinols (SCHIFF), 1884, A., 432; (PELLIZZARI), 1884, A., 437.
- Benzylresorcinols (PELLIZZARI), 1884, A., 438.
- Benzylrosanilinedisulphonic acids, preparation of (DAHL), 1887, A., 579.
- Benzylsuccinamic acid and its amide and imide (WERNER), 1889, T., 629, 630, 632.
- Benzylsuccinic acid (PERKIN), 1888, T., 10; (BISCHOFF and MINTZ), 1890, A., 774; (FITTIG and RÜDERS), 1890, A., 895; (BISCHOFF and v. KUHLEBERG), 1890, A., 1135.
- homologues of (BISCHOFF and MINTZ), 1890, A., 774.
- Benzylsuccinic anhydride (FITTIG and RÜDERS), 1890, A., 896.
- Benzylsulphonethiobenzylmethylmethane (LAVES), 1892, A., 613.
- Benzylsulphonic acid. See Toluene *ortho*-sulphonic acid.
- Benzyltetrahydroquinoline, derivatives of (LELLMANN and PEKRUN), 1891, A., 89.
- Benzylthiocarbamide (DIXON), 1891, T., 552; (SALKOWSKI), 1891, A., 1474.
- Benzylthiocarbimide (MEYER), 1891, A., 1214.
- preparation of (WERNER), 1891, T., 407; (DIXON), 1891, T., 552.
- action of aldehydeammonia and of valeraldehydeammonia on (DIXON), 1888, T., 411, 413.
- Benzylthiosulphonic acid. See Toluene *ortho*-thiosulphonic acid.
- Benzylthiosulphuric acid (PURGOTTI), 1890, A., 1419.

- Benzyl-dithiourethane** (DIXON), 1888, P., 34.
- m-Benzyltoluene**, and its reduction products and *d*-nitro-derivative (SENF), 1884, A., 427.
- Benzyl-o-toluidine** (RABAUT), 1892, A., 48.
- Benzyl-o- and -m-toluidines**, *p*-nitroso- (BOEDDINGHAUS), 1891, A., 1206.
- Benzyl-p-toluidine** (RABAUT), 1892, A., 313.
- o-amido-** (SIEDERBAUM and WIDMAN), 1890, A., 1258.
- hydrochloride** (BUSCH), 1892, A., 734.
- o-nitro-**, and its derivatives (LELLMANN and STICKEL), 1886, A., 793.
- Benzyl-o-toluidinesulphonic acid** (RABAUT), 1892, A., 313.
- Benzyltolylethylenediamine hydrochloride** (BOEDDINGHAUS), 1891, A., 1206.
- Benzyltriethylammonium chloride** and hydroxide, action of heat on (COLLIE and SCHRYVER), 1890, T., 781.
- Benzyltriethylphosphonium chloride**, action of heat on (COLLIE), 1888, T., 723.
- Benzyltriethylphosphonium salts**, action of heat on (COLLIE), 1887, A., 1106.
- Benzyltrimethylammonium chloride** and hydroxide, action of heat on (COLLIE and SCHRYVER), 1890, T., 773.
- Benzylurethane** (TRAUBE), 1889, A., 393.
- Benzylvalerolactone** (ERDMANN), 1890, A., 376.
- Benzyl-violet**, manufacture of (MÜHLHAUSEN), 1889, A., 609.
- Benzyl-m-xylidine** (JABLIN-GONNET), 1892, A., 314.
- nitro-** (JABLIN-GONNET), 1892, A., 1320.
- Benzyl-p-xylidine** (PFLUG), 1890, A., 606.
- Benzyl-m-xylidinesulphonic acid** (JABLIN-GONNET), 1892, A., 1320.
- Benzyl-m-xylithiocarbamide** (DIXON), 1891, T., 557.
- Berberamine** (HENSE), 1887, A., 284; (RÜDEL), 1892, A., 641.
- Berberal**, and its synthesis and hydrolysis (PERKIN), 1890, T., 1062, 1064, 1079.
- examination and constitution of** (PERKIN), 1890, T., 1000, 1002.
- action of alkalis and of phenylhydrazine on** (PERKIN), 1890, T., 1075, 1077.
- isoBerberal** and its constitution (PERKIN), 1890, T., 1002, 1081.
- Berberides**, alkaloids of (HENSE), 1887, A., 283; (SCHMIDT and KERSTEIN), 1890, A., 618; (RÜDEL), 1892, A., 611; (SCHMIDT), 1892, A., 1498.
- Berberilic acid**, and its salts (PERKIN), 1890, T., 991, 1018, 1049.
- constitution and hydrolysis of** (PERKIN), 1890, T., 998, 1053.
- action of heat on** (PERKIN), 1890, T., 1051.
- Berberine**. See Alkaloids.
- Berberinic acid** (MARFOT), 1889, A., 627.
- Berberis aquifolium**, constituents of (RÜDEL), 1892, A., 641.
- Berberis vulgaris**, alkaloids of (RÜDEL), 1892, A., 641.
- Berberoline**, constitution of (PERKIN), 1890, T., 1009.
- Berberonic acid** (*pyridine-2:4:5-tricarboxylic acid*) (WEBER), 1887, A., 1118; (MAYER), 1892, A., 1357.
- Beresite** (ARZRUINI), 1886, A., 995.
- Bergamot juice**, determination of free and precipitable acid in (GROSJEAN), 1883, T., 333.
- Bergamot oil** (WALLACH), 1885, A., 171; (SOLTSIEN), 1887, A., 375; (CRISMER), 1892, A., 349; (SEMMER and TIEMANN), 1892, A., 868; (BERTRAM and WALBAUM), 1892, A., 1235.
- crystalline products from** (CRISMER), 1892, A., 349.
- adulteration of, with oil of turpentine** (HEPPE), 1885, A., 1163.
- Bergapten**, the stearoptene of bergamot oil (POMERANZ), 1892, A., 71.
- Berilic acid**, and its salts (PERKIN), 1890, T., 1091, 1092.
- Beronic acid** (*pyridine-3:4-dicarboxylic acid*) (MAYER), 1892, A., 1357.
- Bertrandite** (DAMOUR), 1885, A., 643.
- from Mt. Antero, Colorado** (PENFIELD), 1889, A., 24.
- from Pisek (Bohemia)**, 1889, A., 471.
- Beryl**, composition of (PENFIELD and HANSEN), 1886, A., 990.
- alkalis in** (PENFIELD), 1885, A., 490.
- from Amelia Co., Virginia** (BAKER), 1886, A., 127.
- from Craveggia in Piedmont (SPEZIA)**, 1883, A., 958.
- from Dakota** (BLAKE), 1884, A., 23.
- from Glencullen (Joly)**, 1888, A., 117.
- from the Ifinger** (SCHUSTER; PYDRAM), 1888, A., 432.
- from Madagascar** (DAMOUR), 1884, A., 236.

**Beryl** from N. Carolina (HIDDEN), 1883, A., 1064; (GENTH), 1884, A., 274. analyses of (PENFIELD and SPERRY), 1889, A., 356.

**Beryllia**. See Beryllium oxide.

**Beryllium** (*glucinum*), atomic weight of (HUMPIDGE), 1884, A., 261; 1885, A., 1184; 1886, A., 506; (REYNOLDS), 1884, A., 261; (HARTLEY), 1885, A., 484; (KRÜSS and MORAHT), 1890, A., 698, 1875; 1891, A., 881.

divalence of (MENDELÉEFF), 1889, T., 650.

spectrum of, with observations relative to the position of that metal among the elements (HARTLEY), 1883, T., 316.

specific heat of (HUMPIDGE), 1885, A., 1184; 1886, A., 506

crystalline form of (BROGGER and FLINK), 1884, A., 1092.

**Beryllium antimonate** (EBEL), 1890, A., 216.

bromide, vapour density of (HUMPIDGE), 1886, A., 506.

bromide and chloride, melting points of (CARNELLEY), 1884, A., 962.

chloride, vapour-density of (NILSON and PETERSSON), 1884, A., 820.

carbonates (SESTINI), 1891, A., 151.

chromite (MALLARD), 1888, A., 349.

fluoride, heat of neutralisation of (PETERSEN), 1890, A., 680.

hydride (WINKLER), 1891, A., 1155.

hydroxides (VAN BEMMELEN), 1888, A., 291.

oxide (*beryllia*, *glucina*), preparation and properties of (KRÜSS and MORAHT), 1890, A., 697.

crystallised (MALLARD), 1888, A., 349.

phosphorescence of (CROOKES), 1887, A., 1067.

action of magnesium on (WINKLER), 1890, A., 451; 1891, A., 1155.

solubility of, in a solution of ammonium chloride (GENTH), 1885, A., 489.

phosphates (OUVRARD), 1890, A., 1056; (SESTINI), 1891, A., 151.

hypophosphates (RAMMELSBERG), 1892, A., 404.

silicates (HAUTEFEUILLE and PERREY), 1889, A., 104.

sodium silicates (HAUTEFEUILLE and PERREY), 1890, A., 562.

silicofluorides (CHABRIÉ), 1886, A., 981.

dithionate (KRÜSS), 1888, A., 1156. separation of, from aluminium (ZIMMERMANN), 1888, A., 323.

**Beryllium minerals** from Colorado (PENFIELD), 1891, A., 530.

**Beryllonite** (DANA), 1889, A., 355; (DANA and WELLS), 1889, A., 470.

**Berzeliite** (*khinita*) (IGELSTRÖM), 1886, A., 25; (HUGBOM), 1889, A., 217.

doubly-refracting (LINDGREN), 1883, A., 434.

optical properties of (BERTRAND), 1886, A., 127.

**Betaines** (SILBERSTEIN), 1885, A., 160. preparation of (DUVILLIER), 1890, A., 747.

in cotton-seed (RITTHAUSEN and WEGER), 1885, A., 50.

in cotton-seed foods (MAXWELL), 1892, A., 380.

of pyridine bases (KRÜGER), 1890, A., 1431; 1891, A., 941, 1388.

in seeds (SCHULZE), 1891, A., 490.

in the seeds of *Vicia sativa* (SCHULZE), 1889, A., 1029.

See also Alkaloids and Ptomaines.

**Betel leaves**, ethereal oil of (EIJKMAN), 1890, A., 135.

**Betel oil** (BERTRAM and GILDEMEISTER), 1889, A., 863.

composition of (SCHIMMEL), 1892, A., 833.

**Betelphenol** and its derivatives (BERTRAM and GILDEMEISTER), 1889, A., 863; (SCHIMMEL), 1892, A., 833.

**Beth-a-barra wood**, lapachol in (GREENE and HOOKER), 1889, A., 794.

**Betorcinol**. See  $\beta$ -Orcinol.

**Biazolones** (FREUND), 1892, A., 508.

**Bibasic acids**. See Acids, dibasic.

**Bicuhyba fat** and nuts (NOERDLINGER), 1888, A., 139.

**Bidesyl** (KNOEVENAGEL), 1888, A., 706; (FEHRLIN), 1889, A., 623.

*iso***Bidesyl** (KNOEVENAGEL), 1888, A., 707.

**Bidesyls**, action of ammonia on (GARRET), 1889, A., 162.

**Biebrich-scarlet**, description and measurement of the spectrum of (HARTLEY), 1887, T., 194.

**Bienyl phenyl ketone** (LEVI), 1891, A., 551.

*Bynomia Catalpa* (SARDO), 1885, A., 272.

**Biguanide**. See Diguamide.

**Bilberries**, analysis of (BORGREVE and HORNEBERGER), 1886, A., 953.

**Bilberry** and wine colouring matters, difference between (VOGEL), 1888, A., 1137.

**Bile**, influence of alkalis on the secretion and composition of (NISSEN), 1891, A., 950.

- Bile**, spectroscopic character of (WERTHEIMER and MEYER), 1889, A., 636.  
 electrolysis of (STEWART), 1891, A., 591.  
 functions of, in taking up nourishment from the intestinal canal (OGATA), 1884, A., 912.  
 during inanition (LUKJANOW), 1892, A., 225.  
 transformation of hemoglobin in (FILEHNE), 1891, A., 482.  
 influence of, on digestion (MARTIN and WILLIAMS), 1888, A., 618.  
 action of, on pancreatic digestion (MARTIN and WILLIAMS), 1891, A., 96.  
 influence of, and bile salts and acids, on amylolytic and proteolytic action (CHITTENDEN and CUMMINS), 1885, A., 999.  
 absorption of fats in the absence of (MUNK), 1891, A., 593.  
 influence of, on the digestion of fats (DASTRE), 1888, A., 618.  
 influence of, on emulsification (RACHFORD), 1891, A., 948.  
 influence of, on the fat-splitting properties of pancreatic juice (RACHFORD), 1891, A., 948.  
 putrefaction of (STEWART), 1891, A., 591; (ERNST), 1892, A., 518.  
 oxyhemoglobin in (WERTHEIMER and MEYER), 1889, A., 636; (STERN), 1891, A., 599.  
 urobilin in the (WINTER), 1890, A., 187.  
 human (COPEMAN and WINSTON), 1889, A., 792; (NÜBEL-PATON and BALFOUR), 1891, A., 598.  
 ox, myristic acid in (LASSAR-COHN), 1892, A., 1114, 1503.  
 pig's, acids of (JOLIN), 1887, A., 742; 1888, A., 1213; 1890, A., 422; (BERGHEAT), 1889, A., 1231.  
 Hüfner's reaction in (MARSHALL), 1887, A., 390.  
 constituents, detection of, in urine (JOLLES), 1891, A., 185.
- Bile acids** (SCHOTTEN), 1886, A., 565; 1887, A., 606; (LATSCHIHOFF), 1887, A., 682.  
 in the urine during jaundice (BAELDE and LAVRAND), 1889, A., 637.  
 antiseptic action of (LIMBOURG), 1889, A., 291.  
 behaviour of, with albumin and peptones, and antiseptic action of (MALY and EMICH), 1888, A., 678.  
 behaviour of, with gelatin and gelatin peptones (EMICH), 1885, A., 822.
- Bile acids**, use of phosphoric acid in Pettenkofer's reaction for (DRECHSEL), 1883, A., 1177.  
 estimation of, in blood or urine (RIETSCH), 1885, A., 577.
- Bile-pigments** (MACMUNN), 1883, A., 1159; 1884, A., 194; 1886, A., 638; (HAYCRAFT and SCOFIELD), 1890, A., 181.  
 origin of (STERN), 1887, A., 290.  
 formation of (LATSCHEMBERGER), 1888, A., 620.
- Bilanic acid** and its salts (LATSCHIHOFF), 1886, A., 566; (MYLIUS), 1887, A., 982.
- isoBilanic acid** (LATSCHIHOFF), 1886, A., 818.
- Biliary fistula**, observations on a dog with (RÖHMANN), 1883, A., 818.
- Bilirubin**, molecular weight of (NENOKI and ROTSCHEF), 1890, A., 76.  
 spontaneous decomposition of (SALKOWSKI), 1888, A., 520.  
 oxidation of (HAYCRAFT and SCOFIELD), 1890, A., 181.
- Biliverdin** (MACMUNN), 1884, A., 197; (MUTAILOFF), 1885, A., 676.  
 reduction of (HAYCRAFT and SCOFIELD), 1890, A., 181.
- Biophen** (LEVI), 1891, A., 551.
- Biotite** (KNOP), 1887, A., 646.  
 pleochroism of (COHEN), 1888, A., 565.  
 from Christiana (JANNASCH), 1888, A., 1260.  
 from Gailbach (GOLLER), 1891, A., 1437.  
 from Miask (SCHLAEFFER), 1891, A., 531.  
 holding amphibole-granite from Syene (STEIZNER), 1884, A., 413.  
 See also Mica.
- Birch**, spring sap of (HORNBERGER), 1888, A., 813.
- Birch oil** (TRIMBLE and SCHROETER), 1890, A., 256.
- Birch wood tar**, phenol of (PFRENGER), 1891, A., 432.
- Birdlime**, illicic alcohol from (PERSONNE), 1884, A., 1365.  
 Japanese, composition of (DIVERS and KAWAKITA), 1888, T., 268; P., 13.
- Bird's-nest**, edible (GREEN), 1886, A., 635.
- Bisnhydrotetrabenzamidotetrahydroxyoctene** (RÜCHEIMER), 1892, A., 1002.
- Bisazobenzene**, amido- (NIETZKI and DIESTERWEG), 1888, A., 1082.  
 chloronitro-, chloronitronitroso-, and nitronitroso- derivatives of (WILLGERODT and MÜLLER), 1892, A., 455.

**Bisazobenzene**phenylhydrazine, *penta-*nitro- (WILLGERODT and MUHE), 1892, A., 456.

**Bisbenzobromamidophenyl** (LELLMANN), 1883, A., 343.

**Bis-2-benzoyl-1-phenyl-3-methylpyrazolone** (NEF), 1892, A., 146.

*m*-**Bisdiazobenzene-compounds** (GRIEBS), 1886, A., 459.

**Bis-diethyl- and -dimethyl-azimethylenes** (CURTIUS and THUN), 1891, A., 1855.

**Bisdiethyltolyl** (DAFERT), 1883, A., 1094.

**Bisdimethylaniline silicotetrafluoride** (COMBY and JACKSON), 1888, A., 942.

**Bisdioxymethyleneindigo** (LIEBERMANN and HABER), 1890, A., 1140.

**Bisdiphenyl** (BARTH and SCHREDER), 1883, A., 469.

**Bisdiphenylazimethylene** (CURTIUS and RAUTERBERG), 1891, A., 1359.

**Bisdiphenylene**pyrazine (JAPP and BURTON), 1887, T., 101.

**Bisdiphenylpyrazolone** (KNORR and KLOTZ), 1887, A., 1121.

**Bisdiphenyltriazole** (BLADIN), 1890, A., 271.

**Bis- $\alpha$ -keto- $\gamma$ -methylulolidyl** (REISERT), 1892, A., 497.

**Bismarck-brown**, spectrum of (HARTLEY), 1887, T., 180.

**Bismethylisobutylbenzenethiocarbamide** (EFFRONT), 1885, A., 153, 154.

**Bismethylpropylazimethylene** (CURTIUS and THUN), 1891, A., 1355.

**Bismuth**, native, from Bolivia (ARZUN), 1886, A., 514.

native, from Sweden (IGELSTRÖM), 1886, A., 674.

in iron and slags (WARREN), 1888, A., 1256.

pure (GLASSEN), 1892, A., 20.

amorphous (ILLIARD), 1889, A., 572.

atomic weight of (LOEWE), 1884, A., 558; (MAHIGNAC), 1884, A., 814; (SCHNEIDER), 1885, A., 354; 1891, A., 271, 1324; (GLASSEN), 1890, A., 706; 1891, A., 525.

molecular weight of (RAMSAY), 1889, T., 532, 533.

valency of (MICHAELIS), 1887, A., 368.

preparation of, free from arsenic (LOEWE), 1884, A., 558.

composition of commercial (SCHNEIDER), 1891, A., 1324.

physical properties of (GLASSEN), 1890, A., 707.

fluorescence of (LECOQ DU BOIS-BAUDRAN), 1887, A., 4, 189, 873, 1006.

**Bismuth**, phosphorescence of (CROOKES), 1887, A., 1067.

phosphorescence of, in the sulphides of the alkaline earth metals (KLATT and LENARD), 1890, A., 201.

electrolysis of solutions of (THOMAS and SMITH), 1888, A., 1034.

electrical resistance of (VAN AUBEL), 1888, A., 545; 1889, A., 807; (ZAHN), 1891, A., 515.

variation in the electrical resistance of, when placed in a magnetic field (HURION), 1886, A., 469.

rotation of isothermic lines of, placed in a magnetic field (RIGHT), 1888, A., 102.

thermal conductivity of, in a magnetic field (RIGHT), 1887, A., 1009; 1888, A., 102.

influence of magnetic forces on the nature of the heat conductivity of (v. ETTINGSHAUSEN), 1888, A., 400.

influence of a magnetic field on the thermoelectric properties of (GRIMALDI), 1888, A., 102.

influence of temperature and state of aggregation on the behaviour of, in the magnetic field (DRUDE and NERNST), 1891, A., 779.

thermal dilatation of liquid, near its melting point (VICENTINI), 1891, A., 518.

thermal expansion of liquid (CATTANEO), 1892, A., 259.

anomalous density of liquid (LUDEKING), 1888, A., 790.

vapour density of (BILTZ and MEYER), 1889, A., 673.

action of chlorine on (COWPER), 1883, T., 154.

action of nitric acid on (VELEY), 1891, A., 525; (MONTMANTINI), 1892, A., 1403.

action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 662.

action of sulphur and selenium on (v. SCHERFFENBERG), 1890, A., 216.

effects of small quantities of, on the ductility of silver (SCULLY), 1888, A., 108.

effect of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 384.

effect of various metals on the freezing point of (HEYCOCK and NEVILLE), 1890, P., 159.

lowering of the freezing point of, when alloyed with other metals (HEYCOCK and NEVILLE), 1892, T., 888, 892; F., 145.

**Bismuth**, lowering of the freezing point of cadmium and of lead by (HIVCOCK and NEVILL), 1892, T., 901, 910.  
 metallurgy of (MATTHEY), 1887, A., 900; 1888, A., 856; 1891, A., 1161.  
 alloys, electrical resistance of (VAN AUBER), 1888, A., 545.  
   with silver and zinc, with tin and zinc, and with zinc (WRIGHT and THOMPSON), 1891, A., 1158.  
   with sodium (JOANNIS), 1892, A., 778.  
   with tin, thermal and electrical behaviour of some, in a magnetic field (v. ETTINGSHAUSEN and NERNST), 1888, A., 546.  
 solution of, with pepsin (ROTHER), 1885, A., 712.  
 solution, alkaline, as a test for glucose in urine (NYLANDER), 1884, A., 1433.  
**Bismuth salts**, action of hydrogen peroxide on (HASEBROEK), 1887, A., 340.  
 antimonates (CAVAZZI), 1885, A., 875.  
 arsenate, basic (CAVAZZI), 1885, A., 653.  
 bromides, electrolytic conductivity of (HAMPE), 1888, A., 887, 888.  
 tribromide (MEYER), 1891, A., 1161.  
   action of hydrogen phosphide on an ethereal solution of (CAVAZZI and TRIVOLI), 1892, A., 279.  
 carbonate, from Guanajuato, Mexico (WEISBACH), 1883, A., 432.  
   See also Bismuthite.  
 chlorides, electrolytic conductivity of (HAMPE), 1888, A., 887, 888.  
   heat of formation of (THOMSEN), 1883, A., 544.  
 trichloride, dissolution of, in a saturated solution of sodium chloride (CAUSSE), 1892, A., 122.  
   action of hydrogen phosphide on (CAVAZZI), 1885, A., 218.  
   compounds with nitric oxide and peroxide (HESSEN), 1889, A., 834.  
   hydrochloride of (ENGEL), 1888, A., 1042.  
 caesium and potassium and rubidium chlorides (BRIGHAM), 1892, A., 788.  
 fluoride (GOTT and MUIR), 1887, P., 130; 1888, T., 138.  
 oxyfluoride (GOTT and MUIR), 1888, T., 139.  
 iodide (GOTT and MUIR), 1887, P., 130; 1888, T., 137.  
 potassium iodides (ASTRE), 1890, A., 703, 1067.

**Bismuth oxyiodide** (ASTRE), 1891, A., 19.  
 halogen salts of, double (ATKINSON), 1883, T., 289; (BRIGHAM), 1892, A., 788.  
 hydroxide, dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 72, 86.  
 oxides, heat of formation of (THOMSEN), 1883, A., 544.  
 trioxide, cubical form of (MUIR and HUTCHINSON), 1889, T., 143; P., 2.  
 pentoxide (HASEBROEK), 1887, A., 340.  
   barium compounds of (MESCHTCHERSKY), 1883, A., 158.  
   colour reactions of (LÉVY), 1887, A., 305.  
 bismuthic acid (ANDRÉ), 1892, A., 413, 688.  
 compounds of (HOFFMANN), 1884, A., 824.  
 bismuthates (MUIR and CARNEGIE), 1886, P., 253; 1887, T., 77.  
 nitrate, basic, preparation of pure (GROSSMANN), 1884, A., 1092.  
 arsenic in (GROSSMANN), 1884, A., 1092.  
 nitric peroxide in (HAGER), 1885, A., 354.  
 test for (HAGER), 1884, A., 116.  
 examination of (LENZ), 1883, A., 382.  
 phosphate, basic (CAVAZZI), 1885, A., 653.  
 sulphate (HENSEN), 1886, A., 513; (BAILEY), 1887, T., 679.  
   basic (ATHANASSOFF), 1886, A., 982.  
   fluorescence of (LECOQ DE BOISBAUDRAN), 1887, A., 4.  
 sulphide, precipitated, composition of (ANTONY and LUCCHESI), 1890, A., 1217.  
 hydrosulphide, attempts to prepare (LINDER and PICTON), 1892, T., 132.  
**Bismuth organic compounds** :—  
   alkyl-derivatives (MARQUARDT), 1887, A., 802; 1888, A., 1066.  
   thiocyanate (BENDER), 1887, A., 566.  
**Bismuth detection, estimation, and separation** :—  
   detection of (STONE), 1888, A., 197; (LÉGER), 1889, A., 79.  
   detection of, microchemical (HAUSHOFFER), 1887, A., 301.  
   detection of, in lead (GUYARD), 1884, A., 368, 640.  
   estimation of (BAUMANN), 1892, A., 539.

**Bismuth estimation, and separation:—**

estimation of, electrolytic (CLASSEN and LUDWIG), 1886, A., 493; (MOORE), 1886, A., 921; (SMITH and KNER), 1886, A., 923; (BRAND), 1890, A., 295.

estimation of, electrolytic, as amalgams (VORTMANN), 1891, A., 1553.

estimation of, in copper (JUNGER), 1888, A., 324.

estimation of, in silver slags (HAMPE), 1892, A., 919.

separation of, from cadmium, by means of bromine vapour (JANNASCH and ETZ), 1892, A., 385.

separation of, from cadmium, lead and tin (JANNASCH and ETZ), 1892, A., 754.

separation of, electrolytic, from copper (SMITH and FRANKER), 1890, A., 1029.

separation of, qualitative and quantitative, from copper (LOEWY), 1884, A., 497.

separation of, from lead (LEMME), 1890, A., 421; (REMMLER), 1892, A., 385.

separation of, from lead, by means of bromine vapour (JANNASCH and ETZ), 1892, A., 540.

separation of, from mercury and palladium (ROSENBLAU), 1887, A., 302.

**Bismuth minerals from Gladhammar** (LINDSTROM), 1891, A., 20.

**Bismuthic gold** (MACIVOR), 1887, A., 707.

**Bismuthinite, seleniferous** (GENTH), 1891, A., 1328.

**Bismuthite from North Carolina** (CHESTER), 1887, A., 783.

from the Transvaal (LOUIS), 1888, A., 31.

See also Bismuth carbonate.

**Bismuthosphærite from Willimantic and Portland, Connecticut** (WELLS), 1888, A., 346.

**Bismuth-silver-glance, artificial** (SCHNEIDER), 1890, A., 710.

**Bis-*p*-nitrobenzylpiperidine** (LELLMANN and SCHWADERER), 1889, A., 903.

**Bis-1-phenyl-3:4-dimethyl-5-pyrazolone** (KNORR), 1887, A., 601.

**Bisphenylhydrazophenol**. See Phenol-bishydrazobenzene.

**Bisphenylmethylazimethylene** (CURTIUS and THUN), 1891, A., 1355.

**Bis-1-phenyl-3-methyl-4-ethyl-5-pyrazolone** (KNORR), 1887, A., 602.

**Bis-1-phenyl-3-methyl-4-methylene-5-pyrazolone** (PERKIN), 1889, P., 142; 1890, T., 222.

**Bis-1-phenyl-3-methyl-5-pyrazolone** (SPRAGUE), 1891, T., 339.

**Bisphenyltrimethylenetriamine** (GOLDENRING), 1890, A., 976.

**Bis-*p*-tolylmethylpyrazolone** (SPRAGUE), 1891, T., 341.

**Bituminous coals, from Alabama, Tennessee, and Kentucky, analyses of** (LUPTON), 1885, A., 1185.

**Bitumens, origin of** (PECKHAM), 1885, A., 488.

analyses of (BOUSSINGAULT), 1883, A., 941.

See also Asphalt.

**Biuret** (v. BRUCKE), 1886, A., 338.

reaction, the true and so-called (v. BRUCKE), 1883, A., 1019.

dicyanamide, and its salts (RASINSKI), 1883, A., 658.

dicyanodiamide (SMOLKA and FRIEDREICH), 1889, A., 951.

**Biurets, substituted** (KUHIN and HENSCHKE), 1888, A., 474.

thio- (HECHT), 1892, A., 703.

**Black ash, estimation of total soda, available soda, and of total lime in** (LUNGE), 1891, A., 497.

**Blackening, boot-, analysis of** (HORN), 1890, A., 1478.

**Blast furnace, phosphorus in** (HILGENSTOCK), 1885, A., 616.

practice with coke and with charcoal (BELL), 1883, A., 531.

consumption of fuel in (ANON.), 1885, A., 200.

**Blasting powder** (GAÇON), 1885, A., 315.

**Bleaching liquids, various** (LUNGE and LANDOLT), 1886, A., 399.

**Bleaching powder** (LUNGE), 1884, A., 820.

constitution of (O'SHEA), 1883, T., 410; (LUNGE and NAEF), 1883, A., 953; (DREYFUS), 1885, A., 19;

(LUNGE and SCHOCH), 1887, A., 700.

action of ammonia on (LUNGE and SCHOCH), 1887, A., 700.

action of water on (O'SHEA), 1883, T., 422.

arsenic in (GARNIER), 1886, A., 99.

preparation of chlorine from (WINKLER), 1889, A., 821.

rate of loss of chlorine from, at different temperatures (PATTINSON), 1888, A., 552.

valuation of, technical (VANINO), 1891, A., 615.

**Bleaching powder**, estimation of, by means of hydrogen peroxide (LUNGE), 1886, A., 738; 1890, A., 1469; (VANINO), 1891, A., 246.  
 estimation of chlorine in (HARVEY), 1888, A., 507.  
 estimation of active chlorine in (LIDOFF), 1886, A., 487; (NAMIAN), 1892, A., 1374.  
 See also Calcium hypochlorite.  
**Blende** (*sphalerite*), pyroelectricity of (FRIEDEL and CURIE), 1884, A., 8.  
 phosphorescent hexagonal (VERNÉUIL), 1888, A., 791, 1248.  
 action of hydrochloric acid on (STOLBA), 1887, A., 442.  
 containing manganese, estimation of zinc in (STAHL), 1890, A., 827.  
 separation of lead, silver, and zinc in (AUBIN), 1892, A., 1378.  
**Blödite** (*astracanthite*) (MARKOWNIKOFF), 1885, A., 732; (LUNDECKE), 1887, A., 1085; (ROOZEBOOM), 1888, A., 1164.  
 \* from Hall in Tyrol (v. FOULLON), 1891, A., 648.  
 from Tarapaca (SCHULZE), 1891, A., 1436.  
**Blood**, studies on (STRUVE), 1885, A., 71.  
 arterial and venous, the difference between, in different blood vessels (KRÜGER), 1890, A., 808.  
 composition of, under varying conditions (WEISKE), 1887, A., 855.  
 spectroscopic examination of (LINSSETER), 1888, A., 1139.  
 absorption spectrum of, in the violet and ultra-violet (SORET), 1884, A., 381.  
 specific gravity of (JONES), 1887, A., 608; 1891, A., 1527.  
 specific gravity of, of Europeans living in the tropics (EIJKMAN; GLOUGNER), 1892, A., 363.  
 specific gravity of, in disease (COPEMAN), 1891, A., 761.  
 specific gravity of, method for estimating the (HAYCRAFT), 1891, A., 1123.  
 specific gravity of, method of raising the (HUNTER), 1890, A., 393.  
 transfusion of mixtures of salt solution and (MARSHALL), 1891, A., 847.  
 proportion of, to body weight (COPEMAN and SHERRINGTON), 1890, A., 1015.  
 alkalimetry of the (WINTERNITZ), 1891, A., 1398.

**Blood**, alkalinity of the, after large doses of sodium sulphate (SWIATECKI), 1891, A., 347.  
 influence of acids and alkalis on the alkalinity of human (FREUDBERG), 1891, A., 1528.  
 relative alkalinity of, of vertebrates (DROUIN), 1891, A., 348.  
 causes of the alteration of, in contact with air, oxygen and carbonic anhydride (BÉCHAMP), 1887, A., 609.  
 changes of, in disease (LATHAM), 1888, A., 1324.  
 coagulation of the (HASEBROEK), 1883, A., 608; (WOOLDRIDGE), 1888, A., 619; 1889, A., 288, 1076; (HALLIBURTON), 1888, A., 974; (HAYCRAFT and CARLIER), 1888, A., 1121; (PEKELHARING), 1892, A., 27; (GRIESBACH), 1892, A., 1112.  
 chemical theory of the coagulation of the (ARTHUS and PAGES), 1891, A., 596.  
 coagulation of the, influence of calcium sulphate on the (GREEN), 1888, A., 306.  
 coagulation of the, influence of peptone on the (SHORE), 1891, A., 481.  
 coagulation of the, influence of salts on the (RINGER and SAINSBURY), 1890, A., 1176.  
 amount of dry residue and fat in arterial and venous (RÜHMANN and MÜLSAM), 1891, A., 347.  
 fermentation of (BEITHÉLOT and ANDRÉ), 1892, A., 900.  
 fibrin-ferment in (WOOLDRIDGE), 1885, A., 1253.  
 non-fermentable reducing substances in (SEEGEN), 1886, A., 383.  
 glycolysis in (ARTHUS), 1891, A., 1528; 1892, A., 900.  
 glycolytic power of (LÉPINE and BARRAL), 1892, A., 364.  
 isolation of the glycolytic ferment of (LÉPINE and BARRAL), 1891, A., 755.  
 variations of the glycolytic and saccharific powers of, in asphyxia and diabetes (LÉPINE and BARRAL), 1892, A., 517.  
 increase in the hæmoglobin in, at great altitudes (MUNTZ), 1891, A., 754.  
 hæmoglobin in, passing to and from the liver and spleen (v. MILDEN-DORFF), 1889, A., 1023.  
 amount of hæmoglobin in, during inanition (GROLL and HERMANN), 1889, A., 531.

- Blood**, formation of methæmoglobin in, by the action of alloxantin (KOWALEWSKY), 1887, A., 508.  
 hæmoglobin of dogs' (JAQUET), 1888, A., 731.  
 lactic acid in (BERLINERBLAU), 1888, A., 974; (SALOMON), 1889, A., 64.  
 production of lactic acid during the artificial circulation of, through the liver (WISSOKOWITSCH), 1888, A., 860.  
 dissolved nitrogen in (JOLYET and SIGALAS), 1892, A., 1257.  
 oxidation in the (HOPPE-SEYLER), 1890, A., 651.  
 behaviour of, when deprived of oxygen (ZWEIFEL), 1883, A., 818.  
 heat developed by the action of oxygen on the (BERTHELOT), 1890, A., 274.  
 tension of oxygen in (HUFNER), 1888, A., 1214.  
 specific quantities of oxygen in (BOHR), 1891, A., 341.  
 oxygen in the, of animals at great altitudes (VIATUT), 1891, A., 753.  
 peptone-, gases of (LAHOUSSE), 1889, A., 531; (BLACHSTEIN), 1892, A., 363.  
 peptones in (GEORGE), 1887, A., 188.  
 peptones in the, of leucæmic patients (v. JAKSCH), 1892, A., 519.  
 production of the proteids of (TORUP), 1889, A., 532.  
 proteids of lower Vertebrata (HALLIBURTON), 1886, A., 1050.  
 proteids of the, relation of dextrose to the (SCHENCK), 1891, A., 350.  
 formation of sugar from peptones in (LÉPINE), 1892, A., 1502.  
 sugar in (GINSBURG), 1890, A., 276; (SERGEN), 1892, A., 743.  
 sugar in: its source and signification (SERGEN), 1885, A., 411.  
 sugar in, with reference to nutrition (SERGEN), 1886, A., 382; 1887, A., 66.  
 amount of sugar and reducing substances in, under various circumstances (OTO), 1885, A., 829.  
 disappearance of sugar from the (HARLEY), 1892, A., 363.  
 destruction of glucose by (LÉPINE and BARRAL), 1890, A., 1172; 1891, A., 596.  
 effect of medicines, especially of valerian extract, on the destruction of sugar in (BUTTE), 1891, A., 754.  
 amount of urea in (GREHANT and QUINQUAUD), 1889, A., 914.
- Blood**, action of acetanilide and dihydroxynaphthalene on (LÉPINE), 1888, A., 184.  
 action of alloxantin on (KOWALEWSKY), 1888, A., 732.  
 action of carbon disulphide on (WESTBERG), 1892, A., 1520.  
 action of leech extract on (DICKINSON), 1891, A., 482.  
 action of ozone on (BINZ), 1883, A., 486; 1884, A., 95.  
 action of potassium ferricyanide on (v. MERING), 1884, A., 1398.  
 action of potassium nitrite on (HÉNOQUE), 1885, A., 682.  
 in chyluria (FREUND and OBERMAYER), 1891, A., 1124.  
 in leucocythæmia (FREUND and OBERMAYER), 1891, A., 1124.  
 in a case of melanotic sarcoma (HOPPE-SEYLER), 1891, A., 484.  
 of the *Aplysia* (CURNOT), 1890, A., 810.  
 of decapod Crustaceæ (HALLIBURTON), 1886, A., 639.  
 of invertebrates (GRIFFITHS), 1892, A., 648.  
 of a living mammifer, absorption of carbonic oxide by (GREHANT), 1892, A., 743.  
 of *Pinnu squamosa* (GRIFFITHS), 1892, A., 1016.  
 toxic action of (HÉRICOURT and RICHET), 1892, A., 228.  
 transformation of, into a solid and inodorous manure, by means of a new ferric sulphate (MARGUERITE-DELAHANLONNY), 1883, A., 239.  
 manual value of dried (PETERMANN), 1884, A., 211.  
 detection of (JANEČEK), 1892, A., 1369.  
 detection of human (COPEMAN), 1889, A., 1092.  
 test for, van Deen's (v. BRÜCKE), 1889, A., 1040.  
 detection of in urine (WOLFF), 1888, A., 880.  
 detection of carbonic oxide in (KATAYAMA), 1889, A., 88, 650; (WETZEL), 1890, A., 432, 1200; (RUBNER), 1891, A., 496; (BERTIN-SANS and MOITTESSIER), 1891, A., 1522.  
 analysis, method of hæmatoscopy (HÉNOQUE), 1887, A., 312; 1888, A., 204.  
 estimation of the alkalinity of (HAYCRAFT and WILLIAMSON), 1889, A., 449; (SWIATECKI; DROUIN), 1891, A., 348.  
 estimation of the glycogen in (LÉPINE and BARRAL), 1892, A., 89.

- Blood**, estimation of inorganic salts in small quantities of (STEWART), 1891, A., 619.  
 estimation of iron in (LAPICQUE), 1890, A., 297.  
 estimation of the oxygen in (SIRGFRIED), 1891, A., 845.  
 estimation of sugar in (SEEGER), 1891, A., 248; (SCHENCK), 1891, A., 504; (ARELES), 1891, A., 1399.
- Blood-ash**, influence of nutrition on the composition of (LANDSTEINER), 1892, A., 225.
- Blood-corpuscles**, red, the stromata of the (HALLIBURTON and FRIEND), 1889, A., 1231.  
 permeability of the, in relation to their isotonic coefficients (HAMBURGER), 1890, A., 809.  
 lecithin and cholesterol in (MANASSE), 1890, A., 1017.  
 action of various organic compounds on (HEINZ), 1891, A., 602.
- Blood-fibrin**, heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.
- Blood-pigments** (NENCKI and SIEBER), 1885, A., 69, 825; (HOPPE-SEYLER), 1889, A., 787.  
 decomposition products of (HOPPE-SEYLER), 1885, A., 826.  
 action of hydrogen peroxide on red (DÉCHAMP), 1883, A., 103.  
 behaviour of sodium nitrite with (WURSTER), 1887, A., 683.  
 blue, of the Crustaceæ (HEIM), 1892, A., 898.
- Blood-plasma**, soaps as constituents of (HOPPE-SEYLER), 1885, A., 573.  
 of the splenic vein, is free hæmoglobin present in, ? (SCHLAFFER), 1890, A., 1016.
- Blood-pressure**, action of hydroxylamine and nitrites on (BRUNTON and BOKENHAM), 1889, A., 630.  
 action of paraflinic nitrites on (CASH and DUNSTAN), 1891, A., 1270.
- Blood-serum**, new constituent of (WOOLDRIDGE), 1887, A., 983.  
 new protoid from human (CHABRIÉ), 1892, A., 224.
- Blood-stains**, detection of (FERRY DE LA BELLONE), 1888, A., 1140; (LEONE and DENARO), 1890, A., 840.  
 detection of, in presence of iron rust (DANNENBERG), 1887, A., 408.  
 detection of, on washed clothes (HUSON), 1884, A., 376.  
 formation of iodohæmin as a method for detecting (BUFALINI), 1886, A., 184.
- Blood-tablets** and thrombosis (LÖWIT), 1889, A., 127.
- Blood-vessels**, action of nicotine on (COLAS), 1891, A., 96.
- "Blooming"** of black Russian earth (GAYON), 1883, A., 679.
- Blowpipe reagent**, iodine as a (WHEELER and LUTHECKING), 1885, A., 596.  
 silver iodide as a (CASAMAJOR), 1885, A., 1157.
- Blue**, Egyptian (MULLIKUMER), 1890, A., 215.  
 See also Colouring-matters and Pigments.
- Bodily labour**, influence of, on the elimination of nitrogen (NORTH), 1885, A., 412; 1886, A., 569.
- Body**, human, decomposition of fibrin, galactin, peptone and asparagin in the (GRAFENBERGER), 1892, A., 904.
- Boehmeria*, composition of (JAFFA), 1892, A., 1511.
- Boiler explosions** (ANON.), 1883, A., 129.  
 prevention of (TRÉVE), 1883, A., 250, 835.
- Boiler fires**, investigation of (FISCHER), 1883, A., 942.
- Boiler incrustation**, composition of a (STILLMAN), 1890, A., 944; (CHRIST), 1892, A., 17.  
 barium and strontium in (BLOXAM), 1884, A., 699.  
 calcium hydroxide as a (LUTHECKE), 1886, A., 506.  
 prevention of (BAUDET), 1883, A., 408.
- Boilers**, consumption of fuel for heating (SCHEURER-KESSENER), 1884, A., 780.  
 effect of the presence of sheet zinc in (TRÉVE), 1883, A., 250.
- Boiling point** (LOSSEN), 1888, A., 335; (GERLACH), 1889, A., 813.  
 definition of (KAHLBAUM), 1884, A., 951.  
 law of (GULDBERG), 1890, A., 1043.  
 as a function of the chemical nature of substances (WILDERMANN), 1890, A., 941, 1364.  
 and melting point as related to chemical composition (MILLS), 1885, A., 329.  
 determination of the molecular weight from the rise of the (BIRKMANN), 1889, A., 933.  
 relation of, to critical point (BARTOLI), 1885, A., 859.

**Boiling point**, relation of, to pressure (KAHLBAUM), 1884, A., 141, 950; 1885, A., 1176; 1886, A., 590; 1887, A., 206; (SCHUMANN), 1885, A., 1176.

Kahlbaum's so-called "specific remission" as an expression of the dependence of, on atmospheric pressure (NAUMANN), 1885, A., 717.

high temperature, pressure variations of (BARUS), 1891, A., 9.

relation of, to molecular volumes and chemical characters of liquids (MASON), 1891, A., 379.

relation of, to specific volume (STAEDEL), 1883, A., 302; (GROSIANS), 1886, A., 590.

of the fatty acids,  $C_2H_3O_2-C_8H_{10}O_2$  (KAHLBAUM), 1887, A., 207.

of monohydric alcohols, relation of, to constitution (FLAWITZKY), 1887, A., 879.

of the corresponding ketones, ethereal salts, and chloranhydrides, similarity of (SCHRÖDER), 1883, A., 990.

highest, of liquids (PUSCHL), 1888, A., 17.

of solutions of metallic chlorides (SKINNER), 1892, T., 340.

of mixed derivatives (HENRY), 1886, A., 135.

of phenols and their ethers (PINETTE), 1888, A., 335.

of saline solutions (NICOL), 1885, A., 331.

determination of (RAMSAY and YOUNG), 1886, P., 181; (GROSIANS), 1886, A., 411; (SWOLOBOFF), 1886, A., 497.

determination of, with the platinum thermometer (GRIFFITHS), 1891, A., 251.

determination of, under any pressure (HINRICHS), 1891, A., 1408.

errors in the determination of (GRAFFN), 1883, A., 844.

determination of, mechanical, of acids and alcohols (HINRICHS), 1892, A., 1039.

determination of, mechanical, of compounds of simple terminal substitution (HINRICHS), 1892, A., 948.

determination of, mechanical, of compounds of complex terminal substitution (HINRICHS), 1892, A., 1039.

determination of, of ethereal salts of normal fatty acids (GARTENMEISTER), 1886, A., 966; (DOBRIÑEN), 1888, A., 334.

**Boiling point**, determination of, of normal isomeric ethereal salts of the fatty series (HINRICHS), 1892, A., 260.

determination of, with small quantities of liquids (SWOLOBOFF), 1886, A., 497; (SCHLEIERMACHER), 1891, A., 873; (JONES), 1891, A., 1146.

determination of, of paraffin derivatives (HINRICHS), 1892, A., 797.

**Boiling point curves** for the normal paraffins (HINRICHS), 1892, A., 947.

"**Bois piquant**," bark of (HECKEL and SCHLAGDENHAUFFEN), 1884, A., 848.

*Boldoa fragrans*, a glucoside from (CHAPOTEAUT), 1884, A., 845.

**Bole** from Steinkirchen, in Bohemia (STARKL), 1883, A., 444.

**Boleite** (MALLARD and CUMENGE), 1892, A., 123.

*Boletus*, alkaloids in (DUPETIT), 1884, A., 204.

*Boletus edulis* and *B. aurantiacus*, distribution of sugars in (BOURQUELOT), 1892, A., 519.

*Boletus luridus*, fat of (OPITZ), 1891, A., 1285.

*Bombyx Mori*, chemical changes attending the development of the embryo in the eggs of (TICHOMIROFF), 1885, A., 1000.

**Bonds**, double, theory of (SKRAUP), 1891, A., 1320.

**Bone**, bleaching and dyeing (KAYSER), 1886, A., 188.

**Bone-black**. See Animal charcoal.

**Bone-meal**. See Agricultural Chemistry.

**Bones**, composition of, influence of various salts on the (WEISKE), 1891, A., 848, 1525; 1892, A., 647.

do they contain keratin? (SMITH), 1884, A., 1398.

of different ages, ash in (MASON), 1888, A., 80.

of normal and rachitic children, inorganic constituents of (BRUBAKER), 1891, A., 847.

of aged rabbits (GRAFFENBERGER), 1891, A., 1275.

fossil, of various ages, proportion of fluorine in (CARNOT), 1892, A., 1413.

fossil and recent, fluorine in (CARNOT), 1892, A., 1161.

**Boothblackening**, analysis of (HORN), 1890, A., 1478.

**Boracic acid**. See Boric acid under Boron.

**Boracite**, artificial production of, in the wet way (DE GRAMONT), 1890, A., 1384.  
determination of the refractive indices of (MALLARD), 1886, A., 209.  
pyroelectric properties of (FRIEDL and CURIE), 1884, A., 3; (MACK), 1884, A., 655.  
crystalline form of (BAUMHAUER), 1886, A., 24.  
**Borax**. See Sodium borohydrate.  
**Bordeaux-red**, detection of, in wine (THOMAS), 1884, A., 370.  
**Borhgyer water**, composition of (BALLÓ), 1884, A., 978.  
**Borneen**, so-called (WALLACH), 1886, A., 70.  
**Borneo tallow** (GIEBEL), 1888, A., 447.  
**Borneocamphene** (BRUHL, BILIZ, CANTZLER, and REUTER), 1892, A., 624; (BRÜHL), 1892, A., 625.  
**Borneol** (*camphol*) and its derivatives (WALLACH), 1886, A., 70.  
from camphor (JACKSON and MENKE), 1884, A., 666; (KACHLER and SPITZER), 1884, A., 754.  
from valerian (HALLER), 1886, A., 1040.  
reduction of camphor to<sup>d</sup> (JACKSON), 1885, A., 991.  
preparation of, from terpene (MARSH and STOCKDALE), 1890, T., 963.  
constitution of (KANONNIKOFF), 1886, A., 336; (COLLIE), 1892, A., 865.  
properties of (BOUCHARDAT and LAFONT), 1892, A., 199.  
specific volume of (KUHARA), 1889, A., 785; 1890, A., 169.  
action of carbon disulphide on (BAMBERGER and LODIER), 1890, A., 517.  
metallic derivatives of (BRUHL and BILIZ), 1891, A., 656.  
physiological action of (STOCKMAN), 1888, A., 1216.  
separation of, from camphor (HALLER), 1889, A., 1002.  
*iso*Borneol, properties of (BOUCHARDAT), 1892, A., 199.  
**Borneol**, inactive, synthesis of (BOUCHARDAT and LAFONT), 1886, A., 365.  
*d*-**Borneol**, preparation of a, identical with *Dryobalanops* borneol (HALLER), 1889, A., 1002.  
*l*-**Borneol** (LEXTHRETT), 1886, A., 557.  
**Borneol**, racemic (HALLER), 1887, A., 1050.  
**Borneols**, from the French essence of terebenthene (BOUCHARDAT and LAFONT), 1889, A., 897.

**Borneols**, heat of combustion of (LUGGIN), 1889, A., 328.  
isomerism of (HALLER), 1886, A., 890; 1887, A., 375.  
acetates and benzoates of (HALLER), 1889, A., 1002.  
normal and acid ethereal salts and phthalates of (HALLER), 1889, A., 620.  
*α*-**Borneols**, camphorates of (HALLER), 1890, A., 790.  
**Borneols**, inactive, yielding active camphols (HALLER), 1887, A., 1050.  
*iso***Borneols**, influence of solvents on the rotatory power of (HALLER), 1889, A., 1206; 1891, A., 575.  
**Borneolurethanes**, isomeric (HALLER), 1884, A., 755.  
**Bornite**, artificial production of (DOETTER), 1886, A., 208.  
from New Mexico, microscopic character of (BAUMHAUER), 1886, A., 22.  
mineral related to, from Montana (PEARCE), 1890, A., 710.  
See also Tetradymite.  
**Bornyl sodium camphorate** (HALLER), 1890, A., 790.  
chloride (WALLACH), 1886, A., 70.  
ethyl, methyl, and methylene ethers (BRUHL), 1892, A., 200, 348.  
phenylamidoformate (LEUCKART), 1887, A., 376.  
**Bornyl and isobornyl phenylcarbamates** (HALLER), 1890, A., 518.  
**Bornylamine**, and its derivatives (LEUCKART and BACH), 1887, A., 376.  
constitution of (BAMBERGER), 1888, A., 722.  
tartrate (WALLACH and GRIEFENKERL), 1892, A., 1238.  
**Bornylbenzyl- and bornylbenzylideneamines** (WALLACH and GRIEFENKERL), 1892, A., 1238.  
**Bornyl-, bornylphenyl-, and bornylphenylthio-carbamides** (LEUCKART and BACH), 1887, A., 377.  
**Bornylxanthic acid** (BAMBERGER and LODIER), 1890, A., 517.  
**Borocalcite**. See Ulexite.  
**Boron**, atomic weight of (ABRAHAM), 1892, T., 650; P., 74; (ASTON and RAMSAY), 1892, P., 165.  
valency of (LORENZ), 1888, A., 1216, 1247; (GUSTAVSON), 1889, A., 465.  
preparation of (RAWSON), 1889, A., 211; (GATTERMANN), 1889, A., 343; (MAISCH), 1890, A., 331.  
preparation of, by electrolysis (HAMPE), 1889, A., 103.

- Boron**, preparation of amorphous (MOISSAN), 1892, A., 681, 682.  
 properties of amorphous (MOISSAN), 1892, A., 1153.  
 spectrum of (HARTLEY), 1883, T., 397; 1884, A., 242.  
 action of, on organic haloids (CHABRIÉ), 1892, A., 1816.  
 combustion of, in dried oxygen (BAKER), 1889, A., 465.  
 influence of, on steel (OSMOND), 1890, A., 566.  
 alloy with aluminium (MINET), 1891, A., 1321.
- Boron bromide**, preparation of (ABRAHALL), 1892, T., 655.  
 action of hydriodic acid on (BESSON), 1891, A., 980.  
 combination of ammonia with (BESSON), 1892, A., 771.  
 carbide (JOLY), 1884, A., 156.  
 chloride, preparation of (GATTERMANN), 1889, A., 343.  
 combination of ammonia and hydrogen phosphide with (BESSON), 1890, A., 690.  
 oxychloride (LORENZ), 1888, A., 1246.  
 composition of (GUSTAVSON), 1889, A., 465.  
 fluoride, combination of, with hydrogen phosphide (BESSON), 1890, A., 448.  
 ammonium fluoride (STOLBA), 1890, A., 561.  
 hydride (WINKLER), 1890, A., 693; (SABATIER), 1891, A., 979.  
 iodide (MOISSAN), 1891, A., 979; 1892, A., 1154.  
 combination of ammonia and of hydrogen phosphide with (BESSON), 1892, A., 771.  
 bromiodides (BESSON), 1891, A., 980.  
 phospho-*mono*- and -*di*-iodides (MOISSAN), 1892, A., 115.  
 nitride, action of alcohols on (VIDAL), 1891, A., 1003; 1892, A., 1311.  
 oxide (*boric anhydride*), action of magnesium on (WINKLER), 1890, A., 693.  
 action of organic halogen compounds on (CHABRIÉ), 1891, A., 281.  
 products of the reduction of, by aluminium (JOLY), 1884, A., 156.
- Boric acid** (*boracic acid*) (GEORGIEVICH), 1888, A., 1247.  
 non-volcanic origin, and origin of (DIEULAFAIT), 1885, A., 876.  
 as a plant constituent (CRAMPTON), 1889, A., 794; (HOTTER), 1890, A., 1338.
- Boric acid** (*boracic acid*) in the beech (BECHI), 1890, A., 656.  
 in the products of the soil (GASSEND), 1892, A., 93.  
 in wine and in the vine (BAUMERT), 1889, A., 295.  
 electrolysis of (BARTOLI and PAPA-SOGGI), 1883, A., 540.  
 conductivity, electrical, of solutions of, in presence of dulcitol (MAGNANINI), 1891, A., 251.  
 heat conductivity of (BOUK), 1887, A., 753.  
 freezing points of aqueous solutions of mannitol and (MAGNANINI), 1892, A., 263.  
 influence of, on the electrical conductivity of dilute alcoholic solutions of organic acids (MAGNANINI), 1892, A., 1265.  
 action of, on calcium carbonate in the cold (REED), 1885, A., 484.  
 action of mannitol on (MAGNANINI), 1890, A., 1357.  
 action of polyhydric alcohols on solutions of sodium hydrogen carbonate and (JEHN), 1887, A., 790; 1888, A., 1172.  
 compound of, with phosphoric acid (MEYER), 1890, A., 108.  
 compound of, with sulphuric anhydride (D'ARCY), 1889, T., 155; P., 4.  
 physiological action of (FORSTER), 1884, A., 782; (JOHNSON), 1886, A., 572.  
 action of, on germination (MOREL), 1892, A., 651.  
 use of, in alkalimetry (GUYARD), 1884, A., 638.  
 use of, in preserving food (FORSTER), 1883, A., 1178; 1884, A., 782.  
 detection of, in milk (MEISSEL), 1883, A., 385; (KRETZSCHMAR), 1887, A., 864; (CASSAL), 1891, A., 619.  
 estimation of (GILBERT), 1886, A., 742; (ROSENBLADT; GOOCH), 1887, A., 299; (MORSE and BURTON), 1888, A., 755; (PARMENTIER), 1891, A., 1551; (HEINER), 1892, A., 384.  
 estimation of, volumetric (WILL), 1888, A., 628; (McGLASHAN), 1889, A., 75.  
 estimation of, in borosilicates (BODEWIG), 1884, A., 871.  
 estimation of, in milk and cream (CASSAL), 1891, A., 619.  
 estimation of, in mineral waters (FRESENIUS), 1886, A., 649.

- Boric acid** (*boracic acid*), separation of (GOOCH), 1887, A., 299; (MONSE and BURTON), 1888, A., 755.
- Borates**, natural (RAMMELSBERG), 1885, A., 28; (WHITFIELD), 1888, A., 347.
- from Stassfurt (MILCH), 1891, A., 528; (LUEDECKE), 1891, A., 528; 1892, A., 791; (FETT), 1892, A., 791.
- crystalline, production of (DITTE), 1884, A., 711.
- metallic (LE CHATELIER), 1892, A., 404; (DITTE), 1892, A., 565.
- test for, microchemical (HAUSHOFFER), 1887, A., 300.
- Borax**. See Sodium baborate.
- For special borates, see under the respective metal or basic radicle.
- Boron** phosphide (BESON), 1891, A., 1418; 1892, A., 273; (MOISSAN), 1892, A., 115, 272.
- selenite (SABATIER), 1891, A., 981.
- trisulphide (SABATIER), 1891, A., 981; (MOISSAN), 1892, A., 1392.
- pentasulphide (MOISSAN), 1892, A., 1394.
- cadmium tungstate, crystallography of (LINCK), 1887, A., 334.
- Boron compounds, organic** (RIDEAL), 1889, A., 769.
- triphenyl (MICHAELIS), 1889, A., 505.
- Boron minerals**, geological occurrence of (v. GROEDCK), 1888, A., 566.
- Boronatrocalcite**. See Ulexite.
- Boroquatuordecitungsates** (KLEIN), 1883, A., 23, 756.
- Borosilicates**, natural (WHITFIELD), 1888, A., 317.
- Borotungstates** (KLEIN), 1883, A., 23, 786; 1884, A., 559, 1266.
- Botryogen** (BLASS), 1881, A., 269, 1103; (HOCKAUF), 1887, A., 21; (DARAPSKY), 1890, A., 156.
- Bottle-glass**. See Glass.
- Bottles** for reagents (GAWALOWSKI), 1885, A., 835.
- Bouquets**, artificial, toxic action of (LABONDE and MAGNAN), 1888, A., 737.
- Bournonite** (PAGE), 1883, A., 162; (GONNARD), 1885, A., 220; (MIER), 1886, A., 312; (SIPOZ), 1886, A., 314.
- artificial production of (DOELIER), 1886, A., 208.
- decomposition of, by air containing bromine (JANNASCH), 1889, A., 1243.
- from Arizona (BLAKE), 1890, A., 572.
- from Chili and Bolivia (v. SANDBERGER), 1886, A., 431.
- Brachypodium sylvaticum**, analyses of (WILSON), 1889, A., 1078.
- Bracken** (*Pteris aquilina*) and its ash, analysis of (PETERMANN), 1884, A., 207.
- "Bradoxydabel"** (TRAUBE), 1883, A., 709.
- Brahinite**, new specimen of (MEUNIER), 1889, A., 765.
- Brain**, influence of sodium chloride on the chemical composition of the (NOVI), 1891, A., 1274.
- distribution of lead in, in cases of lead poisoning (BLYTH), 1887, P., 71.
- relation of phosphoric acid to nitrogen in urine during feeding with (POLITS), 1885, A., 283.
- Brain substance**, new method of proximate resolution of (BAUMSCHAR), 1885, A., 918.
- of the horse, composition of (BAUMSCHAR), 1885, A., 918.
- Bran**, distillation of, with lime (LAYCOCK and KLINGEMANN), 1892, P., 138.
- See also Agricultural Chemistry.
- Bran** from raspberries and strawberries (ROMMIER), 1887, A., 292.
- from wine (ORDONNEAU), 1886, A., 436.
- from a wine from Charente Inférieure (MORIN), 1888, A., 125.
- from different parts of the German Empire, amylic alcohol in (SELL), 1890, A., 1888.
- n*-butylic alcohol and higher alcohols in (CLAUDON and MORIN), 1887, A., 714.
- tetracarbon-aldehyde in (MULLER), 1892, A., 810.
- analysis of (ROQUES), 1889, A., 84; (FRIESENHUS), 1890, A., 1195; (MOHLER), 1891, A., 503.
- estimation of fusel oil in, by Otto's method (KRAUCH), 1883, A., 123.
- Brandy-distillation**, glycerol in the residuary liquors of (v. TORRING), 1889, A., 735.
- Brasilein**. See Brazilin.
- Brasilin**. See Brazilin.
- Brass**, dissociation of (WARDER), 1881, A., 660.
- production of a gold-coloured or green surface on (FUSCHER), 1884, A., 128.
- polished (MEIDINGER), 1884, A., 521.
- process for phosphorising (WHITING), 1884, A., 936.
- Brassamide** (REIMER and WILL), 1887, A., 233.
- Brassic acid**, heats of combustion and formation of (SCHOEMANN and LANGBEIN), 1891, A., 11.

- Brassic acid**, boiling points of (KRAFFT and NOERDLINGER), 1889, A., 691.  
 stereometric relations of, with erucic acid (HOLT), 1892, A., 429, 812, 1427.  
 derivatives of (REIMER and WILL), 1887, A., 233.  
 phenylhydrazide (HOLT), 1892, A., 1428.
- Brassic acid**, bromo- and *mono*- and *di*-chloro- (HOLT), 1892, A., 429.
- Brassic anhydride** (REIMER and WILL), 1887, A., 233.
- Braunite** from Jakobsberg (IGELSTRÖM), 1887, A., 643; (SCHUSTER), 1888, A., 428.  
 from Orebro (IGELSTRÖM), 1890, A., 1076.  
 from Sweden (IGELSTRÖM), 1892, A., 1404; (FLINK), 1892, A., 1405.  
 See also Manganese sesquioxide.
- Brazilein**, preparation of (v. BUCHKA and ERCK), 1885, A., 907.  
 derivatives of (SCHALL and DRALLE), 1892, A., 502.  
*tribromo*- (SCHALL and DRALLE), 1890, A., 997.
- Brazilein-dihydroxime and -phenylhydrazone** (SCHALL and DRALLE), 1890, A., 997.
- Brazillin** and its derivatives (DRALLE; v. BUCHKA), 1884, A., 1043; (SCHALL and DRALLE), 1888, A., 295; 1889, A., 55, 1004; 1890, A., 996.  
 constitution of (WIEDEMANN), 1884, A., 756.  
 oxidation of (SCHALL and DRALLE), 1892, A., 502.  
 acetyl derivatives of (v. BUCHKA and ERCK), 1885, A., 907.  
 bromo-derivatives of (v. BUCHKA and ERCK), 1885, A., 907; (SCHALL and DRALLE), 1889, A., 1004.  
*di*bromide, *tribromo*- (SCHALL and DRALLE), 1889, A., 56.  
 tetramethyl ether, bromine derivatives of (SCHALL and DRALLE), 1890, A., 997.
- Brazinole** (WIEDEMANN), 1884, A., 756.
- Bread**, fermentation of (MOUSSETTE), 1883, A., 1179; (CHICANDARD), 1883, A., 1179; 1884, A., 235; (BOUTROUX), 1884, A., 132; 1891, A., 1532; (GIRARD), 1886, A., 185.  
 fermentation of, formation of alcohol in the (MARCANO), 1884, A., 532.  
 nitrogenous constituents of (ULLIK), 1883, A., 821.  
 detection of ergot in (PALM), 1884, A., 377.
- Bread**, logwood test for alum in (YOUNG), 1887, A., 1143.  
 estimation of alum in (YOUNG), 1891, A., 114.
- Bread**, gluten-, estimation of starch in (RICHARD), 1885, A., 299.
- Bread-making** (MARCANO), 1884, A., 132.  
 utilisation of butter-milk in (MULLER), 1883, A., 1037.
- Breadstuffs**, growth of, in various latitudes (ANON.), 1885, A., 78.
- Breath**, volatile bases in (WURTZ), 1888, A., 616.
- Breithauptite**, artificial (BRAND), 1887, A., 17.  
 from Sarrabus, Sardinia (MATTIROLI), 1892, A., 790.  
 See also Covellite.
- Brunnerite** from the Central Ural (SAYTZEFF), 1889, A., 837.  
 from Hall in Tyrol (v. FOULLON), 1891, A., 648.
- Brewer's pitch**, an examination of (v. MILKOWSKI), 1891, A., 512.
- Brewing**, progress in (ANON.), 1885, A., 1169.  
 influence of proteids in barley on (ANON.), 1883, A., 756.  
 system on which rice may be used in (MARKE), 1884, A., 235.  
 use of maize in (GENT), 1884, A., 527.
- Brewing water** (DELBRUCK), 1885, A., 1169.
- Bricks**, formation of sodium sulphate in (CHRISTEL), 1884, A., 127.
- "Brilliant-green,"** preparation of (MÜHLHAUSER), 1887, A., 580.
- Brine-springs**. See Water.
- Broad beans**. See Beans, broad.
- Brochantite**, artificial, analysis of (ATHANASOESCU), 1885, A., 1117.  
 from Chili (CHESTER), 1887, A., 783.
- Bröggerite** (BLOMSTRAND), 1884, A., 1102.
- Bromacenaphthene** (BAMBERGER and LODTER), 1888, A., 604.
- Bromacenaphthenes**, *tri*- and *tetra*- (EWAN and COHEN), 1889, T., 581; P., 123.
- p-Bromacetaldehydephenylhydrazone** (NEUFELD), 1889, A., 251.
- Bromacetamide** (BUCHNER and PAPENDIECK), 1892, A., 827.
- isoBrom-o-acetamidooacetophenone** (v. BAEYER and BLOEM), 1884, A., 1026.
- Brom-p-acetamidophenylpropionic acid** (GABRIEL), 1883, A., 195.
- Brom-p-acetamidostyrene** (GABRIEL and HERZBERG), 1883, A., 1123; (HERZBERG), 1885, A., 662.

- Bromacetanilide** (ABENIUS), 1890, A., 268.
- Bromacetic acid**, preparation of (MICHAEL), 1884, A., 421.
- diBromacetic acid**, electrolysis of (LASSAR-COHN), 1889, A., 1056.
- o-Bromaceto- $\beta$ -naphthalide**, action of bromine on (MELDOLA), 1883, T., 7.
- tetraBromaceto- $\beta$ -naphthalide** (MELDOLA), 1883, T., 8.
- Bromacetone**, action of, on ammonium thiocyanate (NORTON and WESTENHOFF), 1888, A., 936.
- s-diBromacetone** (HJELT and SIVÉN), 1889, A., 284.
- hexaBromacetone** (HERZIG), 1883, A., 464; (HANTZSCH), 1888, A., 1192.
- p-Bromacetonephenylhydrazone** (NEUFELD), 1889, A., 251.
- Bromacetonitrile** (HENRY), 1886, A., 1001.
- Bromacetophenone**. See Acetophenone.
- Bromacetothenone** (GATTERMANN and RÖMER), 1886, A., 537; (BRUNSWIG), 1887, A., 286.
- 5-Bromaceto-o-toluidide** and its derivatives (ALT), 1889, A., 1214; (NIEMENTOWSKI), 1892, A., 888.
- oxidation of, by permanganate (ALT), 1889, A., 987.
- esoBromaceto-o-toluidide** and its derivatives (ABENIUS and WIDMAN), 1888, A., 824.
- esodiBromaceto-o-toluidide** (ABENIUS and WIDMAN), 1889, A., 134.
- 4-Bromaceto-m-toluidide** (CLAUS), 1892, A., 1201.
- 3:5-diBromaceto-p-toluidide** (CLAUS and HERBARNY), 1892, A., 175.
- esoBromaceto-p-toluidide** (ABENIUS), 1890, A., 269.
- p-Bromaceto-m-xylidide** (ABENIUS), 1888, A., 854; 1890, A., 269.
- pentuBromacetoacetamide** (V. PERCUMANN and STOKES), 1885, A., 1202.
- hexaBromacetylacetone** (COMBES), 1888, A., 666.
- Bromacetylacetones**, *hepta-* and *per-* (ZINCKE and KEUHL), 1890, A., 1108, 1110.
- diBromacetylacrylic acid** (ANGELI and CIAMICIAN), 1891, A., 427; 1892, A., 302.
- diBromacetylbrazelein** (SCHALL and DRALLE), 1890, A., 997.
- Bromacetylcholesterol** (REINITZER), 1888, A., 1076.
- Brom-p-acetyleneanisole** (EIGEL), 1887, A., 1110.
- diBromacetylmethylpyrrolidine** (CIAMICIAN and SILBER), 1888, A., 62.
- Bromacetyl- $\beta$ -methylthiophen** (GERLACH), 1892, A., 830.
- diBromacetylnaphthasteryl** (EKSTRAND), 1886, A., 715.
- triBromacetylpyrrolidine** (CIAMICIAN and SILBER), 1885, A., 1078.
- $\beta$ -Bromacrylic acid** (STOLZ), 1886, A., 531.
- diBromacrylic acid** (HILL), 1886, A., 687.
- triBromacrylic acid**, crystalline form of (MELVILLE), 1883, A., 310.
- Bromadenine** (BRUHNS), 1890, A., 535; (KRUGER), 1892, A., 890.
- diBromadipic acid** (RUHEMANN and BLACKMAN), 1890, T., 371; P., 38.
- Bromaldehydes**, formation of, by the action of bromine on alcohols of the ethyl series (ETARD), 1892, A., 809.
- Bromallylacetophenone dibromide** (PERKIN), 1884, T., 188.
- Bromallylamine** and its derivatives (PAAL), 1889, A., 116; (PAAL and HERMANN), 1890, A., 229.
- Bromallylbenzene** (KORNER), 1888, A., 368.
- Bromaloin** (GROENEWOLD), 1890, A., 639.
- 2:4-Bromamido- $\alpha$ -acetonaphthalide** (MELDOLA), 1885, T., 500.
- Bromamidoacetylquinoline** (LA COSTE), 1883, A., 91.
- p-Brom-o-amidobenzoic acid** (CLAUS and SCHUTTEN), 1891, A., 565.
- Bromdiamidoisobutylbenzene** (GELZER), 1889, A., 44.
- Bromamidocarvacrol** (MAZZARA), 1890, A., 884; 1892, A., 595.
- m-Brom-o-amidoisocoumaric acid** (FILETTI and CRONA), 1891, A., 1056.
- 2:5-diBrom-3:6-di(amidocymenes** (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1200, 1201.
- diBromdiamidodiphenyl** [m.p. 108°] (SCHULTZ), 1884, A., 903.
- Bromamidodiphenyldisulphonic acid** (LIMPRICHT), 1891, A., 929.
- Brom-m-amidoethoxybenzenes**, *mono-*, *di-* and *tri-* (LINDNER), 1885, A., 775.
- 2:5-Bromamido-3-ethoxy-1-methyl-4-propylbenzene** (MAZZARA and VIGILI), 1890, A., 883.
- 2:3-Bromamido-1:4-naphthaquinone** and its imide (ZINCKE and GERLAND), 1887, A., 838.
- Bromamido-oxindole** (JACKSON and BANCROFT), 1890, A., 982.
- Bromamidophenetols** (STAEDEL), 1883, A., 662.
- Bromamidophenols**, and their derivatives (HÖLZ), 1885, A., 1211.

- di*Brom-*p*-amidophenol (MÖHLAU), 1884, A., 594; (LELLMANN and GROTHMANN), 1885, A., 266.
- tri*Bromamidophenol (DACCOMO), 1885, A., 889.
- Bromamido- $\beta$ -phenylpropionic acid (GABRIEL), 1883, A., 195.
- Bromamidophenylsuccinamide (HOOGEWERFF and VAN DORP), 1891, A., 196.
- Brom-*o*-amidophenylvaleric acids, *esodi*- and *tetra*- (DIEHL and EINHORN), 1887, A., 486.
- Bromamidoquinoline [m. p. 164°] (LA COSTE), 1883, A., 90.
- 2:2'-Bromamidoquinoline [m. p. 62°] (CLAUS and VIS), 1889, A., 281.
- Bromamidoisoquinoline (EDINGER and BOSSUNG), 1891, A., 581.
- Bromamidostrychnine (BECKURTS), 1890, A., 1829.
- o*-Brom-*p*-amidothymol (MAZZARA and DISCALZO), 1886, A., 1019; (MAZZARA), 1890, A., 602.
- 2:5-Bromamidothymol ethyl ether (MAZZARA and VIGHI), 1890, A., 883.
- Bromisodiamido-*o*-toluene (HUBNER and SCHUPPHAUS), 1884, A., 1143.
- o*-Brom-*m*-amido-*p*-toluic acid (FILETI and CROSA), 1889, A., 495.
- Brom- $\alpha$ - and - $\beta$ -amyris (VESTERBERG), 1891, A., 166.
- Bromanil. See Quinone, *tetrabromo*-.
- Bromanilbenzoin (VOIGT), 1886, A., 888.
- Bromanilic acid (LEVY and JEDLIČKA), 1889, A., 390; (PRAEBE and WELTNER), 1891, A., 1028.
- constitution of (HANTZSCH and SCHNITER), 1887, A., 1036.
- action of bromine on (LEVY and JEDLIČKA), 1887, A., 1106.
- action of halogens on (LANDOLT), 1892, A., 884.
- decomposition products of (HANTZSCH), 1888, A., 1190.
- bromide (HANTZSCH), 1888, A., 1191.
- compound of, with chloranilic acid (LING), 1892, T., 574.
- sodium salt of, crystalline form of the (POPE), 1892, T., 582.
- chloro-. See Chlorobromanilic acid.
- $\alpha$ -Brom- $\beta$ -anilidoacetic acid (KNORR and ANTRICK), 1885, A., 278.
- di*Bromanilidonaphthaquinoneanilide (FISCHER and HEPP), 1888, A., 473.
- tri*Brom- $\alpha$ -anilidopropionitrile (STEPHAN), 1887, A., 148.
- Bromanilines. See Aniline.
- p*-Bromaniline-*m*-sulphonic acid (ARMSTRONG and BRIGGS), 1892, P., 40.
- di*Bromaniline-*p*-sulphonic acid (HEINICHEN), 1890, A., 165.
- Bromanisic acid (SCHALL and DRALLE), 1885, A., 146.
- derivatives of (BALBIANO), 1885, A., 530.
- di*Bromanisic acid, constitution of (BALBIANO), 1884, A., 1172.
- dry distillation of the sodium salt of (BALBIANO), 1883, A., 1125.
- Brom-*o*- and -*p*-anisidines, *mono*- and *di*- and their salts (STAEDEL), 1883, A., 663.
- $\beta$ -Bromanisyl- $\gamma$ -butyrolactone (FITTING and POLITIS), 1890, A., 771.
- Bromanthracene- $\gamma$ -carboxylic acid (BEHLA), 1886, A., 248.
- Bromanthranol (GOLDMANN), 1887, A., 1049.
- Bromapatite (DE SCHULTEN), 1890, A., 11.
- production of (DITTE), 1883, A., 648, 783, 784.
- tri*Bromapiole (GINSBERG), 1888, A., 1206.
- Bromisapiole (CIAMICIAN and SILBER), 1890, A., 1294.
- tri*Bromisapiole (GINSBERG), 1888, A., 1206.
- di*Bromapione (CIAMICIAN and SILBER), 1888, A., 1100.
- Bromarseno-manganese wagnerites (DITTE), 1883, A., 784.
- Bromazo-. See Azo-.
- $\alpha$ -Bromecgoninelactone (EICHENGRUN and EINHORN), 1891, A., 66.
- Bromeric acid (HOLT), 1892, A., 429.
- tri*Bromethane (MICHAEL), 1884, A., 418.
- Bromethanes, chlorinated, properties of (HENRY), 1884, A., 979.
- Bromethoxybenzoic acids, *mono*- and *di*- (PERATONER), 1887, A., 487.
- 2-Brom-3-ethoxy-1-methyl-4-propylbenzene (MAZZARA and VIGHI), 1890, A., 883.
- Bromethylamine and its derivatives (GABRIEL), 1888, A., 439; 1889, A., 848, 1134.
- conversion of, into vinylamine (GABRIEL), 1888, A., 1267.
- $\beta$ -Bromethylbenzamide (GABRIEL), 1889, A., 1134.
- p*-Bromethylbenzene (ASCHENBRANDT), 1883, A., 320.
- $\alpha$ -Bromethylbenzene, from stytolene (BERNTSEN and BENDER), 1883, A., 70.
- penta*Bromethylbenzene (FRIEDEL and CRAFTS), 1886, A., 229.
- Bromethylbenzene-*o*- and -*m*-sulphonic acids, *o*- and -*p*- (SEMPOTOWSKI), 1890, A., 55.

- di*Bromethylapocinchene (COMSTOCK and KOENIGS), 1888, A., 72.
- β*-Bromethylcinnamylamide (ELFELDT), 1892, A., 215.
- Bromethylene. See Vinylic bromide.
- s-di*Bromethylene (*acetylenic dibromide*), molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- action of aluminium bromide on benzene and (ANSCHÜTZ), 1883, A., 807.
- as-di*Bromethylene, formula of (MICHAEL), 1884, A., 418.
- Bromethylic luitidonecarboxylate (COLLIE), 1890, P., 166; 1891, T., 175.
- Bromethylic phenanthroxyleneacetate (JAPP and STREATFIELD), 1883, T., 29.
- Bromethyldenic bromide (*tribromethane*), action of sodium ethoxide on (MICHAEL), 1884, A., 418.
- Bromethylmalic acid, sodium salt of (MULDER and HAMBURGER), 1883, A., 312.
- Bromethylmalonic acid [m.p. 104°] (CONRAD and BRÜCKNER), 1892, A., 40.
- γ*-Bromethylmalonic acid [m.p. 116°] (PERKIN), 1885, T., 814.
- β*-Bromethyl-*m*-nitrobenzamide (ELFELDT), 1892, A., 213.
- Bromethylphthalimide (GABRIEL), 1887, A., 1037.
- preparation of (GABRIEL), 1889, A., 870.
- di*Bromethylsuccinic acid and its salts (CLAUS), 1883, A., 44.
- Bromethyltheobromine and its derivatives (FISCHER), 1883, A., 357.
- Bromethylthiophen (DEMUTH), 1886, A., 538.
- Brom-*o*-ethyltoluene (CLAUS and PIESZCZEK), 1887, A., 240.
- Bromengenol derivatives (v. BOYEN), 1888, A., 680.
- Bromine, in sea-water (BERGLUND), 1886, A., 134.
- preparation of, brominated carbon compounds obtained in the (DYSON), 1883, T., 36.
- purification of (STAS), 1886, A., 592.
- liberation of, from hydrogen bromide, by the action of light in presence of oxygen (RICHARDSON), 1887, T., 804.
- physical properties of (VAN DER PLAATS), 1886, A., 849.
- refractive equivalent of (BRÜHL), 1887, A., 193.
- dispersion equivalent of (GLADSTONE), 1888, A., 389.
- Bromine, heat of combination of, with magnesium (BEKEFOFF), 1892, A., 762.
- heat of solution of, in different liquids (PICKERING), 1888, T., 874, 877.
- heat of substitution of (BERTHELOT and WERNER), 1884, A., 883; 1885, A., 627.
- boiling- and melting-points and vapour pressures of (RAMSAY and YOUNG), 1886, T., 454; P., 181.
- molecular weight of (PATERNO and NANINI), 1888, A., 1027.
- dissociation of (LANGER and MEYER), 1883, A., 546.
- dissociation of the vapour of, by the electric discharge (THOMSON), 1887, A., 1013.
- Potilizin's law of the mutual displacement of chlorine and (THORPE and RODGER), 1888, P., 20.
- displacement of, by chlorine in organic compounds (BENEDIKT and v. SCHMIDT), 1883, A., 1118.
- exchange of chlorine, iodine and, between organic and inorganic compounds (BRIX), 1885, A., 34; (KÖHNLEIN), 1885, A., 35; (WILDERMANN), 1892, A., 574.
- absorption of, by different substances (MILLS and MUTER), 1886, A., 119.
- solubility of nitric oxide in (ROOZBOOM), 1886, A., 501.
- carriers of (MEYER and SCHEUFELN), 1885, A., 1182; (SCHEUFELN), 1886, A., 340; (MACKEKROW), 1892, A., 155.
- direct combination of, with metals (GAUTIER and CHARPY), 1892, A., 118.
- hydrate, dissociation of (ROOZBOOM), 1886, A., 117.
- as a disinfectant (FRANK), 1881, A., 512.
- "solid," use of, in analysis (BRAND), 1887, A., 688.
- use of, in the amalgamation process (ARNOLD), 1883, A., 399.
- separation of metals of the hydrogen sulphide group by means of the vapour of (JANNASCH and ETZ), 1892, A., 754.
- use of, in the analysis of sulphides (JANNASCH), 1889, A., 1243.
- use of, in extracting gold (BURFEIND), 1888, A., 1344.
- use of, in testing for alkaloids (BLOXAM), 1883, A., 1175.
- as a test for quinine, narcotine, and morphine (ELLOART), 1885, A., 96.

**Bromine, detection, estimation and separation:—**

detection of (LONGI), 1883, A., 1172;  
(DECHAN), 1886, T., 682; P., 227;  
(FENTON), 1886, A., 833.

detection of, in presence of chlorine  
and iodine (JONES), 1884, A., 492;  
(GOOCH and BROOKS), 1891, A., 361.

detection of, in organic compounds  
(MARSH), 1889, A., 796.

detection of iodine, chlorine and  
(HART), 1885, A., 295; (DENIGES),  
1891, A., 495.

detection of chlorine and, in presence  
of iodine (MACNAIR), 1892, A.,  
1514.

detection of chlorine and chlorides in  
presence of (DENIGES), 1891, A.,  
1288.

naphthol as a reagent for free  
(HAGER), 1886, A., 97.

estimation of (DECHAN), 1886, T.,  
682; P., 227; (WHITE), 1888, A.,  
1130; (ERRERA), 1889, A., 304;  
(DE KONINCK and NIHOUL), 1892,  
A., 527.

estimation of, by Field's method  
(WILLGERODT), 1886, A., 838.

estimation of, in mixtures of alkali  
bromides and iodides (GOOCH and  
ENSIGN), 1891, A., 361.

estimation of, in presence of large  
quantities of chlorides (CAVAZZI),  
1884, A., 215.

estimation of, in presence of chlorine  
and iodine (LYTE), 1884, A., 694.

estimation of, volumetric, in the  
presence of chlorine and iodine  
(McCULLOCH), 1890, A., 824.

estimation, indirect, of chlorine,  
iodine and, by electrolysis of their  
silver salts (WHITFIELD), 1887, A.,  
525.

estimation of, in presence of iodine  
(VORTMANN), 1883, A., 119.

estimation of, in organic compounds  
(ZULKOWSKI), 1885, A., 1162.

estimation of, in sea water (GUTZKOW),  
1889, A., 74.

estimation of, in presence of sul-  
phuretted hydrogen (TORSUE), 1883,  
A., 508.

separation of, quantitative, from  
chlorine (BERGLUND), 1885, A.,  
836.

separation of, from chlorine and  
iodine (BARNES), 1883, A., 1167;  
(SCHIERHOLZ), 1892, A., 1028.

separation of, from chlorine and  
iodine, improved form of apparatus  
for the (DECHAN), 1887, T., 690.

**Bromine, separation of, from chlorine,  
iodine and cyanogen (ERRERA),  
1889, A., 304.**

separation of, from iodine (HULTON),  
1886, A., 279.

**Hydrobromic acid (hydrogen bromide),  
formation of (MERZ and HOLZ-  
MANN), 1889, A., 754.**

preparation of (CRISMER), 1884,  
A., 1073; (SOMMER), 1884, A.,  
1091; (RECOURA), 1890, A., 687;

(FILETI and CROSA), 1891, A.,  
976; (FEIT and KUBIERSCHKY),  
1891, A., 1320; (NEWTN), 1892,  
A., 270.

preparation of pure (ADDYMAN),  
1892, T., 97.

molecular refraction and dispersion  
of, in solution (GLADSTONE),  
1891, T., 593.

magnetic rotatory power of (PER-  
KIN), 1889, T., 706, 739; P.,  
130.

dissociation of compounds of am-  
monia and (ROOZEBOOM), 1886,  
A., 500.

influence of mineral acids on the  
velocity of the reaction between  
hydriodic acid and (MAGNANINI),  
1891, A., 144.

action of light on, in presence of  
oxygen (RICHARDSON), 1887, T.,  
804.

action of sulphuric acid on (ADDY-  
MAN), 1891, P., 168; 1892, T.,  
99, 100.

action of, on zinc containing lead  
(SPRING and VAN AUBEL), 1887,  
A., 1076.

solubility of, at different tempera-  
tures and pressures (ROOZEBOOM),  
1886, A., 119.

hydrate of (HBr, H<sub>2</sub>O) (ROOZE-  
BOOM), 1887, A., 631.

hydrate (HBr, 2H<sub>2</sub>O) (ROOZEBOOM),  
1887, A., 628, 630.

dissociation of the hydrate of  
(ROOZEBOOM), 1886, A., 117,  
414; (VAN'T HOFF), 1886, A.,  
501.

thermal study of solutions of, and  
of the solid hydrate HBr, 2H<sub>2</sub>O  
(ROOZEBOOM), 1887, A., 628.

nitro-, action of, on organic com-  
pounds (BRUNNER and KRAE-  
MER), 1884, A., 1315.

**Bromides, iodides and chlorides of  
the alkalis, distinction between  
(VITALI), 1890, A., 289.**

decomposition of, by the stomach  
(KULZ), 1887, A., 508.

- Bromides**, can the mucous membrane of the stomach decompose? (DRECHSEL), 1889, A., 426.  
 organic, action of chlorine and bromine on (MEYER), 1886, A., 929.  
 action of inorganic iodides on (SPINDLER), 1886, A., 434.
- Bromic acid**, influence of mineral acids on the velocity of the reaction between hydriodic acid and (MAGNANINI), 1891, A., 144.  
 action of hydriodic acid on (MEYER-HOFFER), 1889, A., 9.  
 use of, in quantitative analysis (FEIT and KUBIENSKIKY), 1892, A., 910; (SCHWICKER), 1892, A., 1027.
- Perbromic acid** (MACIVOR), 1887, A., 698.
- Bromindazincarboxylic acid** (FISCHER and TAFEL), 1885, A., 542.
- Bromindigo** (v. BAAYER and BLOEM), 1884, A., 1027.
- $\gamma$ -Brom- $\alpha$ -indone**, preparation of (MELDOLA and HUGHES), 1890, T., 396; P., 57.  
 action of aniline on (MELDOLA and HUGHES), 1890, T., 398; P., 57.
- $\beta\gamma$ -*di*-Bromindone**, derivatives of (ROSER and HASELHOFF), 1888, A., 1304.
- 4:1-Bromiodo- $\beta$ -acetophthalide** (MELDOLA and DESCH), 1892, T., 767.
- $\beta\alpha$ -Bromiodoacrylic acid** (HOMOLKA and STOLZ), 1885, A., 1198; (STOLZ), 1886, A., 530.
- $\beta\alpha\beta$ -*di*-Bromiodoacrylic and brom *$\gamma$* -iodoacrylic acids** (HOMOLKA and STOLZ), 1885, A., 1198.
- 1:3:5:6-*tri*-Bromiodobenzene** (SILBERSTEIN), 1883, A., 661.
- as*-Bromiodoethylene** (HENRY), 1884, A., 830, 831.
- di*-Bromiodoethylene** (HOMOLKA and STOLZ), 1885, A., 1198.
- Bromiodomethane** (*methylenic bromide*) (HENRY), 1886, A., 44.
- Bromidonaphthalenes** (MELDOLA), 1885, T., 523; P., 73.
- 4:1-Bromiodo- $\beta$ -naphthylamine** (MELDOLA and DESCH), 1892, T., 767; P., 141.
- 4:1:2-Bromidonitronaphthalene** (MELDOLA and DESCH), 1892, T., 767.
- p*-Brom-*o*-iodo-*o*-nitrophenol**, calcium-derivative of (LING), 1888, P., 122; 1889, T., 61.
- di*-Bromisatic acid** (v. BAAYER and OECONOMIDES), 1888, A., 202.
- Bromisatin**, *mono*- and *di*-, ethers of (v. BAAYER and OECONOMIDES), 1883, A., 201.
- Bromisatin-blue** (SCHOTTEN), 1891, A., 1491.
- m*-Bromisatoic acid** (NIEMENTOWSKI and ROZANSKI), 1889, A., 996.  
 derivatives of (DORSCH), 1886, A., 359.
- Bromlite** (*alstonide*), chemical constitution of (BECKER), 1887, A., 18.
- $\alpha$ -Bromo-acids**, preparation of (VOLHARD), 1888, A., 129.
- di*-Bromobarbituric acid** (TRZCINSKI), 1883, A., 913; (BEHREND), 1887, A., 129.
- Bromobenzallylamide** (GALEWSKY), 1890, A., 953.
- o*-Bromobenzamide** (SCHÜPF), 1891, A., 296.
- 3:4-*di*-Bromobenzamide** (BURGHARD; REUTNAGRI), 1884, A., 601.
- m*-Bromobenzanilide** (KOTTENHAHN), 1891, A., 1237.
- tri*-Bromobenzanilide** (BORRELLI), 1888, A., 1292.
- Bromobenzene**. See Benzene.
- Bromobenzene iodochlorides**, *mono*-*p*- and *tri*- (WILLGERODT), 1886, A., 342.
- p*-Bromobenzenediazo-*p*-toluidide**, methylation of (MELDOLA and STREITFELD), 1889, T., 433; P., 98.
- p*-Bromobenzenesulphinic acid** (KÜNIG), 1892, A., 1091.
- Bromobenzenesulphonic anhydrides**, 1:4:2-*di*- and 1:2:4:5-*tri*- (ROSENBERG), 1886, A., 551.
- p*-Bromobenzenesulphonic chloride** (KRAFFT and ROOS), 1892, A., 1220.
- Bromobenzidine** (*bromodiamidodiphenyl*) (JANOVSKY and ERB), 1887, A., 479.
- Bromobenzoic acid**. See Benzoic acid.
- o*-Bromobenzoic chloride** (SCHÜPF), 1891, A., 295.
- p*-Bromobenzoic chloride** (SCHOTTEN), 1888, A., 1106.
- p*-Bromobenzoic sulphinide** (REMSEN and BAYLEY), 1887, A., 145; (DE ROODE), 1891, A., 1227.
- Bromobenzonitrile**. See Benzonitrile.
- Bromobenzophenone**. See Benzophenone.
- m*-Bromobenzophenoneoximes** (KOTTENHAHN), 1891, A., 1236.
- p*-Bromobenzophenoneoximes** (SCHÄFER), 1891, A., 1235.
- m*-*di*-Bromobenzophenoneoxime** (DRUMTH and DITTRICH), 1891, A., 815.

- di*Bromobenzoylengenol (Woy), 1890, A., 638.
- 4-Bromo-2-benzoyl-1-phenyl-3-methylpyrazolone (NEF), 1892, A., 146.
- p*-Bromobenzyl ethyl ether and its decomposition by heat and by nitric acid (ERRERA), 1887, A., 1103.
- p*-Bromobenzyl mercaptan (JACKSON and HARTSHORN), 1884, A., 665.
- p*-Bromobenzyl-compounds (JACKSON and HARTSHORN), 1884, A., 665.
- p*-Bromobenzyl alcohol derivatives (ERRERA), 1889, A., 247.
- bromide, formation of, from *p*-bromotoluene (SCHRAMM), 1885, A., 379.
- oxide (ERRERA), 1889, A., 248.
- mono*- and *di*-sulphides (JACKSON and HARTSHORN), 1884, A., 665.
- o*-Bromobenzylidenemalononic acid (STUART), 1887, P., 118; 1888, T., 141.
- Bromobenzyllevulinic acid (ERDMANN), 1890, A., 376.
- Bromobenzylquinoline, halogen derivatives of (CLAUS), 1885, A., 908.
- p*-Bromobenzylsulphonic acid (JACKSON and HARTSHORN), 1884, A., 665.
- tetra*Bromoberberine hydrobromide (GAZE), 1890, A., 1012.
- Bromobrassic acid (HOLT), 1892, A., 429.
- tri*Bromobrazilein (SCHALL and DRALLE), 1890, A., 997.
- tri*Bromobrazilin *di*bromide (SCHALL and DRALLE), 1889, A., 56.
- Bromobrazilins (v. BUCHKA and ERCK), 1885, A., 907; (SCHALL and DRALLE), 1889, A., 1004.
- ω*-*o*-*tri*Bromacetamidoacetophenone (v. BAeyer and BLOEM), 1884, A., 1026.
- αβ*-*di*Bromobutaldehyde (NATTERER), 1883, A., 965.
- tetra*Bromotributane (WILLGERODT and DÜRN), 1889, A., 689.
- tri*Bromoisobutane (NORTON and WILLIAMS), 1887, A., 712.
- di*Bromobutinine (*erythreus*) *di*bromide (GRIMAUZ and CLOEZ), 1887, A., 789.
- p*-Bromobutylbenzene (*bromophenylbutane*) (SCHRAMM), 1891, A., 899.
- Bromoisobutylbenzenes, *eso*- and *3:5-di*- (*di*bromophenylbutanes) (GELZER), 1889, A., 43, 45.
- p*-*β*-*tri*Bromobutylbenzene (SCHRAMM), 1891, A., 899.
- di*Bromo-*n*-butylene. See *iso*Butinine *di*bromide.
- iso*Bromo-*ψ*-butylene, conversion of crotonylene hydrobromide into (PÜCKERT), 1889, A., 576.
- Bromobutylenes (REBOUL), 1892, A., 127.
- Bromobutyl alcohol, tertiary (GUARIESCHI and GARZINO), 1888, A., 437; (GARZINO), 1889, A., 951.
- αβ*-*di*Bromobutyramide (LIPPMANN), 1892, A., 27; (SCHINDLER), 1892, A., 33.
- p*-Bromoisobutyranilide (BARDWELL), 1886, A., 52.
- α*-Bromoisobutyranilide (BISCHOFF), 1891, A., 828.
- Bromobutyric acids. See Butyric acids.
- Bromobutyrotribromide, tertiary (WILLGERODT and DÜRN), 1889, A., 689.
- γ*-Bromobutyronitrile (GABRIEL), 1890, A., 360.
- di*Bromobutyronitrile (PALMER), 1889, A., 686.
- Bromocamphor. See Camphor.
- Bromocamphorsulphonic acid (MARSH), 1890, T., 833.
- Bromocamphorsulphonic acids, *α*- and *β*-, and their salts (MARSH and COUSINS), 1891, T., 971.
- α*-Bromocamphorsulphonic chloride (MARSH and COUSINS), 1891, T., 974.
- Bromocarbaniidocyanmethine (KELLER), 1885, A., 961.
- Bromocarbostyryl, 2-, 3-, and 4- (WELTER), 1891, A., 1248.
- 4'-Bromocarbostyryl (FRIEDLANDER and WEINBERG), 1888, A., 351.
- Bromocarmines, *α*- and *β*- (WILL and LEYMAN), 1886, A., 252, 253.
- Bromocarvacrol derivatives (MAZZARA and PLANCHER), 1892, A., 156.
- Bromocrotonic acid (MARIE), 1892, A., 1302.
- Bromochromic acid, non-existence of (RAWSON), 1889, A., 678.
- Bromocinchonine (COMSTOCK and KOENIGS), 1888, A., 71.
- α*-Bromocinnamaldoxime (NAAR), 1891, A., 563.
- Bromocinnamic acid. See Cinnamic acid.
- α*-Bromocinnamide (ANSCHÜTZ and SELDEN), 1887, A., 829.
- Bromocitracon-*p*-bromanil (MORAWSKI and KLAUDY), 1888, A., 53.
- Bromocitraconimides, *mono*- and *di*- (MENDINI), 1885, A., 1126.
- Bromocodeine, non-nitrogenous compounds from (v. GERICHTEN and SCHRÖTTER), 1883, A., 221.
- Bromo-*p*-coumaric acid *di*bromide (EIGEL), 1887, A., 1110.
- Bromocoumarone (KRAEMER and SPILKER), 1890, A., 496.
- Bromo-*p*-cresols, *mono*- and *di*- (SCHALL and DRALLE), 1885, A., 146.

- Bromocrotonic acids** (MICHAEL and PENDLETON), 1888, A., 1176; (FITTIG and CLUTTERBUCK), 1892, A., 961.
- Bromo-*n*- and -*iso*-crotonic acids,  $\alpha$ - and  $\alpha\beta$ -** (WISLITZENUS, TEINLER and LANGBEIN), 1889, A., 236.
- tri*Bromooacetylquercetin** (LIEBERMANN), 1884, A., 1365.
- Bromocetylbenzene** (*bromophenyloctane*) (AHHENS), 1887, A., 133.
- $\gamma$ -Bromoisocrotonic acid** (FITTIG and SCHNEEGANS), 1890, A., 591.
- Bromocetylthiophen** (v. SCHWEINITZ), 1886, A., 535.
- p*- $\alpha\beta$ -*tri*Bromocumene** (SCHRAMM), 1891, A., 898.
- o*-Bromo-*n*-cumene** (CLAUS and WELZEL), 1890, A., 503.
- p*-Bromo-*n*-cumene** (MEYER), 1886, A., 945; (CLAUS and WELZEL), 1890, A., 503.
- Bromo- $\psi$ -cumene** (WALLACH and HEUSLER), 1888, A., 362.  
preparation of (SÜSSENGUTH), 1883, A., 469.  
action of sulphuric acid on (JACOBSEN), 1889, A., 994.
- di*Bromo- $\psi$ -cumene and its derivatives** (JACOBSEN), 1886, A., 710.
- Bromo- $\psi$ -cumenesulphonic acids** (JACOBSEN), 1886, A., 709; 1889, A., 994.
- o*-Bromo-*p*-cumic acids** (FILETI), 1891, A., 1023.
- p*-*di*Bromoisocumic acid** (FILETI and BONISCONTRO), 1892, A., 605.
- Bromo- $\psi$ -cumic acid and its salts** (SÜSSENGUTH), 1883, A., 469.
- di*Bromocumylacetic acid**, oxidation products of (FILETI and BASSO), 1891, A., 1057; (FILETI and BONISCONTRO), 1892, A., 604.
- o*-Bromocumylacrylic acid** (WIDMAN), 1891, A., 69.
- Bromocurcumins**, *tetra*- and *penta*- (JACKSON and MENKE), 1883, A., 481.
- p*-Bromo-*m*-cyanobenzoic acid** (SCHÜPF), 1892, A., 337.
- Bromocymenes**. See Cymene.
- Bromocymene- $\beta$ -sulphonamide** (REMSEN and DAY), 1884, A., 456.
- Bromocymenesulphonic acids**. See Cymenesulphonic acid.
- tri*Bromo-*m*-isocymenol** (JESURUN), 1886, A., 697.
- Bromocymoquinols and -quinones**. See Cymoquinols.
- Bromodaturic acid** (GÉRARD), 1892, A., 582.
- Bromodecyl acetate** (GROSJEAN), 1892, A., 691.
- Bromodehydracetic acid** (PERKIN and BERNHART), 1884, A., 1121; (PERKIN), 1887, T., 490; (FRIST), 1892, A., 584.
- Bromodehydrobenzylloxanthranol** (BACH), 1890, A., 1145.
- di*Bromodehydronicotins** (PINNER), 1892, A., 1497.
- di*Bromodeoxybenzoin-*p*-carboxylic acid** (BUCHER), 1890, A., 168.
- Bromodeoxypyranilpyroic acid**, Reissert's (ANSCHUTZ and HENSEL), 1889, A., 258.
- di*Bromodiacyl** (*dibromodimethyl diketone*) (FITTIG, DAIMLER and KELLER), 1889, A., 491.
- s*-*tetra*Bromodiacyl** (KELLER), 1890, A., 359.
- di*Bromodiacylbrazilin** (SCHALL and DRALLE), 1890, A., 997.
- tri*Bromodianilidopyruvic acid** (BÖTTINGER), 1891, A., 1054.
- di*Bromodianthranyl** (LIEBERMANN and GIMBEL), 1887, A., 965; (SACHSE), 1888, A., 1201.
- Bromodianthranyls**, *di*- and *hexa*- (SACHSE), 1890, A., 638.
- Bromodiaz-**. See Diazo- under Azo-.
- di*Bromodi- $\psi$ -cumenol**, and methyl ether of (AUWERS), 1886, A., 144.
- Bromo-1:3-diethoxybenzenes,  $\alpha$ - and  $\beta$ -** (HERZIG and ZEISEL), 1890, A., 1404.
- di*Bromo-3:5-diethoxytoluene** (HERZIG and ZEISEL), 1890, A., 1405.
- Bromodithylasculetin** (WILL), 1884, A., 69.
- di*Bromodiethylsulphonemethane** (BAUMANN), 1887, A., 124.
- di*Bromodifurfurodiacetylene** (GIBSON and KAHNWEILER), 1890, A., 960.
- hexa*Bromodihydrobenzene** (THEURER), 1888, A., 1085.
- Bromodihydronaphthalene** (AGRESTINI), 1883, A., 346.
- di*Bromodihydroxydiphenylamine** (MÜHLAU), 1884, A., 594.
- Bromodihydroxyphenylbutyrolactone** (FISCHER and STEWART), 1892, A., 1447.
- di*Bromo-3:6-dihydroxy-1:4-terephthalic acid** (BÖNIGER), 1888, A., 954.
- Bromodihydroxyanthone**, derivatives of (GRABBE and EICHENGRÜN), 1892, A., 1226.
- Bromodihydroxyxylene** [m.p. 126°] (WISCHN), 1891, A., 74.
- di*Bromodimethoxybenzoic acid** (v. BOYEN), 1888, A., 680.
- di*Bromodimethyl diketone** (*dibromodiacyl*) (FITTIG, DAIMLER and KELLER), 1889, A., 491.

- p* - Bromodimethylamidoazobenzene (GOLDSCHMIDT and BARDACH), 1892, A., 980.
- di*Bromo-1:3-dimethylantracene (ELBS), 1890, A., 511.
- Bromodimethylbenzoic acids and their salts (GÜNTHER), 1884, A., 1847.
- aa-di*Bromo-*aa*-dimethylglutaric anhydride (AUWERS and JACKSON), 1890, A., 1099.
- di*Bromodimethylheptamethylene (KIPPING and PERKIN), 1889, P., 145.
- di*Bromodimethylmalonamide (FREUND), 1884, A., 1124.
- di*Bromo-4:6-dimethylpyridine (*di*-*bromolutidine*) (PFEIFFER), 1887, A., 845.
- Bromo-1':4'-dimethylquinoline (KNORR), 1887, A., 160.
- Bromo-2:5-dimethylthiophene, *di*- and *tri*- (PAAL), 1885, A., 1206.
- Bromodi- $\beta$ -naphthyl ketone oxide (CLAUS and RUPPEL), 1890, A., 510.
- Bromodi- $\beta$ -naphthylamines, *tetra*- and *octo*- (RIS), 1888, A., 57.
- tetra*Bromodinaphthylene oxide (HODGKINSON and LIMPACH), 1891, T., 1100.
- di*Bromodioxydehydronicotine (PINNER), 1892, A., 1497.
- Bromodiphenic acid (CARNELLEY and THOMSON), 1885, T., 591; P., 88.
- Bromodiphenylcarbamide (GATTERMANN and CANTZLER), 1892, A., 833.
- p* - Bromodiphenylcarbamide (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.
- di*Bromodiphenylcarboxylic acid [m.p. 212°] (HOLM), 1883, A., 922.
- di*Bromodiphenylcarboxylic acids [m.p. 204° and 232°] (CARNELLEY and THOMSON), 1885, T., 589; P., 88.
- Bromodiphenylene ketone (CLAUS and ERLER), 1887, A., 269.
- di*Bromodiphenylene ketone (HODGKINSON and MATTHEWS), 1883, T., 165; (HOLM), 1883, A., 921; (CLAUS and ERLER), 1887, A., 269.
- Bromodiphenylene ketone oxide. See Bromoxanthone.
- tetra*Bromodiphenylfurfuran (PERKIN and SCHLOSSER), 1889, P., 163; 1890, T., 954.
- Bromodiphenylguanidine *dicyanide* (HIRSCH), 1888, A., 947.
- Bromodiphenylmethane, preparation of (HENDERSON), 1891, T., 731.
- di*Bromodipiperonylideneacetone (SALKOWSKI), 1891, A., 1475.
- di*Bromo-*p*-dipropylbenzene (KÜRNER), 1883, A., 322.
- tetra*Bromodipropylcarbinyl acetate (DIÉFF), 1887, A., 358.
- per*Bromodithienyl (NAHNSEN), 1885, A., 51.
- hexa*Bromodithienyltrichlorethane (PETER), 1884, A., 1001.
- di*Bromoditoly, product of the oxidation of (CARNELLEY and THOMSON), 1885, T., 592; P., 88.
- di*Bromo-*p*-ditolytetrazine (RUHEMANN), 1889, P., 168; 1890, T., 51.
- Bromodurene (GISSMANN), 1883, A., 334. action of sulphuric acid on (JACOBSEN), 1888, A., 137.
- di*Bromodurene (JACOBSEN), 1888, A., 137.
- s-di*Bromethylene (*acetylenic dibromide*), molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- tri*Bromofluoran (MEYER and HOFFMEYER), 1892, A., 970.
- Bromofluorene (HODGKINSON and MATTHEWS), 1883, T., 165.
- a-di*Bromofluorene, and fusion of, with potash (HODGKINSON and MATTHEWS), 1883, T., 164.
- a-di*Bromofluorenesulphonic acid (HODGKINSON and MATTHEWS), 1883, T., 172.
- tetra*Bromofluorescein. See Eosin.
- Bromoform (GÜNTHER), 1887, A., 787. preparation of (ANON.), 1885, A., 463. preparation of, from acetone and sodium hypobromite (DENIGES), 1892, A., 126. obtained in the manufacture of bromine (DYSON), 1883, T., 86. molecular refraction and dispersion of (GLADSTONE), 1891, T., 295. formation of acetylene from (GAZENEUVE), 1892, A., 421. chloro- (DYSON), 1883, T., 636.
- Bromoformberberine (GAZE), 1890, A., 1012.
- Bromofulminuric acids (EHRENBERG), 1885, A., 1192.
- Bromofumaric acid (v. BANDROWSKI), 1883, A., 313.
- $\beta$ -Bromofurfuran (CANZONERI and OLIVERI), 1887, A., 658.
- Bromofurfurans, *di*- and *tetra*- (HILL), 1883, A., 912.
- aa-di*Bromofurfuran- $\beta$ -sulphonic acid (HILL and PALMER), 1889, A., 386.
- Bromofurfurylacrylic and bromofurfurylbromacrylic acids (GIBSON and KAHNWEILER), 1890, A., 960.
- Bromofurfurylbromethylene and bromofurfuryl*di*bromopropionic acid (GIBSON and KAHNWEILER), 1890, A., 960.

- di*Bromoglutaric acid (AUTERS and BERNHARDT), 1891, A., 1191.
- Bromoguanidine (ILINSCH), 1888, A., 947.
- Bromoguanine (FISCHER and REENE), 1884, A., 467.
- tri*Bromohemimellithene (JACOBSEN), 1887, A., 36.
- Bromohemipinimide (TUST), 1892, A., 1210.
- $\gamma$ -Bromoheptioic acid (FITTIG and SCHMIDT), 1890, A., 589.
- $\gamma$ -Bromoisheptioic acid (FITTIG and ZANNER), 1890, A., 590.
- Bromohexadecylene (KRAFFT and REUTER), 1892, A., 1163.
- di*Bromohexahydrophthalic acid (*trans*) (V. BAeyer), 1892, A., 1216.
- di*Bromohexahydroterephthalic acid (V. BAeyer), 1887, A., 370.
- di*Bromohexioic acid, decomposition of (FITTIG and HILLERT), 1892, A., 960.
- p-di*Bromohomocuminic acid (*di*bromocumylacetic acid), oxidation products of (FILETI and BASNO), 1891, A., 105; (FILETI and BONISCONTRO), 1892, A., 604.
- di*Bromohydrazinesulphonic acid (LIMPRICHT), 1889, A., 398.
- Bromohydrazobenzene [m.p. 63°] (JANOVSKY and ERB), 1886, A., 1024.
- p*-Bromohydrazobenzene [m.p. 115°] (JANOVSKY and ERB), 1887, A., 479.
- di*Bromohydrazobenzene (JANOVSKY and ERB), 1887, A., 479.
- p*-Bromohydrazobenzene-*o*-carboxylic acid (PAAL), 1892, A., 68.
- Bromo-*p*-hydrazotoluene (JANOVSKY and ERB), 1887, A., 479.
- o*-Bromohydrindone (MIRSCH), 1892, A., 1222.
- Bromohydrindones, *m*- and *p*- (V. MILLER and RONDE), 1890, A., 1139.
- di*Bromohydrindone (HAUSMANN), 1889, A., 1173.
- tetra*Bromohydrindone (ROSER and HASELHOFF), 1888, A., 1304.
- Bromohydrodicoumarin (DYSON), 1886, P., 250; 1887, T., 67.
- di*Bromohydrolapachol (HOOKER), 1892, T., 643; P., 125.
- Bromohydrocinnamic acid (V. BAeyer and RUPE), 1890, A., 876.
- di*Bromo-*p*-hydroxybenzoic acid (BALBIANO), 1883, A., 1125.
- constitution of (ALESSI), 1886, A., 65.
- p*-Bromo- $\alpha$ -hydroxy-*n*- and -*iso*-butyric acids (KOLBE), 1883, A., 573; (MELLIKOFF), 1885, A., 650.
- di*Bromohydroxycarboxytolylglyoxylic acid (*di*bromohydroxymethylbenzoyldicarboxylic acid) (WILL and LEYMANN), 1886, A., 253.
- Bromohydroxycinnamic acid (OST), 1883, A., 792.
- tri*Bromohydroxyconiine (V. HOFMANN), 1885, A., 563.
- Bromohydroxycymene (MAZZARA), 1886, A., 1017.
- tri*Bromohydroxydiketodihydropentene (NEF), 1890, A., 1272.
- penta*Bromohydroxydiketohexene (ZINCKE and KEGEL), 1890, A., 1109.
- 5-Bromo-4-hydroxy-2:6-dimethyl-*m*-diazine (PINNER), 1887, A., 1054.
- Bromo- $\omega$ -hydroxyethylpiperonylcarboxylic acid and anhydride (PERKIN), 1890, T., 1025.
- Bromohydroxyhydromuconic acid, lactone of (RUHEMANN and DUFTON), 1891, T., 753.
- Bromohydroxyindone (ROSER and HASELHOFF), 1888, A., 1304; (MELDOLA and HUGHES), 1890, T., 400; P., 58.
- benzylamide, hydrazone, hydrazone-hydrazide, and  $\beta$ -naphthylamide of (MELDOLA and HUGHES), 1890, T., 403; P., 58.
- Bromohydroxyketoindonaphthene (ZINCKE and GERLAND), 1888, A., 1199, 1200.
- di*Bromohydroxyketohydrindenecarboxylic acid (ZINCKE and GERLAND), 1888, A., 1199.
- Bromohydroxy- $\beta$ -methyleoumarilic acid (V. PECHMANN and COHEN), 1884, A., 1332.
- Bromohydroxy- $\beta$ -methyleoumarone (V. PECHMANN and COHEN), 1884, A., 1332.
- 5-Bromo-4-hydroxy-6-methyl-2-ethyl-*m*-diazine (PINNER), 1887, A., 1054.
- Bromohydroxymethylhydrohydrastinine methiodide (FRUEND and DORMEYER), 1891, A., 1520.
- $\beta_1\beta_1\gamma_1$ -*tri*Bromo- $\alpha_1$ -hydroxy- $\gamma_1$ -methyljulolidine (REISSERT), 1892, A., 498.
- $\beta_1$ -Bromo- $\alpha_1$ -hydroxy- $\gamma_1$ -methyljuloline (REISSERT), 1892, A., 497.
- Bromo- $\alpha_1$ -hydroxy- $\gamma_1$ -methyljulolines,  $\beta_1$ -mono- and  $\beta_1\gamma_1$ -*di*- (REISSERT), 1892, A., 497.
- di*Bromohydroxymethylphthalic anhydride (WILL and LEYMANN), 1886, A., 253.
- Bromohydroxy- $\alpha$ -naphthaquinone [m.p. 202°] (MILLER), 1885, A., 667.

- Bromohydroxy- $\alpha$ -naphthaquinone** [m.p. 197°], action of hypochlorous and hypobromous acids on (ZINCKE and GERLAND), 1888, A., 1198.
- Bromohydroxy- $\alpha$ -naphthaquinoneoximide** (ZINCKE and GERLAND), 1887, A., 838.
- di*Bromohydroxynaphthaquinone** (ARMSTRONG and STREATFIELD), 1886, P., 232.
- Bromo- $\beta$ -hydroxypiperonyl ethyl methyl ketone** (*bromopiperonyl acetyl methyl ketone*) (OELKER), 1891, A., 1476.
- $\gamma$ -Bromo- $\alpha$ -hydroxy- $\gamma$ -phenylbutyric acid** (BIEBERMANN), 1892, A., 471.
- di*Bromohydroxyphenylbutyronitrile** (FISCHER and STEWART), 1892, A., 1447.
- Bromohydroxyphenylcrotonic acid** (FISCHER and STEWART), 1892, A., 1447.
- 5-Bromo-4-hydroxy-2-phenyl-6-methylm-diazine** (PINNER), 1887, A., 1053.
- 2:5-*di*Bromo-4-hydroxyisopropylbenzoic acid** (FILETTI and BONISCONTRO), 1892, A., 604.
- di*Bromohydroxypyridine and its salts** (LIEBEN and HARTINGER), 1883, A., 871; (KOENIGS and GEIGY), 1884, A., 1195; (FISCHER and RENOUF), 1884, A., 1370.
- Bromo-1-hydroxyquinoline** [m.p. 119°] (SCHMITT and ENGELMANN), 1888, A., 67.
- 4-Bromo-1-hydroxyquinoline** [m.p. 124°] (CLAUS and HOWITZ), 1892, A., 354.
- 4:3-*di*Bromo-1-hydroxyquinoline** (CLAUS and POSSELT), 1890, A., 522; (CLAUS and HOWITZ), 1892, A., 354.
- 3:4:4'-*tri*Bromo-1-hydroxyquinoline** (SRPEK), 1890, A., 177; (CLAUS and HEERMANN), 1891, A., 83.
- 4-Bromo-3-hydroxyquinoline hydrobromide** (CLAUS and HOWITZ), 1892, A., 353.
- di*Bromo-3-hydroxyquinoline** (CLAUS and POSSELT), 1890, A., 523.
- Bromo-2'-hydroxyquinoline**. See Bromocarbostyryl.
- Bromo-1:4-hydroxyquinolinesulphonic acid** (CLAUS and POSSELT), 1890, A., 522.
- tri*Bromohydroxyquinone** (BARTH and SCHREDER), 1885, A., 520.
- Bromohydroxytetrahydronaphthoic acid**, lactone of (v. BAERYER, SCHODER and BESEMFELDER), 1892, A., 192.
- Bromohydroxytetrahydroquinoline hydrochloride** (SRPEK), 1890, A., 177.
- di*Bromohydroxytrimethyluracil** (HAGEN), 1888, A., 582.
- di*Bromoketoindonaphthene** (ROSER), 1887, A., 729.
- Bromo- $\alpha$ -keto- $\gamma$ -methyl- $\beta$ -ethyljuloline** (KAYSER and REISSERT), 1892, A., 883.
- Bromoketones**, formation of, by the action of bromine on the alcohols of the ethyl series (ETARD), 1892, A., 809.
- Bromolapachol** (PATERNO), 1883, A., 211; (HOOKER), 1892, T., 638; P., 125.
- Bromolapachone** (HOOKER), 1892, T., 638; P., 125.
- Bromolauric acid** (AUWERS and BERNHARDI), 1891, A., 1190.
- Bromolevulinic acids,  $\alpha$ -mono- and  $\alpha$ -*di*-** (WOLFF), 1891, A., 1187.
- $\beta$ -Bromolevulinic acid** (WOLFF), 1887, A., 464.
- $\beta\beta$ -*di*Bromolevulinic acid** (WOLFF), 1891, A., 417.
- di*Bromolimettin** (TILDEN), 1892, T., 348; P., 33.
- Bromomaleic acid**, action of, aniline on (MICHAEL), 1886, A., 698.
- di*Bromomaleic acid** (CIAMICIAN and SILBER), 1884, A., 1117.
- Bromomaleic bromide** (HILL and SANGER), 1884, A., 1805.
- di*Bromomaleinimide** (CIAMICIAN and SILBER), 1884, A., 1116; 1885, A., 993.
- di*Bromomaleinmethylinide** (DE VARDIA), 1889, A., 57.
- di*Bromomalonamide** (FREUND), 1884, A., 1124.
- di*Bromomalonic acid** (MASSOL), 1892, A., 1140.
- Bromomercuric acid** (NEUMANN), 1889, A., 1050.
- Bromomesitol** (SCHRAMM), 1886, A., 451.
- di*Bromomesitylene** from coal-tar oil (SUSSENGUTH), 1883, A., 469.
- Bromomesitylenic acid**, preparation of, from bromomesitylene, (SUSSENGUTH), 1883, A., 469.
- di*Bromomesitylenic acid**, and its salts (SUSSENGUTH), 1883, A., 470.
- Bromomesitylic bromide** (SCHRAMM), 1886, A., 451.
- di*Bromomethane**. See Methylenic bromide.
- di*Bromomethanesulphonic acid**, barium salt of (ANDREASCH), 1886, A., 786.
- di*Bromomethoxybenzoic acid** (PERATONER), 1887, A., 487.
- di*Bromomethoxymethylphthalic acid** (WILL and LEYMAN), 1886, A., 254.
- p*-Bromomethoxyphenylacetic acid** (SALKOWSKI), 1889, A., 1174.

- p*-Bromomethylaniline (MELDOLA and STREETFELD), 1889, T., 418, 425, 433; P., 98.
- Bromomethylchloroform (HENRY), 1884, A., 978.
- Bromomethylenephthalide (GABRIEL), 1885, A., 165.
- Bromo-*o*-methyl ethylbenzene (CLAUS and PIESZCZEK), 1887, A., 240.
- Bromomethylethylloxazolone (HANNOT), 1891, A., 1108.
- di*Bromo- $\beta$ -methylglutaric acid (AUWERS and BERNHARDI), 1891, A., 1191.
- tri*Bromomethylglyoxaline (WALLACH), 1888, A., 911.
- Bromomethylhydrodrastinine (FREUND and DORMEYER), 1892, A., 223.
- Bromomethylisatoid (v. BAEYER and OECONOMIDES), 1883, A., 201.
- Bromomethyloxindoles, *mono*- and *di*- (COLMAN), 1888, P., 96; 1889, T., 3, 7.
- p*-Bromomethyl- $\alpha$ -phenotriazine (BISCHLER and BRODSKY), 1890, A., 152.
- di*Bromomethylpyridine (LADENBURG), 1883, A., 672.
- 3-Bromo-1-methylquinoline, and its derivatives (ALT), 1889, A., 1214.
- Bromo-2'- and -4'-methylquinolines (MAGNANINI), 1887, A., 1113; 1890, A., 1322.
- Bromomethylquinolones (DECKER), 1892, A., 879, 880, 881.
- di*Bromomethylsuccinic acid, and its salts (CLAUS), 1883, A., 44.
- Bromomethyltarconic acid (ROSER), 1888, A., 1116.
- $\omega$ -Bromo-1:3:4-methyltetrahydropyridylethylene (EICHENGRUN and EINHORN), 1891, A., 66.
- 3-Bromo-1-methyltetrahydroquinoline (ALT), 1889, A., 1214.
- Bromomethylthiazolecarboxylic acid (WOLMANN), 1891, A., 226.
- tri*Bromomethylthiophen (*tribromothiolin*) (MEYER and KREIN), 1884, A., 1132.
- $\gamma$ -*tri*Bromomethylthiophen, action of nitric acid on (MULLERT), 1885, A., 229.
- di*Bromo- $\beta$ -methylthiophen (GERLACH), 1892, A., 830.
- tri*Bromomethylthiophens, oxidation of (CIAMICIAN and ANGELI), 1892, A., 302.
- Bromomethyluracil (BEHREND), 1886, A., 338.
- Bromomimetites (DITTE), 1883, A., 783.
- Bromomyristic acid (HILL and TWERDOMEDORF), 1889, A., 955.
- di*Bromomyristicin (SEMMLER), 1890, A., 1150.
- Bromonaphthalenes. See Naphthalene.
- Bromonaphthalenesulphonic acid. See Naphthalenesulphonic acid.
- Bromonaphthanilide (MILLER), 1885, A., 667.
- 3'-Bromo-1:2-naphthaquinol (CLAUS and PHILIPSON), 1891, A., 462.
- Bromonaphthaquinone. See Naphthaquinone.
- di*Bromonaphthastyril (EKSTRAND), 1886, A., 715.
- Bromo- $\alpha$ -naphthoic acid (EKSTRAND), 1886, A., 715.
- 1:3'-*di*Bromo-2-naphthoic acid (CLAUS and PHILIPSON), 1891, A., 462.
- Bromonaphthol. See Naphthol.
- Bromonaphtholactone (EKSTRAND), 1886, A., 716.
- Bromo- $\beta$ -naphthol-3'-sulphonic acid, derivatives of (ARMSTRONG and ROSSITER), 1889, P., 72.
- 1:3-*di*Bromo-2-naphthonitrile (CLAUS and PHILIPSON), 1891, A., 462.
- Bromonaphthylamine. See Naphthylamine.
- Bromonaphthylene-ethenylamidine (PRAGER), 1885, A., 1239.
- di*Bromo- $\alpha$ -naphthylpropionic acid (BRANDIS), 1889, A., 1200.
- Bromonicotinic acids (CLAUS and COLLISCHONN), 1887, A., 159; (SREK), 1890, A., 177; (CLAUS), 1892, A., 876.
- Bromonitro-*p*-acetamidoisobutylbenzene (HEIZER), 1889, A., 44.
- Bromonitracetamidophenylacetoneitrile (GABRIEL), 1883, A., 64.
- m*-Bromo-*p*-nitracetanilide (CLAUS and SCHEULEN), 1891, A., 564.
- 3:5:4-*di*Bromonitracetanilide (CLAUS and WEIL), 1892, A., 1205.
- Bromonitro- $\beta$ -acetonaaphthalide, preparation of (PRAGER), 1885, A., 1239.
- Bromonitracetonaaphthalides (MELDOLA), 1883, T., 9; 1885, T., 499.
- $\omega$ -Bromo-*o*-nitracetophenone (GEVEKONT), 1884, A., 445.
- $\omega$ -Bromo-*p*-nitracetophenone, derivatives of (ENGLER and ZIELKE), 1889, A., 505.
- 5-Bromo-3-nitraceto-*o*-toluidide (NIEMENTOWSKI), 1892, A., 833; (CLAUS and BECK), 1892, A., 1207.
- 5-Bromo-*di*-nitraceto-*o*-toluidide (NIEMENTOWSKI), 1892, A., 833.
- 3-Bromo-5-nitraceto-*p*-toluidide (ILAND), 1886, A., 1018.

- Bromonitracetylpyrrolines**, *mono-* and *di-* (CIAMICIAN and SILBER), 1887, A., 597; 1888, A., 61.
- Bromodinitro-*o*-amidobenzene** (JACKSON and BANCROFT), 1890, A., 982.
- p*-Bromo-*m*-nitro-*p*-amidobenzophenone** (SCHOPFF), 1892, A., 336.
- eso*-Bromonitramidoisobutylbenzene** (GELZER), 1889, A., 44.
- Bromo-*o*- and *p*-amidophenetoils**, *mono-* and *di-*, and their salts (STAEDEL), 1883, A., 663.
- Bromonitramidophenylacetic acid** (GABRIEL), 1883, A., 64.
- p*-Bromo-*o*-nitraniline** (NOLTING and COLLIN), 1884, A., 1013.
- m*-Bromo-*p*-nitraniline** (CLAUS and SCHEULEN), 1891, A., 565.
- 3:5-*di*-Bromo-4-nitraniline** (CLAUS and WEIL), 1892, A., 1205.
- Bromonitranisole** (STAEDEL), 1883, A., 662.
- 5:2-Bromonitrazobenzene** (WILLGERODT), 1888, A., 949.
- di*-Bromonitrethane**, action of zinc ethyl on (BEWAD), 1889, A., 1128.
- $\beta$ -Bromo-*m*-nitroethylbenzamide** (ELFELDT), 1892, A., 213.
- Bromonitrisatin** (DORSCH), 1886, A., 360.
- p*-Bromo-*m*-nitrobenzaldehyde** (SCHOPFF), 1892, A., 336.
- p*-Bromo-*m*-nitrobenzamide and -anilide** (GROHMANN), 1891, A., 305.
- Bromonitrobenzene**. See Benzene.
- 1:3:6-Bromonitrobenzenesulphonic acid** (LIMPRICHT), 1885, A., 1234.
- Bromonitrobenzoic acid**. See Benzoic acid.
- Bromonitrobenzonitrile**. See Benzonitrile.
- Bromo-*m*-nitrobenzophenones**, *mono-* and *di-* (SCHOPFF), 1892, A., 336.
- di*-*p*-Bromodinitro-*m*-nitrobenzophenone** (SCHOPFF), 1892, A., 336.
- Bromodinitrobenzyl methyl ketone** (JACKSON and MOORE), 1889, A., 781; 1890, A., 773.
- Bromonitro-*p*-*iso*-butyl-acetanilide and -aniline** (GELZER), 1889, A., 44.
- Bromonitrocampafor** (CAZENEUVE), 1885, A., 270.
- $\alpha$ -Bromo-*m*-nitrocinnamaldehyde** (NAAR), 1891, A., 563.
- $\alpha$ -Bromo-*o*-nitrocinnamic acid** (NAAR), 1891, A., 563.
- $\alpha$ -Bromo-*m*-nitrocinnamic acid** (STUART), 1886, T., 361; (NAAR), 1891, A., 564.
- 4:6-Bromonitro-*o*-cresol** (CLAUS and JACKSON), 1889, A., 128.
- 3:5:6-Bromodinitro- $\psi$ -cumene** (JACOBSEN), 1889, A., 39.
- 2:5-Bromonitrocymene** (FILETI and CROSA), 1889, A., 493.
- 3-Bromonitrocymene** (MAZZARA), 1886, A., 1016; (FILETI and CROSA), 1889, A., 494.
- 3-Bromodinitrocymene** (MAZZARA), 1886, A., 1016.
- 2-Bromodinitrocymene** (FILETI and CROSA), 1889, A., 493.
- di*-Bromodinitrocymenes** (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1200, 1201.
- Bromonitrodiazo-**. See Diazo-, under Azo.
- di*-Bromo-*mono-* and *tri*-nitrodiphenyl** (LELLMANN), 1883, A., 343.
- p*-Bromo-*o*-nitrodiphenylsemithiocarbamide** (BISCHLER and BRODSKY), 1890, A., 152.
- di*-Bromodinitro-*p*-dipropylbenzene** (FILETI), 1891, A., 1022.
- Bromonitrohydroxyuracil** (BEHREND), 1887, A., 920.
- Bromodinitromesitylene** (SUSSENGUTH), 1883, A., 470.
- Bromonitromethane**, action of zinc ethyl on (BEWAD), 1889, A., 1128.
- Bromo-*di*-nitromethane** (KACHLER and SPITZER), 1883, A., 961.
- di*-Bromodinitromethane** (LOSANITSCH), 1884, A., 277.
- formation of (LOSANITSCH), 1883, A., 564.
- chlorine-derivatives of (LOSANITSCH), 1884, A., 1107.
- 6:2:4-Bromodinitromethylaniline** (NORTON and ALLEN), 1885, A., 1214.
- 4'-Bromo-4-nitro-1'-methylquinoline** (CLAUS and DECKER), 1889, A., 723.
- Bromonitronaphthalenes**. See Naphthalene.
- 2:4 1-Bromonitronaphthol and its salts** (MELDOLA), 1885, T., 501; P., 71.
- Bromonitro- $\alpha$ -naphthylamine** (MELDOLA), 1885, T., 500; P., 71; (ARMSTRONG and ROSSITER), 1891, P., 187.
- Bromonitronaphthylene-ethenylamidine** (PRAGER), 1885, A., 1239.
- Bromonitrophenetoils** (STAEDEL), 1883, A., 662.
- di*-Bromonitrophenetol** (JACKSON and BENTLEY), 1892, A., 1132.
- tri*-Bromodinitrophenetol** (JACKSON and WARREN), 1891, A., 1026.
- Bromonitrophenols**. See Phenol.
- Bromonitrophenyl benzyl ethers** (ROLL and HOLZ), 1885, A., 1209.

- Bromo-*m*-nitrophenyl ethyl ether** (*Bromo-*m*-nitrophenetol*) (LINDNER), 1885, A., 775.
- m*-Bromodinitrophenylacetic acid** (JACKSON and ROBINSON), 1890, A., 378.
- p*-Bromo-*o*-nitrophenylhydrazine** (BISCHLER and BRODSKY), 1890, A., 151.
- 3-Bromo-6-nitrophenylphenylhydrazine** (WILLGERODT), 1888, A., 949.
- tri*-Bromonitropropane** (ASKENASY and MEYER), 1892, A., 1064.
- tetra*-Bromo-1:3-*di*-nitropropane** (KEPLER and MEYER), 1892, A., 1062.
- Bromonitropropylene** (ASKENASY and MEYER), 1892, A., 1064.
- Bromonitroquinolines, 2:2' and 2:3'** (CLAUS and VIS), 1889, A., 281.
- 3:4-Bromonitroquinoline** (LA COSTE), 1883, A., 90; (CLAUS and ZUSCHLAG), 1890, A., 267.
- 1'-Bromonitroquinolines** (CLAUS and POLLITZ), 1890, A., 521.
- Bromonitrosoquinoline, and its derivatives** (EDINGER and BOSSUNG), 1891, A., 580.
- Bromonitroquinones** (GUARESCI and DACCAMO), 1885, A., 891.
- Bromodinitroresorcinol** (FÈVRE), 1883, A., 783; (TYPEK), 1883, A., 917.
- di*-Bromonitroresorcinol** (FÈVRE), 1883, A., 783.
- Bromonitrosoazobenzene** (WILLGERODT), 1888, A., 949.
- Bromonitrosoacryacrol, constitution of** (MAZZARA), 1890, A., 884.
- di*-*o*-Bromonitrosophenol** (FISCHER and PEPP), 1888, A., 456.
- Bromonitrostrychnine** (BROKUNTS), 1890, A., 1329.
- di*-Bromonitroterephthalic acids** (FILETI and CROSA), 1891, A., 1056.
- di*-Bromodinitrothiophen** (KREIS), 1884, A., 1314.
- Bromonitrothymol** (MAZZARA), 1890, A., 753.
- o*-Bromo-*p*-nitrothymol** (MAZZARA and DISCALZO), 1886, A., 1019; (MAZZARA), 1890, A., 366, 602.
- 8:6-Bromonitrotoluene** (BENTLEY and WARREN), 1890, A., 485.
- di*-Bromedinitrotoluene [2:5:4:6]** (CLAUS), 1888, A., 587.
- di*-Bromodinitrotoluene** (PALMER), 1889, A., 890.
- 4:5-Bromonitro-*o*-toluic acid** (CLAUS and BUCK), 1892, A., 1207.
- 2:1(?) -Bromonitro-*p*-toluic acid** (FILETI and CROSA), 1887, A., 37.
- Bromonitro-*p*-toluic acids, 2:3-, 2:5-, and 2:6-** (CLAUS and HERBANY), 1892, A., 174.
- 3:6-Bromonitro-*p*-toluic acid** (FILETI and CROSA), 1889, A., 495.
- Bromonitro-*p*-toluic acids, 5:2- and 5:3-** (CLAUS and BEYSEN), 1892, A., 178.
- 2:5-Bromonitro-*p*-toluidine** (CLAUS and HERBANY), 1892, A., 174.
- 5:3-Bromonitro-*p*-toluidine** (HAND), 1886, A., 1018.
- 2:6-Bromonitro-*p*-toluonitrile** (CLAUS and HERBANY), 1892, A., 175.
- Bromodinitrotrianilidobenzene** (JACKSON and BANCROFT), 1890, A., 982.
- di*-Bromo-*di*- and *tetra*-nitroxanilides** (MIXTER and WILCOX), 1888, A., 142.
- 3:4-*di*-Bromo-5-nitro-*o*-xylene** (TOHL), 1886, A., 57.
- 4:6-Bromonitro-*m*-xylene** (AHRENS), 1892, A., 1437.
- 4-Bromo-2:6-*di*-nitro-*m*-xylene** (LELLMANN and JUST), 1891, A., 1245.
- Bromonitro-*m*-xylenesulphonic acid and its salts** (LIMPRICHT), 1885, A., 1234.
- Bromoplanic acid** (TUST), 1892, A., 1209.
- Bromopianoximic anhydride** (TUST), 1892, A., 1210.
- Bromopianyl-hydrazobenzene, -phenylhydrazide, and -phenylmethylhydrazone** (TUST), 1892, A., 1210.
- α*-Bromopalmitic acid** (HELL and IORDANOFF), 1891, A., 820.
- Bromopentanes, *tri*- and *tetra*-** (HELL and WILDERMANN), 1891, A., 162, 584.
- Bromo-*o*- and -*p*-phenetidines, *mono*- and *di*-, and their salts** (STAEDEL), 1883, A., 668.
- Bromophenols.** See Phenol.
- Bromophenol-*o*-sulphonic acid** (ALLAIN LEGRAND), 1889, A., 1184.
- p*-Bromo-*α*-phenotriazine** (BISCHLER and BRODSKY), 1890, A., 152.
- Bromophenylacetic acid, action of, on ethylic acetoacetate** (WELTNER), 1884, A., 746; 1885, A., 798.
- an apparent exception to the Le Bel-van't Hoff hypothesis (EASTFIELD), 1891, T., 71.
- α*-Bromophenyl-*β*-amidocrotonic acid.** See *α*-Brom-*β*-amidocrotonic acid.
- di*-Bromophenylbenzoic acid.** See *di*-Bromodiphenylcarboxylic acid.
- p*-Bromophenyl-*γ*-bromothiophen** (KUES and PAAL), 1887, A., 239.
- γ*-Bromophenylbutyric acid** (JAYNE), 1883, A., 472; (FITTIG and MORRIS), 1890, A., 891.

- Bromophenylbutyrolactone** (FITTIG, OBERMULLER and SCHIFFER), 1892, A., 987.
- Bromophenylcarbamide** (BERTRAM), 1892, A., 467.
- Bromophenylchlorotonic acid** (KÖRNER), 1888, A., 868.
- Bromophenylcysteine**, action of acetic anhydride on (BAUMANN), 1885, A., 514.
- triBromophenyldithienyl** (RENARD), 1890, A., 1420.
- triBromophenylic benzoate** and its nitro-derivative (DACCOMO), 1885, A., 890.
- diBromophenylic carbonate** (LÖWENBERG), 1886, A., 789.
- Bromophenyllactic acid** (ERLENMEYER), 1883, A., 196.
- Bromophenyllactic acids**, optically active (ERLENMEYER), 1891, A., 1482.
- Bromophenylmethylfurfuran tetra-bromide** (PAAL), 1885, A., 249.
- Bromophenylmethylpyrazolone** (MÜLLENHOFF), 1892, A., 1246.
- Bromophenylmethylpyrazolones**, *mono*-, *di*-, and *tri*- (KNORR and DUDEN), 1892, A., 781.
- Bromophenylacetane** (*bromocetylbenzene*) (ÄHRENS), 1887, A., 133.
- Bromophenylparaconic acid** (FITTIG and LEONI), 1890, A., 894.
- az-p-Bromophenyl-*ald*-phenylnaphthotriazine** (MELDOLA and FORSTER), 1891, T., 690.
- 1-p-Bromophenylpiperidine** (LELLMANN and JUST), 1891, A., 1244.
- m-Bromo- $\beta$ -phenylpropionic acid** (GABRIEL), 1883, A., 195.
- Bromophenylpropylene**. See Bromallylbenzene.
- 4-Bromo-1-phenylpyrazole** (BALBIANO), 1890, A., 797.
- Bromo-1-phenylpyrazoles**, *di*- and *tri*- (BALBIANO), 1890, A., 797.
- 4-Bromo-1-phenylpyrazole-3:5-dicarboxylic acid** (BALBIANO), 1890, A., 1165.
- diBromo-2-phenylpyridinedicarboxylic acid** and its salts (SKRAUP and COBENZL), 1883, A., 1014.
- triBromophenylsalicylic acid** (ARBENZ), 1890, A., 893.
- p-Bromophenylsuccinamic acid** (HOOGWERFF and VAN DORP), 1891, A., 196.
- p-Bromophenylsuccinamide** (HOOGWERFF and VAN DORP), 1891, A., 196.
- diBromophenylsulphonamic acid**, barium salt of (TRAUBE), 1891, A., 569.
- Bromophenyluramidopropionic acids**, *mono*-, *di*- and *tri*- (HOOGWERFF and VAN DORP), 1891, A., 198.
- $\gamma$ -Bromophenylvaleric acid** (FITTIG and STERN), 1892, A., 988.
- Bromophenylisovaleric acid** (FITTIG and LIEBMAN), 1890, A., 776.
- Bromophenylvalerolactone** (FITTIG and STERN), 1892, A., 987.
- triBromophloroglucinol** (BENEDIKT and HAZURA), 1885, A., 554; (HERZIG), 1886, A., 232.
- action of potassium iodide on (BENEDIKT and v. SCHMIDT), 1883, A., 1119.
- acetate (ZINCKE and KEGEL), 1890, A., 1109.
- hexaBromophloroglucinol dibromide** (HAZURA and BENEDIKT), 1886, A., 52.
- Bromophthalic acids and anhydride**. See Phthalic acid and anhydride.
- Bromophthalide** (RACINE), 1886, A., 549.
- diBromophthalide** (GUARESCHI), 1884, A., 842.
- diBromo-o-phthalimide** (LE BLANC), 1889, A., 257.
- Bromopiperonal**, derivatives of (OELKER), 1891, A., 1474.
- Bromopiperonaldoxime** (OELKER), 1891, A., 1475.
- Bromopiperonylacrylic acids**, *tri*- and *tetra*- (PERKIN), 1891, T., 160, 163; P., 27.
- triBromopiperonylethylene** (PERKIN), 1891, T., 161; P., 27.
- Bromopiperonylpropionic acid** (WEINSTEIN), 1885, A., 665.
- diBromopiperonylvaleric acid** (*diBromopiperhydraonic acid*), and derivatives of (WEINSTEIN), 1885, A., 664.
- Bromopiperonylvinyl methyl ketone** (OELKER), 1891, A., 1475.
- Bromoprehnitene**, action of sulphuric acid on (TÜHL), 1892, A., 968.
- $\beta$ -Bromopropaldehyde** (LEDERER), 1891, A., 37.
- diBromopropaldehyde** (ETARD), 1892, A., 809.
- triBromopropaldehyde** (NIEMIŁOWICZ), 1890, A., 861.
- 1:2:3-triBromopropane**. See Tribromhydrin.
- tetraBromopropane** (*isoallylene tetrabromide*) (GUSTAVSON and DEMJANOFF), 1889, A., 30.
- Bromopropionic acid**, action of aromatic amines on (MABERY and KRAUSE), 1890, A., 371.
- Bromopropionic acids**. See Propionic acid.
- Bromopropylamines**. See Propylamine.
- $\gamma$ -Bromopropylaminenitrobenzamide** (ELFELDT), 1892, A., 214.

- di*Bromopropylisocamylamine and its hydrobromide (PAAL), 1889, A., 118.
- Bromopropylbenzamides,  $\beta$ - and  $\gamma$ - (HIRSCH), 1890, A., 800; (GABRIEL and ELFFELDT), 1892, A., 212.
- di*Bromopropyl-*n*- and -*iso*-butylamines (PAAL), 1889, A., 117.
- di*Bromopropylcarbamide and its derivatives (ANDREASCH), 1884, A., 732; (PAAL and HEUPEL), 1892, A., 30; (PAAL), 1892, A., 578.
- Bromopropylcinnamoylamides,  $\beta$ - and  $\gamma$ - (ELFFELDT), 1892, A., 215.
- di*Bromopropylene (LESPICHAU), 1892, A., 420.
- $\alpha$ -Bromo-*n*- and -*iso*-propylenes (WISLICENTUS, TEISLER and LANGBEIN), 1889, A., 236.
- Bromopropylencarbamide and its derivatives (ANDREASCH), 1884, A., 733; (PAAL), 1892, A., 578.
- di*Bromopropylac acetates,  $\alpha$ - and  $\alpha\beta$ - (ASCHAN), 1890, A., 1084.
- $\beta$ -Bromopropyl-*m*-nitrobenzamide (ELFFELDT), 1892, A., 213.
- $\beta$ -Bromopropylphthalimide (SEITZ), 1891, A., 1472.
- $\gamma$ -Bromopropylphthalimide (GABRIEL and WEINER), 1888, A., 1292.
- Bromopropylthiocarbamide (LAUER), 1890, A., 1090.
- Bromopropylthiophen (RUFF), 1887, A., 804.
- p*-*di*Bromopropyltoluic acid, "oxidation products of (FILETI and BONISCONTRO), 1892, A., 604.
- tri*Bromopropyl-*o*-xylene (UHLHORN), 1890, A., 1249.
- 2-Bromopyridine (v. HOFMANN), 1883, A., 813; (CIAMICIAN and SILBER), 1885, A., 811.
- di*Bromopyridine (KOENIGS and GRIGY), 1884, A., 1195; (BLAU), 1889, A., 1212.
- Bromopyridine-2:3-dicarboxylic acid (CLAUS and COLLISCHONN), 1887, A., 169.
- Bromopyridine-3:4-dicarboxylic acid (EDINGER and BOSSUNG), 1891, A., 580.
- 3:5-*di*Bromopyridine-2:4:6-tricarboxylic acid (PFEIFFER), 1887, A., 844.
- tetra*Bromopyrocoll (CIAMICIAN and SILBER), 1884, A., 292.
- Bromopyrocresole oxides (SCHWARZ), 1888, A., 207.
- tri*Bromopyrogallol (WEBSTER), 1884, T., 205, 207.
- Bromopyromucic acids, *mono*- and *di*- (HILL and SANGER), 1884, A., 1305; (CANEONERI and OLIVERI), 1885, A., 244, 1126; (HILL), 1885, A., 1125.
- Bromopyrotritaric acid (DIETRICH and PAAL), 1887, A., 658.
- di*Bromopyrrolinophthalide (ANDERLINI), 1889, A., 58.
- tri*Bromopyrrol-1-methylglyoxylic acid (DE VARDA), 1890, A., 390.
- di*Bromopyruvic acid, action of hydroxylamine on (SÖDERBAUM), 1892, A., 815.
- compounds of, with hydrazines (NASTVOGEL), 1889, A., 237.
- di*Bromo-pyuramide and -pyvureide (FISCHER), 1887, A., 918.
- tri*Bromopyvurine (FISCHER), 1887, A., 918.
- Bromoquinol, dimethyl ether of (NÖLTING and WERNER), 1891, A., 209.
- m*-*di*Bromoquinol (LING), 1892, T., 562; P., 105.
- di*Bromoquinoldicarboxylic acid (BÖNIGER), 1888, A., 954.
- di*Bromoquinoldisulphonic acid (GRAEBE and WELTNER), 1891, A., 1029.
- 1-Bromoquinoline-4-carboxylic acid (LELLMANN and ALT), 1887, A., 502.
- Bromoquinoline. See Quinoline.
- Bromoquinolinesulphonic acid. See Quinolinesulphonic acid.
- Bromoquinolinesulphonic bromide (CLAUS and POSSELT), 1890, A., 522.
- Bromoquinolinic acid (SRPEK), 1890, A., 177.
- m*-*di*Bromoquinone (HEINICHEN), 1890, A., 165; (LING), 1892, T., 561; P., 105.
- tetra*Bromoquinone (*bromanil*) (LING), 1887, T., 148; (GRAEBE and WELTNER), 1891, A., 1028.
- tetra*Bromo-*o*-quinone (ZINCKE), 1887, A., 808.
- di*Bromoquinone-chlor- and -phenol-imides (MÜHLAU), 1884, A., 594.
- di*Bromorescinol, diethyl ether of (HERZIG and ZEISEL), 1890, A., 1405.
- Brom- $\alpha$ -oreinoldichroin (BRUNNER and CHUTT), 1888, A., 1183.
- Bromoresorcinols, *mono*- and *di*- (ZEHENTER), 1887, A., 924.
- Bromoresindone (FISCHER and HEPP), 1891, A., 1045.
- di*Bromosalicylamide (SPILKER), 1890, A., 141.
- Bromosalicylic acids, substituted (PERATONER), 1887, A., 486.
- di*Bromosalicylic acid, constitution of (PERATONER), 1887, A., 487.
- di*Bromosalicylthiamide (SPILKER), 1890, A., 142.
- Bromosarcosinemesouric acid (MYLIUS), 1884, A., 1128.

- di*Bromosebacic acid, and its derivatives (CLAUS and SPEINKAULER), 1888, A., 133; (AUWER and BERNHARDI), 1891, A., 1191.
- Bromoshikimolactone (EIJKMAN), 1891, A., 920.
- Bromostannic acid (PREIS and RAYMAN), 1888, A., 425; (SEUBERT and SCHURMANN), 1887, A., 554.
- Bromostearic acid (PIOTROWSKI), 1890, A., 1396.
- $\alpha$ -Bromostearic acid (HELL and SADOMSKY), 1891, A., 1336.
- Bromostyrychnine (SHENSTONE), 1885, T., 140, 141; P., 5; (BECKURTS), 1885, A., 675, 911; (LOEBISCH and SCHOOP), 1886, A., 268. crystallography of (MIERS), 1885, T., 144; P., 5. action of nitric acid on (SHENSTONE), 1885, T., 141; P., 5. methyldioxide and methiodide (BECKURTS), 1890, A., 1329. physiological action of (BRUNTON), 1885, T., 143; P., 5.
- di*Bromostyrychnine (SHENSTONE), 1885, T., 141; P., 5; (BECKURTS), 1885, A., 675, 911.
- tri*Bromostyrychnine (BECKURTS), 1885, A., 675, 911.
- p*-Bromostyrene *di*bromide (SCHRAMM), 1891, A., 898. glycol (SCHRAMM), 1891, A., 898.
- di*Bromostyrene, action of bromine-vapour on (KINNICUTT and PALMER), 1884, A., 603.
- di*Bromosuccinyl (ANSCHÜTZ and WIRTZ), 1887, A., 934.
- Bromosuccinic acids. See Succinic acid.
- Bromosuccinimide (KUSSEROW), 1889, A., 1064.
- o*-Bromo-*m*-sulphobenzoic acid (FISCHER), 1892, A., 333.
- $\delta$ -Bromo- $\beta$ -sulphopyromucic acid (HILL and PALMER), 1889, A., 386.
- 2-Bromoterephthalic acid (SCHULTZ), 1885, A., 1054; (FILETTI), 1887, A., 52.
- di*Bromotetracetylbrazein (SCHALL and DRALLE), 1890, A., 997.
- Bromotetrahydrodiphenylic *di*bromide (BAMBERGER and LODTER), 1888, A., 604.
- tri*Bromotetraketohexamethylene (LANDOLT), 1892, A., 836.
- tetra*Bromotetraketohexamethylene (NEF), 1890, A., 1272.
- hexa*Bromotetramethylene (SADANÉFF), 1889, A., 1128.
- Bromotetramethylenecarboxylic acid (PERKIN and SINCLAIR), 1891, P., 191; 1892, T., 41.
- Bromo- $\alpha$ -tetraresorcinoldichroin ether (BRUNNER and CHUIT), 1888, A., 1182.
- Bromoterethylphloroglucinols (HERZIG and ZEISEL), 1890, A., 248.
- Bromotetric acid (MOSCHELES and CORNELIUS), 1888, A., 1272.
- $\mu$ -Bromothiazole (SCHATZMANN), 1891, A., 745.
- Bromothiophen (SCHLEICHER), 1886, A., 227.
- di*Bromothiophen, direct preparation of, from coal-tar benzene (MEYER and STADLER), 1885, A., 971.
- tri*Bromothiophen, and its sulphonic acid and anhydride (ROSENBERG), 1885, A., 1051.
- tetra*Bromothiophen, oxidation of (CIAMICIAN and ANGELI), 1892, A., 302.
- Bromothiophen-3-carboxylic acid (GATTERMANN and ROMER), 1886, A., 537.
- Bromothiophen-2:3-dicarboxylic acid (GERLACH), 1892, A., 831.
- Bromothiotolen. See Bromomethylthiophen.
- 2-Bromothymol (CLAUS and KRAUSE), 1891, A., 899, 900.
- 6-Bromothymol, derivatives of (MAZZARA), 1890, A., 366.
- o*-Bromothymol, ethyl ether of (MAZZARA and VIGHI), 1890, A., 883.
- 6-Bromothymol methyl ether (MAZZARA), 1890, A., 366.
- Bromothymol-*o*- and *p*-sulphonic acids, *o*- and *p*- (CLAUS and KRAUSE), 1891, A., 899.
- $\beta$ -Bromothymoquinol (MAZZARA and DISCALZO), 1886, A., 1020; (SOHNITER), 1887, A., 720.
- 2-Bromothymoquinone (MAZZARA), 1890, A., 753; (CLAUS and KRAUSE), 1891, A., 899.
- 5-Bromothymoquinones (SOHNITER), 1887, A., 720; (MAZZARA), 1890, A., 753.
- Bromothymoquinones, 2- and 5- (KEHRMANN), 1890, A., 367.
- Bromotoluene. See Toluene.
- Bromotoluenesulphonic acids. See Toluenesulphonic acids.
- Bromotoluic acid. See Toluic acid.
- m*-Bromo-*o*-toluidine (ALT), 1889, A., 1214.
- p*-Bromo-*m*-toluidine (CLAUS), 1892, A., 1201.
- 2 6-*di*Bromo-*p*-toluidine (CLAUS and HERBADNY), 1892, A., 175.
- m*-Bromo-*o*-toluidine-*m*-sulphonic acid (WYNNÉ), 1892, T., 1037; P., 155.
- Bromo-*o*-toluonitrile (NOURRISSON), 1887, A., 668.

- 4:6-*di*Bromo-*o*-toluonitrile (CLAUS and BECK), 1892, A., 1208.
- 2:6-*di*Bromo-*p*-toluonitrile (CLAUS and HERBANY), 1892, A., 175.
- 3:5-*di*Bromo-*p*-toluonitrile (CLAUS and SEIBERT), 1892, A., 176.
- Bromotoluphenanthrazine (HARTMANN), 1890, A., 976.
- 3-Bromotoluquinone (CLAUS and JACKSON), 1889, A., 128.
- 4-Bromotoluquinone (SCHNIFFER), 1887, A., 1036.
- Bromotoluquinones, *di*- and *tri*- (CANZONERI and SPICA), 1883, A., 330.
- tri*Bromotoluquinone, action of potassium hydroxide on (SPICA and MAGNANIMI), 1884, A., 175.
- Bromotolyl methyl ketone, *o*- and *m*- (CLAUS), 1891, A., 911.
- p*-Bromo-*m*-tolyl methyl ketone (SCHOFFE), 1892, A., 338; (CLAUS), 1892, A., 1200.
- p*-Bromo-*m*-tolyl methyl ketoxime (CLAUS), 1892, A., 1201.
- di*Bromo-*o*- and *p*-tolyl- $\alpha$ -amidopropionitrile (STEPHAN), 1887, A., 143.
- $\beta$ -*di*Bromotolylbenzoic acid (CARNELLEY and THOMSON), 1886, P., 258; 1887, T., 90.
- 5-Bromo-3:4-tolylenediamine (BIS-TRZYCKI), 1890, A., 970.
- Bromotolylene-carbamide (HARTMANN), 1890, A., 975.
- di*Bromo-*p*-tolyl benzoate (SCHALL and DRALL), 1885, A., 146.
- di*Bromotricarballylic acid (*di*Bromotricarballic acid) (GUINCHET), 1890, A., 594.
- di*Bromotriethylgallic acid (SCHIFFER), 1892, A., 715.
- Bromotrihydroxybenzophenone (GRAEBE and EICHENGRUN), 1892, A., 1225.
- hexa*Bromotriketohexamethylene (ZINCKE and KEMEL), 1890, A., 1109.
- di*Bromotriketohydronaphthalene hydrate (ZINCKE and GERTLAND), 1888, A., 291.
- di*Bromotriketopentamethylene hydrate (LANDOLT), 1892, A., 836.
- tri*Bromotriketopentamethylene (HANTZSCH), 1888, A., 1191, 1192; (LANDOLT), 1892, A., 836.
- Bromotrimethylcarbinol (*bi*omo-*tert*-butyl alcohol) (GUARENCHI and GARZINO), 1888, A., 437; (GARZINO), 1889, A., 951.
- Bromotrimethylenedisulphone sulphides, *di*- and *hexa*- (CAMPS), 1892, A., 593.
- hexa*Bromotrimethylenetrisulphone (CAMPS), 1892, A., 592.
- Bromotrimethylethylammonium salts, *di*- and *tri*- (BODE), 1892, A., 806.
- $\alpha$ -Bromotrimethylglutaric anhydride (AUWERS and MEYER), 1890, A., 480.
- di*Bromo-2:4 6-trimethylpyridine (PFIFFER), 1887, A., 844.
- Bromotrimethylvinylammonium salts (BODE), 1892, A., 807.
- tri*Bromotriphenylfurfuran (JAPP and KLINGEMANN), 1890, T., 713.
- Bromotriphenylmethane, action of, on ethyl sodomalonate (HENDERSON), 1887, T., 224.
- reactions of (ELBS), 1884, A., 1030.
- Bromotriphenylmethylpyrrolone, crystallography of (TUNION), 1890, T., 728.
- tri*Bromotrithienyl (RENARD), 1891, A., 428.
- tri*Bromotritolylbenzene (CLAUS), 1890, A., 770.
- Bromumbelliferones, *mono*- and *di*-, ethyl and methyl ethers of (WILL and BECK), 1886, A., 881, 882.
- Bromoundecylenic acid (BRUNNER), 1886, A., 1011.
- Bromouracilcarboxylic acids (BEHREND), 1887, A., 920.
- di*Bromovaleraldehyde (LIEBEN and ZEISEL), 1886, A., 783.
- Bromovaleric acid, decomposition of (FITTIG and URBAN), 1892, A., 960.
- di*Bromovaleric acid (*di*bromomethylacetic acid) (OTT), 1891, A., 1453.
- Bromovaleric acids,  $\gamma$ -*mono*- and *di*- (FITTIG and FRANKEL), 1890, A., 585.
- $\alpha$ -Bromo*iso*valeric acid (VOLLIARD), 1888, A., 129; (SCHLICHER), 1892, A., 427.
- Bromovalerolactone (FITTIG and URBAN), 1892, A., 960.
- di*Bromovalerolactone (WOLFF), 1885, A., 1124.
- Bromovanadinates (DITTE), 1888, A., 783.
- tri*Bromovinylbenzoic acid (ROSER and HASELHOFF), 1888, A., 1304.
- Bromo-*p*-vinylphenol *di*bromide (EIGEL), 1887, A., 1110.
- Bromowagnerites (DITTE), 1883, A., 648.
- Bromoxanthine (FISCHER and REUBEN), 1884, A., 467.
- di*Bromoxanthone (*di*bromodiphenylene ketone oxide) (PERKIN), 1883, T., 194.
- tri*Bromoxanthone (ARBENZ), 1890, A., 893.
- Bromoxybenzene derivatives (BENEDIKT), 1883, A., 984.

- Bromoxybromocomenic acid** (MENNEL), 1883, A., 657.
- Bromoxylene.** See Xylene.
- Bromo-*p*-xylenesulphonamide** (JACOBSEN), 1885, A., 144.
- di*Bromo-*p*-xylenesulphonamide** (MOODY and NICHOLSON), 1890, T., 977.
- Bromoxylenesulphonic acids.** See Xylenesulphonic acids.
- di*Bromo-*p*-xylenesulphonic chloride** (MOODY and NICHOLSON), 1890, T., 977.
- tri*Bromo-*o*-xylenol** (TÜHL), 1886, A., 57.
- Bromo-*p*-xylenol** (ADAM), 1884, A., 1329.
- 4,5-*di*-Bromo-*o*-xylidine** (TÜHL), 1886, A., 57.
- 5-*di*-Bromo-*p*-xylidine** (NÜLTING and KOHN), 1886, A., 356.
- Bromo-*p*-xylol methyl ketone** (SCHÜPF), 1892, A., 338.
- Bromoxy-2'-methylquinoline** (KNORR and ANTRICK), 1885, A., 274.
- tri*Bromoxy-4'-methylquinoline** (COMSTOCK and KOENIGS), 1884, A., 1383.
- Bromoxynaphthaquinonesulphonic acid**, potassium salt of (ARMSTRONG and STREATFIELD), 1886, P., 232.
- 2'-Bromoxyquinoline.** See Bromocarbo-styryl.
- Bromoxytribromophenol** (WERNER), 1885, A., 658.
- Bronze**, process for phosphorising (WHITING), 1884, A., 936.
- Weiller's silicon- (MÜLLER), 1885, A., 308.
- implements used by the miners of Peru (BOUSSINGAULT), 1883, A., 691.
- statues, cause of the blackening of the patina of (HASSACK), 1885, A., 1270.
- Bronze-coloured surface on iron**, process for producing (MAYER), 1884, A., 127.
- Bronzes**, Indian, and their patina, some analyses of (ARCHE and HASSACK), 1885, A., 100.
- Japanese, analyses of (MARQUARD), 1885, A., 204.
- Bronzite** (WEISBACH), 1883, A., 432.
- from South Africa, composition of (ROSCOE), 1885, A., 132.
- Brookite** (KUNZ), 1892, A., 1055.
- from Beura, Ossola (STRÜVER), 1891, A., 527.
- from Magnet Cove, Arkansas (PENFIELD), 1886, A., 989; (DANA), 1887, A., 116.
- Broom** (*Genista pilosa*), analysis of, and of its ash (PETERMANN), 1884, A., 207.
- Brucine.** See under Alkaloids.
- Brucite** (WEINBACH), 1883, A., 1061.
- from Cogne, Val d' Aosta (FRIEDEL), 1883, A., 1061; 1884, A., 162.
- from the Tyrol (v. FOULLON), 1890, A., 339.
- from the Ural (LÖSCH), 1887, A., 345.
- Brücke's acid** (*oxyprotosulphonic acid*) (MALY), 1885, A., 824.
- Brushwood**, food value of (STUTZER), 1892, A., 1511.
- Bryonin**, detection of (JOHANNSON), 1885, A., 606.
- Buchu leaves** (SHIMOYAMA), 1888, A., 1205.
- Building stones**, decay of (WALLACE), 1883, A., 1036.
- Bulbocapnine** (FREUND and JOSEPHI), 1892, A., 1366.
- Bunsen-battery.** See Electrochemistry.
- Bunte's salt** (*sodium ethylthiosulphate*), preparation and properties of (OTTO and RÜSSING), 1892, A., 799.
- Buraitite.** See Aurichalcite.
- Burette** for solutions which are easily reduced, and which attack india-rubber (GAWALOWSKI), 1885, A., 835.
- float for opaque liquids (REY), 1891, A., 1288.
- jet (LEYBOLD), 1887, A., 688.
- Burettes**, manufacture and correction of (OSTWALD), 1883, A., 619.
- improvements in (REID), 1892, A., 1027.
- Burner**, Bunsen, a modified (SHENSTONE), 1885, T., 378; P., 51.
- for spirit (BARTHEL), 1892, A., 1386.
- new laboratory (TECLU), 1892, A., 768.
- simple, for monochromatic light (NOAK), 1886, A., 14.
- Burners**, new (GRÖGER), 1890, A., 106.
- "**Bumping**" in distillation, method of avoiding (REISMANN), 1888, A., 547; (MARKOWNIKOFF), 1888, A., 1155.
- isoButaconic acid** (FITTIG and KRAENCKER), 1890, A., 875.
- Butaldehyde** (JUSLIN), 1885, A., 138.
- condensation of (RAUPENSTRAUCH), 1887, A., 794.
- condensation of, with succinic acid (FITTIG and SCHMIDT), 1890, A., 588.
- Butaldehyde**,  $\alpha$ -*dichloro*- $\alpha$ -*di*bromo- (NATTERER), 1883, A., 965.
- tri*chloro- (NATTERER), 1883, A., 966.
- See also Butylchloral.

- iso*Butaldehyde, preparation of, free from acetone (FOSSEK), 1884, A., 37.
- polymeric modification of (PERKIN), 1883, T., 86; (BARBAGLIA), 1887, A., 461.
- action of aniline on a mixture of acetaldehyde and (v. MILLER), 1887, A., 974.
- condensation of aniline and, with methylal (v. MILLER and KINKELIN), 1887, A., 957.
- condensation of, with ethylic acetate (MATTHEWS), 1883, T., 201.
- action of glycol on (LOCHER), 1888, A., 670.
- condensation of, with phenylenediamines (LASSAR-COHN), 1890, A., 138.
- action of zinc and ethylic chloracetate on (REFORMATSKY), 1892, A., 1300.
- action of quinaldine on (BRUNNER), 1887, A., 975.
- condensation of, with succinic acid (FITTIG and ZANNER), 1890, A., 589.
- condensation of, by means of aqueous and alcoholic potash (PERKIN), 1883, T., 90.
- derivative of, analogous to hydrobenzoin (FOSSEK), 1884, A., 37.
- dihydric alcohols derived from (SWOBODA and FOSSEK), 1891, A., 31.
- iso*Butaldehyde, chlor- (BROCHET), 1892, A., 1292.
- thio- (BARBAGLIA), 1889, A., 120.
- Para*isobutaldehyde (PERKIN), 1883, T., 86.
- condensation of, with aniline (v. MILLER and PLOCHL), 1892, A., 1192.
- action of sulphur on (BARBAGLIA), 1889, A., 120.
- iso*Butaldoxime (PETRACZEK), 1883, A., 569.
- Butane, absorption coefficient of, in water (HENRICH), 1892, A., 1043.
- dinitro-, and its salts (CHANCE), 1883, A., 915; 1885, A., 647.
- iso*Butane, tribromo- (NORTON and WILLIAMS), 1887, A., 712.
- tert.*-Butane, nitro- (BEWAD), 1891, A., 653.
- Butanecarboxylic acid. See Butyric acid.
- Butanedicarboxylic acid. See Adipic acid, Dimethylsuccinic acid, Ethylsuccinic acid, Methylsuccinic acid, Methylglutaric acids, Propylmalonic acid, *iso*Propylmalonic acid.
- Butanedisulphonic acid (MAUZELIUS), 1888, A., 821.
- iso*Butanedisulphonic acid, barium salt of (GUARESCHI and GARZINO), 1888, A., 436.
- Butanetricarboxylic acid [m.p. 116°—120°] (AUWERS, KOBNER, and v. MEYENBURG), 1892, A., 42.
- [m.p. 119°] (POLKO), 1888, A., 134.
- action of bromine on (BISCHOFF), 1891, A., 292.
- iso*Butanetricarboxylic acid (BARNSTEIN), 1888, A., 135.
- iso*Butenylalcohol. See  $\beta$ -Allylcarbinol.
- p*-Butenylanisoils, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- Butenylbenzene. See Phenylbutylene.
- iso*Butenyltolylene-*o*-diamine (HINSBERG), 1887, A., 817.
- Butenyltricarboxylic acid. See Butanetricarboxylic acid.
- Butinene (*erythrene*, *vinylethylene*, *pyrrolylene*) (CIAMICIAN and MAGNAGHI), 1885, A., 1243.
- preparation and oxidation of (ARMSTRONG and MILLER), 1886, T., 81.
- constitution of (GRIMAU and CLOEZ), 1890, A., 730.
- derivatives (GRIMAU and CLOEZ), 1887, A., 352.
- bromides (COLSON), 1887, A., 787; (GRIMAU and CLOEZ), 1887, A., 789.
- dibromide, dibromo- (GRIMAU and CLOEZ), 1887, A., 789.
- tetrabromides (CIAMICIAN and MAGNAGHI), 1886, A., 521; (GRIMAU and CLOEZ), 1887, A., 789; (CIAMICIAN), 1888, A., 242; (CIAMICIAN and MAGNANINI), 1888, A., 799.
- dioxide (PRZYBYTER), 1888, A., 245.
- Butinene (*crotonylene*, *ethylacetylene*), action of, on mercuric chloride (KUTSCHEROFF), 1884, A., 720.
- dibromide (HÖLZ), 1889, A., 576.
- glycol (HENNINGER), 1884, A., 897.
- hydrobromide (HÖLZ), 1889, A., 576.
- constitution of (WISLICIENUS), 1889, A., 577.
- conversion of, into bromo- $\psi$ -butylene (PUCKERT), 1889, A., 576.
- $\alpha$ -hydrobromide (REBOUL), 1892, A., 127.
- iso*Butinene dibromide (*n*-butylene, *di*-bromo- (HÖLZ), 1889, A., 576.
- Butinenes (NORTON and NOYES), 1889, A., 361.
- condensation of (FAWORSKY), 1885, A., 645.

- Butinenecarboxylic acid**, *pentachloro-* (ZINCKE and KUSTER), 1888, A., 1278.
- o*-**isobutoxybenzaldehyde**, and *trithio-* (BAUMANN and FROMM), 1891, A., 1051.
- p*-**isobutoxydiphenylamine** (PHILIP and CALM), 1885, A., 155.
- isobutoxyhydrocotarnine methiodide** (ROSER), 1890, A., 532.
- Butter**. See Agricultural Chemistry.
- "**Butter beans**," a new variety of fatty seeds (v. HÖHNEL and WOLFFBAUER), 1884, A., 1209.
- Butterflies**, yellow pigment in (HOPKINS), 1889, P., 117.
- Butterine**. See Margarine.
- tert*.-**Butyl alcohol** (*trimethylcarbinol*), bromo- (GUARESCHI and GARZINO), 1889, A., 951.
- $\beta$ -Butyl glycol** and its derivatives (WURTZ), 1884, A., 169.
- oxybutyrate, diacetyl derivative of (WURTZ), 1884, A., 579.
- tert*.-**Butyl mercaptan** (DOBBIN), 1890, T., 639; P., 105.
- isobutylacetamide** (*isohexamide*) (JACOBY), 1886, A., 785; (TIEMANN), 1891, A., 538.
- isobutylacetanilide** (PIOTET), 1890, A., 758.
- isobutylacetic acid** (*isohexzoic acid*) (KASSNER), 1888, A., 678.
- isobutylacetacetamide** (PETERS), 1890, A., 1097.
- isobutyl acetone**, nitroso- (TREADWELL and WESTENBERGER), 1883, A., 572.
- Butylacetylenecarboxylic acid** (*heptinoic acid*) (FAWORSKY), 1888, A., 1169.
- Butylacridine**, and its derivatives (BERNTSEN and TRAUBE), 1884, A., 1183.
- isobutylallylamine** (PAAL and HEUFEL), 1892, A., 31.
- s*-**isobutylallylthiocarbamide** (HECHT), 1892, A., 702.
- n*-**Butylamine**,  $\delta$ -chloro- (GABRIEL), 1892, A., 131.
- n*-**Butylamines** (BERG), 1891, A., 662.
- isobutylamine** (MALBOT), 1891, A., 36.
- preparation of (MALBOT), 1887, A., 356.
- magnetic rotatory power of (PERKIN), 1889, T., 694, 730, 735.
- separation of, from *disobutylamine*, by means of ethylic oxalate (MALBOT), 1887, A., 357.
- isobutylamine**, chloro- and *disobutyl-* (BERG), 1892, A., 1172.
- tert*.-**Butylamine** (BRWAD), 1891, A., 654.
- isobutylisoamylglyoxaline** (*oxalisoamylisoamylamine*) (RADZISZEWSKI and SZUL), 1884, A., 936.
- isobutylaniline** (PIOTET), 1890, A., 758.
- d*-nitro- (BARR), 1888, A., 823.
- p*-nitroso- (WACKER), 1888, A., 466.
- Butylbenzene** (*phenylbutane*), action of aluminium chloride on (SCHRAMM), 1889, A., 127; (HEISE and TOHL), 1892, A., 1309.
- p*-bromo-, and *p*- $\beta$ -*tribromo-* (SCHRAMM), 1891, A., 899.
- isobutylbenzene** [b.p.  $165^{\circ}$ — $170^{\circ}$ ] (SENKOWSKI), 1892, A., 44.
- dispersive power of (BARBIER and ROUX), 1889, A., 805.
- influence of light on the bromination of (SCHRAMM), 1889, A., 240.
- isobutylbenzene**, *m*-amido- (*isobutylphenylamine*), and its derivatives (GELZER), 1889, A., 42, 43.
- p*-amido-, and its properties (LLOYD), 1887, A., 721; 1889, A., 700; (GELZER), 1889, A., 42.
- constitution of (PAHL), 1884, A., 1009.
- derivatives of (GELZER), 1888, A., 266; 1889, A., 42.
- 3:4-diamido-** [m.p.  $97.5^{\circ}$ ] (GELZER), 1888, A., 266.
- 2:3-diamido-** [m.p.  $109^{\circ}$ ] (GELZER), 1889, A., 43.
- esobromo-*, and **3:5-dibromo-** (GELZER), 1889, A., 43, 45.
- bromo-2:3-diamido-** (GELZER), 1889, A., 44.
- esobromonitramido-** (GELZER), 1889, A., 44.
- p*-chloro- (v. DOBRZYCKI), 1888, A., 369.
- p*-iodo- (PAHL), 1884, A., 1009.
- m*-nitro- (GELZER), 1889, A., 43.
- esonitramido-* (GELZER), 1888, A., 266; 1889, A., 43.
- sec.-Butylbenzene**, influence of light on the bromination of (SCHRAMM), 1889, A., 240.
- tert.-Butylbenzene**, and its derivatives (SCHRAMM), 1889, A., 127, 240; (SENKOWSKI), 1890, A., 1296.
- influence of light on the bromination of (SCHRAMM), 1889, A., 240.
- isobutylbenzenesulphonic acid** (KELBE and PFEIFFER), 1886, A., 878.
- tert*.-*p*-**Butylbenzenesulphonic acid** (SENKOWSKI), 1890, A., 1296.
- m*-**isobutylbenzoic acid** and its derivatives (KELBE and PFEIFFER), 1886, A., 878.
- p*-**isobutylbenzoic acid**, and its derivatives (PAHL), 1884, A., 1010; (KELBE and PFEIFFER), 1886, A., 878.

- p*-**iso**Butylbenzonitrile (*isobutylphenylic cyanide*) (PAHL), 1884, A., 1010.
- "**iso**Butylbenzophenoxide" (v. DOBRZYCKI), 1888, A., 369.
- iso**Butylbismuthine dibromide (MARQUANDT), 1888, A., 1067.
- Butylbromallylamine (PAAL), 1889, A., 117.
- iso**Butylbromisatoid (v. BAAYER and ORCONOMIDEN), 1883, A., 202.
- iso**Butylisobutenyltolylene-*o*-diamine (HINSBERG), 1887, A., 817.
- iso**Butylbutylene (*octylene*) (FITTING and FEIST), 1890, A., 592.
- iso**Butylisobutylideneamine (BERG), 1892, A., 1173.
- iso**Butylisobutyric acid (*octoic acid*) (BRUGGEMANN), 1888, A., 1176.
- tert.*-Butylcarbinol (*amylic alcohol*) (FREUND and LENZE), 1890, A., 1888; 1891, A., 1172.
- Butylchloral, constitution of (LIEBEN and ZEISEL), 1883, A., 963.
- action of zinc propyl and zinc isobutyl on (v. GARZAROLI-THURNLACKH and POPPER), 1884, A., 1117.
- hydrate as an antidote for strychnine and picrotoxin (Koch), 1887, A., 391.
- Butylchloralacetamides (SCHIFF), 1892, A., 1067.
- Butylchloralaldol (KOENIGS), 1892, A., 695.
- Butylchloralbenzamides (SCHIFF), 1892, A., 1067.
- Butylchloralbiuret (PINNER and LIFSCHUTZ), 1887, A., 1032.
- Butylchloraldoxime (SCHIFF and TARUGI), 1892, A., 33.
- Butylchloralformamides (SCHIFF), 1892, A., 1067.
- $\alpha$ -**iso**Butyleinechonic acid (DOEBNER), 1887, A., 504.
- iso**Butyl-*o*-cresol (EFFRONT), 1885, A., 152.
- iso**Butyldeoxybenzoin (MEYER and OELKERS), 1888, A., 703.
- iso**Butyldiguanide, its constitution and its compounds (SMOLKA), 1884, A., 287.
- iso**Butyldiguanide, sulphates and hydrochlorides of (SMOLKA), 1884, A., 288.
- 4-**iso**Butyl-2:6-dimethylhexahydropyridine (JAECKLE), 1888, A., 1104.
- 4-**iso**Butyl-2:6-dimethylpyridine (ENGELMANN), 1886, A., 260.
- 4-**iso**Butyl-2:6-dimethylpyridine-3:5-dicarboxylic acid (ENGELMANN), 1886, A., 260.
- Butylenes, action of chlorine on (SCHESCHUKOFF), 1885, A., 645.
- Butylenes, separation of (SCHESCHUKOFF), 1885, A., 495.
- bromo- (REBOUL), 1892, A., 127.
- n*-Butylene and its derivatives (PUCHOT), 1884, A., 166.
- hydrate. See Butylic alcohol, secondary.
- dibromo-. See *iso*Butinene dibromide.
- iso**Butylene, action of bromine on (NORTON and WILLIAMS), 1887, A., 712.
- action of chlorine on (SCHESCHUKOFF), 1884, A., 1276.
- action of hydriodic acid on (SCHESCHUKOFF), 1886, A., 680.
- oxidation of (WAGNER), 1888, A., 665.
- glycol (SCHESCHUKOFF), 1885, A., 645.
- formation of, in the alcoholic fermentation of sugar (HENNINGER and SANBON), 1888, A., 571.
- mercaptan (HAGELBERG), 1890, A., 950.
- chloro- (SCHESCHUKOFF), 1884, A., 1276.
- $\psi$ -Butylene, constitution of (HÜLZ), 1889, A., 576.
- brominated derivatives of (HÜLZ), 1889, A., 575.
- brominated derivatives of, geometrical isomerism of (FAWORSKY and DEBOUT), 1890, A., 1218.
- isobromo-, conversion of crotonylene hydrobromide into (PÜCKERT), 1889, A., 576.
- iso**Butylenebenzidine (SCHIFF and VANNI), 1890, A., 1299.
- Butylenedicarboxylic acids. See Dimethylsuccinic acid and Methyl-ethylmalonic acid.
- $\alpha$ -**iso**Butylenepyridine (STOEHR), 1891, A., 81.
- n*-Butylenic bases (COLSON), 1888, A., 139.
- iso**Butylenic bromide (GUARESCHI and GARZINO), 1888, A., 436.
- behaviour of sodiophenylmercaptid with (OTTO), 1890, A., 962.
- chloride (SCHESCHUKOFF), 1885, A., 645.
- cyanide (HELL and ROTHBERG), 1889, A., 959.
- oxide (ELTEKOFF), 1883, A., 567.
- $\psi$ -Butylenic bromide, dichloro- (NEWBURY), 1884, A., 295.
- chloride (SCHESCHUKOFF), 1885, A., 645.
- oxide (*s*-dimethylethylenic oxide) (ELTEKOFF), 1883, A., 567.
- Butylglycidic acid (MELIKOFF), 1888, A., 311, 969; 1885, A., 651.

- Butylglyoxaline**, chloro- (*chloroal-amyline*) (WALLACH), 1883, A., 50.
- isoButylglyoxaline* (*glyoxalisocamyline*) (RADZISZEWSKI), 1883, A., 1086; (RADZISZEWSKI and SZUL), 1884, A., 985.
- isoButylglyoxalinedicarboxylic acid* (MAQUENNE), 1890, A., 1440.
- isoButylhydantoic acid* (PINNER and SPILKER), 1889, A., 706.
- isoButylhydantoinamide* (PINNER and SPILKER), 1889, A., 706.
- n-Butylic alcohol*, in Cognac brandy (CLAUDON and MORIN), 1887, A., 714.
- action of bromine on (ETARD), 1892, A., 809.
- trichloro-, action and fate of, in the animal organism (KULZ), 1885, A., 283.
- isoButylic alcohol*, vapour pressures of (RICHARDSON), 1886, T., 763, 771, 773; (SCHMIDT), 1892, A., 397.
- action of bromine on (ETARD), 1892, A., 809.
- action of chlorine on (BOQUILLON), 1885, A., 961; (BROCHET), 1892, A., 1292.
- action of iodine on (TRAUBE and NEUBERG), 1891, A., 65.
- compound of, with sodium hydroxide (GÖRTIG), 1890, A., 1222.
- sodium derivative of, action of iodoform, methylenic iodide and iodine on (GORBOFF and KESSLER), 1888, A., 814.
- sec-Butylic alcohol* (*n-butylene hydrate*), decomposition of, by heat (WOLKOFF and BUGAIEFF), 1886, A., 137.
- tert-Butylic alcohol* (*trimethylcarbinol*), action of bromine on (ETARD), 1892, A., 809.
- stability of (PAWLEWSKI), 1883, A., 565.
- sodium derivative of (DE FURURAND), 1892, A., 1066.
- bromo- (GUARESCHI and GARZINO), 1888, A., 437; (GARZINO), 1889, A., 951.
- isoButylic oxides*, *sec-* and *tert-* (REBOUL), 1889, A., 477.
- tert-Butylic oxide*, trichloro- (WILLGERODT and DURR), 1887, A., 570.
- n-Butylic salts* of normal fatty acids, boiling points and specific volumes of (GARTENMEISTER), 1886, A., 966.
- Butylic bromides**, bromination of (MEYER and MÜLLER), 1892, A., 1414.
- $\beta$ -isobutoxyisocrotonate (ENKE), 1890, A., 866.
- Butylic butyrate** (PUCHOT), 1884, A., 167.
- chloracetate (GEHRING), 1886, A., 784.
- chlorides, chlorination of (MEYER and MÜLLER), 1892, A., 1415.
- perchlorosebate, perchloro- (GEHRING), 1887, A., 801.
- $\beta$ -ethoxy- and  $\beta$ -methoxy-isocrotonates (ENKE), 1890, A., 866.
- nitrate (BERTONI), 1891, A., 163.
- nitrite (BERTONI), 1890, A., 353.
- $\beta$ -propoxyisocrotonate (ENKE), 1890, A., 866.
- sebate (GEHRING), 1887, A., 801.
- sulphide, platir compounds of (LONDAHL), 1889, A., 368.
- disulphide (SPRING and LEGROS), 1883, A., 43.
- sulphides, occurrence of, in Ohio petroleum (MABERY and SMITH), 1891, A., 1173.
- vanadate (HALL), 1887, T., 753.
- isoButylic acetate*, reaction of, with methylic and ethylic alcohols (PURDIE and MARSHALL), 1888, T., 395.
- chloride, correspondence between the magnetic rotation and the refraction and dispersion of light by isobutylic nitrate and (GLADSTONE and PERKIN), 1889, T., 757.
- action of aqueous ammonia on (MALBOT), 1891, A., 817.
- action of alcoholic potash and of hydrogen chloride on (SCHESCHUKOFF), 1885, A., 645.
- action of zinc chloride on, in presence of hydrogen chloride (MALBOT and GENTIL), 1889, A., 842.
- trichlorolactate (ANSCHÜTZ and HASLAM), 1890, A., 27.
- $\beta$ -chloroisocrotonate (ENKE), 1890, A., 865.
- chloroxalate (ANSCHÜTZ), 1890, A., 236.
- cyanide, action of sodium on (TRÜGER), 1888, A., 801.
- fluoride (MOISSAN and MESLANS), 1889, A., 364.
- glutarate (PINNER), 1891, A., 62.
- iodide, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- action of, on trimethylamine (H. and A. MALBOT), 1892, A., 805.
- nitrate, magnetic rotatory power of (PERKIN), 1889, T., 683, 726.
- nitrite (DUNSTAN and WOOLLEY), 1889, A., 364.
- preparation of, by double decomposition (BERTONI and TRUFFER), 1884, A., 1110.

- iso*Butylic nitrite, magnetic rotatory power of (PERKIN), 1889, T., 686, 727.
- phenyloxamate (ANSCHUTZ), 1890, A., 236.
- phosphite (JAHNE), 1890, A., 859.
- ammonium sulphate (KRAFFT and BOURGEOIS), 1892, A., 701.
- sulphide, action of chlorine on (SPRING and LECRENIER), 1888, A., 664.
- platinum compounds of (LONDAHL), 1889, A., 368.
- turmericate (JACKSON and MENKE), 1883, A., 482.
- sec.*-Butylic nitrate (BERTONI), 1891, A., 164.
- nitrite (BERTONI), 1890, A., 353.
- tert.*-Butylic chloride, trichloro- (WILLGERODT and DUNN), 1887, A., 570.
- nitrite (BERTONI), 1886, A., 218.
- Butyldeneaniline (v. MILLER and PLOCH), 1892, A., 1192.
- iso*Butylitaconic acid (FITTIG and SCHNEEGANS), 1890, A., 591; (FITTIG and KRAENCKER), 1890, A., 874.
- n*-Butylmalonic acid (HELL and LUMPF), 1885, A., 44.
- iso*Butylmetapyrazole (PINNER and LIFSCHUTZ), 1887, A., 1055.
- sec.*-Butylmalonic acid (VAN ROMBURGH), 1888, A., 46.
- iso*Butylnaphthalene (WEGSCHEIDER), 1884, A., 1185.
- Butylmethylaethylene. See Heptinene.
- Butylmethylethylene. See Heptylene.
- Butyl-nitrous acid. See Butane, *δ*-nitro-.
- iso*Butyloxamic acid, calcium salt of (MALBOT), 1887, A., 357.
- iso*Butylparaconic acid (FITTIG and SCHNEEGANS), 1890, A., 590.
- p*-*iso*Butylphenol (LIEBMANN), 1883, A., 59.
- nitro- (GELZER), 1889, A., 43.
- p*-*tert.*-Butylphenol (SENKOWSKI), 1890, A., 1296; 1892, A., 44.
- p*-*iso*Butylphenyl ethyl ether (*isobutylphenetol*) (LIEBMANN), 1883, A., 59.
- iso*Butylphenylamine. See *iso*Butylbenzene, *m*-amido-.
- iso*Butyl-*p*-phenylenediamine (WACKER), 1888, A., 466.
- iso*Butylphenylic cyanide. See *iso*Butylbenzonitrile.
- iso*Butylisophthalic acid (DOEBNER), 1890, A., 1284; 1891, A., 1064.
- iso*Butylphthalimide (NEUMANN), 1890, A., 890.
- iso*Butylpropargylamine (PAAL and HEUPEN), 1892, A., 32.
- 2'-*iso*Butylquinoline (DOEBNER), 1887, A., 504.
- Butylsuccinic acid (FITTIG and SCHMIDT), 1890, A., 872.
- p*-Butyltoluene and its derivatives (KELBE and BAUR), 1884, A., 301.
- m*-*iso*Butyltoluene and its derivatives (KELBE and BAUR), 1884, A., 300; EFFRONT), 1884, A., 900; 1885, A., 152.
- synthesis of (KELBE and BAUR), 1884, A., 301.
- oxidising action of dilute nitric acid on (KELBE), 1883, A., 796.
- tr*-nitro- (BAUR), 1890, A., 1401; 1891, A., 1464.
- 5-*iso*Butyltoluene, 2-amido-, and its derivatives (EFFRONT), 1884, A., 899; 1885, A., 151.
- 2-iodo- (EFFRONT), 1885, A., 152.
- tert.*-Butyltoluene, amido- and nitro-derivatives of (BAUR), 1891, A., 1464, 1465.
- Butyltoluenesulphonic acid, nitration of (NOLTING), 1892, A., 718.
- iso*Butyl-*o*-toluic acids (EFFRONT), 1884, A., 899; 1885, A., 153, 154.
- iso*Butyl-*o*-toluonitriles (EFFRONT), 1885, A., 153, 154.
- iso*Butyl-*m*-xylene, *tr*-nitro- (BAUR), 1890, A., 1402.
- tert.*-Butyl-*m*-xylene (BAUR), 1891, A., 1465.
- derivatives of (NOLTING), 1892, A., 718.
- Butylxylenesulphonic acid, nitration of (NOLTING), 1892, A., 718.
- Butyramide (MEYER), 1889, A., 381.
- αβ*-dibromo- (LIPPMANN), 1892, A., 27; (SCHINDLER), 1892, A., 33.
- γ*-chloro- (HENRY), 1886, A., 216.
- iso*Butyramide (MEYER), 1889, A., 381.
- Butyramidobenzoic acid (PELLIZZARI), 1886, A., 548.
- Butyranilide, *α*-dichloro- (RUGGHEIMER and SCHRAMM), 1888, A., 502.
- iso*Butyranilide, and *p*-bromo- (HARDWELL), 1886, A., 52.
- α*-bromo- (BISCHOFF), 1891, A., 828.
- Butyrate, acid (MIXNER), 1887, A., 231.
- iso*Butyrate, solubility of (SEDLITZKY), 1888, A., 250.
- Butyrellite, chemical composition of (MACADAM), 1887, A., 17.
- Butyric acid (*butanecarboxylic acid*), pure (BANNOW), 1887, A., 29.
- electrolysis of (BUNGE), 1890, A., 1237.
- electrical conductivity of solutions of, in water and in alcohols (HARRWIG), 1888, A., 399.

- Butyric acid** (*butanecarboxylic acid*), calcium salt of, solubility of (CHANCEL and PARMENTIER), 1887, A., 547; (LE CHATELIER), 1887, A., 548.  
 silver salt of (IWIG and HECHT), 1886, A., 440.  
 sodium salt of, magnetic rotatory power of solutions of (PERKIN), 1891, T., 988.  
 detection and estimation of, in wines, in the presence of acetic acid (MACH and PORTELE), 1890, A., 1344.
- Butyric acid,  $\alpha$ -amido-**, derivatives of (BISCHOFF and MINTZ), 1892, A., 1338.
- $\beta$ -amido-, formation of, from crotonic acid (ENGEL), 1888, A., 1063.
- $\gamma$ -amido- (GABRIEL), 1890, A., 360.
- $\alpha$ -bromo-, action of triethylamine on (DUVILLIER), 1888, A., 249.
- $\gamma$ -bromo- (HENRY), 1886, A., 440.
- $\alpha\beta$ -*di*-bromo- (LIPPMANN), 1892, A., 27; (SCHINDLER), 1892, A., 33.
- $\gamma$ -chloro-, and methyl and ethyl salts of (HENRY), 1886, A., 216.
- $\alpha\beta$ -*di*-chloro- (ZEISEL), 1886, A., 1007; (WILLIGENUS), 1887, A., 655; (MICHAEL and BROWNE), 1887, A., 1029; (WILLIGENUS, TEISLER and LANGBEIN), 1889, A., 236.  
 constitution of (MELIKOFF), 1887, A., 30.
- $\gamma$ -iodo- (HENRY), 1886, A., 440.
- nitrosocyano- (WOLFF), 1891, A., 418.
- oxime of (WESTENBERGER), 1884, A., 581.  
 salts of (HANTZSCH), 1891, A., 740.
- $\alpha\beta$ -*dioxime*, and external anhydride of (CERESOLE and KOECKERT), 1884, A., 1120, 1121.
- sulpho-. See Sulphobutyric acid.
- iso*Butyric acid, electrolysis of (BUNGE), 1890, A., 1236.  
 vapour pressures of (RICHARDSON), 1880, T., 766, 774, 776.  
 calcium salt of, solubility of (CHANCEL and PARMENTIER), 1887, A., 547; (LE CHATELIER), 1887, A., 548.
- iso*Butyric acid, bromo-, action of ammonia on (DUVILLIER and CHANCEL), 1892, A., 1302.
- di*bromo- (KOLBE), 1883, A., 573.
- chloro- (MELIKOFF), 1884, A., 1301.
- $\alpha\beta$ -*di*-chloro- (WILLIGENUS, TEISLER and LANGBEIN), 1889, A., 236.
- di*iodo- (FISCHER and TAFEL), 1889, A., 478.
- isopropylamide* of (MEYER and WARINGTON), 1887, T., 688.
- iso*Butyric anhydride, boiling-point and specific gravity of (TONNIES and STAUB), 1884, A., 1129.
- Butyric chloride,  $\gamma$ -chloro- (HENRY), 1886, A., 216.  
 $\alpha\beta$ -*di*-chloro- (ZEISEL), 1886, A., 1007.
- Butyric fermentation. See Fermentation.
- Butyrimidoether hydrochloride, chloro- (PINNER), 1884, A., 1292.
- tert.*-Butyrotetrabromide, bromo- (WILLGERODT and DURE), 1889, A., 689.
- Butyrylbutyronitrile. See Octonitrile.
- $\alpha$ -Butyrocresatinine (DUVILLIER), 1883, A., 220.
- iso*Butyrodiphenylhydrazide (BÖLSING and TAFEL), 1892, A., 981.
- Butyrolin (KLINGER and SCHMITZ), 1891, A., 891.
- Butyrolactone, preparation of (HENRY), 1886, A., 216.  
 hydrolysis of (HENRY), 1892, A., 1303.  
 action of sodium ethoxide on (FITTING and STROM), 1892, A., 813.  
 ethyl derivative of (CHANLAROFF), 1885, A., 374.
- Butyrolactone- $\alpha$ -carboxylic acid (FITTING and ROEDER), 1884, A., 295.
- Butyrolactone- $\gamma$ -carboxylic acid (WOLFF), 1891, A., 421.
- Butyrolactone-*Sy*-dicarboxylic acid (FITTING and MILLER), 1890, A., 587.
- Butyrene. See Dipropyl ketone.
- Butyronitrile,  $\gamma$ -bromo- (GABRIEL), 1890, A., 360.  
*di*bromo- (PALMER), 1889, A., 686.  
 $\gamma$ -chloro- (HENRY), 1886, A., 215; (GABRIEL), 1890, A., 1221.  
 $\gamma$ -thiocyano- (GABRIEL), 1890, A., 1221.
- iso*Butyronitrilecarbamide (PINNER and LIFSCHÜTZ), 1887, A., 1055.
- Butyrophénylhydrazide (MICHAELIS and SCHMIDT), 1889, A., 1159.
- iso*Butyrophénylhydrazide (BÖLSING and TAFEL), 1892, A., 981.
- Butyrophénylbenzylidenehydrazone (MICHAELIS and SCHMIDT), 1889, A., 1160.
- iso*Butyrothienone and its derivatives (KRECKELER), 1886, A., 538.
- iso*Butyrothienonesulphonic acid (KRECKELER), 1887, A., 141.
- Butyrylacetophenones, *n*- and *iso*- (BEYER and CLAISEN), 1887, A., 943.
- Butyryl- $\alpha$ -naphthols, *n*- and *iso*- (GOLDZWEIG and KAISER), 1891, A., 448.
- iso*Butyrylphenetol (GATTERMANN, EHRLARDT and MAISCH), 1890, A., 964.

- Butyrylphenol** (PERKIN), 1889, T., 548.  
**Butyrylsodacetaldehyde** (CLAISEN and STYLOS), 1888, A., 671.  
**Buxidine**, and **buxine** (BARBAGLIA), 1884, A., 188.  
*Buxus sempervirens*, alkaloids of (BARBAGLIA), 1884, A., 188; 1885, A., 177.  
**Bye-laws**, alteration in, 1891, T., 451.

## C.

- Cabbage**, cooked, composition of (WILLIAMS), 1892, T., 227.  
**Cabbage-oil** from *Brassica* sp. (DAVIDS), 1886, A., 1022.  
**Cacao**, caffeine in (SCHMIDT), 1883, A., 873.  
**Cacao plant**, and the composition of its fruit (BOUSSINGAULT), 1884, A., 202.  
     cultivation of (BOUSSINGAULT), 1883, A., 933.  
**Cacoclasite** not a distinct species (GENTH), 1890, A., 457.  
**Cacodylic acid**, action of, in the animal economy (MARSHALL and GREEN), 1886, A., 730.  
**Cactaceæ**, simultaneous evolution of oxygen and carbonic anhydride by (AUBERT), 1891, A., 856.  
**Cadaverine**. See Pentamethylenediamine.  
**Cadmium** in zinc-dust (ANON.), 1885, A., 461.  
     atomic weight of (CLARKE), 1891, A., 390; (PARTRIDGE), 1891, A., 399; (MORSE and JONES), 1892, A., 1397.  
     molecular weight of (RAMSAY), 1889, T., 527, 531, 533.  
     spectrum of (HARTLEY), 1883, T., 395; (BELL), 1886, A., 957; (GRUNWALD), 1889, A., 455; (AMES), 1891, A., 1; (KAYSER and RUNGE), 1891, A., 965.  
     measurement of the electromotive forces produced by the combination of iodine and, in presence of water (LAURIE), 1886, T., 700; P., 227.  
     specific heat of (NAUCCI), 1888, A., 1236.  
     crystallisation of (WILLIAMS), 1892, A., 1398.  
     action of, on ammonium nitrate (MORIN), 1885, A., 1039.  
     action of, on the halogen salts of cadmium (MORSE and JONES), 1890, A., 1376.  
     action of ethylic iodide on (LÖHR), 1891, A., 682.  
**Cadmium**, action of nitric acid on (MONTELMARINI), 1892, A., 1278.  
     action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 657.  
     use of, in assaying gold (WHITEHEAD), 1892, A., 919.  
     influence of various metals on the freezing point of (HEYCOCK and NEVILLE), 1890, P., 159.  
     influence of, on the freezing point of sodium (HEYCOCK and NEVILLE), 1889, T., 673.  
     influence of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 383.  
     lowering of the freezing point of, when alloyed with other metals (HEYCOCK and NEVILLE), 1892, T., 888, 897; P., 145.  
     lowering of the freezing points of bismuth and lead by (HEYCOCK and NEVILLE), 1892, T., 895.  
**Cadmium alloys** with gold (HEYCOCK and NEVILLE), 1892, T., 914; P., 146.  
     with gold and tin, freezing point of (HEYCOCK and NEVILLE), 1891, T., 936; P., 123.  
     with lead and with tin (LAURIE), 1889, T., 677; P., 147.  
     with mercury, position of, in electro-potential series (ROBB), 1884, A., 382.  
     with silver, analyses of (HEYCOCK and NEVILLE), 1892, T., 913.  
**Cadmium salts**, electrical conductivity of solutions of (WERNHOFEN), 1890, A., 1203.  
     antimonate (EBEL), 1890, A., 216.  
     arsenates (DE SCHULTZEN), 1890, A., 11.  
     potassium and sodium arsenates (LIEBERKE), 1890, A., 583.  
     borotungstate, crystallography of (LIVICK), 1887, A., 334.  
     bromide, action of calcium carbonate on (DE SCHULTZEN), 1888, A., 1036.  
     hydroxychloride and hydroxylomide (DE SCHULTZEN), 1888, A., 1036.  
     chloride, action of ammonia on (KWASNICK), 1892, A., 566.  
     action of calcium carbonate on (DE SCHULTZEN), 1888, A., 1036.  
     ammoniacal compounds of (ANDRÉ), 1887, A., 637.  
     heat of hydration of (PICKERING), 1886, P., 257; 1887, T., 75.  
     iodide, allotropic (CLARKE and KELLER), 1884, A., 394.  
     chromite (VIARD), 1889, A., 1111.

**Cadmium**, fluorovanadate and fluoroxyhypovanadate (PICCINI and GIORGINI), 1892, A., 787.  
 hydroxides, crystallised, formation of (DE SCHULTEN), 1885, A., 1183.  
 sub-hydroxide (MORSE and JONES), 1890, A., 1376.  
 nitrate, basic (KLINGER), 1883, A., 904; (WELLS), 1887, A., 1080; (ROUSSEAU and TITE), 1892, A., 1157.  
 ammoniacal compounds of (ANDRÉ), 1887, A., 638.  
 oxide, heat of neutralisation of (THOMSEN), 1884, A., 263.  
 dissociation of, in the vapour of cadmium (MORSE and WHITE), 1889, A., 755.  
 action of hydrogen peroxide on (KURILOFF), 1892, A., 1278.  
 action of magnesium on (WINKLER), 1890, A., 452.  
 peroxide (GIBSON and MORRISON), 1886, A., 305.  
 sub-oxide (MORSE and JONES), 1890, A., 1376.  
 phosphates (DE SCHULTEN), 1890, A., 11.  
 potassium phosphates (OUVRARD), 1888, A., 1035.  
 selenites (BOUTZOUREANT), 1888, A., 220; 1891, A., 262.  
 silicate (BOURGEOIS), 1889, A., 832.  
 hydrosilicate (ROUSSEAU and TITE), 1892, A., 1157.  
 sulphate, solubility of (ETARD), 1888, A., 645.  
 ammoniacal compounds of (ANDRÉ), 1887, A., 638.  
 sulphide, colloidal (PROST), 1888, A., 653.  
 precipitated, modifications of (V. KLOBUKOFF), 1889, A., 946.  
 dissociation of, by means of metallic cadmium (MORSE and WHITE), 1889, A., 946.  
 titration of, with iodine (V. BERG), 1887, A., 301.  
 See also Greenockite.  
 sulphides (BUCHNER), 1888, A., 224; 1892, A., 778.  
 hydrosulphide (LINDER and PICTON), 1892, T., 129.  
 thiosulphate (VORTMANN and PADBERG), 1890, A., 12; (FOCK and KLÜSS), 1890, A., 564.  
 sodium thiosulphate (DE SCHULTEN), 1890, A., 12; (FOCK and KLÜSS), 1890, A., 1057.

**Cadmium**, thiosulphates, double, with ammonium, barium, potassium, and strontium (FOCK and KLÜSS), 1890, A., 1057.  
**Cadmium organic compounds**:—  
 mercury cyanide (DUNSTAN), 1892, T., 687; P., 51.  
 mercury iodocyanide, action of ammonia on (VARET), 1891, A., 1441.  
 dimethyl and dipropyl (LOHR), 1891, A., 682.  
 methoxide (LOHR), 1891, A., 682.  
 mercuric thiocyanate (BEHRENS), 1892, A., 10.  
**Cadmium, estimation and separation**:—  
 estimation of (CARNOT and PROROMANT), 1885, A., 1094; (CARNOT), 1886, A., 580, 650; (KOHNER), 1887, A., 398.  
 estimation of, electrolytic (CLASSEN), 1885, A., 190; (MOORE), 1886, A., 921; (SMITH and KNER), 1886, A., 923; (BRAND), 1890, A., 294.  
 estimation of, electrolytic, as amalgam (VORTMANN), 1891, A., 1553.  
 estimation of, as sulphide (MINOR), 1891, A., 112.  
 estimation of, in the products of zinc manufacture and in calamine (MINOR), 1891, A., 112.  
 estimation of, and separation from gold and tin, in alloys (FRENCH), 1892, A., 1030.  
 separation of, electrolytic, from aluminium, chromium, iron, nickel, and zinc (SMITH), 1890, A., 1028.  
 separation of, electrolytic, from arsenic, molybdenum, and tungsten (SMITH and FRANKEL), 1890, A., 1029.  
 separation of, from bismuth (JANNASCH and ETZ), 1892, A., 365.  
 separation of, from bismuth, lead, and tin (JANNASCH and ETZ), 1892, A., 754.  
 separation of, electrolytic, from cobalt and nickel (SMITH and FRANKEL), 1890, A., 664.  
 separation of, from copper (GUCCI), 1885, A., 193; (BÉHAL), 1885, A., 1012; (KOHNER), 1887, A., 398; (KASTLE), 1890, A., 295; (WARREN), 1891, A., 1138; (WELLS), 1892, A., 534.  
 separation of, from copper, zinc, nickel, etc. (CARNOT), 1886, A., 580, 650.  
 separation of, electrolytic, from manganese (SMITH), 1891, A., 1140.

**Cadmium, estimation and separation:—**

separation of, electrolytic, from osmium, and nickel (SMITH and WALLACE), 1892, A., 920.

separation of, electrolytic, from zinc (ELIASBERG), 1886, A., 281; (SMITH and FRANKEL), 1889, A., 1033.

**Cadmium, chlor- and brom-apatites** (DE SCHULTEN), 1890, A., 11.

**Cadmium pigments of commerce** (BUCHNER), 1888, A., 224.

**Cæsium, reduction and properties of** (BEKETOFF), 1892, A., 274.

spectrum of (KAYSER and RUNGE), 1891, A., 137.

**Cæsium compounds, extraction of, from carnallite** (FEIT and KUBERSCHKY), 1892, A., 1395.

tribromide and chlorobromides (WELLS and PENFIELD), 1892, A., 773.

carbonate, reduction of, by magnesium (WINKLER), 1890, A., 333.

antimony chloride (SAUNDERS), 1892, A., 788.

bismuth chloride (BRIGHAM), 1892, A., 789.

manganese chloride (SAUNDERS), 1892, A., 781.

triiodide, bromiodides, chloriodides, and chlorobromiodide (WELLS and PENFIELD), 1892, A., 773.

hydroxide, properties of (BEKETOFF), 1892, A., 274.

cobalt nitrite (ROSENBLADT), 1887, A., 12.

**Caffeic acid from Cuprea bark** (KÖRNER), 1883, A., 66.

from hemlock (v. HOFMANN), 1884, A., 1353.

**Caffeidine and its salts** (MALY and ANDREASCH), 1883, A., 1016;

(SCHMIDT and WERNECKE), 1891, A., 331.

oxidation of, with chromic acid (MALY and ANDREASCH), 1883, A., 1017.

reactions of (WERNECKE), 1888, A., 68.

**Caffeidinedicarboxylic acid, and its salts** (MALY and ANDREASCH), 1883, A., 1016.

**Caffeine** (*theine*). See Alkaloids.

**Caffetannic acid, in Virginia creeper** (*Cissus quinquefolia*) (L'HIPPON), 1885, A., 1255.

**Caffoline** (FISCHER), 1883, A., 356.

**Caffuric acid** (FISCHER), 1883, A., 356.

**Cajeput, essence of** (VOIRY), 1888, A., 962.

oil of (WALLACH), 1885, A., 171.

**Cajeputol** (*cincol*). See Terpenes.

**Calaité** (*turquoise*), pseudomorphous after apatite, from California (MOORE and v. ZEPHAROVICH), 1885, A., 958.

found at Alexandria (FRENZEL), 1881, A., 269.

from the Kirghiz Steppes (v. KOK-SCHAROFF), 1886, A., 516; 1887, A., 1021.

from New Mexico (SILLIMAN), 1883, A., 431; (CLARKE and DILLER), 1887, A., 116.

from Nischapur in Persia (TLETZER), 1886, A., 25.

**Calamine** (THOM), 1886, A., 896; (GRIFFITHS and DREYFUS), 1886, A., 989.

from Leadhills (COLLIE), 1889, T., 96.

from the United States (EYERMAN), 1890, A., 113.

estimation of cadmium in (MINOR), 1891, A., 112.

estimation of zinc in (MINOR), 1890, A., 418.

containing lead, estimation of zinc carbonate and silicate in (MINOR), 1891, A., 863.

See also Zinc carbonate.

**Calamus root, constituents of** (GRUTHER), 1887, A., 972; (THOM), 1888, A., 162, 984.

**Calcinetry** (BERNARD), 1887, A., 865.

**Calciostrontianite**. See Eminonite.

**Calciorthorite** (BROGGER), 1890, A., 1079.

**Calcite** (*calcespar*) (GROSS and HILDEBRAND), 1883, A., 957.

pseudomorphs of, after aragonite (BAUER), 1886, A., 431.

artificial production of (BOURGOIS), 1883, A., 31.

artificial deposition of crystals of, on spicules of a sponge (SOLLAS), 1888, A., 115.

fluorescence of (LOMMER), 1884, A., 649.

from Andreasberg, crystalline forms of (SANSONI), 1880, A., 209.

from Colorado (GROSS and HILDEBRAND), 1883, A., 165.

from Schöckel, Bohemia (KATZEN), 1888, A., 922.

See also Calcium carbonate.

**Calcium in soils** (DE MONDÉSIR), 1889, A., 542.

molecular weight of (RAMSAY), 1889, T., 530, 533.

effect of, on the freezing point of tin (HEXCOCK and NEVILLE), 1890, T., 384.

- Calcium alloys with zinc** (NORTON and TWITCHELL), 1888, A., 651.  
 compounds, molecular (FOLKARD), 1884, A., 892.
- Calcium salts**, molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
 magnetic rotation of (PERKIN), 1890, P., 142.  
 and coagulation (RINGER), 1892, A., 1112.  
 effect of, on the coagulation of the blood (PEKELHARING), 1892, A., 87; (GRIESBACH), 1892, A., 1112.
- Calcium aluminates** (LE CHATELIER), 1888, A., 1032.  
 arsenates (BLOXAM), 1887, A., 108; (LEFEVRE), 1889, A., 827.  
 borate (BLOUNT), 1887, A., 108.  
 chloroborate (LE CHATELIER), 1884, A., 1262.  
 metaborate (LE CHATELIER), 1892, A., 404.  
 carbonate, effect of manganese on the phosphorescence of (BECQUEREL), 1887, A., 190.  
 fusibility of (BECKER), 1886, A., 676.  
 dissociation of (LE CHATELIER), 1886, A., 760.  
 Schloesing's law concerning the solubility of, in water containing carbonic anhydride (ENGEL), 1886, A., 120.  
 solubility of, in fresh and sea-water (ANDERSON), 1890, A., 450.  
 solubility of the various forms of, in sea-water (IRVINE and YOUNG), 1889, A., 344.  
 action of boric acid on, in the cold (REED), 1885, A., 484.  
 action of hydrogen sulphide on (DIVERS and SHIMIDZU), 1884, T., 282.  
 action of metallic salts on (IRVINE and ANDERSON), 1891, A., 995.  
 secretion of, by animals (IRVINE and WOODHEAD), 1890, A., 653.  
 See also Aragonite, Calcite, Limestone, Marble.
- sodium carbonates from the soda manufacture (SCHEURER-KESTNER), 1884, A., 1442; (REIDEMEISTER), 1887, A., 12.  
 chlorate, rate of decomposition of, by heat (POTILIZIN), 1892, A., 1275.  
 chloride (WEBER), 1883, A., 151.  
 expansion, compressibility, and specific heat of solutions of (DRECKER), 1888, A., 1010.
- Calcium chloride**, heat of solution of (PICKERING), 1891, P., 105.  
 heat evolved on diluting solutions of (PICKERING), 1888, P., 35.  
 boiling points of solutions of (SKINNER), 1892, T., 340.  
 freezing points of solutions of (PICKERING), 1891, P., 105; A., 973; 1892, A., 1045.  
 specific gravity of solutions of (PICKERING), 1891, P., 105.  
 conditions of equilibrium between water and (ROOZEBOOM), 1889, A., 752.  
 solubility in water at 0° (ENGEL), 1887, A., 771.  
 action of, alumina and kaolin on (GORGEU), 1888, A., 228.  
 hydrochloric acid from (SOLVAY), 1885, A., 705.  
 influence of magnesium chloride and, on germination (HINDORF), 1888, A., 1126.
- mercury chloride, basic (KLINGER), 1883, A., 904.  
 chloride tube, substitute for, in elementary analysis (PREUSSER), 1889, A., 925.  
 used in elementary analysis, modification of (SCHMITZ), 1885, A., 687.
- oxychloride (GORGEU), 1884, A., 1262.
- lead and mercury oxychloride (ANDRÉ), 1887, A., 446.
- hypochlorite ('chloride of lime') (KRAUT), 1883, A., 17; 1884, A., 16; (LUNGE), 1884, A., 820.  
 conversion of, into calcium chlorate (LUNGE), 1887, A., 11.  
 See also Bleaching powder.
- chloroferrite (LE CHATELIER), 1884, A., 1262.
- chromate, solubility of, in dilute alcohol (FRENENIUS and RUPPERT), 1892, A., 914.
- fluoride, crystalline, preparation of (MOISSAN), 1891, A., 1155.  
 See also Fluorspar.
- hypophosphite (LUNGE and SCHOOB), 1883, A., 17.
- hydride (WINKLER), 1891, A., 1156.
- hydroxide, crystalline form of (GLINKA), 1886, A., 120.  
 influence of temperature on the composition and solubility of (SHENSTONE and CUNDALL), 1888, T., 550; P., 51.  
 solubility of, in water at different temperatures (MABEN), 1884, A., 891.

**Calcium hydroxide**, as a boiler incrustation (LUEDECKE), 1886, A., 506.  
*(lime-water)*, specific gravity of (WANKLYN), 1887, A., 700.  
 action of different varieties of silica on (LANDRIN), 1883, A., 712.  
*(milk of lime)*, specific gravity of (LUNGE), 1884, A., 712.  
 estimation of, in presence of calcium carbonate (LUNGE), 1883, A., 828.  
 ammonium, hydrogen and sodium imidosulphonates (DIVERS and HAGA), 1892, T., 968.  
 lead salt, basic (KLINGER), 1883, A., 904.  
 manganite (ROUSSEAU), 1886, A., 425.  
 nitrate, basic (ROUSSEAU and TITE), 1892, A., 1157; (WERNER), 1892, A., 1276.  
 cryoscopy of dilute solutions of (PICKERING), 1892, A., 1045.  
 nitride (MAQUENNE), 1892, A., 566.  
 hyponitrite and acethyponitrite (MAQUENNE), 1889, A., 944.  
 oxide *(lime)*, fluorescence of (LECOQ DE BOISBAUDRAN), 1888, A., 544.  
 fluorescence of cupriferosus (LECOQ DE BOISBAUDRAN), 1888, A., 882.  
 fluorescence of ferruginous (LECOQ DE BOISBAUDRAN), 1888, A., 1001.  
 phosphorescence of (CROOKES), 1887, A., 1067.  
 action of magnesium on (WINKLER), 1890, A., 451.  
 action of, on potassium chlorate (FOWLER and GRANT), 1890, T., 280.  
 absorptive power of sea sludge for (MÜLLER), 1889, A., 1241.  
 secretion of, by animals (IRVINE and WOODHEAD), 1889, A., 429.  
 estimation of alumina in (PRUNIER), 1885, A., 441.  
 See also Agricultural Chemistry.  
 phosphate, crystalline, from acetic acid solution (DAVIES), 1892, A., 407.  
 preparation of (HILGENSTOCK), 1888, A., 223; (STOKLASA), 1890, A., 695; (POINTET), 1891, A., 1421.  
 production of, in connection with the Thomas-process (SCHEIBLER), 1886, A., 926.  
 action of acetates on (CAUSSE), 1891, A., 1422.  
 action of *di*- and *tri*-calcium phosphates on (STOKLASA), 1891, A., 880.

**Calcium phosphate**, origin and formation of masses of, in sedimentary rocks; their relation to the iron ores and clays of the siderolithic horizon (DIEULAFAIT), 1885, A., 127.  
 basic, as an addition to cattle fodder (COHN), 1884, A., 194.  
*di*Calcium phosphate (CAUSSE), 1890, A., 1056.  
 preparation of (LOMBARD DE BOUQUET), 1884, A., 892, 1263.  
 action of, on calcium monophosphate (STOKLASA), 1891, A., 880.  
 solubility of, in solutions of phosphoric acid (CAUSSE), 1892, A., 684.  
 estimation of reverted phosphoric acid and of phosphoric acid in (MOHR), 1885, A., 688.  
*tri*Calcium phosphate, preparation of (LOMBARD DE BOUQUET), 1884, A., 892, 1263.  
 action of, on monocalcium phosphate (STOKLASA), 1891, A., 880.  
 action of carbonic anhydride and of ferric hydroxide on (V. GEORGIEVICS), 1892, A., 408.  
 conversion of, into chlorine compounds of phosphorus (RIBAN), 1883, A., 287.  
 solubility of, in solutions of phosphoric acid (CAUSSE), 1892, A., 684.  
*tetra*Calcium phosphate (JENSEN), 1887, A., 216; (ÖTRO), 1887, A., 446.  
**Calcium aluminium phosphate** (DAMOUR), 1885, A., 640.  
 hydrogen phosphate, presence of magnesium in (SCHLAGDENHAUFFEN), 1890, A., 664.  
 potassium and sodium phosphates (OUVRARD), 1888, A., 1038.  
 phosphide, preparation of (GATTERMANN and HAUSKNECHT), 1890, A., 942.  
 plumblate (KÄSSNER), 1890, A., 561.  
 selenate (MICHEL), 1888, A., 650.  
 silicate, artificial (DOELTER), 1886, A., 517.  
 silicates (GORGÉU), 1884, A., 1262; (LE CHATELIER), 1888, A., 1032.  
 See also Wollastonite.  
 chlorosilicates (GORGÉU), 1884, A., 1262.  
 silicophosphate, crystallised, produced in the dephosphorisation of iron (CARNOT and RICHARD), 1884, A., 157.  
 silicostannate (BOURGEOIS), 1887, A., 333.

- Calcium silicozirconate** (OUVRARD), 1891, A., 1432.
- sulphate** (*gypsum*), formation of (MEUNIER), 1881, A., 406.
- crystals of, artificial (LACROIX), 1885, A., 226.
- phosphorescence of (CROOKES), 1887, A., 1067.
- specific gravity of (McCABE), 1889, A., 467.
- hydration and rate of solution of (McCABE), 1889, A., 466.
- solubility of (KAUPENSTRAUCH), 1889, A., 16.
- solubility of, in acids (OSTWALD), 1881, A., 813.
- solubility of, in ammonium salt solutions (COHEN), 1887, A., 333.
- solubility of, in saline solutions (TILDEN and SHENSTONE), 1885, A., 1183.
- influence of temperature on the composition and solubility of (SHENSTONE and CUNDALL), 1888, T., 544; P., 51.
- reduction of, by certain anaerobic ferments (QUANTIN), 1886, A., 573.
- (*plaster of Paris*) setting of (LE CHATELIER), 1883, A., 712.
- castings, process for hardening (DENNENBERG), 1886, A., 401.
- influence of, on the coagulation of blood (GREEN), 1888, A., 306.
- See also Agricultural Chemistry and Anhydrite.
- sulphide** (DIVERS and SHIMIDZU), 1884, T., 281; (VELEY), 1885, T., 485; P., 66.
- preparation of (VERNEUIL), 1887, A., 2; (BECQUEREL), 1889, A., 198.
- preparation of, in the dry way (VELEY), 1885, T., 480.
- phosphorescence of (VERNEUIL), 1887, A., 539; (BECQUEREL), 1887, A., 540.
- influence of, on barley (FITZBOGEN), 1885, A., 1154.
- hydrosulphide**, preparation of, in the wet way (VELEY), 1885, T., 485.
- solution of sulphur in (DIVERS and SHIMIDZU), 1884, T., 283.
- hydrosulphides**, and their preparation (DIVERS and SHIMIDZU), 1884, T., 270.
- hydroxyhydrosulphide** (DIVERS and SHIMIDZU), 1884, T., 276; (VELEY), 1885, T., 489.
- hydroxyhydropentasilphide** and **pentasilphide** (DIVERS and SHIMIDZU), 1884, T., 284.
- Calcium oxysulphides** (GEUTHER), 1881, A., 1263.
- polysulphides**, action of hydrogen sulphide on (DIVERS and SHIMIDZU), 1881, T., 283.
- thiocarbonate (VELEY), 1885, T., 186.
- thiosulphate, formation of (DIVERS and SHIMIDZU), 1881, T., 286; (DIVERS), 1881, T., 696.
- potassium thiosulphate (FOCK and KLOSS), 1892, A., 12.
- tungstate (v. KNORRE), 1885, A., 486.
- See also Scheelite.
- vanadates (MANASSE), 1887, A., 339.
- zirconate (OUVRARD), 1891, A., 1432.
- Calcium organic compounds**, solubility of (ALLEN), 1888, A., 1030.
- ammonium ferrocyanide (SALZER), 1886, A., 860.
- Calcium vanado-pyromorphite** (COLLIE), 1889, T., 91.
- Calcium**, detection, estimation and separation: -
- detection of, in presence of strontium (BLOXAM), 1886, A., 920.
- estimation of small quantities of (KRUGER), 1892, A., 911.
- estimation of, volumetric (PHUNIER), 1885, A., 296; (VITALI), 1892, A., 1521.
- estimation of, in presence of aluminium, iron, magnesium, and phosphates (GUYARD), 1881, A., 1427.
- estimation of, in presence of aluminium, iron, manganese, and phosphoric acid (BERTHAUD), 1890, A., 417.
- estimation of, in black ash (LUNGE), 1891, A., 497.
- estimation of, in gun-cotton (SCHERNING), 1892, A., 1520.
- estimation of, in presence of manganese (STOLBA), 1887, A., 865.
- estimation of, in phosphates (VOGEL), 1892, A., 531.
- estimation of, in syrup and sugar products (WOLF), 1892, A., 1377.
- estimation of, in tanning materials (PETROWITSCH), 1890, A., 312.
- separation of, from aluminium and magnesium (BLUM), 1889, A., 652.
- separation of, from barium (FRESENIUS), 1891, A., 500, 1552; 1892, A., 100; (BROWNING), 1892, A., 915.
- separation of, from barium and strontium (RUSSMANN), 1888, A., 629; 1891, A., 111; (KUPFERSCHEIDER), 1889, A., 77; (FILLET), 1892, A., 660.

**Calcium**, separation of, from iron and manganese (RIGGS), 1892, A., 916.

separation of, from strontium (SIDERSKY), 1883, A., 509; 1881, A., 497; (BOGOMOLETZ), 1881, A., 1077.

separation of, from strontium, by means of amyl alcohol (BROWNING), 1892, A., 915.

separation of, from strontium, as chromate (FRESSENIUS and RUPPERT), 1892, A., 914.

**Calcespar**. See Calcite.

**Caledonite** from Leadhills (COLLIE), 1889, T., 92.

Russian (V. JEREMÉEFF), 1885, A., 1186.

**Calico printing** (ANON.), 1883, A., 895; 1884, A., 379.

gaseous chlorine as discharge in (SCHEURER), 1884, A., 1231.

**Callose**, a new fundamental substance in vegetable membrane (MANGIN), 1890, A., 734.

**Calomel**. See Mercurous chloride.

**Calorimeter**, Bunsen's ice (BOYS), 1887, A., 1073.

Bunsen's ice, corrections for (BOLTZMANN), 1886, A., 409.

modification of Bunsen's (BLÜMCKE), 1886, A., 5; (BARRETT), 1888, A., 103.

mixing (PICKERING), 1888, P., 35; 1890, A., 110.

Thompson's (SCHEURER-KESTNER), 1888, A., 750.

**Calorimetric bomb** (BERTHELOT and REGOURA), 1887, A., 627; (MAHLER), 1892, A., 260.

as a combustion furnace for ultimate analysis (ELLOART), 1889, A., 301.

use of, in determining the heat of combustion of coal (SCHEURER-KESTNER), 1891, A., 520.

use of compressed oxygen in (BERTHELOT), 1892, A., 673.

**Calorimetric data** (BERTHELOT), 1891, A., 967.

investigations (STOHMANN), 1885, A., 857; (RUBNER), 1885, A., 919, 1252.

study of salts, sources of error in (TILDEN), 1886, P., 198.

**Calorimetry** at constant temperature (D'ARSONVAL), 1888, A., 773.

**Calves**. See Agricultural Chemistry.

**Calycanthine** (WILEY), 1890, A., 103.

*Calycanthus glaucus*, analyses of the seeds of (WILEY), 1890, A., 403.

*Camellia oleifera*, seeds of (MILLIALLUM), 1883, A., 1166.

**Camphamines** (CAZENÈVE), 1890, A., 516.

**Camphanic acid** and its derivatives (WÖRINGER), 1885, A., 608.

**Camphene**. See Terpenes.

**Camphenol**. See Borncol.

**Camphocarboxylic acid** (BRÜHL), 1892, A., 201.

**Camphocyanate**, potassium and sodium derivative of (HALLER), 1886, A., 891.

**Camphodiphenylhydrazine** (BALBIANO), 1887, A., 1050.

**Camphoic acid** (MARSH and GARDNER), 1891, T., 649.  
constitution of (COLLIE), 1892, A., 806.

**Camphol**. See Borncol.

**Campholactone** (WÖRINGER), 1885, A., 669.

**Campholamine** (FERREIRA), 1892, A., 1315.

**Campholenic acid** (*hydroxycamphor*) (GOLDSCHMIDT and ZÜRREK), 1881, A., 1361; (KACHLER and SPITZER), 1885, A., 173; (ZÜRREK), 1885, A., 1211; (WALLACH), 1892, A., 1237.  
from  $\beta$ -dibromocamphor (KACHLER and SPITZER), 1883, A., 1008.

oxidation and reduction of (WALLACH), 1892, A., 1237.

amide of (NÄGELI), 1881, A., 1190; (GOLDSCHMIDT and ZÜRREK), 1881, A., 1361.

calcium salt of (ZÜRREK), 1885, A., 1241.

nitrile of (GOLDSCHMIDT and ZÜRREK), 1884, A., 1361; (GOLDSCHMIDT and KÖRFF), 1885, A., 1071.

**Campholenic acid**, nitro- and amido- (KACHLER and SPITZER), 1883, A., 1008.

**Campholic acid** (FERREIRA), 1892, A., 1315.

constitution of (COLLIE), 1892, A., 806.

amide of, action of potassium hypobromite on the (FERREIRA), 1892, A., 1315.

**Campholonitrile** (FERREIRA), 1892, A., 1315.

**Campholyl isocyanate**, **campholylamine** and **campholylcarbamide** (FERREIRA), 1892, A., 1315.

**Camphonitrile** (WALLACH), 1892, A., 1237.

**Camphonitrophenol**, acetyl and ethyl derivatives of (CAZENÈVE), 1890, A., 63.

benzoate, phosphate and phthalate (CAZENÈVE), 1890, A., 63.

- Camphophenyldihydrazine** (BALBIANO), 1886, A., 808.
- Camphophenyldihydrazine** (BALBIANO), 1886, A., 72.
- Camphophenylthiocarbamide** (GOLDSCHMIDT and SCHULHOFF), 1886, A., 557.
- Camphopyric acid and anhydride** (MARSH and GARDNER), 1891, T., 650.
- isoCamphopyric acid** (MARSH and GARDNER), 1891, T., 651.
- Camphor** (ARMSTRONG and MILLER), 1884, A., 43; (GOLDSCHMIDT and ZÜRREK), 1884, A., 1364; (LEXTREIT), 1886, A., 557; (BRÜHL), 1888, A., 494; (WALLACH), 1891, A., 1078.
- from the ethereal oil of *Ledum palustre* (RIZZA), 1888, A., 845.
- from turpentine (MARSH and STOCKDALE), 1890, T., 961; P., 140.
- constitution of (BREDT), 1885, A., 395; (KANONNIKOFF), 1886, A., 336; (BAMBERGER), 1888, A., 722; (MARSH), 1890, T., 832; (MARSH and STOCKDALE), 1890, T., 964; (BRÜHL), 1892, A., 203; (ODDO), 1892, A., 724; (COLLIE), 1892, A., 865; (WALLACH), 1892, A., 869.
- molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 591.
- rotatory dispersion of (GRIMBERT), 1888, A., 330.
- rotatory power of, when dissolved in various oils (CHABOT), 1890, A., 1427.
- specific rotatory and refractive powers of (KANONNIKOFF), 1889, T., 453.
- specific volume of (KUNARA), 1889, A., 785; 1890, A., 169.
- hygroscopic behaviour of (CHAU TRIAU), 1891, A., 1197.
- motions of, on the surface of water (HARRI), 1885, A., 951; (TOMLINSON), 1885, A., 1180.
- action of ethylformate on (CHALERS), 1891, A., 571.
- action of ethyl oxalate on (TINGLE), 1890, T., 652; P., 99.
- action of iodine on (ARMSTRONG and MILLER), 1881, A., 11.
- action of sodium on (KACHLER and SPITZER), 1883, A., 1006.
- action of sodium alkyl oxides on (HALLER), 1892, A., 72.
- action of zinc chloride on (REUTER), 1883, A., 810.
- behaviour of, in mixtures of two solvents (RIMBACH), 1892, A., 1137.
- Camphor**, distillation of, with zinc chloride (UHLHORN), 1890, A., 1218.
- oxidation of (ROSER), 1886, A., 249.
- reduction of, to borneol (JACKSON), 1885, A., 991.
- new bases derived from (CAZENEUVE), 1890, A., 516.
- derivatives of (GOLDSCHMIDT and KOREFF), 1885, A., 1071; (BALBIANO), 1886, A., 808; 1887, A., 842, 1049, 1115; (HALLER), 1889, A., 1205.
- molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 591.
- crystallography of (CAZENEUVE and MOREL), 1885, A., 1111; (V. ZEPHAROVICH), 1886, A., 218.
- with phenols (LEGER), 1890, A., 1427.
- 1:2:4-acetyl-o-xylene from (ARMSTRONG and KIPPING), 1892, P., 54.
- hydrate (*camphorogenol*) (YOSHIDA), 1885, T., 793.
- phenolic acid from (CAZENEUVE), 1891, A., 321.
- phenolsulphonic acids from (CAZENEUVE), 1890, A., 791.
- influence of, on the germination of seeds (BURGERSTEIN), 1888, A., 742.
- estimation of (FOERSTER), 1891, A., 131.
- separation of, from borneol (HALLER), 1889, A., 1002.
- Camphor** (LEXTREIT), 1886, A., 557.
- Camphor**, racemic (HALLER), 1887, A., 1050.
- isoCamphor** (BOUCHARDAT), 1892, A., 199.
- Camphors**, heats of combustion of (LUGININ), 1889, A., 328.
- compounds of, with aldehydes (HALLER), 1891, A., 1198.
- physiological action of, and of their compounds with chloral (SCHMIDT), 1899, A., 227.
- active, from inactive borneols (HALLER), 1887, A., 1050.
- isomeric (HALLER), 1887, A., 375.
- Camphor**,  $\alpha$  bromo-, preparation of (MARSH and COUSINS), 1891, T., 968.
- oxidation of (BALBIANO), 1887, A., 1115.
- isomeride of (CAZENEUVE), 1889, A., 1201.
- $\beta$ -bromo (MARSH), 1890, T., 828; P., 139.
- preparation of (MARSH and COUSINS), 1891, T., 968.

- Camphor**,  $\alpha$ -dibromo-, preparation of (KACHLER and SPITZER), 1883, A., 1007.  
 reactions of (ALVINI), 1892, A., 1343.  
 $\beta$ -dibromo-, preparation of (KACHLER and SPITZER), 1883, A., 1007.  
 $\alpha$ - and  $\beta$ -dibromo-, isomerism of (SWARTS), 1883, A., 214; (KACHLER and SPITZER), 1883, A., 1007, 1008.  
 tribromo-, constitution of (SWARTS), 1883, A., 215.  
 bromonitro- (CAZENEUVE), 1885, A., 270.  
 chloro- (CAZENEUVE), 1883, A., 214.  
 formation of (CAZENEUVE), 1889, A., 1203.  
 physical isomerism of (CAZENEUVE), 1883, A., 593.  
 oxidation of (BALBIANO), 1887, A., 1115.  
 $\alpha$ - and  $\beta$ -chloro-, preparation of (MARSH and COUSINS), 1891, T., 976.  
 trichloro-, preparation of (CAZENEUVE), 1885, A., 58.  
 chlorobromo- (CAZENEUVE), 1885, A., 668.  
 $\beta$ -chlorobromo- (CAZENEUVE), 1885, A., 806.  
 chloronitro- (CAZENEUVE), 1883, A., 667.  
 $\alpha$ - and  $\beta$ -chloronitro-, isomeric (CAZENEUVE), 1884, A., 1041.  
 $\beta$ -chloronitro- (CAZENEUVE), 1887, A., 970.  
 cyano- (HALLER), 1886, A., 891.  
 constitution of (HALLER), 1889, A., 1205.  
 thermochemistry of (BERTHELOT and PETIT), 1889, A., 1098.  
 action of acids and bases on (HALLER), 1889, A., 1206.  
 action of sodium and ethylic and methylic alcohols on (HALLER), 1889, A., 1205.  
 action of sodium benzylic oxide on (MINGUIN), 1891, A., 463.  
 action of, on sodium phenoxide and naphthoxide (MINGUIN), 1891, A., 464.  
 derivatives of (HALLER), 1891, A., 1499.  
 azo-derivatives of (MINGUIN), 1892, A., 1343.  
 nitro-, reduction of, to nitrosocamphor (CAZENEUVE), 1889, A., 720.  
 derivatives of (CAZENEUVE), 1886, A., 1039; 1889, A., 617.
- Camphor**,  $\alpha$ -nitro-, a nitrophenol isomeric with (CAZENEUVE), 1889, A., 618.  
 $\alpha$ - and  $\beta$ -nitro- (CAZENEUVE), 1887, A., 842.  
 thermochemistry of (BERTHELOT and PETIT), 1889, A., 1098.  
 $\beta$ -nitro-, constitution of (CAZENEUVE), 1890, A., 515.  
 nitroso- (CLAISEN and MANASSE), 1889, A., 619.  
 oxidation by, in presence of light (CAZENEUVE), 1889, A., 1203.  
 nitroxy- (KACHLER and SPITZER), 1883, A., 215.
- Camphoraldehyde** (BISHOP and CLAISEN), 1889, A., 619; (CLAISEN), 1891, A., 574.  
 constitution of (CLAISEN and MEYEROWITZ), 1890, A., 359.
- Camphorates** of the  $\alpha$ -horncols (HALLER), 1890, A., 790.
- Camphorchlorimide** (GUARENCHI), 1888, A., 496.
- Camphor-cymene**, and its sulphonic acids (SPICA), 1883, A., 320.
- Camphorethylimidethyylimidine** (WALLACH), 1883, A., 41.
- Camphor-group** (BECKMANN), 1889, A., 721; (ODDO), 1892, A., 724; (ALVINI), 1892, A., 1843.  
 new compounds of (WALLACH), 1891, A., 1086.
- Camphoric acid** (WALLACH), 1892, A., 868, 1481; (BRUHL), 1892, A., 1210.  
 function of (HALLER), 1892, A., 1316.  
 constitution of (BAMBERGER), 1890, A., 517; (WALKER), 1892, T., 1096; (BRUHL), 1892, A., 202, 348, 1110; (FRIEDEL), 1892, A., 500; (KÖNIGS and EPPENS), 1892, A., 627; (COLLIP), 1892, A., 865; (WALLACH), 1892, A., 869; (STOHMANN and KLEBER), 1892, A., 1011; (HALLER), 1892, A., 1316, 1317.  
 thermochemistry of (STOHMANN and KLEBER), 1892, A., 1011.  
 heat of solution of (BERTHELOT), 1885, A., 1178.  
 heat of neutralisation of (GAL and WERNER), 1887, A., 205.  
 action of various reagents on (BRUHL), 1892, A., 1100.  
 new acid from (PERKIN), 1892, P., 55, 68.  
 hydrazones of (CHAPLIN), 1892, A., 1181.  
 salts of (MANNING and EDWARDS), 1888, A., 963.  
 barium salt of (KINGZIEP), 1881, T., 93.

- Camphoric acid**, methyl salts of (WALKER), 1892, T., 1088; P., 156.  
 nitro-, salts of (CAZENEUVE), 1888, A., 963.  
*dl*-Camphoric acid and its salts, specific rotation of (HARTMANN), 1888, A., 378.  
**Camphoric acid**, racemic (HALLER), 1887, A., 1050.  
*ps*-Camphoric acid (JUNGFLEISCH), 1890, A., 790.  
**Camphoric acids** (KINGZETT), 1884, T., 96; (JUNGFLEISCH), 1890, A., 790; (MARSH), 1890, A., 995.  
 heat of combustion of (LUGININ), 1889, A., 6.  
**Camphoric acids**, *iso*- and *meso*- (FRIEDEL), 1889, A., 898.  
**Camphoric anhydride** (KACHLER and SPITZER), 1883, A., 1007.  
 action of barium peroxide on (KINGZETT), 1884, T., 93, 95.  
 action of, on benzene (BURKER), 1891, A., 324.  
*iso*Camphoric anhydride (FRIEDEL), 1889, A., 899.  
**Camphoric peroxide** (KINGZETT), 1884, T., 93.  
**Camphorimide** (GUARESCHI), 1881, A., 496.  
**Camphorogenol**. See Camphor hydrate.  
**Camphor oil**. See Oil.  
**Camphorone** (ARMSTRONG and KIPPING), 1891, P., 188; 1892, P., 54; (KÖNIGS and EPPENS), 1892, A., 626.  
**Camphoronic acid** and its salts (KACHLER and SPITZER), 1883, A., 1008; 1885, A., 59, 807; (BREDT), 1885, A., 395; 1886, A., 156.  
**Camphoroxalic acid** and its reduction (TINGLE), 1890, T., 653.  
**Camphoroxime** (NAGELI), 1883, A., 728; 1884, A., 1190.  
 anhydride of, and its derivatives (GOLDSCHMIDT and ZÜRRER), 1884, A., 1361; (GOLDSCHMIDT and KÖRBER), 1885, A., 1071.  
 derivatives of (NAGELI), 1884, A., 610; (GOLDSCHMIDT), 1887, A., 496.  
*iso*Camphoroxime (NAGELI), 1884, A., 1190; (GOLDSCHMIDT and ZÜRRER), 1881, A., 1364.  
**Camphor-o-quinone** (CLAISEN and MANASSE), 1889, A., 619.  
 hydrazone of (CLAISEN), 1891, A., 575.  
**Camphorsulphonic acid**, bromo- (MARSH), 1890, T., 833.  
 $\alpha$ - and  $\beta$ -bromo-,  $\alpha$ - and  $\beta$ -chloro-, and their salts (MARSH and COUSINS), 1891, T., 971, 977.  
**Camphorsulphonic chlorides**,  $\alpha$ -bromo-, and  $\alpha$ -chloro- (MARSH and COUSINS), 1891, T., 971, 978.  
**Camphoryl chloride**, chloro- (MARSH), 1890, A., 995.  
**Camphoryl/iamide**, and **camphorylimide** (WINZER), 1890, A., 1151.  
**Camphorylphenylhydrazine** and **camphoryl-*p*-tolylhydrazine** (CHAPLIN), 1892, A., 1481.  
**Camphosulphophenols**, pyrogenic conversion of, into ordinary phenols (CAZENEUVE), 1891, A., 1088.  
 ethylnitroketone and acetylnitroketone from (CAZENEUVE), 1892, A., 1085.  
 nitroketone from (CAZENEUVE), 1892, A., 999.  
**Camphothiocarbimide** (GOLDSCHMIDT and SCHULHOFF), 1886, A., 558.  
**Camphylamine** (GOLDSCHMIDT), 1886, A., 249.  
 salts (GOLDSCHMIDT and SCHULHOFF), 1886, A., 557.  
**Canadine** (SCHMIDT and WILHELM), 1888, A., 1212.  
**"Canarin"** (SCHMIDT), 1881, A., 797; (ANON.), 1881, A., 1449.  
 preparation of (MILLER), 1885, A., 365; 1886, A., 186; (GÖPPLER-ROEDER), 1885, A., 107.  
 See also Perthiocyanogen.  
**Canary seed**, composition of (MAYER), 1889, A., 794.  
*Canavalia incurva* (KELLNER), 1884, A., 677.  
**Cancer**, analyses of healthy and altered tissues in cases of (PATRIN), 1891, A., 851.  
*Cancer pagurus*, blood of (GRIFFITHS), 1892, A., 618.  
**Cancrinite** from Litchfield, Maine (CLARKE), 1880, A., 677.  
 in the phonolites of Eldfålen (TÖRNBERGM), 1881, A., 276.  
**Cancrinite-aegirino-äyenite** (TÖRNBERGM), 1881, A., 276.  
**Cane-sugar**. See Carbohydrates.  
*Cannabis indica*, alkaloid in (HAY), 1883, A., 1165.  
**Canned goods**, poisoning by (JOHNSON), 1885, A., 1016.  
**Cantharene** (PICCARD), 1892, A., 1480.  
**Cantharic acid** (PICCARD; HOMOLKA), 1886, A., 723.  
 preparation of (ANDERLINI), 1891, A., 1243.  
**Cantharidic acid** (HOMOLKA), 1886, A., 723.  
*iso*Cantharidic acid (ANDERLINI), 1891, A., 1214.

- Camphor**,  $\alpha$ -dibromo-, preparation of (KACHLER and SPITZER), 1883, A., 1007.  
 reactions of (ALVISI), 1892, A., 1343.  
 $\beta$ -dibromo-, preparation of (KACHLER and SPITZER), 1883, A., 1007.  
 $\alpha$ - and  $\beta$ -dibromo-, isomerism of (SWARTS), 1883, A., 214; (KACHLER and SPITZER), 1883, A., 1007, 1008.  
 tribromo-, constitution of (SWARTS), 1883, A., 215.  
 bromonitro- (CAZENEUVE), 1885, A., 270.  
 chloro- (CAZENEUVE), 1883, A., 214.  
 formation of (CAZENEUVE), 1889, A., 1203.  
 physical isomerism of (CAZENEUVE), 1883, A., 598.  
 oxidation of (BALBIANO), 1887, A., 1115.  
 $\alpha$ - and  $\beta$ -chloro-, preparation of (MARSH and COUSINS), 1891, T., 976.  
 trichloro-, preparation of (CAZENEUVE), 1885, A., 58.  
 chlorobromo- (CAZENEUVE), 1885, A., 668.  
 $\beta$ -chlorobromo- (CAZENEUVE), 1885, A., 806.  
 chloronitro- (CAZENEUVE), 1883, A., 667.  
 $\alpha$ - and  $\beta$ -chloronitro-, isomeric (CAZENEUVE), 1884, A., 1041.  
 $\beta$ -chloronitro- (CAZENEUVE), 1887, A., 970.  
 cyano- (HALLER), 1886, A., 891.  
 constitution of (HALLER), 1889, A., 1205.  
 thermochemistry of (BERTHELOT and PETIT), 1889, A., 1098.  
 action of acids and bases on (HALLER), 1889, A., 1206.  
 action of sodium and ethylic and methylic alcohols on (HALLER), 1889, A., 1205.  
 action of sodium benzylic oxide on (MINGUIN), 1891, A., 463.  
 action of, on sodium phenoxide and naphthoxide (MINGUIN), 1891, A., 464.  
 derivatives of (HALLER), 1891, A., 1499.  
 azo-derivatives of (MINGUIN), 1892, A., 1343.  
 nitro-, reduction of, to nitrosocamphor (CAZENEUVE), 1889, A., 720.  
 derivatives of (CAZENEUVE), 1886, A., 1039; 1889, A., 617.
- Camphor**,  $\alpha$ -nitro-, a nitrophenol isomeric with (CAZENEUVE), 1889, A., 618.  
 $\alpha$ - and  $\beta$ -nitro- (CAZENEUVE), 1887, A., 842.  
 thermochemistry of (BERTHELOT and PETIT), 1889, A., 1098.  
 $\beta$ -nitro-, constitution of (CAZENEUVE), 1890, A., 515.  
 nitroso- (CLAISEN and MANASSE), 1889, A., 619.  
 oxidation by, in presence of light (CAZENEUVE), 1889, A., 1203.  
 nitroxy- (KACHLER and SPITZER), 1883, A., 215.
- Camphoraldehyde** (BISHOP and CLAISEN), 1889, A., 619; (CLAISEN), 1891, A., 574.  
 constitution of (CLAISEN and MEYEROWITZ), 1890, A., 359.
- Camphorates of the  $\alpha$ -borneols** (HALLER), 1890, A., 790.
- Camphorchlorimide** (GUARESCHI), 1888, A., 496.
- Camphor-cymene**, and its sulphonic acids (SPICA), 1883, A., 320.
- Camphorethylimidethyylimidine** (WALLACH), 1883, A., 41.
- Camphor-group** (BECKMANN), 1889, A., 721; (ONDO), 1892, A., 724; (ALVISI), 1892, A., 1343.  
 new compounds of (WALLACH), 1891, A., 1086.
- Camphoric acid** (WALLACH), 1892, A., 863, 1481; (BRUHL), 1892, A., 1240.  
 function of (HALLER), 1892, A., 1346.  
 constitution of (BAMBERGER), 1890, A., 517; (WALKER), 1892, T., 1096; (BRUHL), 1892, A., 202, 348, 1110; (FRIEDEL), 1892, A., 500; (KOENIGS and EPPENS), 1892, A., 627; (COLLIE), 1892, A., 865; (WALLACH), 1892, A., 869; (STOHMANN and KLEBER), 1892, A., 1041; (HALLER), 1892, A., 1346, 1347.  
 thermochemistry of (STOHMANN and KLEBER), 1892, A., 1041.  
 heat of solution of (BERTHELOT), 1885, A., 1178.  
 heat of neutralisation of (GAL and WERNER), 1887, A., 205.  
 action of various reagents on (BRUHL), 1892, A., 1100.  
 new acid from (PERKIN), 1892, P., 55, 68.  
 hydrazones of (CHAPLIN), 1892, A., 1481.  
 salts of (MANNING and EDWARDS), 1888, A., 963.  
 barium salt of (KINGZETT), 1884, T., 93.

- Camphoric acid**, methyl salts of (WALKER), 1892, T., 1088; P., 156.  
 nitro-, salts of (CAZENEUVE), 1888, A., 963.  
*l*-Camphoric acid and its salts, specific rotation of (HARTMANN), 1888, A., 378.  
**Camphoric acid**, racemic (HALLER), 1887, A., 1050.  
*p*-Camphoric acid (JUNGFLEISCH), 1890, A., 790.  
**Camphoric acids** (KINGZETT), 1884, T., 96; (JUNGFLEISCH), 1890, A., 790; (MARSH), 1890, A., 995.  
 heat of combustion of (LUGININ), 1889, A., 6.  
**Camphoric acids**, *iso*- and *meso*- (FRIEDEL), 1889, A., 898.  
**Camphoric anhydride** (KACHLER and SPITZER), 1883, A., 1007.  
 action of barium peroxide on (KINGZETT), 1884, T., 93, 95.  
 action of, on benzene (BURKER), 1891, A., 324.  
*iso*Camphoric anhydride (FRIEDEL), 1889, A., 899.  
**Camphoric peroxide** (KINGZETT), 1884, T., 93.  
**Camphorimide** (GUARIESCHI), 1884, A., 496.  
**Camphorogenol**. See Camphor hydrate.  
**Camphor oil**. See Oil.  
**Camphorone** (ARMSTRONG and KIPPING), 1891, P., 188; 1892, P., 54; (KÖNIGS and EPPENS), 1892, A., 626.  
**Camphoronic acid** and its salts (KACHLER and SPITZER), 1883, A., 1008; 1885, A., 59, 807; (BREDT), 1885, A., 395; 1886, A., 156.  
**Camphoroxalic acid** and its reduction (TINGLE), 1890, T., 653.  
**Camphoroxime** (NAGELI), 1883, A., 728; 1884, A., 1190.  
 anhydride of, and its derivatives (GOLDSCHMIDT and ZÜRER), 1884, A., 1364; (GOLDSCHMIDT and KÖRFF), 1885, A., 1071.  
 derivatives of (NAGELI), 1884, A., 610; (GOLDSCHMIDT), 1887, A., 496.  
*iso*Camphoroxime (NAGELI), 1884, A., 1190; (GOLDSCHMIDT and ZÜRER), 1884, A., 1364.  
**Camphor-*o*-quinone** (CLAISEN and MANASSE), 1889, A., 619.  
 hydrazone of (CLAISEN), 1891, A., 575.  
**Camphorsulphonic acid**, bromo- (MARSH), 1890, T., 833.  
 $\alpha$ - and  $\beta$ -bromo-,  $\alpha$ - and  $\beta$ -chloro-, and their salts (MARSH and COUSINS), 1891, T., 971, 977.  
**Camphorsulphonic chlorides**,  $\alpha$ -bromo-, and  $\alpha$ -chloro- (MARSH and COUSINS), 1891, T., 974, 978.  
**Camphoryl chloride**, chloro- (MARSH), 1890, A., 995.  
**Camphoryl diamide**, and **camphorylimide** (WINZER), 1890, A., 1151.  
**Camphorylphenylhydrazine** and **camphoryl-*p*-tolylhydrazine** (CHAPLIN), 1892, A., 1481.  
**Camphosulphophenols**, pyrogenic conversion of, into ordinary phenols (CAZENEUVE), 1891, A., 1088.  
 ethylnitroketone and acetylnitroketone from (CAZENEUVE), 1892, A., 1085.  
 nitroketone from (CAZENEUVE), 1892, A., 999.  
**Camphotiocarbimide** (GOLDSCHMIDT and SCHULHOF), 1886, A., 558.  
**Camphylamine** (GOLDSCHMIDT), 1886, A., 249.  
 salts (GOLDSCHMIDT and SCHULHOF), 1886, A., 557.  
**Canadine** (SCHMIDT and WILHELM), 1888, A., 1212.  
 "Canarin" (SCHMIDT), 1884, A., 797; (ANON.), 1884, A., 1449.  
 preparation of (MILLER), 1885, A., 865; 1886, A., 186; (GÖPPEL-ROEDER), 1885, A., 107.  
 See also Perthiocyanogen.  
**Canary seed**, composition of (MAYER), 1889, A., 794.  
*Canavalia incurva* (KEELNER), 1884, A., 677.  
**Cancer**, analyses of healthy and altered tissues in cases of (PATRIN), 1891, A., 851.  
*Cancer pagurus*, blood of (GRIFFITHS), 1892, A., 648.  
**Cancerinite** from Litchfield, Maine (CLARKE), 1886, A., 677.  
 in the phonolites of Elfdalen (TÜRNEBOHM), 1884, A., 276.  
**Cancerinite-aegirine-syenite** (TÜRNEBOHM), 1884, A., 276.  
**Cane-sugar**. See Carbohydrates.  
*Cannabis indica*, alkaloid in (HAY), 1883, A., 1155.  
**Canned goods**, poisoning by (JOHNSON), 1885, A., 1016.  
**Cantharene** (PICCARD), 1892, A., 1480.  
**Cantharic acid** (PICCARD; HOMOLKA), 1886, A., 723.  
 preparation of (ANDERLINI), 1891, A., 1243.  
**Cantharidic acid** (HOMOLKA), 1886, A., 723.  
*iso*Cantharidic acid (ANDERLINI), 1891, A., 1244.

- Cantharidin** (PICCARD; HOMOLKA), 1886, A., 723.  
 action of phenylhydrazine on (SPIEGEL), 1892, A., 999.  
 derivatives of (ANDERLINI), 1890, A., 640.  
 allylimide, amylimide, imide, methylimide,  $\alpha$ -naphthylimide and phenylimide of (ANDERLINI), 1891, A., 1243.  
*iso***Cantharidin** (ANDERLINI), 1891, A., 1243.  
**Cantharidoxime and cantharidoximic acid** (HOMOLKA), 1886, A., 723.  
**Caoutchouc.** See Dipentene under Terpenes.  
**Caoutchouc** (*indiarubber*) from Japanese birdlime (DIVERS and KAWAKITA), 1888, T., 270; P., 13.  
 spontaneous conversion of isoprene into (TILDEN), 1892, A., 1482.  
 molecular weight of (GLADSTONE and HIBBERT), 1889, A., 1207.  
 optical and chemical properties of (GLADSTONE and HIBBERT), 1888, T., 679; P., 72.  
 applications of (ANON.), 1884, A., 937.  
 action of halogens and of heat on (GLADSTONE and HIBBERT), 1888, T., 682, 686.  
 substitute for (HARG and HOFFMANN), 1885, A., 712.  
 grey vulcanised, absorption of gases by (HUFNER), 1888, A., 783.  
 vulcanised, analysis of, and estimation of the sulphur in the same (UNGER), 1885, A., 841.  
**Capillarimeter**, modification of (ELWORTHY), 1887, P., 119; 1888, T., 102.  
**Capillarity** in homologous series (TRAUBE), 1891, A., 1409.  
 effect of concentration on (TRAUBE), 1891, A., 1408.  
 influence of, on the solvent action of liquids (v. KLOBUKOFF), 1890, A., 555.  
 analogy between electrical conductivity and (TRAUBE), 1891, A., 1409.  
 relation between specific gravity, cohesion and (SCHALL), 1885, A., 1180.  
 relation between the theories of evaporation and (STEFAN), 1887, A., 323.  
**Capillary attraction** (SCHALL), 1885, A., 112.  
 separation by (LLOYD), 1885, A., 477.  
**Capillary constants** of certain aqueous and alcoholic solutions (TRAUBE), 1885, A., 866.  
 of liquids at their boiling points (SCHIFF), 1883, A., 549; 1884, A., 808; 1885, A., 717; (VOLKMANN), 1885, A., 721.  
 of liquids and cohesion of solids (BARTOLI), 1885, A., 866.  
 of organic substances in aqueous solution (TRAUBE), 1891, A., 1408.  
 of saline solutions (CHERVET), 1885, A., 1105.  
 variation of the, of the surfaces, water-ether and water-carbondisulphide under the action of electromotive force (KROUCHKOLL), 1883, A., 1047.  
 of salts at their melting points (TRAUBE), 1892, A., 7.  
 relation of weight of drops to capillary meniscus angle and (TRAUBE), 1887, A., 101, 210.  
**Capillary gas absorption** (BUNSEN), 1885, A., 867.  
**Capillary meniscus angle**, influence of temperatures on (TRAUBE), 1885, A., 1033.  
**Capillary phenomena**, application of, to the analysis of liquids (GO-SART), 1892, A., 236.  
 relation of, to constitution and molecular weight (TRAUBE), 1885, A., 116.  
**Capillary tubes**, rise of solutions in (GOLDSTEIN and DAMSKI), 1885, A., 115; (GOLDSTEIN), 1889, A., 205; 1890, A., 684.  
**Cappelenite** (BRÜGGER), 1886, A., 35.  
**Capric acid.** See Decoic acid.  
**Caproic acid.** See Hexoic acid.  
**Caprolactone.** See Hydroxylhexoic acid, lactone of.  
**Capronyl-.** See Hexoyl-.  
**Capryl-.** See Octyl-.  
**Caprylic acid.** See Octoic acid.  
**Caprylidene.** See Octyldiene.  
**Caprylphenylamine.** See *p*-Amidophenylactane.  
**Capsaicin** (PARSE), 1892, A., 1263.  
*Capsicum annuum*, fruit of (PARSE), 1892, A., 1263.  
**Capsules**, suprarenal, chemical examination of (MARINO-ZUCO), 1889, A., 290.  
**Caracolite** (WEBSKY), 1888, A., 561.  
 from Chili (v. SANDBERGER), 1887, A., 902.  
**Caramel**, testing for, in wines and spirits (AMTHOR), 1885, A., 604.  
**Caraway oil.** See Oils, vegetable.

- Carballylic acid**, action of bromine on (GUINCHER), 1889, A., 588.
- Carbamates**, thio-, reactions of (MARCHESENI), 1892, A., 1818.
- dithio-*, aromatic (LOSANSKY), 1892, A., 55.
- Carbamic acid**, in horses' urine (ABEL and DRECHSEL), 1892, A., 518.
- Carbamic chloride**, thio- (KLASON), 1887, A., 1025.
- Carbamide (urea)**, formation of, from albumin (DRECHSEL), 1891, A., 95.
- formation of, by the decomposition of arginine (SCHULZE and LIKIBERNIK), 1891, A., 1521.
- conversion of thiocarbamide into (MALY), 1890, A., 1399.
- preparation of (HENISCHER), 1884, A., 995; (VOLHARD), 1891, A., 160.
- heats of formation and combustion of (BERTHELOT and PEIT), 1890, A., 206.
- crystallisation of, by sublimation, and volatility of (BOURGOIS), 1892, A., 1309.
- vapour of (INAMBERT), 1883, A., 645.
- condensation of, with aldehydes (LUDY), 1889, A., 1059.
- action of alcoholic potash on (HALLER), 1886, A., 691.
- action of bromine on (SMOLKA), 1887, A., 656.
- action of, on cyanhydrins (PINNER and LIFSCHUTZ), 1887, A., 1054.
- condensation of, with ethylic acetate (BEHREND and ERNERT), 1890, A., 1240.
- effect of, on the activity of nitric acid (CROSS and BEVAN), 1889, A., 1109.
- action of nitrous acid on (EMMERLING), 1886, A., 747.
- action of phenylhydrazine on (PINNER), 1887, A., 1012; (SKINNER and RUHMANN), 1888, T., 550; P., 51; (EDELING), 1892, A., 1323.
- action of phosphorus pentasulphide on (v. KURCHIG), 1888, A., 1064.
- decomposition of, by water and dilute acids (BERTHELOT and ANDRÉ), 1887, A., 235.
- base containing chromium and (SILL), 1889, A., 695.
- chlorides, aromatic (KYM), 1890, A., 633.
- trichloromethylsulphinat (McGOWAN), 1887, T., 668.
- derivatives of (BEHREND), 1885, A., 246; (FRANCHIMONT and KLOBBE), 1888, A., 1179.
- Carbamide**, derivatives of, action of ethyloxalic chloride on (v. STOJENIN), 1885, A., 1195.
- action of phenylhydrazine on (SKINNER and RUHMANN), 1888, T., 550; P., 54.
- methylene derivatives of (v. HEMMELMAYR), 1891, A., 1339.
- selenium derivative of (VERNEUIL), 1885, A., 50, 376, 967.
- silver derivative of, action of iodine on (TAFEL and ENOCH), 1890, A., 974.
- estimation of. See Urea, estimation of. See also Urea.
- Carbamides**, aromatic, behaviour of, at high temperatures (BARR), 1886, A., 876.
- substituted, action of alcoholic potash on (HALLER), 1886, A., 691.
- cyano-, and thiocyno- (HECHT), 1892, A., 702.
- thio- and *dithio-*. See Thiocarbamide.
- $\psi$ -Carbamides, selenium derivatives of (BARINGER), 1890, A., 830.
- Carbamido-**. See also Uramido.
- Carbamido-, thio-**. See Thiocarbamido.
- Carbamidoacetic acid**. See Hydantonic acid.
- Carbamidoacetosulphonic acid** (ANDREASCH), 1883, A., 664.
- Carbamidobenzoic acid** (ZEHLA), 1891, A., 304.
- Carbamidobenzoyl** (ABT), 1889, A., 609.
- Carbamidodibenzoic acid** (TRAUBE), 1883, A., 194.
- Carbamidophenol, amido-** (KALCKHOFF), 1883, A., 1110.
- Carb-o-amidophenolchloride** and phenyl ether of (SEIDEL), 1891, A., 54.
- Carbamidothionaphthol disulphide** and methyl thioether of (JACOBSON and FRANKENBACHER), 1891, A., 1049.
- Carbaminecyanamide**, and its derivatives (WUNDERLICH), 1886, A., 135.
- Carbaminesulphinide** (MOULTON), 1891, A., 1064.
- Carbaminesulphidyleinnamic acid** (ANDREASCH), 1889, A., 960.
- Carbaminethioacetophenone** (MARCHESENI), 1892, A., 1317.
- Carbamine-S-thiolactic acid** (LANGLET), 1892, A., 440.
- imido- (ANDREASCH), 1886, A., 226.
- Carbanil**. See Phenylc isocyanate.
- Carbanil-**. See Phenylamidomethenyl.
- Carbanilide**. See *s*-Diphenylcarbamide.
- Carbanilido-acetophenoneoxime, -acetoxime and -anisaldoxime** (GOLDSCHMIDT), 1890, A., 251.

- Carbanilido-*o*-anisaldoxime (GOLDSCHMIDT and ERNST), 1890, A., 1411.
- Carbanilido/*iso*anisaldoxime (GOLDSCHMIDT), 1890, A., 1261.
- Carbanilido-benzaldoxime, -isobenzaldoxime and - $\alpha$ - and - $\gamma$ -benziloximes (GOLDSCHMIDT), 1890, A., 251.
- Carbanilidobenzoic acid. See Phenyluramidobenzoic acid.
- Carbanilidobenzoin (GUMPERT), 1886, A., 342.
- Carbanilido-benzophenoneoxime, -camphoroxime and -carvoxime (GOLDSCHMIDT), 1890, A., 251.
- Carbanilido/*iso*cuminaldoxime (GOLDSCHMIDT), 1890, A., 1263.
- Carbanilidocyanmethine, and bromo- (KELLER), 1885, A., 961.
- Carbanilidofurfuraldoxime (GOLDSCHMIDT), 1890, A., 251.
- Carbanilidohydroxyhydrazobenzene (GOLDSCHMIDT and ROSELL), 1890, A., 615.
- Carbanilidoisatin (GUMPERT), 1886, A., 342.
- Carbanilidomethylpropylglyoxime, carbanilido- $\alpha$ -naphthaquinoneoxime and carbanilido- $\beta$ -naphthaquinone- $\alpha$ - and - $\beta$ -oximes (GOLDSCHMIDT), 1890, A., 252.
- Carbanilido-*m*-nitrobenzaldoxime and -*m*-nitro/*iso*benzaldoxime (GOLDSCHMIDT), 1890, A., 1262.
- Carbanilido-*p*-nitro- $\alpha$ - and - $\beta$ -benzaldoximes (GOLDSCHMIDT and KJELLIN), 1891, A., 1476.
- Carbanilido/*iso*nitrosobutyl methyl ketone (GOLDSCHMIDT), 1890, A., 252.
- Carbanilidophenylhydroxycarbamide (V. DER KALL), 1891, A., 1223.
- Carbanilidoquinoneoxime (GOLDSCHMIDT), 1890, A., 252.
- Carbanilidothiophen/*ant*ialdoxime and carbanilidothiophen/*syn*aldoxime (GOLDSCHMIDT and ZANOLI), 1892, A., 1435.
- Carbanilidothioxanilide, thio-, and its derivatives (V. STOJENTIN), 1885, A., 1195.
- Carbanilidothymoquinoneoxime (GOLDSCHMIDT), 1890, A., 252.
- Carbanilotolyleneurethane, thio-. See Phenylthiouramido-*p*-tolylurethane.
- Carbanilotolylloxamethane, thio-. See Ethylic phenylthiouramidotolyl-oxamate.
- Carbazacridines (BIZZARRI), 1892, A., 617.
- Carbazides, semithio-. See Semithio-carbazide.
- Carbazole (MAZZARA), 1891, A., 570; (MAZZARA and LEONARDI), 1892, A., 616; (PULVERMACHER and LÖB), 1892, A., 1466.
- synthesis of (GOSKE), 1887, A., 372; (BLANK), 1891, A., 571.
- behaviour of, towards carbonyl chloride (PASCHKOWETZKY), 1892, A., 167.
- oxidation of, in the organism (KLINGENBERG), 1891, A., 1529.
- similar reactions of pyrroline and (HOOKER), 1889, A., 260.
- derivatives, synthesis of (TAUBER and LOEWENHERZ), 1891, A., 884.
- Carbazole, amido- (MAZZARA and LEONARDI), 1892, A., 616.
- di*amido-, synthesis of, from benzidine (TAUBER), 1891, A., 227.
- synthesis of, from carbazole (TAUBER), 1892, A., 480.
- nitro- (MAZZARA), 1891, A., 570.
- Carbazole-blue (BAMBERGER and MULLER), 1887, A., 959.
- Carbazoledisulphonic acid (BECHHOLD), 1890, A., 1297.
- Carbazole-. See also Diphenylimido-.
- Carbimides, thio-. See Thiocarbimides.
- Carbimidoacetic acid, thio- (ANDREASCH), 1889, A., 960; (KLASON), 1891, A., 179.
- Carbimidoamidobenzoic acid, cyano-, derivatives of (GRIESS), 1885, A., 1225.
- Carbimidoamidobenzoyl (GRIESS), 1885, A., 1227.
- properties of (KNAPE), 1891, A., 910.
- Carbimidoethylphthalimide,  $\beta$ -seleno- and thio- (COBLENTZ), 1891, A., 1216.
- Carbimidopropylphthalimide,  $\gamma$ -seleno- (COBLENTZ), 1891, A., 1216.
- Carbin cyanide (*methyl*ic cyanide) (FREUND and SCHONFELD), 1892, A., 132.
- Carbins, chromogenic (V. RICHTER), 1888, A., 1185.
- Carbinols, *p*-amido- (O. and G. FISCHER), 1891, A., 695.
- Carbizines, constitution of (FREUND and KUH), 1890, A., 1440.
- derivatives of (FREUND and GOLDSMITH), 1888, A., 1187.
- Carbo/*di*amidoresorcinol, thio- (JACOBSON and SCHENCKE), 1890, A., 249.
- Carbo/*iso*benzidine, thio- (REULAND), 1890, A., 167.
- Carbobisphenyl/*iso*butylimide (PAHL), 1884, A., 1010.

- Carbobisphenylpropylimide** (FRANCKSEN), 1884, A., 1009.
- Carbodinaaphthylimide** (HUHN), 1886, A., 1035.
- Carbodiphenylaminehydrazide** (WESSEL), 1888, A., 1083.
- Carbodiphenylimide**, and **carbodi-p-tolylimide**, stereoisomerism of (SCHALL and PASCHKOWETZKY), 1892, A., 1452.
- Carbodi-p-tolylaminehydrazide** (WESSEL), 1888, A., 1083.
- Carbohaemoglobins**. See **Haemoglobin**, carbonic oxide.
- Carbohydrate diet**, acids in healthy and disordered stomach during a (ROSENHEIM), 1888, A., 972.
- CARBOHYDRATES** (WALLACH), 1887, A., 26; 1888, A., 438; (EKSTRAND and JOHANSON), 1888, A., 246, 439; (WEHMER and TOLLENS), 1888, A., 438; (HÖNIG and JESSER), 1888, A., 1266; (WOHL), 1890, A., 1085.
- insoluble, from red clover and lucerne (SCHULZE and STEIGER), 1889, A., 643.
- from *Dracana australis* (EKSTRAND and JOHANSON), 1888, A., 246.
- from grain, spectrum of (HARTLEY), 1886, P., 247; 1887, T., 58.
- from the human liver (KRATSCHEMER), 1885, A., 679.
- from the seed of *Lupinus luteus* (STEIGER), 1886, A., 608.
- from peach gum (STONE), 1890, A., 1022.
- from seeds (MAXWELL), 1889, A., 644; 1890, A., 544, 917; (SCHULZE), 1889, A., 916.
- from *Stachys tuberosa* (v. PLANTA and SCHULZE), 1890, A., 1088; 1891, A., 1446.
- from the sweet potato (STONE), 1890, A., 1022.
- from urine (v. UDRANSZKY), 1888, A., 863; (WEDENSKI), 1889, A., 293; (ROOS), 1891, A., 1392; (TREUFEL), 1892, A., 226.
- from vegetable cell membranes (SCHULZE, STEIGER and MAXWELL), 1890, A., 283; (SCHULZE), 1890, A., 1456; 1891, A., 238, 1178; 1892, A., 907.
- in wheat (HÉBERT), 1892, A., 1119.
- from wheat-bran (GANS, STONE and TOLLENS), 1888, A., 1060.
- as oxidation products of vegetable albumin (PALLADIN), 1889, A., 1235.
- formation and migration of, in leaves (SCHIMPER), 1886, A., 826; (SAPO-SCHNIKOFF), 1891, A., 763.
- CARBOHYDRATES**, thermochemistry of (STOHMANN), 1885, A., 857; (BERTHELOT and VIELLE), 1886, A., 757; (STOHMANN and LANGBEIN), 1892, A., 763.
- molecular weights of (BROWN and MORRIS), 1888, T., 610; P., 57; 1889, T., 462; P., 96.
- classification of (ULLIK), 1892, A., 1066.
- classification of, which form jellies (BAUER), 1885, A., 500.
- action of *Bacterium aceti* on (BROWN), 1886, T., 179.
- action of the bacillus of malignant oedema on (KERRY and FRAENKEL), 1890, A., 1454; 1892, A., 91.
- action of sulphuric acid on (HÖNIG and SCHUBERT), 1886, A., 44; 1887, A., 125.
- oxidation of, by means of chromic acid (CROSS and BEVAN), 1886, A., 102.
- influence of, on the accumulation of asparagine in plants (MONTEVERDE), 1892, A., 91.
- influence of, on proteid metabolism (LUSK), 1891, A., 846.
- influence of, on the putrefaction of proteids (HIRSCHLER), 1886, A., 729.
- assimilation of (HANRIOT; GAUTIER), 1892, A., 742.
- relative nutritive value of fat and (KELLNER), 1888, A., 173.
- relation of, to digestive ferments in food (STUTZER and ISBERT), 1888, A., 170.
- estimation of the digestibility of (JORDAN, BARTLETT and MERRILL), 1889, A., 913.
- action of, on the animal organs (ALBERTONI), 1889, A., 1023.
- changes of, in the alimentary canal (SEEGER), 1888, A., 171.
- physiology of, in the animal system (PAVY), 1883, A., 1160.
- formation of fats from, in animals (TSCHIRWINSKY), 1884, A., 345, 912; (MEISSLAND and STROHMER), 1884, A., 912; (RUBNER), 1886, A., 482.
- formation of fat from, in the dog (MUNK), 1887, A., 288.
- formation of glycogen from (VOIT), 1889, A., 631.
- formation of acetic acid from (ISAAC), 1892, A., 1421.
- sulphates of (HÖNIG and SCHUBERT), 1886, A., 44; 1887, A., 125.
- colour reactions of (BERTRAND), 1892, A., 664.

CARBOHYDRATES, formation of levulinic acid as a test for (WEHMER and TOLLENS), 1888, A., 535.  
 phenols as reagents for (IHL), 1885, A., 694.  
 estimation of, in vegetable products (TOLLENS), 1892, A., 248.  
 precipitation of colloid, by salts, and their separation (POHL), 1890, A., 122.

#### CARBOHYDRATES—

$\alpha$ -**Acritol** (*i-mannitol*) (FISCHER and TAFEL), 1889, A., 485; (FISCHER), 1890, A., 468.

$\alpha$ -**Acrose** and its derivatives (FISCHER and TAFEL), 1888, A., 39, 358; 1889, A., 485; (FISCHER), 1890, A., 468.

formation of, from formaldehyde (FISCHER and PASSMORE), 1889, A., 483.

$\alpha$ -**Acrosamine** (FISCHER and TAFEL), 1888, A., 39.

$\alpha$ -**Acrosazone** (FISCHER and TAFEL), 1888, A., 358; (FISCHER), 1890, A., 468.

preparation of (FISCHER and PASSMORE), 1889, A., 483.

$\beta$ -**Acrosazone** (FISCHER and TAFEL), 1888, A., 358.

**Acrosazones**,  $\alpha$ - and  $\beta$ -phenyl-derivatives of (FISCHER and TAFEL), 1888, A., 39, 40.

$\alpha$ -**Acrosone** (FISCHER and TAFEL), 1889, A., 483, 484.

**Amylodextrin** (BRÜCKNER), 1884, A., 576.

constitution, molecular weight, properties and reactions of (BROWN and MORRIS), 1889, T., 449; P., 96.

See also Starch-cellulose.

**Amyloid**, vegetable (WINTERSTEIN), 1892, A., 803.

action of pepsin on (KOSTIURIN), 1887, A., 506.

**Arabinon** (O'SULLIVAN), 1889, P., 166; 1890, T., 59.

**Arabinose** (KILIANI), 1887, A., 229.  
 from wheat bran and rye bran (SREIGER and SCHULZE), 1891, A., 33.

non-identity of, with galactose (v. LIPPIMANN), 1885, A., 41.

non-identity of, with lactose (SCHEIBLER), 1884, A., 1287.

formation of, from malt residues (STONE and TOLLENS), 1889, A., 480.

configuration of (FISCHER), 1891, A., 1175, 1446.

#### CARBOHYDRATES—

**Arabinose**, constitution of (KILIANI), 1887, A., 465.

molecular weight of (BROWN and MORRIS), 1888, T., 619; (TOLLENS, MAYER and WHEELER), 1889, A., 367.

multirotation of (BAUER), 1889, A., 1132.

thermochemistry of (BERTHELOT and MATIGNON), 1890, A., 1360; (STOIMANN and LANGBEIN), 1892, A., 763.

actions of (TOLLENS), 1892, A., 290.

action of sodium amalgam on (KILIANI), 1887, A., 714.

decomposition of, by dilute acids (CONRAD and GUTZKEIT), 1886, A., 138.

fermentation of (STONE and TOLLENS), 1889, A., 480.

fermentation of, with *Bacillus eth-aceticus* (FRANKLAND and MAC-GREGOR), 1892, T., 737; P., 132.

oxidation of, with nitric acid (KILIANI), 1889, A., 32.

reducing value of, with Fehling's and Sachsse's solutions (BAUER), 1889, A., 1132.

formation of furfuraldehyde and non-formation of levulinic acid from (STONE and TOLLENS), 1889, A., 480.

physiological action of (ERSTEIN), 1892, A., 1506.

test for (GANS, STONE and TOLLENS), 1888, A., 1059.

formation of furfuraldehyde as a test for (STONE and TOLLENS), 1889, A., 480.

estimation of (MAQUENNE), 1891, A., 1143.

**Methylarabinose** (WILL and PETERS), 1889, A., 952.

**Phenylarabinosazone** (SCHEIBLER), 1884, A., 1287.

$\alpha$ -**Arabinose** (O'SULLIVAN), 1884, T., 52, 55.

$\beta$ -**Arabinose** (O'SULLIVAN), 1884, T., 51, 55.

$\gamma$ -**Arabinose** (O'SULLIVAN), 1884, T., 50, 52.

$\delta$ -**Arabinose** (O'SULLIVAN), 1884, T., 52.

**Brain-sugar**. See Cerebrosc.

**Cellulose** (URBAIN), 1884, A., 858; (CROSS and BEVAN), 1892, A., 693; (SCHULZE), 1892, A., 907.  
 and its modifications (HOFMEISTER), 1890, A., 581.

## CARBOHYDRATES—

- Cellulose**, formed by an acetic ferment (BROWN), 1886, T., 432; P., 194.  
 formed by *Bacterium xylinum* (BROWN), 1887, T., 643; P., 87.  
 in *Mycoderma aceti* (ROMEGIALLI), 1886, A., 732.  
 in Protozoa (HALLIBURTON), 1886, A., 640.  
 from plant cell membrane (SCHULZE, STEIGER and MAXWELL), 1890, A., 233; (SCHULZE), 1890, A., 1457; 1891, A., 238, 1179.  
 colloidal (GÜNGER), 1889, A., 847.  
 colloidal solutions of (PICRON and LINDER), 1892, T., 156.  
 preparation of (LIFSCHUTZ), 1891, A., 814.  
 preparation of brown and white (ANON.), 1883, A., 253.  
 manufacture of (ANON.), 1884, A., 232.  
 constitution of (CROSS and BEVAN), 1889, P., 133; 1890, T., 4.  
 optical inactivity of (BÉCHAMP), 1885, A., 237, 500.  
 rotatory power of solutions of, in Schweizer's solution (LEVALLOIS), 1884, A., 577, 833, 1288; 1885, A., 500; (BÉCHAMP), 1885, A., 369.  
 thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.  
 acetic acid from (LAAC), 1892, A., 1421.  
 formation of methane and carbonic anhydride from (HOPPE-SEYLER), 1886, A., 577, 932.  
 hydroxypyruvic acid, a product of the decomposition of (WILL), 1891, A., 512.  
 acetylation of (CROSS and BEVAN), 1889, P., 133; 1890, T., 1.  
 action of sulphuric acid on (HONIG and SCHUBERT), 1886, A., 44; 1887, A., 125.  
 oxidation of (CROSS and BEVAN), 1883, T., 22.  
 oxidation of, researches by Witz on the (SCHMID), 1884, A., 528.  
 assimilation of (V. KNIERIEM), 1885, A., 916.  
 digestion of (HENNEBERG and STOHMANN), 1886, A., 86; (WILSING), 1886, A., 87.  
 digestion of, by the horse (HOFMEISTER), 1885, A., 916.

## CARBOHYDRATES—

- Cellulose**, effect of, on the decomposition of proteid in the nutrition of Herbivora (WEISKE, SCHULZE and FLECHSIG), 1886, A., 723; (V. KNIERIEM), 1888, A., 515; (WEISKE), 1888, A., 618.  
 enzyme, dissolving, in the digestive tract of certain animals, search for an (BROWN), 1892, T., 352; P., 30.  
 existence of an enzyme which dissolves, in the seeds of grasses (BROWN and MORRIS), 1890, T., 497.  
 fermentation of (HOPPE-SEYLER), 1883, A., 821.  
 fermentation of, especially with reference to its solution in the alimentary canal (TAPPEINER), 1883, A., 1077; 1885, A., 178; 1887, A., 1131.  
 animal (SCHULZE), 1890, A., 227.  
 flax, characters of (CROSS and BEVAN), 1890, T., 199.  
 reserve, nature of, and mode of solution during germination (REISS), 1891, A., 356.  
 solvent for (CROSS and BEVAN), 1891, A., 390.  
 estimation of (HOFFMEISTER), 1886, A., 954; (LANGER), 1890, A., 303; (GABRIEL), 1892, A., 923.  
**Cellulose, pentacetate** (CROSS and BEVAN), 1890, T., 2.  
 benzoates (CROSS and BEVAN), 1892, A., 693.  
 dinitrate (WILL), 1891, A., 542.  
 nitrates, action of alkaline solutions on (MIXTER), 1892, A., 692.  
 See also Guncotton and Pyroxylin.  
**Cellulose, chloro-**, formation of, electrochemically (GOPPELROEDER), 1885, A., 208.  
 nitro- (CROSS and BEVAN), 1883, T., 23; (NETTLERFOLD), 1887, A., 792.  
 sulphite-, dextrose from (LINDSEY and TOLLENS), 1892, A., 801.  
**Cerealose** (O'SULLIVAN), 1886, T., 73.  
**Cerebrose** (*brain sugar*), identity of, with galactose (BROWN and MORRIS), 1889, P., 167; 1890, T., 57; (THIERFELDER), 1890, A., 121.  
 See also Galactose.  
**Crocose** (*saffron-sugar*) (KAYSER), 1885, A., 60; (FISCHER), 1888, A., 590.

## CARBOHYDRATES—

- Cutose** (URBAIN), 1884, A., 859;  
(FREMY and URBAIN), 1885, A., 369.
- Cyclamose** (MICHAUD), 1886, A., 782.
- Dambose**. See *D-Inositol*.
- Dextran**, animal (LIEBERMAN), 1888, A., 177.  
formation of (BAUER), 1883, A., 105.  
thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.
- Dextrin** (BROWN and MORRIS), 1885, T., 527; (SCHEIBLER and MITTELMAYER), 1891, A., 33.  
preparation of (PEYRAT), 1892, A., 577.  
conversion of starch into, by the butyric ferment (VILLIERS), 1891, A., 659, 1446.  
formula of (PFEIFFER), 1883, A., 307.  
action of alkaline mercuric cyanide on (WILSON), 1892, A., 1032.  
action of certain substances on (SCHOOR), 1885, A., 369.  
fermentability of (MEDICUS and IMMERHEISER), 1892, A., 922.  
alcoholic fermentation of (GAYON and DUBOURG), 1887, A., 171.  
saccharification of, by diastase (LINDER), 1889, A., 581.  
precipitation of, by iron (LANDWEHR), 1887, A., 401.  
detection of, in wines (TONY-GARCIN), 1887, A., 692.  
estimation of, in beer and beer-wort (ELION), 1892, A., 248.  
estimation of starch in liquids containing (BURKHARD), 1888, A., 326.  
estimation of, in starch sugar (WILEY), 1883, A., 123.
- $\alpha$ -Dextrin** (SCHULZE), 1884, A., 284.
- Leucodextrin** (WIJSMAN), 1890, A., 998.
- Dextrins**, preparation of non-reducing (BROWN and MORRIS), 1885, T., 551.  
conversion of glucoses into (GRIMAU and LEFÈVRE), 1886, A., 1003.  
molecular weights of (BROWN and MORRIS), 1889, T., 469.  
action of *Saccharomyces* on (BROWN and MORRIS), 1885, T., 565.  
separation of (BROWN and MORRIS), 1885, T., 546.
- Dextrins**, benzoyl derivatives of (KÜNY), 1890, A., 578.

## CARBOHYDRATES—

- Dextrose** (*grape-sugar*, *D-glucose*), anhydrous, from aqueous solution (HESSE), 1883, A., 175.  
from calamus root (THOMS), 1888, A., 984.  
from cane sugar by means of invertase; specific rotatory power and cupric reducing power of (O'SULLIVAN), 1892, T., 408; P., 56.  
from fungi (BOURQUELOT), 1892, A., 519.  
from hesperidin and isohesperidin (TANRET), 1888, A., 963.  
from hesperidin and naringin (WILL), 1887, A., 715.  
from Ipecacuanha root (MERCK), 1891, A., 1133.  
formed in the inversion of lichens (KLASON), 1887, A., 25.  
in malt (O'SULLIVAN), 1885, P., 120; 1886, T., 58; P., 142; (V. ASBÖRN), 1888, A., 1220.  
from phlorizin (RENNIE), 1887, T., 636.  
from the pectin of plums (BAUER), 1891, A., 413.  
from quince juice (BAUER), 1892, A., 128.  
from sulphite cellulose and from fir wood (LINDSEY and TOLLENS), 1892, A., 801.  
of *Symphoricarpos racemosus* (HERRMANN and TOLLENS), 1886, A., 92.  
conversion of maltose into (PHILIPS), 1883, A., 38.  
identity of, with phlorose (FISCHER), 1888, A., 590.  
influence of the leaves in the formation of, in grapes (MÜLLER), 1887, A., 517.  
formation of, from starch (ENDEMANN), 1885, A., 104.  
preparation of, from grape syrup (SOXHLET and BEHR), 1883, A., 39.  
preparation of, from starch (ALLIHN), 1884, A., 721.  
pure, Schwarz's process for preparing (WORM-MÜLLER and OTTO), 1883, A., 565.  
synthesis of (FISCHER), 1890, A., 466.  
molecular weight of (BROWN and MORRIS), 1888, T., 614; (TOLLENS, MAYER and WHEELER), 1889, A., 367.  
aldehydic nature of (GRIFFITHS), 1884, A., 202.

## CARBOHYDRATES—

**Dextrose** (*grape-sugar*, *d-glucose*), configuration of, and its isomerides (FISCHER), 1891, A., 1173, 1444. optical isomerides of (FISCHER), 1890, A., 1389. constitution of (KILIANI), 1886, A., 526; (SKRAUP), 1889, A., 1130. crystalline form of (BECKE), 1889, A., 1041. report on (BARKER), 1885, A., 206. and the saccharification of starch (CUISINIER), 1887, A., 354. solutions of, decolourising (CASA-MAJOR), 1884, A., 930. absorption spectrum of (HARTLEY), 1887, T., 59. circular polarisation of (TOLLENS), 1885, A., 40. influence of inactive substances on the rotatory power of (WENDER), 1891, A., 1178. multirotation of (URECH), 1884, A., 1112. disappearance of the multirotation of, in ammoniacal solutions (SCHULZE and TOLLENS), 1892, A., 1419. rotatory dispersion of (GRIMBERT), 1888, A., 329. thermochemistry of (BERTHELOT and RECOURA), 1887, A., 761; (STOHMANN and LANGBEIN), 1892, A., 763. solubility of, in water (PÉRIER), 1889, A., 846. formation of paralactic acid in the fermentation of (NENCKI and SIEBER), 1890, A., 78. acid fermentation of (BOUTROUX), 1886, A., 682. fermentation of, with *Bacillus eth-aceticus* (FRANKLAND and LUMDEN), 1892, T., 436; P., 70. fermentation of, with Friedlander's *Pneumococcus* (FRANKLAND, STANLEY and FREW), 1891, T., 254. action of *Bacterium aceti* on (BROWN), 1886, T., 179; P., 136. conversion of, into sorbitol (MEUNIER), 1890, A., 1389. formation of volatile fatty acids from (LOEW), 1890, A., 731. heptolactone from (KILIANI), 1886, A., 526. action of acetic anhydride on (ISTRATI and EDELEANU), 1892, A., 1293. action of dilute acids on (CONRAD and GUTHZETT), 1887, A., 25.

## CARBOHYDRATES—

**Dextrose** (*grape-sugar*, *d-glucose*), action of alkalis on (URECH), 1884, A., 1112. action of alkaline mercuric cyanide on (WILSON), 1892, A., 1032. action of chloral on (HEFFTER), 1889, A., 845. action of ethylic acetoacetate on, in presence of alcoholic ammonia (BIGINELLI), 1890, A., 732. action of hydrocyanic acid on (KILIANI), 1886, A., 526. action of lead acetate on (RUBNER), 1885, A., 444. action of phenylhydrazine on (SKRAUP), 1889, A., 1130. action of potassium permanganate on, in neutral solutions (SMOLKA), 1887, A., 566. action of sulphuric acid on (HÖNIG and SCHUBERT), 1887, A., 125. action of *o*-tolylenediamine on (HINSBERG), 1887, A., 476. alkaloids produced by the action of ammonia on (TANRET), 1885, A., 1047. behaviour of, with ammoniacal alkaline silver solution (TOLLENS), 1884, A., 283. products of the action of mercuric oxide and baryta-water on (HERZFELD), 1888, A., 807. reducing power of, for alkaline copper solutions (ALLIHN), 1883, A., 244. production of tannin from (BÜSGEN), 1891, A., 104. in organs with impeded circulation and in hydrocyanic acid poisoning (ZILLESSEN), 1891, A., 1126. in normal urine (WEDENSKI), 1889, A., 293. formation of, in the organism (ARAKI), 1891, A., 1125, 1392; 1892, A., 517, 1113. dehydration of, in the stomach and intestines (CHITTENDEN), 1888, A., 79. destruction of, by blood and chyle (LÉPINE and BARRAL), 1890, A., 1172. relation between the destruction of, and the production of animal heat and work (CHAUVEAU and KAUFMANN), 1887, A., 289. relation of, to the proteids of the blood (SCHENCK), 1891, A., 350. pentacetate of (ERWIG and KOENIGS), 1889, A., 952, 1131.

## CARBOHYDRATES—

**Dextrose** (*grape-sugar*, *D-glucose*),  
anilides of (SOROKIN), 1886, A.,  
526.

*tetra*benzoate of (BAUMANN), 1887,  
A., 228.

*pyridine*benzoate of (SKRAUP), 1889,  
A., 1130, 1152.

diphenylhydrazone of (STAEHEL),  
1890, A., 1260.

oxime of (JACOBI), 1891, A., 664;  
(WOHL), 1891, A., 813.

compound of, with levulose (BERTHELOT), 1887, A., 24.

compounds of, with the oxides of  
nickel, chromium and iron  
(CHAPMAN), 1891, T., 323; P.,  
66.

compounds of, with *o*-phenylenedi-  
amine, etc. (GRIENS and HAR-  
ROW), 1887, A., 475.

examination of (CASIMAJOR), 1884,  
A., 930.

examination of mixtures of cane-  
sugar, invert-sugar and (WIECH-  
MANN), 1892, A., 243.

**Dextrose, detection and estimation:**  
detection of anhydrous, mixed with  
refined cane-sugar (CASIMAJOR),  
1883, A., 884.

detection of, in leather (KOHN-  
STEIN), 1886, A., 715.

detection of, in wines (TONY-  
GARCIN), 1887, A., 692.

in urine, alkaline bismuth solution  
as a test for (NYLANDER), 1884,  
A., 1433.

value of Brucke's method for the  
removal of interfering substances  
from urine in testing for (GREEN),  
1886, A., 745.

safranine as a reagent for (CRIS-  
MER), 1889, A., 446.

testing (WORM-MÜLLER), 1884,  
A., 778.

commercial, analysis of, and quan-  
titative estimation of gallin  
therein (SCHMIDT and ROSEN-  
HEK), 1885, A., 135.

estimation of (LAGRANGE), 1881,  
A., 370; (BATTI), 1885, A.,  
693; (AGOSTINI), 1887, A., 531;  
(MAQUENNE), 1891, A., 1113.

estimation of, polaristrobometric,  
influence of inactive substances  
on the (PRIBRAM), 1888, A.,  
1133.

estimation of, copper solution for  
the (SOLDATINI), 1890, A., 193.

estimation of, in beer and beet-wort  
(ERION), 1892, A., 248.

## CARBOHYDRATES—

**Dextrose, estimation:—**

estimation of, in condensed milk  
(BIGNAMINI), 1885, A., 443.

estimation of, by fermentation  
(GRÉHANT and QUINQUAUD),  
1888, A., 875.

estimation of, in food (FAULEN-  
BACH), 1884, A., 930.

estimation of, in starch-sugar  
(WILEY), 1883, A., 123.

estimation of, in urine (BUDDÉ),  
1883, A., 198; (WILL), 1888,  
A., 535; (GERRARD), 1890, A.,  
300.

estimation of, in urine by means of  
the Soleil-Ventzke polarimeter  
(WORM-MÜLLER), 1885, A., 702.

estimation of, in vegetable pro-  
ducts (TOLLENS), 1892, A., 249.

estimation of water in (WILEY and  
BROADBENT), 1886, A., 282.

**Dextrose-series**, ascent of the  
(FISCHER), 1892, A., 1161.

**Dextroso-cellulose** (SCHULZE), 1891,  
A., 1179; 1892, A., 907.

**Digitalose** (KILIANI), 1892, A., 1482.

**Dulcitol** (KLEIN), 1884, A., 1284.  
and its derivatives, optical proper-  
ties of (CROSSLEY), 1892, A.,  
1419.

effect of, on the electrical con-  
ductivity of boric acid solutions  
(MAGNANINI), 1891, A., 251.

thermochemistry of (STOHMANN  
and LANGBEIN), 1892, A., 764.

a pure fermentation of (FRANK-  
LAND and FREW), 1892, T.,  
254; P., 11.

action of, in presence of borax and  
*purpurin* states (KIRIN), 1884,  
A., 1294.

compound of, with calcium chloride  
(FRANKLAND and FREW), 1892,  
T., 275.

combination of, with copper oxide  
(GIGNER), 1889, A., 1133.

*iso***Dulcitol** (*chamisso*) (PERZIG),  
1887, A., 906; (RAYMAN), 1887,  
A., 906; 1889, A., 1019; (RAY-  
MAN and KRUIS), 1888, A., 667;  
(FISCHER and TAFEL), 1888, A.,  
806, 1019.

from hesperidin and *isohesperidin*  
(TANREI), 1885, A., 963.

from hesperidin and naringin  
(WILL), 1887, A., 715.

multinotation of (SCHNELLE and  
TOLLENS), 1892, A., 1420.

thermochemistry of (STOHMANN  
and LANGBEIN), 1892, A., 763.

## CARBOHYDRATES—

- isoDulcitol* (*rhamnose*), oxidation of (FISCHER and TAFEL), 1887, A., 652; (WILL and PETERS), 1889, A., 952.  
 derivatives of (WILL and PETERS), 1888, A., 933.  
*tetracetate* and *trinitrate* of (RAYMAN), 1887, A., 907.  
 estimation of (MAQUENNE), 1891, A., 1143.  
*isoDulcitolphenylhydrazine* (FISCHER and TAFEL), 1888, A., 40.  
**Phenylisodulcitosazone** (FISCHER and TAFEL), 1888, A., 358.  
**Rhamnodiazine** (RAYMAN and CHOUDURNKY), 1889, A., 485; (RAYMAN and POHL), 1890, A., 355.  
**Rhamnosediethylhydrazone** (STAHLE), 1890, A., 1260.  
**Rhamnoseoxime** (JACOBI), 1891, A., 664.  
**Rhamnosone** (FISCHER), 1889, A., 481.  
**Eucalyn** (SCHEIBLER and MITTELMEIER), 1890, A., 227.  
**Formose** (LOEW), 1886, A., 610; 1887, A., 459; 1888, A., 245; 1889, A., 584.  
 nature of (FISCHER), 1888, A., 590.  
 carbohydrate nature of (WEHMER), 1888, A., 40, 739.  
 molecular weight of (v. KLOBUKOFF), 1890, A., 465.  
 methylenit and (LOEW), 1888, A., 571.  
 derivatives of (LOEW), 1886, A., 610.  
 **$\beta$ -Formose** and its osazone (LOEW), 1888, A., 359.  
 **$\delta$ -Fructose**. See Levulose.  
 **$\gamma$ -Fructose**, configuration of (FISCHER), 1891, A., 1176, 1115.  
**Fruit sugar**. See Levulose.  
**Fucose**, an isomide of *isodulcitol* (GUNIER and TOLLENS), 1890, A., 1393.  
 thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 763.  
 **$\alpha$ -Galactan** (BAUMERT), 1888, A., 1222.  
 **$\beta$ -Galactan** (*lupose*) (STEIGER), 1886, A., 609; (BAUMERT), 1888, A., 1222; (SCHULZE and STEIGER), 1890, A., 231; (SCHULZE), 1892, A., 1171.  
 **$\gamma$ -Galactan** (v. LIPPMAUN), 1887, A., 652.  
**Galactose** (KENT and TOLLENS), 1885, A., 647.

## CARBOHYDRATES—

- Galactose**, identity of, with cerebrose (BROWN and MORRIS), 1889, P., 167; 1890, T., 57; (THIERFELDER), 1890, A., 121.  
 non-identity of, with arabinose (v. LIPPMAUN), 1885, A., 41.  
 from agar-agar (BAUER), 1885, A., 500.  
 from Carnagheen Moss (HAEDICKE, BAUER and TOLLENS), 1887, A., 791.  
 from peach gum (BAUER), 1888, A., 744.  
 from plum-gum (BAUER), 1888, A., 1329.  
 formation of, from raffinose (HAEDICKE and TOLLENS), 1887, A., 751.  
 preparation of (BOURQUELOT), 1886, A., 328.  
 molecular weight of (BROWN and MORRIS), 1889, T., 463; P., 96.  
 properties of (v. LIPPMAUN), 1887, A., 652.  
 thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 763.  
 action of cupric hydroxide on (HABERMANN and HONIG), 1884, A., 1111.  
 action of hydrocyanic acid on (KILIAN), 1888, A., 581.  
 decomposition of, by dilute acids (CONRAD and GUTHZIT), 1886, A., 138.  
 fermentation of (TOLLENS and SPONE), 1888, A., 808; 1889, A., 480.  
 alcoholic fermentation of (BOURQUELOT), 1888, A., 572.  
 estimation of (STEIGER), 1889, A., 1089; (MAQUENNE), 1891, A., 1143.  
*pentacetate* of (ERWIG and KOENIGS), 1889, A., 1131.  
 anilide of (SOROKIN), 1886, A., 683; 1888, A., 803.  
*pentabenzolate* of (SKRAUP), 1889, A., 1153.  
*diphenylhydrazone* of (STAHLE), 1890, A., 1260.  
 oxime of (JACOBI), 1891, A., 665; (RISCHLETTI), 1888, A., 40.  
*phenylhydrazone* of (FISCHER), 1887, A., 567.  
**Phenylgalactosazone** (SCHEIBLER), 1884, A., 1287; (FISCHER), 1885, A., 54.  
**Galactosone** (FISCHER), 1889, A., 484.  
 **$\delta$ -Galactose** and  **$\gamma$ -galactose** (FISCHER and HFRIZ), 1892, A., 826.

## CARBOHYDRATES—

- Galaheptose** (FISCHER), 1890, A., 599.  
**Gallisin**, preparation and properties of (SCHMITT and COBENZL), 1884, A., 981; (SCHEIBLER and MITTELMEIER), 1891, A., 536.  
 estimation of, in commercial glucose (SCHMITT and ROSENHEK), 1885, A., 134.  
**Gentianose** (MEYER), 1883, A., 810.  
**Glucoseptitol**, benzyldene derivative of (FISCHER), 1892, A., 1163.  
 **$\alpha$ -Glucoseptose** (FISCHER), 1890, A., 599.  
 thermochemistry of (FOGH), 1892, A., 933.  
**Glucoseptoses**,  $\alpha$ - and  $\beta$ -, and their derivatives (FISCHER), 1892, A., 1166, 1168.  
**Glucosone** (FISCHER), 1892, A., 1170.  
 **$\alpha$ -Glucoseptose** and its derivative (FISCHER), 1892, A., 1169.  
**Glucosone** (*oxylglucose*) (FISCHER), 1888, A., 1267.  
 phenylmethylhydrazone of (FISCHER), 1889, A., 484.  
 **$\beta$ -Glucose**. See Dextrose.  
 **$\beta$ -Glucose** (FISCHER), 1890, A., 1392.  
 **$\beta$ -Glucose** (FISCHER), 1890, A., 1391.  
 configuration of (FISCHER), 1891, A., 1176, 1445.  
**Pentabenzoylglucosamine** (PUM), 1892, A., 134.  
**Phenylglucosazone** (FISCHER), 1885, A., 53; 1886, A., 933; (FISCHER and HIRSCHBERGER), 1888, A., 934.  
**Phenylmethylglucosazone** (FISCHER), 1889, A., 484.  
**Glucoses**, constitution of (RAYMAN), 1889, A., 32.  
 succession of the rate of retrogressive multirotation of some sucroses and, with regard to their constitutional formulæ and the extent of affinity (URECH), 1886, A., 220.  
 action of dilute acids on (CONRAD and GUTHZEIT), 1887, A., 229.  
 action of sodium amalgam on (SCHEIBLER), 1884, A., 574.  
 conversion of, into dextrans (GRIMAU and LEFEVRE), 1886, A., 1003.  
 compounds of, with phenylhydrazine (FISCHER), 1885, A., 53; 1890, A., 1391, 1392.  
 anilides of, and some of their transformations (SOROKIN), 1888, A., 807.  
 benzoyl compounds of (KUENY), 1890, A., 578.

## CARBOHYDRATES—

- Glycerose** and its derivatives (FISCHER and TAFEL), 1887, A., 651; 1888, A., 358, 1264.  
**Glycogen** in beer yeast (ERRERA), 1885, A., 1151; (LAURENT), 1888, A., 981.  
 in ciliated Infusoriæ (MAUPAS), 1886, A., 383.  
 in the connective tissue of molluscs (BLUNDSFONE), 1886, A., 569.  
 in diabetic urine (V. LEUBE), 1889, A., 65, 293.  
 in ferments (ERRERA), 1885, A., 1254.  
 in fungi, accumulation and consumption of (ERRERA), 1888, A., 980.  
 in the liver, amount of (NEISSER), 1889, A., 174; (NEBELTHAU), 1891, A., 1526.  
 in the liver, formation of, from various sugars (C. V. and F. VOIT, OTTO, ABBOTT and LUSK), 1892, A., 902.  
 in the liver, influence of alkalis on (DUFOUT), 1891, A., 758.  
 in the liver, influence of ammoniacal compounds on the formation of (NEBELTHAU), 1891, A., 1527; (ROHMANN), 1887, A., 68.  
 in the liver of new-born dogs (DEMANT), 1887, A., 167.  
 in the liver and muscles (HERGENHAEN), 1890, A., 1334.  
 in the liver and muscle, influence of starvation on the (ALDEHOFF), 1889, A., 427.  
 in liver and muscle, influence of strychnine and curare on (DEMANT), 1886, A., 1051.  
 in lower animals (ANDERLINI), 1888, A., 934.  
 in muscle, source of (SCHMELZ), 1889, A., 429.  
 in muscle, with an artificial circulation (KULZ), 1890, A., 1335.  
 in the muscle, changes in, during work (MONARI), 1890, A., 185.  
 in muscle after section of its nerve and its tendon (KRAUSS), 1889, A., 64.  
 in the muscles, effect of muscular work on (MANCHE), 1889, A., 428.  
 in plants (ERRERA), 1884, A., 354.  
 in the Protozoa (BUTSCHLI), 1886, A., 87.  
 distribution of, in the organism (CRAMER), 1887, A., 1127.  
 deposits of, in the tissues (DELLAPINE), 1891, A., 1274.

## CARBOHYDRATES—

- Glycogen**, molecular weight of (SABANÉEFF), 1890, A., 1215.  
 new method for preparing (LANDWEHR), 1884, A., 1287.  
 formation and fate of (PRAUNNITZ), 1890, A., 810.  
 formation of, from carbohydrates (VOIT), 1889, A., 831.  
 formation of, in the organism (PFLÜGER), 1889, A., 174.  
 compounds of, with sulphuric acid (ANDERLINI), 1888, A., 934.  
 estimation of (LANDWEHR), 1884, A., 1287; (KULZ), 1886, A., 404.  
 estimation of, in the blood (LÉPINE and BARRAT), 1892, A., 89.  
**Gossypose**. See Raffinose.  
**Graminin** (EKSTRAND and JOHANSON), 1888, A., 246, 439.  
 molecular weight of (EKSTRAND and MAUZELIUS), 1890, A., 227.  
**Grape sugar**. See Dextrose.  
*D-Gulose* (FISCHER and PILOTY), 1891, A., 678.  
 configuration of (FISCHER), 1891, A., 1176, 1415.  
*i-Gulose* and *i-Phenylglucosazone* (FISCHER and CURTISS), 1892, A., 823.  
*L-Gulose* (FISCHER and STAHMEL), 1891, A., 667.  
 configuration of (FISCHER), 1891, A., 1176, 1445.  
**Gums**. See Gum.  
**Gun-cotton**. See Guncotton.  
**Hemicelluloses** (SCHULZE), 1891, A., 1179; 1892, A., 907.  
**Heptitol**. See Perseitol.  
**Heptose** and its derivatives (FISCHER), 1890, A., 598.  
**Hydrocellulose**, action of phenylhydrazine on (CROSS and BEVAN), 1884, A., 897.  
**Inactose** (MAUMENÉ), 1888, A., 668.  
*i-Inosite* (MAQUENNE), 1887, A., 355; (LORIN), 1888, A., 245.  
 identity of dambosc with (MAQUENNE), 1887, A., 909.  
 formation of (FICK), 1887, A., 1089.  
 thermochemistry of (BERTHELOT and RECOURA), 1887, A., 1011; (BERTHELOT and MATIGNON), 1890, A., 1360; (STOHMANN and LANGBEIN), 1892, A., 764.  
 reduction and oxidation of (MAQUENNE), 1887, A., 459.  
 derivatives of (MAQUENNE), 1887, A., 908.  
 acetyl compound of (FICK), 1887, A., 1090.

## CARBOHYDRATES—

- $\beta$ -Inosite** (*mateo-dumbosc*) and its derivatives (MAQUENNE), 1890, A., 355; (COMBES; GIRARD), 1890, A., 471.  
 rotatory power of (COMBES; GIRARD), 1890, A., 471.  
*L-Inosite* from *schrachite* (TANRET), 1890, A., 226.  
**Racemo-inosite** (MAQUENNE and TANRET), 1890, A., 471.  
**Inulin** (HÖNIG and SCHUBERT), 1888, A., 246.  
 in the artichoke (PISTONE and DE REGIBUS), 1884, A., 284.  
 in the capitula of the *Compositae* (DANIEL), 1890, A., 191.  
 molecular weight of (BROWN and MORRIS), 1889, T., 463; P., 96.  
 formula of (PFEIFFER), 1883, A., 307.  
 thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.  
 combination of, with copper oxide (GRIGNET), 1889, A., 1133.  
 reaction for (GREEN), 1890, A., 656.  
**Inuloid** and **Metinulin** (HÖNIG and SCHUBERT), 1888, A., 247.  
**Invert-sugar** (JUNGFLEISCH and GRIMBERT), 1889, A., 479.  
 refractive power of (OWT), 1891, A., 1000.  
 rotatory power of (GUBBER), 1885, A., 1194; (TOILENN), 1891, A., 1178.  
 specific rotatory power and cupric reducing power of (O'SULLIVAN), 1892, T., 408; P., 56.  
 composition and fermentation of (BOURQUELOT), 1885, A., 1085; 1886, A., 169.  
 alcoholic fermentation of (GAYON and DUBOURG), 1890, A., 950.  
 selective fermentation of (LEPLAY), 1885, A., 1152; (MAUMENÉ), 1886, A., 90.  
 action of alkalis on (URECH), 1884, A., 1112.  
 action of light and heat on (GLANSTONE and TRIBE), 1883, T., 341.  
 rapidity of separation of cuprous oxide by the action of, on Fehling's solution (URECH), 1883, A., 385.  
 reduction of a solution of methyl violet by (WOHL), 1888, A., 995.  
 detection of, by means of Soldaini's solution in presence of cane sugar (PARCEN), 1880, A., 313.

## CARBOHYDRATES—

- Invert-sugar**, estimation of (KING), 1884, A., 503; (ANON.), 1886, A., 111; (HERZFELD), 1887, A., 185; (FORMANEK), 1890, A., 836; (STRIEGLER), 1891, A., 769.
- Irisin** (WALLACH), 1887, A., 26.
- identity of, with graminin (WALLACH), 1888, A., 438.
- molecular weight of (EKSTRAND and MAUZELIUS), 1890, A., 227.
- Lactose** (*milk-sugar*) (KENT and TOLLENS), 1884, A., 980; 1885, A., 647.
- non-identity of, with arabinose (SCHEIBLER), 1884, A., 1287.
- in milk (WILEY), 1885, A., 601; (STEPHENS), 1886, A., 582; (VIETH), 1889, A., 315.
- manufacture of, in Switzerland (KUNZ), 1885, A., 848.
- molecular weight of (BROWN and MORRIS), 1888, T., 618.
- properties of (JONES), 1890, A., 22.
- optically different modification of (SCHMOEGER), 1892, A., 948.
- multirotation of (URECH), 1884, A., 1112.
- transition of the multirotation of, into its normal rotation (URECH), 1883, A., 174.
- relation between the solubility and rotation of, and rate of transition of its multirotation into normal rotation (URECH), 1884, A., 36.
- molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 591.
- rotatory dispersion of (GRIMBERT), 1888, A., 329.
- rotatory and reducing power of (DENIGES and BONNANS), 1888, A., 933.
- thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.
- fermentation of (STONE and TOLLENS), 1889, A., 480.
- alcoholic fermentation of (VIETH), 1887, A., 1090.
- action of alkalis on (URECH), 1884, A., 1112.
- action of cupric hydroxide on (HABERMANN and HÖNIG), 1884, A., 1112.
- action of lead acetate on (RUBNER), 1885, A., 444.
- decomposition of, by dilute hydrochloric acid (CONIAD and GUTH-ZEIT), 1887, A., 26.

## CARBOHYDRATES—

- Lactose** (*milk-sugar*), oxidation of (FISCHER and MEYER), 1889, A., 485.
- existence of the elements of, in plants (MUNTZ), 1886, A., 575, 643.
- acetyl-derivatives of (SCHMOEGER), 1892, A., 948.
- phenylhydrazine of (FISCHER and TAFEL), 1888, A., 40.
- physiological rôle of (DASTRE), 1890, A., 186.
- assimilation of (BOURQUELOT and TROISIER), 1889, A., 735.
- behaviour of, in a diabetic (VOIT), 1892, A., 903.
- in urine (GAUBE), 1890, A., 188.
- estimation of (MAQUENNE), 1891, A., 1143; (KNOWLES and WILSON), 1891, A., 1298.
- estimation of mixtures of cane sugar and (STOKES and BODMER), 1886, A., 582.
- estimation of, in condensed milk (BIGNAMINI), 1885, A., 443.
- estimation of, in milk (STEPHENS), 1886, A., 582; (KUHN), 1891, A., 127.
- estimation of, in milk by optical methods (WILEY), 1885, A., 601; (SCHMOEGER), 1885, A., 693; (VIETH), 1889, A., 315.
- Oxylactose** (FISCHER), 1888, A., 1267.
- Phenyllactosazone** (FISCHER), 1885, A., 54; 1887, A., 567.
- Lactosin** (MEYER), 1884, A., 980.
- Levosin** from cereals (TANRET), 1891, A., 661.
- Levulose** (*fruit sugar*, *D-fructose*) (HERZFELD and WINTER), 1886, A., 438; (JUNGFLEISCH and GRIMBERT), 1888, A., 1266.
- influence of the leaves in the formation of, in grapes (MÜLLER), 1887, A., 517.
- in malt (O'SULLIVAN), 1885, P., 120; 1886, T., 58; P., 142; (V. ASDÖTH), 1888, A., 1220.
- from mannitol (BROWN), 1886, T., 184; P., 136.
- from nectar (v. PLANTA), 1886, A., 575.
- from raffinose (HÄRDICKE and TOLLENS), 1887, A., 791.
- from *Symphoricarpos racemosus* (HEHRMANN and TOLLENS), 1886, A., 92.
- preparation of (WÖHL), 1890, A., 1087.

## CARBOHYDRATES—

- Levulose**, preparation of, from *isoglucosamine* (FISCHER), 1888, A., 39.  
 synthesis of (FISCHER), 1890, A., 466.  
 configuration of (FISCHER), 1891, A., 1176, 1445.  
 properties (WINTER), 1888, A., 438.  
 crystalline form of (HONIG and SCHUBERT), 1888, A., 247.  
 refractive power of (OST), 1891, A., 1000.  
 rotatory power of (JUNGFLEISCH and GRIMBERT), 1889, A., 479; (TOLLENS), 1891, A., 1178.  
 thermochemistry of (SROHMANN and LANGBEIN), 1892, A., 763.  
 formation of lactic acid from (SOROKIN), 1886, A., 141.  
 action of dilute acids on (CONRAD and GUTZKEIT), 1887, A., 25.  
 action of bromine and water on (HONIG), 1886, A., 328.  
 oxidation of (HERZFELD and BORNSTEIN), 1886, A., 328, 862; (HERZFELD and WINTER), 1886, A., 862.  
 reduction of (HERZFELD), 1888, A., 667; (FISCHER), 1891, A., 412.  
 anilide of (SOROKIN), 1886, A., 683; 1888, A., 808.  
 compound of, with dextrose (BERTHELOT), 1887, A., 24.  
 cyanhydrin of (KILLANI), 1886, A., 219, 438.  
 osazone of (BEYTHIEN and TOLLENS), 1890, A., 582.  
 oxime of (WOHL), 1891, A., 813.  
 pentacetate of (ERWIG and KORNIGS), 1890, A., 732.  
 tetrabenzoate of (SKRAUP), 1889, A., 1153.  
 reaction for (SELIWANOFF), 1887, A., 459.  
 examination of mixtures of cane-sugar, invert-sugar and (WIECHMANN), 1892, A., 248.  
 estimation of (MAQUENNE), 1891, A., 1143.  
**Lichenin**, lichen starch and (HONIG and SCHUBERT), 1888, A., 127.  
**Lichenin sugar** (BAUER), 1886, A., 869.  
**Lignin** (LANGE), 1889, A., 1235; 1890, A., 228; (LINDSEY and TOLLENS), 1892, A., 802.  
 quantitative reaction for (BENEDIKT and BAMBERGER), 1890, A., 1474.

## CARBOHYDRATES—

- Lignocelluloses** (CROSS and BEVAN), 1892, A., 693.  
 constitution of (CROSS and BEVAN), 1892, A., 129.  
 action of ferric ferriyanide on (ISAAC), 1892, A., 1421.  
 action of nitric acid on (CROSS and BEVAN), 1891, P., 61.  
**Lignose** (*wood-cellulose*) (ANON.), 1884, A., 1451.  
 constitution of (CROSS and BEVAN), 1883, T., 20.  
**Lokaose** (KAYSER), 1886, A., 255.  
**Lupeose**. See  $\beta$ -Galactan.  
**Maltodextrin** (BROWN and MORRIS), 1885, T., 560; (HERZFELD), 1886, A., 221; (BROWN), 1886, A., 438.  
 molecular weight of (BROWN and MORRIS), 1889, T., 465; P., 96.  
**Maltosaccharin**. See *iso*Saccharin.  
**Maltose** and its derivatives (HERZFELD), 1883, A., 652; 1884, A., 171; (FISCHER), 1885, A., 54; 1887, A., 567; (SKRAUP), 1889, A., 1153; (FISCHER and HIRSCHBERGER), 1890, A., 226.  
 in malt (O'SULLIVAN), 1885, P., 120; 1886, T., 58; P., 142; (V. ASBÓTH), 1888, A., 1220.  
 molecular weight of (BROWN and MORRIS), 1888, T., 617; (EKSTRAND and MAUZELIUS), 1890, A., 227.  
 manufacture of, by Dubrunfaut's method (CUISINIER), 1885, A., 205.  
 disappearance of the multirotation of, in ammoniacal solution (SCHULZE and TOLLENS), 1892, A., 1419.  
 rotatory dispersion of (GRIMBERT), 1888, A., 329.  
 thermochemistry of (SROHMANN and LANGBEIN), 1892, A., 764.  
 conversion of, into glucose (PHILIPS), 1883, A., 38.  
 action of cupric hydroxide on (HABERMANN and HÖNIG), 1884, A., 1112.  
 action of alkaline mercuric cyanide on (WILSON), 1892, A., 1032.  
 assimilation of (DASTRE and BOURQUELOT), 1884, A., 1392.  
 oxidation of (FISCHER and MEYER), 1889, A., 1132.  
 physiological functions of (BOURQUELOT), 1884, A., 345.  
 estimation of (MAQUENNE), 1891, A., 1143.

## CARBOHYDRATES—

- Maltose**, estimation of, with potassium cuprocarbonate solution (OST), 1891, A., 1298.  
 estimation of, in beer and beerwort (ELIX), 1891, A., 368; 1892, A., 248.  
 estimation of, in starch sugar (WILEY), 1883, A., 123.  
*iso*Maltose and its osazone (FISCHER), 1891, A., 413; (LINTNER), 1892, A., 1293.  
**Mannide**, second anhydride of mannitol (FAUCONNIER), 1883, A., 305; 1884, A., 573, 1111; 1885, A., 743; (ALECHIN), 1885, A., 744.  
 derivatives of (FAUCONNIER), 1884, A., 1111.  
 $\beta$ -**Mannide** (SIWOLOBOFF), 1885, A., 367; 1886, A., 682; (ALECHIN), 1885, A., 744.  
*d*-**Mannitol**, occurrence of, in the pine-apple (LINDER), 1884, A., 629.  
 occurrence of, in the cambium sap of pines (KACHLER), 1886, A., 1062.  
 occurrence of, in the fruit of the cherry laurel (VINCENT and DELACHANAL), 1892, A., 908.  
 from fungi (BOURQUELOT), 1839, A., 740; 1891, A., 103, 954.  
 preparation of, from dextrose or levulose (SCHEIBLER), 1884, A., 574; (DAFERT), 1884, A., 720.  
 configuration of (FISCHER), 1891, A., 1176.  
 molecular weight of (BROWN and MURRIN), 1888, T., 620.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 591.  
 rotatory power of compounds of, with acid molybdates (GERNEZ), 1891, A., 1443.  
 thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.  
 freezing points of aqueous solutions of boric acid and (MAGNANINI), 1892, A., 263.  
 a pure fermentation of (FRANKLAND and FREW), 1892, T., 254; P., 11.  
 fermentation of (FRANKLAND and FOX), 1890, A., 915.  
 fermentation of, with *Bacillus ethnoticus* (FRANKLAND and LUMSDEN), 1892, T., 432; P., 70.

## CARBOHYDRATES—

- d*-**Mannitol**, fermentation of, with Friedlander's *Pneumococcus* (FRANKLAND, STANLEY and FREW), 1891, T., 256.  
 action of *Bacterium aceti* on (BROWN), 1886, T., 182; P., 136.  
 action of, on sodium pyroborate (DUNSTAN), 1884, A., 279.  
 behaviour of, towards boric acid (MAGNANINI), 1890, A., 1357.  
 oxidation of (DAFERT), 1884, A., 720; 1886, A., 608; (IWIG and HECHT), 1886, A., 525, 782.  
 oxidation of, by nitric acid (EASERFIELD), 1891, T., 306; P., 44.  
 reduction of, by formic acid (FAUCONNIER), 1885, A., 743.  
 combination of, with aldehydes of the acetic series (MEUNIER), 1889, A., 580.  
 combination of, with copper oxide (GUIGNER), 1889, A., 1133.  
 compounds (MEUNIER), 1888, A., 1049.  
 derivatives (GEUTHER), 1884, A., 36; (FAUCONNIER), 1884, A., 573.  
 sodium compound of (DE FORCRAND), 1892, A., 800.  
 anhydride of (SIWOLOBOFF), 1885 A., 367.  
 compound of, with benzaldehyde (MEUNIER), 1888, A., 950.  
 second anhydride. See Mannide.  
 anhydrides of (ALECHIN), 1885, A., 744.  
 dibenzoate of (MEUNIER), 1888, A., 1265.  
 penta- and hexa-benzoate of (SKRAUP), 1889, A., 1152.  
 benzoic acetals of (MEUNIER), 1889 A., 233.  
 dichlorhydrin (FAUCONNIER), 1884 A., 1111; (SIWOLOBOFF), 1886, A., 681.  
 hexachlorhydrin (MOURGUES), 1890 A., 1388.  
 lead nitrate (SMOLKA), 1885, A., 743.  
 nitrate, action of alkaline solution on (MIXTER), 1892, A., 692.  
*i*-**Mannitol**. See  $\alpha$ -Acritol.  
*l*-**Mannitol** (FISCHER), 1890, A., 467.  
 configuration of (FISCHER), 1891, A., 1176.  
**Mannitol-series**, relation of the carbohydrates of, to  $\alpha$ -acrose (FISCHER), 1890, A., 470.  
*d*-**Mannoctitol** (FISCHER and PASHMORE), 1890, A., 1233.

## CARBOHYDRATES—

*d*-Mannoctose and its derivatives (FISCHER), 1890, A., 598; (FISCHER and PASSMORE), 1890, A., 1232.

*d*-Mannoheptitol. See Perseitol.

*d*-Mannoheptose (FISCHER), 1890, A., 598; (FISCHER and PASSMORE), 1890, A., 1230.

*d*-Mannonose (FISCHER and PASSMORE), 1890, A., 1233.

*d*-Mannose (*seminose*) and its derivatives (FISCHER and HIRSCHBERGER), 1888, A., 934; 1889, A., 480, 687; 1890, A., 224; (REISS), 1889, A., 687; 1891, A., 356; (STAHEL), 1890, A., 1260; (JACOBI), 1891, A., 665.

synthesis of (FISCHER), 1890, A., 466.

constitution of (FISCHER and HIRSCHBERGER), 1889, A., 483.

configuration of (FISCHER), 1891, A., 1176, 1445.

action of hydrocyanic acid on (FISCHER and HIRSCHBERGER), 1889, A., 482.

sugars richer in carbon from (FISCHER and PASSMORE), 1890, A., 1230.

detection of, in vegetable products (TOLLENS), 1892, A., 250.

*d*-Mannosediphenylhydrazone (STAHEL), 1890, A., 1260.

*d*-Mannosehydrazone (FISCHER and HIRSCHBERGER), 1889, A., 481.

*d*-Mannoseoxime (JACOBI), 1891, A., 665.

*i*-Mannose and its derivatives (FISCHER), 1890, A., 468.

*l*-Mannose and its derivatives (FISCHER), 1890, A., 466.

configuration of (FISCHER), 1891, A., 1176, 1445.

Mannoso-cellulose (SCHULZE), 1891, A., 1179.

Matezite. See  $\beta$ -Pinite.

Matezodambrose. See  $\beta$ -Inosite.

Melezitose and its acetyl and phenylhydrazine derivatives (ALTMANN), 1886, A., 683; 1890, A., 733.

from Turkestan manna (MARKOWNIKOFF), 1885, A., 943.

Melibiose and its derivatives (SCHEIBLER and MITTELMEIER), 1889, A., 953; 1890, A., 226, 1085.

compound of, with raffinose (BERTHELOT), 1887, A., 24.

Melbiotite (SCHEIBLER and MITTELMEIER), 1890, A., 227.

Melicitose, thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.

## CARBOHYDRATES—

Melitose (*melitriose*). See Raffinose.

Methose (LOEW), 1889, A., 583.

molecular weight of (v. KLOBUKOFF), 1890, A., 466.

Methylenitan (MAQUENNE), 1883, A., 37.

probable identity of, with formose (LOEW), 1888, A., 571; (FISCHER), 1888, A., 591.

action of boiling acids on (WEHMER and TOLLENS), 1888, A., 438.

Milk-sugar. See Lactose.

Octose (FISCHER), 1890, A., 598.

Oxycellulose (CROSS and BEVAN), 1883, T., 22; (LINDSEY and TOLLENS), 1892, A., 827.

formation of, electrochemically (GOPPELSROEDER), 1885, A., 208.

Paragalactan (SCHULZE and STEIGER), 1887, A., 460; 1890, A., 285.

Paragalactan-like substances (SCHULZE, STEIGER and MAXWELL), 1890, A., 284.

Paraglycogen (BÜTSCHLI), 1886, A., 87.

Pectic acids (MANGIN), 1890, A., 80; (HERZFELD), 1892, A., 291; (LINDSEY and TOLLENS), 1892, A., 827.

Pectin, sugar from (BAUER), 1891, A., 413.

Pectose (URBAIN), 1884, A., 860; (STONE), 1892, A., 247.

Pentosans of woody vegetable fibre (SCHULZE and TOLLENS), 1892, A., 1420.

Pentose (*prutagluucose*) (FISCHER), 1890, A., 598.

Pentose carbohydrates, digestibility of (STONE), 1892, A., 645.

Pentoses (STONE), 1891, A., 411.

physiological action of (EBSTEIN), 1892, A., 1506.

detection of, in vegetable products (TOLLENS), 1892, A., 250.

estimation of (GUNTHER and TOLLENS), 1890, A., 1352; (DE CHALMOT and TOLLENS), 1891, A., 768; (STONE), 1892, A., 247; (GUNTHER, DE CHALMOT and TOLLENS), 1892, A., 388.

Perseitol (*mannoheptitol*; *perséole*) and its derivatives (MÜNTZ and MARGANO), 1884, A., 1285; (MAQUENNE), 1888, A., 807; 1889, A., 32; (FISCHER), 1890, A., 598.

identity of heptitol with (FISCHER and PASSMORE), 1890, A., 1232.

thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.

## CARBOHYDRATES—

- Perseitol** (*mannoheptitol*; *perseite*), rotatory power of compounds of, with sodium hydrogen and ammonium hydrogen molybdates (GERNEZ), 1892, A., 800.  
 compounds of, with molybdic acid (GERNEZ), 1892, A., 422.
- Phlein** (EKSTRAND and JOHANSON), 1888, A., 439; (EKSTRAND and MAUZELIUS), 1890, A., 227.
- Phlorose**. See Dextrose.
- $\beta$ -Pinitol** (*matezitol*) (MAQUENNE), 1890, A., 244.  
 rotatory power of (COMBES; GIRARD), 1890, A., 471.
- Pyroxylin**, rotatory power of (BÉCHAMP), 1885, A., 237.
- Quebrachite** from the quebracho (TANRET), 1890, A., 226.
- Quercin**, from acorns (VINCENT and DELACHANAL), 1887, A., 909.  
 crystalline form of (FRIEDEL), 1887, A., 1026.
- Quercitol** (KANONNIKOFF), 1886, A., 335; (KILIANI and SCHEIBLER), 1889, A., 581.  
 thermochemistry of (BERTHELOT and RECOURA), 1887, A., 1011; (STOHMANN and LANGBEIN), 1892, A., 764.
- Quinitol** (v. BAeyer), 1892, A., 833.
- Quinovite** (LIEBERMANN), 1884, A., 1191.
- Raffinose** (*melitose*, *melitriose*) (SCHEIBLER), 1885, A., 1046; (BERTHELOT), 1887, A., 25; 1890, A., 21, 356; (SCHEIBLER and MITTELMEIER), 1889, A., 953; 1890, A., 226, 1035.  
 in barley (O'SULLIVAN), 1885, P., 119; 1886, T., 70.  
 from cotton seed (RITTHAUSEN), 1884, A., 1286.  
 from Eucalyptus manna (TOLLENS), 1886, A., 527.  
 from molasses, cotton-seeds, and Eucalyptus manna (RISCHBIERH and TOLLENS), 1886, A., 138.  
 source of, in the products of the manufacture of sugar (v. LIPPMANN), 1886, A., 221.  
 not formed from cane-sugar (BEYTHIEN, PARCUS and TOLLENS), 1890, A., 582.  
 molecular weight of (BROWN and MORRIS), 1888, T., 619; (DE VRIES), 1888, A., 667; (TOLLENS and MAYER), 1888, A., 809.

## CARBOHYDRATE—

- Raffinose** (*melitose*, *melitriose*), formation of (HERLES), 1890, A., 226.  
 preparation of, from molasses (TOLLENS), 1885, A., 368; (SCHEIBLER), 1885, A., 962; (LINDER), 1890, A., 732; (GUNNING), 1892, A., 422.  
 composition and properties of (PELLER and BIARD), 1886, A., 220.  
 thermochemistry of (BERTHELOT and MATIGNON), 1890, A., 1360; (STOHMANN and LANGBEIN), 1892, A., 764.  
 fermentation of, with beer yeast (LOISEAU), 1890, A., 22.  
 inverted, behaviour of, with phenylhydrazine (BEYTHIEN and TOLLENS), 1890, A., 581.  
 formation of galactose and levulose from (HAEDICKE and TOLLENS), 1887, A., 791.  
 formation of lactic acid from (BEYTHIEN, PARCUS, and TOLLENS), 1890, A., 582.  
 red sediment formed in a solution of (WIECHMANN), 1891, A., 813.  
 compounds of, with bases (BEYTHIEN and TOLLENS), 1889, A., 846; 1890, A., 580.  
 compound of, with melitriose (BERTHELOT), 1887, A., 24.
- Raffinose**, detection and estimation:—  
 test for (GANZ, STONE and TOLLENS), 1888, A., 1059.  
 precipitation of, by ammoniacal lead acetate (KOYDL), 1892, A., 1294.  
 estimation of (GREYDIER), 1887, A., 306.  
 estimation, simultaneous, of sucrose and (LINDER), 1890, A., 1219.  
 estimation of, in beet-sugar (LOPMAN), 1889, A., 192.  
 estimation of, in the products of the beet-sugar manufacture (GUNNING), 1889, A., 656.  
 estimation of, in cane sugar (SCHEIBLER), 1887, A., 306.  
 estimation of, in mixtures (GREYDIER and TOLLENS), 1886, A., 582.  
 estimation of, in raw sugar (BREYER), 1890, A., 301.  
 estimation of, in vegetable products (TOLLENS), 1892, A., 219.
- Rhamnitol** (FISCHER and PILOTY), 1891, A., 31.
- Rhamnoctose**, **rhamnoheptose** and **rhamnohexitol** (FISCHER and PILOTY), 1891, A., 32.

## CARBOHYDRATES—

**Rhamnohexose** (FISCHER and PILOTY), 1891, A., 31.

from frangulin (THORPE and MILLER), 1892, T., 7.

**Rhamnose**. See *isoDulcitol*.

**Ribose** and its derivatives (FISCHER and PILOTY), 1892, A., 439.

**Saccharin** (KILIANI), 1883, A., 962; (SCHEIBLER), 1884, A., 171.

formation of lactic acid and, from sugars (CUISINIER and KILIANI), 1883, A., 42.

preparation of (KILIANI), 1883, A., 565.

thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 763.

specific rotatory power of (SCHNELLE and TOLLENS), 1892, A., 1421.

action of sodium amalgam on (SCHEIBLER), 1884, A., 574.

reduction of (LIEBERMANN and SCHEIBLER), 1883, A., 1078; (FISCHER), 1889, A., 1149.

new acid obtained by the action of nitric acid on (KILIANI), 1883, A., 566.

actions of (HERRMANN and TOLLENS), 1885, A., 962.

*isoSaccharin* (*malto-saccharin*), and its derivatives (CUISINIER and KILIANI), 1883, A., 42; (KILIANI), 1885, A., 744.

specific rotatory power of (SCHNELLE and TOLLENS), 1892, A., 1421.

action of aniline on (SOROKIN), 1883, A., 819.

*metaSaccharin*, from milk sugar and its derivatives (KILIANI), 1884, A., 283; 1885, A., 745; 1888, A., 46.

**Salep mucus** (GANS and TOLLENS), 1889, A., 541.

**Saccharose**. See *Sucrose*.

**Saffron-sugar**. See *Crocose*.

**Seminose**. See *Mannose*.

**Sorbinose** (*sorbin, sorbose*), formation of, from the juice of mountain ash berries (FREUND), 1891, A., 653.

constitution of (KILIANI and SCHIBLER), 1889, A., 116.

thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 763.

action of cupric hydroxide on (HABERMANN and HÖNIG), 1884, A., 1112.

fermentation of (STONE and TOLLENS), 1889, A., 480.

hydrogenation of (VINCENT and DELACHANAL), 1890, A., 1389.

estimation of (MAQUENNE), 1891, A., 1143.

## CARBOHYDRATES—

**Phenylsorbinosazone** (FISCHER), 1887, A., 567.

*l-Sorbitol* (*sorbite*) (VINCENT and DELACHANAL), 1890, A., 21.

occurrence of, in the fruits of the Rosaceae (VINCENT and DELACHANAL), 1889, A., 580; 1890, A., 21; 1892, A., 908.

conversion of glucose into (MEUNIER), 1890, A., 1389.

extraction of (VINCENT and DELACHANAL), 1889, A., 478.

configuration of (FISCHER), 1891, A., 1176.

action of ammoniacal cupric oxide on (VINCENT and DELACHANAL), 1890, A., 21.

action of cuprammonium sulphate on (GUGNIER), 1890, A., 21.

oxidation of (VINCENT and DELACHANAL), 1889, A., 580; 1890, A., 1389.

hexylic iodide from (HITZEMANN and TOLLENS), 1890, A., 841.

compounds of, with molybdic acid (GERNEZ), 1892, A., 422.

derivatives of (MEUNIER), 1889, A., 479; 1890, A., 730; (VINCENT and DELACHANAL), 1889, A., 580.

estimation of (VINCENT and DELACHANAL), 1889, A., 478.

*l-Sorbitol* (FISCHER and STAHEL), 1891, A., 668, 1173.

configuration of (FISCHER), 1891, A., 1176.

**Stachyose** (v. PLANTA and SCHULZE), 1890, A., 1089; 1891, A., 1446.

**Starch** (SCHEIBLER and MITTELMEIER), 1891, A., 33, 284.

varieties of (DAFERT), 1886, A., 527.

varieties detected by the swelling process (SYMONS), 1884, A., 370.

in the fungus *Boletus pachypus* (BOURQUELOT), 1892, A., 230.

in the endosperm, functions of (BROWN and MORRIS), 1890, T., 478.

in leaves, influence of internal causes on the presence of (MER), 1891, A., 604.

quantity of, in the tubercles of the radish (LESAGE), 1892, A., 92.

formation of, in chlorophyll granules (v. SACHS), 1885, A., 831; (BELLUCI), 1887, A., 1136.

formation of, from formaldehyde (BOKORNY), 1891, A., 1539.

formation of, in the grain of wheat (HÉBERT), 1891, A., 1285.

## CARBOHYDRATES—

- Starch**, formation of, in the green plant from certain organic substances (ALFON), 1890, A., 1021.  
 formation of, in leaves supplied with sugars, mannitol and glycerol (MEYER), 1886, A., 902.  
 formation of, from methylal, methyl alcohol, etc. (BOKORNY), 1889, A., 67.  
 formation of, by plants from organic solutions (LAURENT), 1888, A., 1126.  
 formation of, from sugar (BOHM), 1883, A., 820.  
 formation of, in vine leaves (CUBONY), 1885, A., 683, 1004.  
 manufacture of (SCHAUPE), 1884, A., 1234.  
 manufacture of, from maize (v. WAGNER), 1884, A., 528.  
 preparation and investigation of (SAARE), 1885, A., 618.  
 fat equivalent of (PFEIFFER and LEHMANN), 1888, A., 973.  
 formula of (PFEIFFER), 1883, A., 307.  
 soluble (SALOMON), 1884, A., 36; (DUFORT), 1886, A., 903; (KRAUS), 1887, A., 173.  
 relation of amylopectin to (BROWN and MORRIS), 1889, T., 449; P., 95.  
 molecular weight of (BROWN and MORRIS), 1889, T., 465; P., 97.  
 properties of (BROWN and MORRIS), 1889, T., 450.  
 action of diastase on (BROWN and MORRIS), 1889, T., 456.  
 physiological function of, in vegetation (DUFORT), 1886, A., 908.  
 See also Starch-cellulose.  
 colour reactions of (BECKURTS and FREYTAG), 1886, A., 783; (IHL), 1887, A., 631.  
 thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.  
 colloidal solutions of (PITON and LINDER), 1892, T., 156.  
 alcoholic fermentation of (GAYON and DUBOURG), 1887, A., 171.  
 fermentation of (MARVANO), 1883, A., 365; (SELYANO and GOSIO), 1891, A., 1284.  
 fermentation of, by the butyric ferment (VILLIERS), 1891, A., 660.  
 action of dilute acetic acid on (SCHULZE), 1884, A., 284.

## CARBOHYDRATES—

- Starch**, action of acetic anhydride and chloride on (MICHAEL), 1881, A., 420.  
 action of bacteria on (WORTMANN), 1883, A., 931.  
 crude, action of the diastase of malt on (BRASSE), 1885, A., 499.  
 influence of foreign matter on the conversion of, by diastase (DEMER), 1883, A., 631.  
 is any other substance besides maltose and dextrin formed during the transformation of, by diastase? (BROWN and MORRIS), 1885, T., 555.  
 non-crystallisable products of the action of diastase on (BROWN and MORRIS), 1885, T., 527; P., 79.  
 ungelatinised, action of diastase of secretion on (BROWN and MORRIS), 1890, T., 510.  
 action of dilute hydrochloric acid on (ALLIEN), 1884, A., 721.  
 action of potassium permanganate on (LINTNER), 1891, A., 537.  
 action of saliva on (BOURQUELOT), 1887, A., 354.  
 action of sulphuric acid on (HONIG and SCHUBERT), 1886, A., 44; 1887, A., 125.  
 behaviour of, towards gases (BOHM), 1884, A., 1250.  
 behaviour of, in the presence of inorganic and organic acids (SALOMON), 1884, A., 36; (MUSCULUS), 1884, A., 574.  
 dry distillation of, with lime (HURVAT), 1887, A., 460.  
 effect of dissolving, in hot glycerol (ZULKOWSKI), 1889, A., 116; 1891, A., 165.  
 product of the oxidation of (PETIT), 1892, A., 1171.  
 saccharification of (CUISINIER), 1887, A., 354.  
 saccharification of, by acids (SEYBERLICH and TRAMPEDACH), 1887, A., 792; (FLOURENS), 1890, A., 1089.  
 conversion of, into amyl alcohol by a bacterium (PERDRIX), 1892, A., 90.  
 conversion of, into dextrin by the butyric ferment (VILLIERS), 1891, A., 659, 1446.  
 conversion of, into dextrose by means of hydrochloric acid (HARVEY), 1887, A., 125.

## CARBOHYDRATES—

- Starch**, combination of, with copper oxide (GUIGNET), 1889, A., 1133.  
 combination of, with iodine (ROUVIER), 1892, A., 801.  
 compounds of, with the alkaline earths (LINTNER), 1889, A., 316.  
 fixation of iodine by (ROUVIER), 1892, A., 578.  
 formation of cane-sugar from (SILLWANOFF), 1889, A., 1132.  
 manufacture of cane-sugar from (AUBERT and GIRAUD), 1885, A., 1274.  
 formation of grape-sugar from (ENDEMANN), 1885, A., 101.  
 inversion of, by formic acid (FANKHAUSER), 1886, A., 1061.  
 conversion of, in the human stomach (ZECHINSEN), 1889, A., 631.  
 digestion of (LEA), 1890, A., 537.  
 digestion of, by dogs (ELLENBERGER and HOFMEISTER), 1892, A., 516.  
 conversion products of, during germination (MARACCI), 1891, A., 357.  
 growth of excised embryos on (BROWN and MORRIS), 1890, T., 489.  
 influence of salt in the formation of, in vegetable organs containing chlorophyll (LESAGE), 1891, A., 856.  
 influence of salt on the quantity of, contained in the vegetating organs of *Lepidium sativum* (LESAGE), 1891, A., 1133.  
 relation of the red colouring matter of the Phanerogams to the migration of (PICK), 1884, A., 1402.  
 reserve, changes of, in the growing embryo (BROWN and MORRIS), 1890, T., 513.  
 reserve, form in which, enters the embryo (BROWN and MORRIS), 1890, T., 513.  
 solution of, in leaves (BRASSE), 1886, A., 827.  
 solution, preparation of, for use in volumetric analysis with iodine (GASTINE), 1889, A., 73.  
 examination of (JONES), 1888, A., 199.  
 iodine reaction of (BRUKNER), 1884, A., 576.

**Starch**, detection and estimation of: detection of, in green leaves (v. SACHS), 1885, A., 831.

## CARBOHYDRATES—

- Starch**, detection and estimation of: detection and estimation of, in liquids containing dextrin (BIRKHARD), 1888, A., 326.  
 estimation of (EFFRONT), 1887, A., 867; (v. ASBÖTH), 1887, A., 868; (SPENCE), 1888, A., 632; (REINKE), 1891, A., 127; (HÖNTG), 1891, A., 865.  
 estimation of, apparatus for the (REMPEL), 1885, A., 843.  
 estimation of, by baryta (SEYFERT), 1888, A., 1134.  
 estimation of, in cereals (O'SULLIVAN), 1884, T., 1.  
 estimation of, in fodders (LADD), 1888, A., 748; (LECLERC), 1890, A., 1197.  
 estimation of, in food (FAULENBACH), 1884, A., 930.  
 estimation of, in grain (FRANCKE), 1888, A., 621; (MONHEIM), 1888, A., 1134; (v. MILKOWSKI), 1890, A., 928.  
 estimation of, in gluten bread (RICHARD), 1885, A., 299; (MALLAT), 1885, A., 445.  
 estimation of, in maize, in oats, in rice, in rye, in wheat, and in wheat-malt (O'SULLIVAN), 1884, T., 1.  
 estimation of moisture in (BONDONNEAU), 1884, A., 927; (DAFERT), 1887, A., 1148.  
 estimation of, in oats (O'SULLIVAN), 1884, T., 8.  
 estimation of, in potatoes (GRAND), 1887, A., 868.  
 undissolved, estimation of, in sweet mash (SPITZER), 1886, A., 746.  
**Starch-cellulose**, true nature of (MAYER), 1887, A., 460; (GRIESSMAYER), 1887, A., 686.  
 See also Amylodextrin and Starch, soluble.  
**Starch-grains**, chemical nature of (BRUKNER), 1884, A., 575.  
 action of diastase on, within the plant (KRABBE), 1891, A., 605; 1892, A., 92.  
**Starch-granules** (BOURQUELOT), 1887, A., 355.  
 action of heat on (SCHUBERT), 1885, A., 368.  
**Starch iodide** (MYLIUS), 1887, A., 568; (ROUVIER), 1892, A., 578, 801, 1171.  
 composition of (STOCKS), 1888, A., 126, 668; (SEYFERT), 1888, A., 1050.

## CARBOHYDRATES—

- Starch iodide**, decolourisation of, by heating (TOMLINSON), 1886, A., 328.
- Starch-paste**, difference between swollen starch and (BRUKNER), 1884, A., 576.
- Maize-starch**, absorption spectrum of (HARTLEY), 1887, T., 59.  
manufacture of (V. WIGNER), 1884, A., 528.
- Potato-starch** (SALOMON), 1883, A., 124; (ANON.), 1884, A., 134; (KETTE), 1884, A., 948.  
acidity of (SAARE), 1891, A., 358.
- Rice-starch** (SALOMON), 1883, A., 124.  
researches on (SOSTEGNI), 1886, A., 221; 1888, A., 126.
- Wheat-starch**, composition of (SCHULZE), 1884, A., 284.
- Sucrose** (*cane-sugar*) in barley and in malt (O'SULLIVAN), 1885, P., 120; 1886, T., 58; P., 142; (V. ASBÖTH), 1888, A., 1220.
- in beetroot (MAREK), 1883, A., 124; 1884, A., 766; (STAMMER and DEGENER), 1884, A., 133; (GIRARD), 1884, A., 476; 1885, A., 75; (BRANSE), 1886, A., 1063.
- role of, and development of, during the growth of the beetroot (DURIN), 1890, A., 1020.
- percentage of, in beetroot (STAMMER and DEGENER), 1884, A., 133.
- in beetroot, loss of (WIETENHEIM), 1885, A., 102; (MAREK), 1891, A., 108.
- from maize (WASHBURN and TOLLENS), 1889, A., 918.
- from nectar (V. PLANTA), 1886, A., 575.
- presence of, in unripe potatoes (SCHULZE and SELIWANOFF), 1888, A., 623.
- formation of, in etiolated plant shoots (SCHULZE), 1890, A., 282.
- from the soja bean (MORAWSKI and STINGL), 1886, A., 329; 1887, A., 686.
- formation of, from starch (SELIWANOFF), 1889, A., 1132.
- from the wheat germ (RICHARDSON and CRAMPTON), 1886, A., 734.
- molecular weight of (BROWN and MORRIS), 1888, T., 615.
- absorption spectrum of (HARTLEY), 1887, T., 59.

## CARBOHYDRATES—

- Sucrose** (*cane-sugar*), molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 591.
- rotatory power of (TOLLENS), 1884, A., 1285; (PŘIBRAM), 1887, A., 756.
- rotatory power of, in dilute solution (NASINI and VILLAVECCHIA), 1892, A., 801.
- rotatory power of, influence of temperature on (ANDREWS), 1890, A., 579.
- rotatory power of, influence of certain inorganic salts on (FARNSTEINER), 1891, A., 283.
- rotatory dispersion of (GRIMBERT), 1888, A., 329.
- thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.
- specific heat of (HESS), 1889, A., 93.
- specific gravity of solutions of (WANKLYN), 1882, A., 935.
- cryoscopy of solutions of (EIJKMAN), 1891, A., 972; (PICKERING), 1892, A., 109, 1045; (RAOULT), 1892, A., 678.
- comparative sweetness of starch-sugar and (SCHMIDT), 1887, A., 1026.
- action of *Bacterium aceti* on (BROWN), 1886, T., 181; P., 136.
- action of invertase on (O'SULLIVAN and THOMPSON), 1890, T., 843; (O'SULLIVAN), 1892, T., 408.
- action of light on (DUCLAUX), 1887, A., 93.
- action of light, atmospheric germs, air and heat on (GLADSTONE and TRIBE), 1883, T., 341.
- action of lime on (PINNER), 1883, A., 1079.
- inversion of (URECH), 1883, A., 174, 306, 1077; 1884, A., 721; 1885, A., 41; 1887, A., 763; (OSTWALD), 1884, A., 1113; 1885, A., 382.
- inversion of, rate of change in the (ARRHENIUS), 1889, A., 1103.
- inversion of, by benzoic acid and the hydroxybenzoic acids (KORAI), 1886, A., 932.
- inversion of, by hydrochloric acid (BORNTRAGER), 1891, A., 535.
- inversion of, by hydrochloric acid, influence of temperature on the rate of (URECH), 1887, A., 768.

## CARBOHYDRATES—

- Sucrose** (*cane-sugar*), effect of temperature and concentration of acid on the rate of inversion of (URECH), 1883, A., 174, 306, 1077; 1885, A., 41.
- inversion of, influence of neutral salts and of temperature on the (SPOHR), 1885, A., 1181; 1886, A., 502.
- inversion of, in sparkling wines (MORITZ), 1886, A., 608.
- inverting ferment of (LADUREAU), 1886, A., 169.
- action of the succinic acid ferment on (TEIXEIRA-MENDES), 1885, A., 1152.
- fermentation of, in contact with arable land (DEHÉRAIN and MAQUENNE), 1884, A., 351.
- fermentation of, influence of invertin on the (BAUER), 1883, A., 101.
- solubility of, in water (PÉRIER), 1889, A., 846.
- solubility of, in mixtures of water and alcohol (SCHEIBLER), 1891, A., 536.
- behaviour of, towards acids and phenol (TOLLENS), 1887, A., 534.
- behaviour of hydroxides of calcium and the alkalis with (LEPLAY), 1890, A., 579.
- action of carbonic anhydride on calcareous solutions of (LOISEAU), 1884, A., 419.
- transformation of, into dextrose (Böck), 1890, A., 21.
- formation of lactic acid from (BEYTHIEN, PARCUS and TOLLENS), 1890, A., 582.
- decomposition of, when heated with dilute acids (CONRAD and GUTHZERT), 1885, A., 745; 1886, A., 138; 1887, A., 25, 229.
- decomposition of, by boiling with lime (NIEDSCHLAG), 1887, A., 1026.
- compound of (HERZFELD), 1886, A., 863.
- compounds of, with metallic oxides (STROMEYER), 1887, A., 791.
- tetrabenzoate of (BAUMANN), 1887, A., 229.
- occurrence of catechol in raw (v. LIPPMANN), 1888, A., 262.
- tin in (PHIPSON), 1889, A., 1036.
- wines from (CARLES), 1884, A., 1086.
- addition of, to cattle foods (MÄRCKER), 1885, A., 1149;

## CARBOHYDRATES—

- (HENNEBERG), 1885, A., 1252;
- (WERNER), 1886, A., 569;
- (HOLDEFLEISS), 1886, A., 727;
- (PFEIFFER and LEHMANN), 1887, A., 511.
- Sucrose** (*cane-sugar*), physiological functions of (BOURQUELOT), 1884, A., 345.
- alteration of, in the human stomach (v. LEUBE), 1884, A., 91.
- manufacture of, from beetroot (BOURY and PROVINS), 1885, A., 464; (TROBACH), 1885, A., 848; (ANON.), 1886, A., 111; loss in (ANON.), 1884, A., 791.
- manufacture of, from molasses (SCHEIBLER), 1883, A., 252, 536; 1884, A., 133, 527; (ANON.), 1884, A., 1235, 1236; 1885, A., 103; (DEGENER), 1884, A., 1447; (v. LIPPMANN), 1885, A., 102; (DAIX and POSSOZ), 1885, A., 943.
- recovery of the ammonia in the alcohol used for the removal of molasses from (ANON.), 1884, A., 939.
- composition of residues obtained in (PAGNOUL), 1884, A., 699.
- preservation of diffusion residues from (ANON.), 1883, A., 695.
- without bye-products (REBOUX), 1885, A., 464.
- without the aid of bone charcoal, sand, or sulphurous anhydride (PELLET and DUBAËLE), 1883, A., 835.
- and purification of beet-juice by means of magnesia and alumina (JUNEMANN), 1885, A., 1021.
- butyric fermentation in the diffusion vessels of (DEHÉRAIN), 1885, A., 464.
- refining, animal charcoal in (PELLET), 1885, A., 205.
- use of magnesium sulphite and ferric chloride in (BERGREEN and LICHT), 1884, A., 939.
- sulphurous anhydride in (BATTUT), 1885, A., 709.
- by means of concentrated acetic acid (WERNICK), 1884, A., 790.
- refinery, working of (STADE), 1884, A., 791.
- preparation of strontianite for purifying (ANON.), 1884, A., 939.
- factories, manurial value of concentrated liquors from (MÄRCKER), 1885, A., 687.

## CARBOHYDRATES—

- Sucrose** (*cane-sugar*), manufacture of, from maple-sugar (WILEY), 1885, A., 499; 1886, A., 289.  
 manufacture of, from *Sorghum saccharatum* (V. PFUEL), 1885, A., 79; (KOHLEBAUCH), 1885, A., 1021.  
 in America (BÖCKMANN), 1883, A., 633; (DUREAU and PELLET), 1884, A., 699; (CAPUS), 1885, A., 1273.  
 manufacture of, from starch (AUBERT and GIRAUD), 1885, A., 1274.
- Sucrose, detection and estimation of:**  
 colour reactions of (LHL), 1887, A., 534; 1888, A., 876.  
 detection of, in vegetable substances (SCHULZE), 1888, A., 624.  
 detection of, in wine (MEDICUS), 1885, A., 693; (TONY-GARCIN); 1887, A., 692.  
 examination of (CASAMAJOR), 1884, A., 930; (STROEMER), 1884, A., 1219.  
 examination of, for sulphurous acid (DAVIDSEN), 1888, A., 326.  
 examination of mixtures of invert sugar, dextrose or levulose and (WIECHMANN), 1892, A., 248.  
 estimation of (O'SULLIVAN and TOMPSON), 1890, P., 160; 1891, T., 46.  
 estimation of, in beetroot (STAMMER and SOSTMANN), 1884, A., 642; (PELLER), 1885, A., 842, 1163; 1889, A., 314; (PETERMANN), 1888, A., 994; (BATTUT; CLERC; SIDERSEY; WEINBERG), 1889, A., 314.  
 estimation of, in liqueurs, confectionery and chocolate (RATHGEN), 1888, A., 1345.  
 estimation of, in soap (WILSON), 1891, A., 1558.  
 estimation, simultaneous, of raffinose and (LINDET), 1889, A., 1249; 1890, A., 732.  
 estimation of, in condensed milk (BIGNAMINI), 1885, A., 443.  
 estimation of calcium salts in (WOLF), 1892, A., 1377.
- Sucroses**, formation of, from formaldehyde (LOEW), 1889, A., 531.  
 succession of the rate of retrogressive multirotation of some glucoses and, with regard to their constitutional formulæ and the extent of affinity (URECH), 1886, A., 220.

## CARBOHYDRATES—

- Sucroses**, action of dilute acids on (CONRAD and GUTHZEM), 1887, A., 229.  
 compounds of, with phenylhydrazine (FISCHER), 1885, A., 53; 1888, A., 1267.  
 benzoyl-derivatives of (KUENY), 1890, A., 578.
- Sugars** (*in general*), synthesis of the (FISCHER and TAFEL), 1888, A., 39, 353; 1889, A., 484; (FISCHER), 1890, A., 1223.  
 classification of the (RAYMAN), 1887, A., 907.  
 nomenclature of the (SCHEIBLER), 1885, A., 744.  
 treatment of, by electricity (DENPEIN), 1885, A., 205.  
 application of strontium chloride in purifying (KOTTMANN), 1883, A., 252.  
 relation between the rotatory and refractive powers of (KANONNIKOFF), 1889, A., 326.  
 multirotation of (PARCUS and TOLLENS), 1890, A., 1034.  
 disappearance of the multirotation of, in ammoniacal solution (SCHULZE and TOLLENS), 1892, A., 1419.  
 estimation of the specific gravity of (GENIESER), 1891, A., 142.  
 inversion of (WOHL), 1890, A., 1085.  
 action of cupric hydroxide on (HABERMANN), 1883, A., 38; (HABERMANN and HONIG), 1884, A., 1111.  
 action of aromatic diamines on (GRIESS and HARROW), 1887, A., 475, 930; 1888, A., 267.  
 action of phenylhydrazine on (FISCHER), 1887, A., 567; 1888, A., 590; 1889, A., 484.  
 higher alcohols produced by the formation of (CLAUDON and MORIN), 1887, A., 714, 746.  
 action of, on iron (KLEIN and BERG), 1886, A., 1004.  
 reduction of copper salts by (MONNET), 1889, A., 1055.  
 certain, reducing power of, towards Fehling's solution, and a method for the quantitative estimation of the same (KROUS), 1885, A., 1013.  
 compounds of, with aldehydes and acetone (SCHIFF), 1888, A., 572.  
 benzoyl-compounds of (SKLAUP), 1889, A., 1152; (MAQUENNE), 1890, A., 355.

## CARBOHYDRATES—

**Sugars** (*in general*), compounds of copper oxide with (GUIGNET), 1889, A., 1133.  
 and furfuran derivatives, relation between (MAQUENNE), 1890, A., 33.  
 in the aqueous humour (KUHN), 1889, A., 177.  
 in ascitic fluid (MOSCATELLI), 1889, A., 291.  
 in blood (SEEGEN), 1885, A., 411; 1886, A., 382; 1887, A., 66; 1892, A., 743.  
 and reducing substances, amount of, in the blood under various circumstances (ORTO), 1885, A., 829.  
 disappearance of, from the blood (HARLEY), 1892, A., 363.  
 in blood, destruction of (LÉPINE and BARRAL), 1891, A., 596.  
 in the blood, effect of medicines, especially of valerian extract, on the destruction of (BUTTE), 1891, A., 754.  
 in the blood and in the chyle (GINSBERG), 1890, A., 276.  
 presence in chyle of a ferment which destroys (LÉPINE), 1890, A., 810.  
 source of, in the liver (SEEGEN), 1888, A., 172.  
 post-mortem formation of, in the liver (GIRARD), 1889, A., 176.  
 from fat, power of the liver to form (SEEGEN), 1887, A., 67.  
 from the lungs and saliva of phthisical patients (POUCHET), 1888, A., 929.  
 formation of, in the organism (ARAKI), 1892, A., 1118.  
 formation of, in the organism when oxygen is deficient (DASTRE), 1892, A., 362.  
 action of, in the organism (ALBERTONI), 1891, A., 1526.  
 formation of, from peptones in blood (LÉPINE), 1892, A., 1502.  
 absorption of, from the small intestine (GINSBERG), 1890, A., 276.  
 change of, in the alimentary canal (V. VOIT, OTTO, ABBOTT, LUSK and F. VOIT), 1892, A., 902.  
 changes in, in the muscle during work (MONARI), 1890, A., 185.  
 in the stomach of the horse (ELLENBERGER and HOFMEISTER), 1889, A., 176.  
 in albuminous urine (MÉHU), 1887, A., 1060.

## CARBOHYDRATES—

**Sugars** (*in general*), substances likely to be mistaken for, in (ASHDOWN), 1890, A., 279.  
 in urine, on a diet of cane-sugar (SEEGEN), 1886, A., 383.  
**Date-sugar** (ANON.), 1884, A., 1234.  
**Potato-starch-sugar**, is it deleterious? (V. MERING), 1883, A., 136.  
 recognition of, in wine (FRESSENIUS), 1892, A., 922.  
 estimation of dextrose, maltose, and dextrin in (WILEY), 1883, A., 123.  
**Sugars** (*indeterminate*) from *Calyculanthus glaucus* seeds (WILEY), 1890, A., 403.  
 from Fucus (BETLER and TOLLENS), 1890, A., 1105.  
 from linseed (BAUER), 1892, A., 1293.  
 from the soja bean (MORAWSKI and STINGL), 1886, A., 829; 1887, A., 686.  
 from the wheat germ (RICHARDSON and CRAMPTON), 1886, A., 734.  
 formation of, in yeast (SALKOWSKI), 1889, A., 1027.  
**Sugars, detection and estimation:—**  
 some reactions of (WORM-MÜLLER), 1884, A., 778; (MOLISCH), 1886, A., 923; (LINDO), 1887, A., 751.  
 sodium nitroprusside as a reagent for (LASCH), 1885, A., 600.  
 detection of, in urine (CAMPARI), 1885, A., 702; (BUCHNER), 1885, A., 843; (SCHWARZ), 1889, A., 85; (CRISMER), 1889, A., 552; (WERNER), 1890, A., 427.  
 clinical examination of, in urine by means of Fehling's solution (JOLLY), 1886, A., 744.  
 phenylhydrazine as a test for, in urine (V. JAKSCH), 1886, A., 744; (HINSCHL), 1890, A., 835.  
 picric acid as a test for, in urine (JOHNSON), 1883, A., 1176.  
 analysis of (ANON.), 1884, A., 502; (KING), 1884, A., 503; (CASAMAJOR; BATTUT), 1885, A., 693; (EFFRONT), 1887, A., 867; (GEDULT), 1888, A., 876; (HERLES; DAMMÜLLER), 1889, A., 191; (POLITIS), 1889, A., 1088; (JUNG-FLEISCH and GRIMBERT), 1890, A., 301; (WIECHMANN), 1892, A., 248; (BARINGTON), 1892, A., 388.  
 estimation of, by alcoholic fermentation (JODLBAUER), 1888, A., 994.

## CARBOHYDRATES—

**Sugars, estimation:—**

- estimation of, by copper potassium carbonate solution (OSR), 1890, A., 1031; 1891, A., 125, 1298; (SCHMOEGER), 1892, A., 387.
- estimation of, by Fehling's solution (DEGENER and ALLIHN), 1883, A., 519; (GIRARD), 1885, A., 1163; (CAUSSE), 1889, A., 1036.
- estimation of, use of phenylhydrazine for the (MAQUENNE), 1891, A., 1143.
- estimation of, in pure aqueous solutions (STROHMER), 1884, A., 1219.
- estimation of, in blood (SEESEN), 1891, A., 248; (SCHENCK), 1891, A., 504; (ABELES), 1891, A., 1399.
- estimation of, in presence of carbohydrates (BISHOP), 1889, A., 85.
- estimation of, in fodders (LADD), 1888, A., 748.
- estimation of, in urine (WORM-MÜLLER), 1883, A., 829; (POL-LATSCHEK), 1888, A., 995; (HAGEMANN), 1889, A., 535; (GUTTMANN), 1890, A., 836; (LUTHER), 1891, A., 1559.
- estimation of, in wines (BORNTÄGER), 1890, A., 426; (VOGEL), 1891, A., 1557.
- estimation of ash in (v. GROBERT), 1890, A., 670; (BOYER), 1890, A., 1472; (MINOR), 1891, A., 127; (SRIFF), 1891, A., 1297.
- estimation of calcium salts in (WOLF), 1892, A., 1377.
- See also Fehling's solution.
- Talose** (FISCHER), 1892, A., 299.
- Tetrose**, phenyl derivative of (FISCHER and STEWART), 1892, A., 1447.
- Trehalose** (MAQUENNE), 1891, A., 1000.
- from fungi (BOURQUELOT), 1889, A., 740; 1891, A., 103, 954.
- thermochemistry of (SIEHMANN and LANGBEIN), 1892, A., 764.
- detection and extraction of (BOURQUELOT), 1892, A., 545.
- Trificin**, molecular weight of (EKSTRAND and MAUZELIUS), 1890, A., 227.
- Tunicin**, heat of combustion of (BERGHELOT and ANDRIÉ), 1890, A., 938.
- Turanose** (ALECHIN), 1890, A., 733.
- Vasculose** (URBAIN), 1884, A., 858.

## CARBOHYDRATES—

- Xylan** (*wood gum*) (HOFFMEISTER), 1886, A., 955; (WHEELER and TOLLENS), 1889, A., 847; (ALLEN and TOLLENS), 1890, A., 472; 1891, A., 659.
- Xylitol** (FISCHER and STAHL), 1891, A., 668; (BERTRAND), 1892, A., 28, 29.
- pentanitrate* of (BERTRAND), 1892, A., 29.
- Xylose** (*wood sugar*) (WHEELER and TOLLENS), 1889, A., 847; (ALLEN and TOLLENS), 1891, A., 659; (FISCHER and STAHL), 1891, A., 667; (BERTRAND), 1892, A., 28.
- gum in plants which on saccharification yields (VOSWINKEL), 1892, A., 380; (HÉBERT), 1892, A., 1371.
- from maize cobs (STONE and LOTZ), 1891, A., 1001.
- from malt residues (STONE and TOLLENS), 1889, A., 480.
- from *Plantago Psyllium* (BAUER), 1889, A., 233.
- from straw-gum (HÉBERT), 1890, A., 1460.
- from straw, etc. (ALLEN and TOLLENS), 1890, A., 472.
- molecular weight of (TOLLENS, MAYER and WHEELER), 1889, A., 367.
- configuration of (FISCHER), 1891, A., 1175, 1446.
- constitution of (BERTRAND), 1892, A., 29.
- optical properties of (SCHULZE and TOLLENS), 1892, A., 1420.
- disappearance of the multibrotation of, in ammoniacal solution (SCHULZE and TOLLENS), 1892, A., 1419.
- thermochemistry of (BERGHELOT and MARIGNON), 1890, A., 1360; (STOHMANN and LANGBEIN), 1892, A., 763.
- actions of (TOLLENS), 1892, A., 290.
- physiological action of (EBSTEIN), 1892, A., 1506.
- estimation of (MAQUENNE), 1891, A., 1143.
- See also Beet juice and Molasses.
- Carbollimides**, aromatic, action of *o*-diamines on (MOORE), 1889, A., 983; 1890, A., 246; (KELLER), 1891, A., 1468.
- Carbolic acid**, colouring matter of red (FABINI), 1891, A., 1198.
- poisoning with (BISCHOFF), 1883, A., 1021.

**Carbolic acid**, use of, in the disinfection of sewage (KELLNER), 1884, A., 697.  
 examination of commercial (WILLIAMS), 1890, A., 300.  
 estimation of phenol in commercial (KLEINERT), 1884, A., 503.  
 See also Phenol.

**Carbolic compounds**, commercial, assay of (MUTER and DE KONINGH), 1888, A., 92.  
 disinfecting powders, analysis of (MUTER), 1891, A., 124.

**$\alpha$ -Carbolutidinic acid**. See Pyridino-2:4:6-tricarboxylic acid.

**Carbomesyl**. See Dimethylloxindole.

**Carbon** in the sun (TROWBRIDGE and HUTCHINS), 1887, A., 1065.  
 atomic weight of (VAN DER PLAATS), 1885, A., 348; (GROSHANS), 1889, A., 463.  
 atom and valency (MEYER and RIECKE), 1888, A., 549.  
 constitution of the (MEYER and RIECKE), 1888, A., 549.  
 singly linked, the relative motion of the (EILOART), 1891, A., 533.  
 limitation of the free rotation of the (BISCHOFF), 1890, A., 723.  
 doubly linked, polymerisation of compounds containing a (LELLMANN), 1889, A., 903.  
 determination of the relative values of the four units of chemical activity of the (HENRY), 1887, A., 711.  
 determination of the mechanical arrangement of, in organic compounds (HINRICHS), 1891, A., 1441.  
 asymmetric and the halogens (EASTFIELD), 1890, P., 151; 1891, T., 71.  
 influence of, on the ethanes derived from active amylic alcohol (JUST), 1884, A., 169.  
 allotropic states of (PETERSEN), 1892, A., 405.  
 amorphous, allotropism of (LUZI), 1892, A., 945.  
 in the Saxon Erzgebirge (SAUER), 1887, A., 341.  
 graphitic, cubic form of (FLETCHER), 1888, A., 30.  
 different forms of, and their derivatives (BERTHELOT and PETIT), 1890, A., 448.  
 peculiar form of (P. and L. SCHÜTZENBERGER), 1891, A., 265; (LUZI), 1892, A., 565.  
 property of, similar to that of spongy platinum (HIRN), 1888, A., 1028.

**Carbon**, spectrum of (LIVING and DEWAR), 1883, A., 1, 261; (GRÜNWALD), 1888, A., 389, 882.  
 refraction equivalent of (GLADSTONE), 1884, T., 251.  
 refractive index of (BRÜHL), 1887, A., 193.  
 dispersion equivalents of (GLADSTONE), 1888, A., 389.  
 effect of absorbed gases on the electrical conductivity of (PROBERT and SOWARD), 1883, A., 769.  
 electrical resistance of soft, under pressure (MENDENHALL), 1887, A., 315.  
 electro-deposition of (GORE), 1885, A., 110.  
 thermoelectric position of (BURNANAN), 1886, A., 295.  
 heat of combustion of (BERTHELOT and PETIT), 1889, A., 811.  
 heat of combination of oxygen and (BOILLOT), 1884, A., 141.  
 effect of high temperature and pressure on (PARSONS), 1889, A., 212.  
 affinity values of (GEUTHER), 1883, A., 779.  
 divalent (NEF), 1892, A., 1438.  
 examination of various forms of (WIESNER), 1892, A., 1273.  
 absorption of chlorine by, and its combination with hydrogen (BERTHELOT and GUNTZ), 1884, A., 1249.  
 absorption of gases by (BAKER), 1887, T., 249; P., 7.  
 actions of, and of some of its compounds (GORE), 1885, A., 119.  
 action of, on carbon oxides, sulphur, and sulphur oxides (BERTHELOT), 1883, A., 551.  
 action of fluorine on different forms of (MOISSAN), 1890, A., 557.  
 action of absorbed oxygen on, at various temperatures (BAKER), 1887, T., 252.  
 action of, on sodium sulphate in presence of silica (SCHEURER-KESTNER), 1892, A., 565.  
 action of, on sulphurous anhydride at high temperatures (SCHEURER-KESTNER), 1892, A., 681.  
 action of silica and, on chromic fluoride (EVANS), 1892, A., 20.  
 combustion of, in dried oxygen (BAKER), 1889, A., 465.  
 oxidation of, in the electrolysis of aqueous ammonia (MILLOT), 1885, A., 1125; (BARTOLI and PAPASOGLI), 1886, A., 406.  
 oxidation of various forms of (BARTOLI and PAPASOGLI), 1886, A., 202.

**Carbon**, oxidation-products of, obtained by electrolysis (MILLOR), 1883, A., 65.  
 combination of, with iron under pressure (HEMPPEL), 1888, A., 557.  
 behaviour of the different modifications of, towards iron at an elevated temperature (HEMPPEL), 1885, A., 725.  
 influence of silicon on the condition of, in cast iron (GAUFIER), 1887, A., 220.  
 of spiegeleisen (RATHKE), 1891, A., 646.  
 contents of the gas evolved during solution of iron in acids (BICKEROMAND PALKEUILL), 1888, A., 420.  
 deposited from coal gas flames (LEWES), 1892, P., 2; (FOSTER), 1892, T., 322; P., 46.  
 assimilation of, by green plants (ACRON), 1890, A., 818.  
 assimilation of, in relation to the colour of leaves (ENGELMANN), 1888, A., 381.  
 assimilation of, and chlorophyll in the living cell (REINKER), 1885, A., 182.  
 as an impurity affecting the estimation of the atomic weight of hydrogen (MORLEY), 1890, A., 1369.  
 for electric lamps, preparation of, from furfuraldehyde or fucusaldehyde (SMITH), 1885, A., 1267.  
 for electric lighting, preparation and purification of (JACQUELAIN), 1883, A., 752.  
**Carbon** chlorobromides (BESON), 1892, A., 771.  
 thiobromides (HELL and URECH), 1883, A., 907.  
 dichloride, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
 thio/dichloride. See Thiocarbonyl chloride.  
 tetrachloride, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
 thermochemistry of (BERTHELOT and MATIGNON), 1891, A., 1311.  
 heat of formation of (THOMSEN), 1883, A., 544.  
 vapour pressures of (YOUNG), 1891, T., 911; P., 124.  
 molecular volumes of (YOUNG), 1891, T., 911; P., 124.  
 specific volume of (YOUNG), 1891, T., 43, 45.  
 action of, on chromyl dichloride and ferric phosphate (QUANTIN), 1887, A., 330.

**Carbon** tetrachloride, action of, on inorganic oxygen compounds free from hydrogen (QUANTIN), 1888, A., 785.  
 action of, on metallic oxides (DEMARÇAY), 1887, A., 329.  
 action of, on oxides (MEYER), 1887, A., 552.  
 action of sulphur on (KLASON), 1887, A., 1015.  
 inhalation of (REGNAULD and VILLEJEAN), 1885, A., 926.  
 oxychloride. See Carbonyl chloride.  
 tetrafluoride (MOISSAN), 1890, A., 944; (CHABRIÉ), 1890, A., 1053.  
 fluorides, preparation of (CHABRIÉ), 1890, A., 558.  
 hydrates of (VILLARD), 1890, A., 1386.  
 diiodide (MOISSAN), 1892, A., 1291.  
 triiodide (MOISSAN), 1891, A., 1420.  
 "hydrate" from cast iron (ZABUDSKY), 1885, A., 42.  
 hydroxide (BALLU), 1883, A., 574.  
 hydroxides (*graphitic oxides*) (BERTHELOT and PETIT), 1890, A., 448; (P. and L. SCHÜTZENBERGER), 1891, A., 266.  
**Carbon** monoxide (*carbonic oxide*), preparation of (NOACK), 1883, A., 574; (JAHN), 1883, A., 655; (KINNICUTT), 1884, A., 260.  
 preparation of, by aid of zinc dust (SCHWARZ), 1886, A., 660.  
 effect of the silent discharge on (SCHUTZENBERGER), 1890, A., 1353.  
 condensation of, under the influence of the silent discharge (SCHUTZENBERGER; BERTHELOT), 1890, A., 691, 692.  
 action of induction sparks on steam and (DIXON), 1886, T., 103.  
 heat of formation of (THOMSEN), 1883, A., 544.  
 liquefaction of (V. WRÓBLEWSKI and OLSZEWSKI), 1883, A., 781, 952.  
 liquid (OLSZEWSKI), 1885, A., 14.  
 boiling point of, under atmospheric pressure (V. WRÓBLEWSKI), 1884, A., 817.  
 solidification of (OLSZEWSKI), 1885, A., 475.  
 absorption coefficient of, in water (HENRICH), 1892, A., 1013.  
 solubility of, in mixtures of alcohol and water (LUBAUSSCH), 1890, A., 103.  
 absorption of, by the blood of a living mammifer (GRÉHANT), 1892, A., 743.

**Carbon monoxide** (*carbonic oxide*),  
 absorption of, by earth (BERTHELOT), 1891, A., 16.  
 action of heat on (BERTHELOT), 1891, A., 801.  
 action of, on iron and manganese (GUNTZ), 1892, A., 568.  
 action of, on lead and silver chlorides (BLOXAM), 1886, A., 17.  
 action of magnesium on (WINKLER), 1891, A., 801.  
 action of, on nickel (MOND, LANGER and QUINCKE), 1890, T., 749; P., 112.  
 action of platinum and palladium on (TRAUBE), 1888, A., 422.  
 action of, on mixtures of sodium alkyl oxides and sodium salts of organic acids (SCHROEDER), 1884, A., 38.  
 action of steam on (MAQUENNE), 1888, A., 860; (NAUMANN and PISRON), 1886, A., 120.  
 action of steam on, in contact with red hot platinum and in presence of potash (DIXON), 1886, T., 97, 101; P., 128.  
 explosion of oxygen and, under diminished pressure (MEYER and SEUBERT), 1884, T., 586.  
 influence of aqueous vapour on the explosion of oxygen and (DIXON), 1888, A., 12.  
 combustion of (TRAUBE), 1885, A., 1108; (MEYER), 1886, A., 664.  
 combustion of hydrogen and (DIXON), 1886, T., 94.  
 incomplete combustion of, in presence of varying quantities of steam (DIXON), 1886, T., 104, 109.  
 water, oxygen gases and, theory of the interaction of: a note on H. B. Dixon's paper on the action of carbonic oxide on steam (ARMSTRONG), 1886, T., 112.  
 co-operation of water in the combustion of, and formation of hydrogen peroxide during such combustion (TRAUBE), 1885, A., 1108.  
 influence of steam and other gases on the combustion of oxygen and (BEKEOFF), 1892, A., 274.  
 oxidation of, by air and moist phosphorus (REMSEN and KEYSER), 1884, A., 149, 711; (LEEDS), 1884, A., 660; (BAUMANN), 1884, A., 1092.  
 conversion of, into carbonic anhydride by nascent oxygen (BAUMANN), 1884, A., 14; (LEEDS), 1884, A., 15.

**Carbon monoxide** (*carbonic oxide*),  
 oxidation of, by palladium hydride and oxygen (TRAUBE), 1888, A., 150.  
 reduction of, by magnesium (WINKLER), 1890, A., 1373.  
 compounds of, with iron (MOND and QUINCKE), 1891, T., 604; P., 117; (MOND and LANGER), 1891, T., 1090; P., 149.  
 influence of, on germination (LINOSSIER), 1889, A., 645, 739.  
 stability of, in the animal organism (GAGLIO), 1888, A., 619.  
 poisoning by (BELKY), 1887, A., 392; (GRÉLIANT), 1888, A., 622.  
 elimination of, after partial poisoning by (GRÉLIANT), 1886, A., 641.  
 hygienic importance of, and its detection (FOKKER), 1885, A., 415.  
 detector (RACINE), 1890, A., 194.  
 detection of (FOKKER), 1885, A., 415; (BERTHELOT), 1891, A., 801; (GRÉLIANT), 1892, A., 99.  
 detection of, in blood (KATAYAMA), 1889, A., 88, 660; (RUBNER), 1891, A., 496; (BERTIN-SANS and MOITENSIER), 1891, A., 1522.  
 estimation of (SINIBALDI), 1888, A., 322; (WINKLER), 1889, A., 924; (DE SAINT-MARTIN), 1892, A., 1128.  
 estimation of, by absorption with cuprous chloride (DREHSCHMIDT), 1888, A., 88, 1208; (HEMPFEL), 1888, A., 550; (LONATSCHEWSKI-PETRUNIAKA), 1889, A., 187.  
 estimation of, in air (DE LA HARPE and REVERDIN), 1889, A., 1087.  
 hæmoglobin. See Hæmoglobin.  
**Carbon dioxide** (*carbonic anhydride*)  
 given out by parts of plants (RODEWALD), 1888, A., 979.  
 in the air at Cape Horn (MUNTZ and AUBIN), 1883, A., 121.  
 in the atmosphere (WOLLNY), 1883, A., 614; 1886, A., 594; (COOK), 1883, A., 284; (MUNTZ and AUBIN), 1883, A., 121; 1884, A., 659, 710; (SPRING), 1886, A., 501; (BLOCHMANN), 1887, A., 214; (VAN NUYS and ADAMS), 1887, A., 549.  
 in urine (VAN NUYS and LYONS), 1892, A., 649.  
 formation of, from cellulose (HOPPE-SEYLER), 1886, A., 577, 932.  
 preparation of (MUEBCKE), 1885, A., 634; (ANON.), 1886, A., 184.

**Carbon dioxide** (*carbonic anhydride*), characteristic equation of (SARRAU), 1886, A., 203.  
 refraction of (CHAPPUIS and RIVIÈRE), 1886, A., 837.  
 absorption of radiant heat by (KEELER), 1885, A., 626.  
 electric conductivity of solutions of (PFEIFFER), 1885, A., 212.  
 decomposition of, by the electric spark (DIXON and LOWE), 1885, T., 571; P., 83.  
 action of induction sparks on hydrogen and (DIXON), 1886, T., 104.  
 relation between potential difference and striking distance in, at different pressures (PASCHEN), 1889, A., 806.  
 specific heat of, at high pressure (BERTHELOT and VIELLE), 1885, A., 7.  
 specific weight and vapour pressures of mixtures of sulphurous anhydride and (BLUMCKE), 1888, A., 775; (PICTET), 1888, A., 1015.  
 isotherms of a mixture of sulphurous anhydride and (BLUMCKE), 1889, A., 750.  
 relation between pressure and temperature in the saturated vapour of (JAROLIMEK), 1883, A., 417.  
 compressibility of (AMAGAT), 1884, A., 146; (ANTOINE), 1889, A., 668.  
 compressibility of mixtures of air and (LALA), 1891, A., 253.  
 liquid, preparation and uses of (HERBERTS), 1886, A., 107.  
 latent heat of vapourisation of (CHAPPUIS), 1888, A., 773.  
 as a fire extinguisher (RAYDT), 1883, A., 408.  
 explosion of a tube containing (PFAUNDLER), 1883, A., 422.  
 use of, for the rapid filtration and sterilisation of organic liquids (D'ARSONVAL), 1891, A., 854.  
 solid (LANDOLT), 1884, A., 992.  
 electrical phenomena developed in the formation of (HAUSKNECHT), 1891, A., 777.  
 freezing mixtures containing (CAILLETET and COLARDEAU), 1888, A., 1025.  
 apparatus for collecting (DUCRET), 1884, A., 1253.  
 cooling of, on expansion (NATANSON), 1887, A., 880.

**Carbon dioxide** (*carbonic anhydride*), dilatation of (ANTOINE), 1889, A., 668.  
 isothermal curves for (AMAGAT), 1892, A., 3.  
 density of (CAILLETET and MARHIAS), 1886, A., 758; (COOKE), 1890, A., 322.  
 specific gravity of solutions of (BLUMCKE), 1885, A., 215.  
 specific gravity of mixtures of ethylic alcohol and (BLUMCKE), 1887, A., 435.  
 dissociation of (LE CHATELIER), 1889, A., 205; (V. HOFMANN), 1891, A., 143.  
 absorption coefficient of, in water and in alcohol (HENRICH), 1892, A., 1044.  
 supersaturated aqueous solutions of (PRATESI), 1892, A., 1274.  
 rapid absorption of, from expired air (D'ARSONVAL), 1888, A., 512.  
 absorption of, by mixtures of alcohol and water (MULLER), 1889, A., 816.  
 solubility of, in chloroform (WUKOLOFF), 1889, A., 1110.  
 condensation of, on glass (BUNSEN), 1884, A., 146; (KAYSER), 1885, A., 214; (KRAUSE), 1889, A., 751.  
 compressed, action of, on glass (PFAUNDLER), 1885, A., 868.  
 action of dry, on the alkaline earths (SCHEIBLER), 1886, A., 927.  
 action of, on aromatic amines (DIRTE), 1888, A., 49.  
 action of chlorine on (LUCION), 1889, A., 673.  
 action of, on hydrogen at a high temperature (NAUMANN and PISTOR), 1886, A., 16.  
 action of hydrogen on, in presence of anhydrous phosphoric acid (DIXON), 1886, T., 102.  
 action of hydrogen on, in contact with red-hot platinum (DIXON), 1886, T., 101.  
 reduction of, to carbonic oxide by carbon (NAUMANN and PISTOR), 1885, A., 1036.  
 reduction of, by potassium cyanide (ETLOART), 1886, A., 1000.  
 resemblance between carbon disulphide and (TYNDALL), 1883, A., 1049.  
 reactions of, at high pressures (D'ARSONVAL), 1892, A., 274.

**Carbon dioxide** (*carbonic anhydride*), reactions with carbon disulphide, sulphurous anhydride and (EILOART), 1886, A., 16.  
 action of magnesium on (WINKLER), 1890, A., 1372; 1891, A., 801.  
 influence of, on the products of fermentation (LINDER), 1890, A., 281.  
 derivatives of (SANDMEYER), 1886, A., 611.  
 absorption of, by leaves (DEHÉRAIN and MAQUENNE), 1886, A., 1062; 1887, A., 172.  
 decomposition of, by plants deprived of chlorophyll (HUEPPE), 1888, A., 1125.  
 decomposition of, by chlorophyll (PRINGSHEIM), 1887, A., 635.  
 relation between the intensity of radiation and the decomposition of, by plants (TIMIRIAZEFF), 1889, A., 1234.  
 simultaneous evolution of oxygen and, by Cactaceæ (AUBERT), 1891, A., 856.  
 influence of temperature on the production of, by germinating barley (DAY), 1891, T., 664.  
 antiseptic properties of (KOLBE), 1883, A., 395; 1884, A., 508.  
 action of the pulmonary tissue in the expiration of (GARNIER), 1886, A., 1052.  
 influence of muscular work, hunger, and temperature on the exhalation of (GRANDIN), 1890, A., 1334.  
 influence of oxygen on the separation of, in the lungs (WERIGO), 1892, A., 1369.  
 exhalation of, by frogs (AUBERT), 1884, A., 91.  
 expired, graphic record of (HANRIOT and RICHER), 1888, A., 512.  
 estimation of, expired in respiration (HANRIOT and RICHER), 1887, A., 507.  
 elimination of, by means of sodium methoxide (MAI), 1889, A., 1126.  
 detection of small amounts of (RÜSSLER), 1888, A., 88.  
 phenolphthalein as indicator in the estimation of, in mixtures of gases (BLOCHMANN), 1884, A., 1072.  
 estimation of (BAUR), 1884, A., 1216; 1887, A., 398; (KRATSCHMER), 1886, A., 179; (SINIBALDI; ÖSTERSETZER), 1888, A., 322; (SACK), 1889, A., 1032;

(PETERSSON), 1890, A., 1188; (TSCHAPLOWITZ), 1891, A., 1291.

**Carbon dioxide** (*carbonic anhydride*), estimation of combined and free (LUNGE and MARCHLEWSKI), 1892, A., 531.  
 estimation of, volumetric (MARCEY), 1887, A., 528; (JÄGER and KRUSS), 1889, A., 651; (FUCHS), 1890, A., 194.  
 estimation of, in atmospheric air (BALLÓ), 1884, A., 1076; (VAN NÜYS), 1886, A., 835; 1887, A., 300; (PETERSSON and PALMQUIST), 1887, A., 999; (LUNGE and ZECKENDORF), 1889, A., 440; (SCHIDLÓWSKI), 1889, A., 651; (HALDANE and PEMBREY), 1890, A., 1188; (LEBEDINZEFF), 1891, A., 1290; (SCHULZ), 1892, A., 533.  
 estimation of, in the air of school-rooms (FONSEK), 1887, A., 888.  
 estimation of, in beer (CRAMP-TON and TRESCOT), 1887, A., 1144.  
 estimation of, in carbonates (SIDERSKY), 1887, A., 999.  
 estimation of, in coal gas (WRIGHT), 1883, T., 267; 1887, A., 86; (FAIRLEY), 1887, A., 297.  
 estimation of, in mineral waters (BORCHERS), 1888, A., 533.  
 estimation of free and combined, in mineral waters (BRETER), 1891, A., 862.  
 estimation of, in potable waters containing magnesium (TRILLICH), 1890, A., 197.  
 estimation of, in salts (CHATARD), 1890, A., 417.  
 estimation of, in presence of sulphides, sulphites, and thiosulphates of the alkali-metals (HONIG and ZATZEK), 1884, A., 216.  
 estimation of dissolved, in water (VIGNON), 1888, A., 325.  
 generator gas, reconversion of heat into chemical energy by production of (NAUMANN), 1892, A., 673.

See also Agricultural Chemistry.

**Carbon acids**, dibasic, synthesis of (BROWN), 1890, A., 583.

**Carbon acids**:—

**Carbonic acid**, amides of (EMICH), 1889, A., 1060.

**Carbonic acids**, dithio- (DACCOMO), 1892, A., 306.

**Carbon acids:—**

- Carbonates**, solubility of, in Rochelle salt (WARREN), 1888, A., 1131.  
 rate of solution of, in acids (SPRING), 1890, A., 843.  
 testing of (BARNES), 1887, A., 80.  
 estimation of alkaline hydroxides in presence of (ISBERG and VENATOR), 1888, A., 1130.  
 estimation of, volumetric (MULLER), 1890, A., 417.  
 alkaline, heat of formation of, in very dilute solution (MULLER), 1889, A., 810.  
 rate of formation of, in relation to time, mass, and nature of the bodies used for precipitation (BEWAD), 1885, A., 480.  
 aromatic (LOWENBERG), 1886, A., 789.  
 ethereal (BENDER), 1887, A., 37.  
 hydrogen, electrolysis of (ASLANO-GLOU), 1890, A., 1204.  
 insoluble, preparation of (BOURGEOIS), 1887, A., 221.  
 normal, detection of, in hydrogen carbonates of the alkali metals (KUHLMANN), 1887, A., 528.  
 thio-. See Thiocarbonates.
- Carbon disulphide** (FRIEDBURG), 1883, A., 535.  
 preparation of standard solutions of (LIVACHE), 1885, A., 84.  
 purification of (OBACH), 1883, A., 43; (CHENEVIER), 1891, A., 1417.  
 refraction of (KEFELLER), 1889, A., 197.  
 effect of temperature on the refraction and dispersion of (GLADSTONE), 1891, T., 291.  
 velocity of light in (GOUY), 1886, A., 957.  
 use of, in prisms (DRAPER), 1885, A., 853.  
 heat conductivity of (CHREE), 1888, A., 642.  
 heats of combustion and formation of (THOMSEN), 1884, A., 249; (BERTHELOT and MATIGNON), 1890, A., 1361.  
 vapour pressures of (RAMSAY and YOUNG), 1885, T., 653.  
 solidification of (v. WROBLEWSKI and OLSZEWSKI), 1883, A., 781.  
 decomposition of, by shock (THORPE), 1889, T., 220; P., 33.  
 explosion of, with air and oxygen (PEDLER), 1890, T., 625; P., 66.

- Carbon disulphide**, actions of (CHANCEL and PARMENTIER), 1885, A., 137.  
 action of baryta-water on (CHANCEL and PARMENTIER), 1885, A., 137.  
 action of chlorine on (KLAWON), 1887, A., 1015.  
 action of, on metals (CAVAZZI), 1888, A., 106.  
 action of direct sunlight on a mixture of nitric acid with, contained in sealed tubes (TIFFEREAU), 1885, A., 1110.  
 reactions with sulphurous anhydride, carbonic anhydride and (EILOART), 1886, A., 16.  
 resemblance between carbonic anhydride and (TYNDALL), 1883, A., 1049.  
 solubility of, in water (CHANCEL and PARMENTIER), 1885, A., 137, 630.  
 flame, experiments on (SMITHHELLS and INGLE), 1892, T., 216.  
 vapour, absorbents for (EILOART), 1886, A., 16.  
 derivatives of, molecular refractive energy of (NASINI and SCALA), 1887, A., 753.  
 hydrated (VENABLE), 1884, A., 260.  
 as a remedy for phylloxera in aqueous solution (PELIGOT), 1885, A., 77.  
 toxic action of (WESTBERG), 1892, A., 1520.  
 antiseptic properties of (OKLANDIBER), 1885, A., 97.  
 detection of, in toxicological cases (WESTBERG), 1892, A., 1520.  
 detection and estimation of small quantities of, in air, gases, thiocarbonates, etc. (GASTINE), 1884, A., 1431.  
 estimation of, in thiocarbonates (MUNZ), 1883, A., 935.  
 estimation of, volumetric, in thiocarbonates (FALLIERES), 1884, A., 1077.  
 oxysulphide. See Carbonyl sulphide.
- Carbon detection and estimation:—**  
 colour test, Eggertz's, influence of sulphur on (HOGG), 1889, A., 76.  
 and soda or potash, use of, in analysis (BURGHARDT), 1890, A., 1027.  
 estimation of hydrogen and, by means of copper oxide asbestos (LIPPMANN and FLEISSNER), 1886, A., 580.

**Carbon detection and estimation:—**

estimation, simultaneous, of sulphur and (FRUNIER), 1890, A., 290.

estimation of, in cast iron (BRENNMAN), 1884, A., 219.

estimation of, in graphite (WILMER), 1890, A., 923.

estimation of, in iron (DE KONINCK), 1888, A., 1341; (THORNER), 1892, A., 913; (V. JUPITER), 1892, A., 1030.

estimation of, in iron and steel, by Wiborgh's method (V. JUPITER), 1889, A., 186.

estimation, volumetric, of, in iron (WIBORGH), 1890, A., 924.

estimation of combined, in iron and steel (BRAND), 1887, A., 866.

estimation of free and combined, in iron and steel (PETERSSON and SMITT), 1890, A., 1027.

estimation of, in iron, steel, etc. (STEAD), 1883, A., 1032; (TURNER), 1885, A., 1161; (GINTL), 1886, A., 96; (BLOUNT), 1888, A., 530; (HOGG), 1889, A., 308; (BLUM), 1889, A., 1088.

estimation of, in steel (CLEMENTE), 1884, A., 219; (ZABUDSKY), 1884, A., 1427.

estimation of, in organic substances in the wet way (MESSINGER), 1890, A., 1467.

estimation of, in vegetable soils (SCHLESING), 1888, A., 1335.

estimation of, in the organic constituents of water (HERZFELD), 1887, A., 184.

funnel for filtering (DROWN), 1888, A., 1129.

See also Animal charcoal, Charcoal, Graphite and Diamond.

**Carbon-chains, closed, synthetical**

formation of (PERKIN), 1885, T., 801; 1886, P., 238; 1887, T., 1, 240, 702, 849; P., 12, 55, 92; 1888, T., 1; (COLMAN and PERKIN), 1887, T., 223, P., 12, 96; 1888, T., 185; (FRER and PERKIN), 1887, T., 820; P., 95, 96, 97; 1888, T., 202, 215; (KIPPING), 1887, P., 93; 1888, T., 21; (MARSHALL and PERKIN), 1891, T., 853; P., 124; (PERKIN and SPENHOUSE), 1891, P., 190; 1892, T., 67; (PERKIN and SINCLAIR), 1891, P., 191; 1892, T., 36; (SEMMLER), 1891, A., 655.

synthesis of substances containing (GUTHZEIT and DRESSSEL), 1890, A., 877.

**Carbon-compounds, arrangement in space of the atoms in the molecules of** (WILKINSON), 1888, A., 35.

arrangement in space of the atoms in the molecules of, containing nitrogen (HANTZSCH and WERNER), 1890, A., 348.

chemical constitution of, and the sign and variations of their rotatory power (GUYE), 1890, A., 722.

optically active, synthesis of (MULDER), 1883, A., 457.

relation between the molecular structure of, and their absorption spectra (HARTLEY), 1885, T., 685; P., 59; 1886, P., 245; 1887, T., 152.

spectra of (LIVING and DEWAR), 1883, A., 261; (WERNER), 1883, A., 761.

ultra-violet band-spectrum of (DESLANDRE), 1888, A., 637.

dispersion of (BARBIER and ROUX), 1890, A., 1853.

correspondence between the magnetic rotation and the refraction and dispersion of light by unsaturated (GLADSTONE and PERKIN), 1889, T., 755.

molecular dispersion of, of high refractive power (NASINI), 1887, A., 626.

molecular refraction of liquid, dependence of, on their chemical constitution (SCHRODER), 1883, A., 538.

electrical conductivity of (BARTOLI), 1885, A., 624; 1886, A., 191.

decomposition of, by the electric spark (PIZZARELLO), 1886, A., 10.

decomposition of, by the silent discharge (MAQUENNE), 1884, A., 542.

explosions of electrolytic gas and volatile (PIZZARELLO), 1886, A., 762.

heats of combustion of (BERTHELOT and VIEILLE), 1885, A., 326; (LUGNIN), 1885, A., 327.

heat of evaporation of homologous (SCHIFF), 1887, A., 9.

heat of formation of volatile, method of estimating (THOMSEN), 1883, A., 548.

volatility of oxygenised and poly-oxygen (HENRY), 1888, A., 796.

determination of the constitution of, from thermo-chemical data (ARMSTRONG), 1887, A., 420; (PICKERING), 1887, A., 423.

law of freezing of aqueous solutions of (RAOULT), 1883, A., 7.

specific heat of liquid (SCHIFF), 1888, A., 14.

- Carbon-compounds**, colour of (CARNELLEY and ALEXANDER), 1888, P., 61.  
 relation between viscosity and chemical constitution of liquid (GARTENMEISER), 1891, A., 380.  
 rate of oxidation of (DREYFUS), 1888, A., 24.  
 oxidation of the sulphur in (BERTHELOT, ANDRÉ, and MATIGNON), 1890, A., 1462.  
 actions with (GORE), 1885, A., 119.  
 action of iodine with, at high temperatures (RAYMAN and PREIS), 1884, A., 1311.  
 brominated, obtained in the manufacture of bromine (DYSON), 1883, T., 36.  
**Carbonyl affinities** of carbon (RÜBENCAMP), 1885, A., 136.  
**Carbonyl chlorides**, heat of formation of (THOMSEN), 1884, A., 250.  
*tetrachloride*, thio-, action of, on alcohol (JAMES), 1887, T., 274.  
 reactions of, with aromatic amines (RATHEKE), 1886, A., 458.  
 iodide (COWARDIN), 1884, A., 40.  
 bromo- and chloro-platinites (PULINGER), 1891, T., 598; P., 111; (MYLIUS and FOERSTER), 1891, A., 1162.  
 chloroplatinite, derivatives of (FOERSTER), 1892, A., 352.  
 hydrochloride (MYLIUS and FOERSTER), 1891, A., 1162.  
 iodoplatinite, oxyplatinite, and thioplatinite (MYLIUS and FOERSTER), 1891, A., 1164.  
 sulphide (*carbon oxysulphide*), preparation of (KLASON), 1887, A., 1015; (GAUTIER), 1889, A., 212; (NURUSAN), 1892, A., 15.  
 composition of (BOTTINGER), 1889, A., 466.  
 properties of (KLASON), 1887, A., 1015; (GAUTIER), 1889, A., 212.  
 physical properties of (ILOVAY), 1883, A., 43.  
 heats of combustion and formation of (THOMSEN), 1884, A., 249.  
 actions of (BERTHELOT), 1884, A., 728.  
**Carbonyldiamidobenzoic acid** (*carb-amilobenzoic acid*) (ZEHLA), 1891, A., 304.  
**Carbonyl-o-amidophenol** (v. CHELMICKI), 1887, A., 477; 1891, A., 52.  
 constitution of (GRESSLY and NENCKI), 1890, A., 1413.  
 action of chlorine on (JACOBY), 1888, A., 682.  
**Carbonyl-o-amidophenol**, derivatives of (SEIDEL), 1891, A., 53.  
 changes of, in the animal system (GRESSLY and NENCKI), 1890, A., 1413.  
 nitro- (v. CHELMICKI), 1891, A., 52.  
**Carbonyldibromamidophenol** (JACOBY), 1888, A., 684.  
**Carbonylcarbazole** (BAMBERGER and MÜLLER), 1887, A., 959.  
**Carbonyl-di-, -tri- and -tetra-chloramidophenols** (JACOBY), 1888, A., 683.  
**Carbonyl-mono-, -di-, -tri- and -tetra-chlorophenolchlorimides** (JACOBY), 1888, A., 683.  
**Carbonyldibenzoylamidoxime** (FALCK), 1885, A., 1217.  
**Carbonyldihydroxydiphenyl**, and its derivatives (RICHTER), 1884, A., 324.  
**Carbonyl-β-dinaphthylthiocarbamide and carbonyldi-p-tolylthiocarbamide**, thio- (FREUND and WOLF), 1892, A., 984.  
**Carbonyldi-p-nitrobenzoylamidoxime** (WEISE), 1890, A., 45.  
**Carbonyldiphenylic oxide**. See Xanthone.  
**Carbonyl-methyl- and -ethyl-amidophenols**, thio- (SEIDEL), 1891, A., 53, 54.  
**Carbonylferrocyanogen** (MÜLLER), 1887, A., 649.  
**Carbonylhydroferrocyanic acid** and its derivatives (MÜLLER), 1890, A., 116.  
**Carbonyl-o-hydroxyamidophenol** (GRESSLY and NENCKI), 1890, A., 1413.  
**Carbonyl-β-naphthylphenylthiocarbamide** (FREUND and WOLF), 1892, A., 984.  
**Carbonyl-m-phenylenediamine**, thio- (GUCCI), 1888, A., 588.  
 thiocarbonate, thio- (GUCCI), 1885, A., 156; 1886, A., 1024; 1888, A., 588.  
**Carbonylphenyl-o-phosphoric chloride**, o-chloro- (ANSCHUTZ), 1885, A., 1062.  
 dichlorides, o-, m-, and p-chloro- (ANSCHUTZ and MOORE), 1887, A., 947.  
**Carbonylpyrroline** (CIAMICIAN and MAGNAGHI), 1885, A., 809.  
 action of heat on (CIAMICIAN and MAGNAGHI), 1885, A., 1143.  
**Carbonylsulphamyl**, chloro- (SCHONE), 1885, A., 512.  
**Carbonylthiocarbanilide**, thio- (FREUND and WOLF), 1892, A., 983.  
**Carbonyl-p-tolylphenylthiocarbamide** (FREUND and WOLF), 1892, A., 984.

- Carbonyltriphenylenediamine**, *dithio-* (GUGOT), 1885, A., 156.
- Carbonyltriphenylguanidine**, and its hydrochloride and nitrate (v. STOEJENTIN), 1885, A., 1196.
- Carbopyrotritaric acid** (*dimethylfur-furandicarboxylic acid, carboxylic acid*) (v. BAEYER and PERKIN), 1884, A., 838; (KNORR), 1885, A., 248; (FEIST), 1889, A., 593. constitution of (FITTING), 1886, A., 225; (KNORR), 1889, A., 334. derivatives of (KNORR and CAVELLO), 1889, A., 381. salts of (KNORR), 1885, A., 248. barium salt of (FEIST), 1889, A., 593.
- iso***Carbopyrotritaric acid** (*isodimethyl-furfurandicarboxylic acid*) (KNORR), 1889, A., 385.
- Carbopyrrolic acid**. See Pyrroline- $\alpha$ -carboxylic acid.
- Carbopyrrolglyoxylic acid** (*pyrroline ketomedicarbonylic acid*) (CLAMICIAN and SILBER), 1886, A., 719, 938.
- Carbosilicide**, a (COLSON), 1883, A., 15.
- Carbosilicon compounds** (COLSON), 1883, A., 15; (SCHUTZENBERGER), 1892, A., 1050.
- Carbostyryl** (*2'-hydroxyquinoline, 2'-oxyquinoline*) (ERLENMEYER and ROSENBERG), 1886, A., 244. preparation of (KOTHEIR), 1884, A., 1183. constitution of (FRIEDLÄNDER and WEINBERG), 1883, A., 204. nitration of (FRIEDLÄNDER and LAZARUS), 1885, A., 1138. reduction of (KNORR and KLOTZ), 1887, A., 279. derivatives of (FRIEDLÄNDER and WEINBERG), 1885, A., 989; (FEIER and KOENIGS), 1885, A., 1235.
- Carbostyryl 4'-amido-** (FRIEDLÄNDER and LAZARUS), 1885, A., 1139.
- 2-, 3-, and 4-bromo-** (WELTER), 1891, A., 1248.
- 4'-bromo-** (FRIEDLÄNDER and WEINBERG), 1883, A., 351.
- 3-chloro-** (EINHORN and LAUCH), 1888, A., 501.
- 3'-chloro-** (FRIEDLÄNDER and WEINBERG), 1883, A., 351.
- 4'-halogen derivatives of** (v. BAEYER and BLOEM), 1883, A., 196.
- 1-nitro-** (v. MILLER and KINKELIN), 1889, A., 990.
- 2', 3', and 4'-nitro-** (FRIEDLÄNDER and LAZARUS), 1885, A., 1139.
- iso***Carbostyryl** (BAMBERGER and KITSCHOLT), 1892, A., 882.
- iso***Carbostyryl derivatives** (FRIEDLÄNDER and WEINBERG), 1885, A., 989; (FRIEDLÄNDER and MÜLLER), 1887, A., 977.
- Carbostyrylcarboxylic acid** (FRIEDLÄNDER and FOHRING), 1884, A., 1020.
- iso***Carbostyrylcarboxylic acid** (BAMBERGER and KITSCHOLT), 1892, A., 882; (ZINCKE), 1892, A., 970.
- Carbostyrylsulphonic acid** (LA COSTE and VALEUR), 1886, A., 629; 1887, A., 379.
- Carbothiamidocyanobenzoyl** (GRIESS), 1885, A., 1226.
- Carbotrithiohexabromide**, and formation of a new colouring matter by the action of heat on (HELL and URECH), 1883, A., 907.
- Carbo-*p*-toluidobenz-*anti*- and -*syn*-ald-oximes** (GOLDSCHMIDT and ZANOLI), 1892, A., 1435.
- Carbo-*p*-toluidofurfsynaldoxime** (GOLDSCHMIDT and ZANOLI), 1892, A., 1434.
- Carbo-*o*-toluidothiophensynaldoxime** (GOLDSCHMIDT and ZANOLI), 1892, A., 1436.
- Carbo-*o*-tolylene-diphenyltetramine and -di-*p*-tolyltetramine** (DAHM and GASTOROWSKI), 1887, A., 247.
- Carbotolylphenylimide** (HUHN), 1886, A., 1035.
- Carbovaleraldine**, oxidation of (GUARINCHI), 1884, A., 294.
- Carbovalerolactonic acid** (HJELT), 1883, A., 456.
- Carboxyamidocarbimidamidobenzoic acid and carboxyamidocyanamidobenzoyl** (GRIESS), 1885, A., 1225.
- o*-Carboxyanilidoacetic acid** (*phenylglycine-*o*-carboxylic acid*) (MAUTHNER and SUDA), 1889, A., 143.
- p*-Carboxyanilidoacetic acid** (MAUTHNER and SUDA), 1891, A., 39.
- Carboxybenzylmethylglutaric acid** (BISCHOFF and v. KUNLEBERG), 1890, A., 1135.
- m*-Carboxybenzylphthalamic acid** (REINGLASS), 1891, A., 1345.
- p*-Carboxybenzylphthalamic acid** (GÜNTHER), 1890, A., 977.
- Carboxycaprolactonic acid**. See Hydroxypropylsuccinic acid, lactone of.
- $\beta$ -Carboxycinchomeric acid**. See Pyridine-3:4:5-tricarboxylic acid.
- $\alpha$ -Carboxyisocinchomeric acid**. See Pyridine-2:3:6-tricarboxylic acid.
- o*-Carboxycinamic acid**, oxidation of  $\beta$ -naphthol to (EHRICH and BENEDICT), 1888, A., 1306.

*o*-Carboxycinnamic acid, oxidation of (EHLICH), 1890, A., 54.  
*p*-Carboxycinnamic acid, and its derivatives (LOW), 1885, A., 799.  
*o*-Carboxycinnamyl/*l*/thiocarbamic acid (RUTHSCHILD), 1890, A., 1123; 1891, A., 199.  
 Carboxy-2:5-dimethyl-3:4-pyrrolyl-acetic acid (KNORR), 1886, A., 332.  
 Carboxydicotinic acid. See Pyridine-2:3:5-tricarboxylic acid.  
 Carboxyethyl-*o*-amidobenzamide (ethyl carbamylphenyl carbamate) (ABT), 1889, A., 610.  
 Carboxygalactonic acid (KILIANI), 1889, A., 589.  
 Carboxyglutaric acid (*propionetricarboxylic acid*) (EMERY), 1891, A., 547.  
 Carboxy-*anti*- and -*syn*-glyoximes (SÜDERBATM), 1892, A., 816.  
 Carboxyhæmoglobin. See Hæmoglobin, carbonic-oxide-.  
 Carboxyl, introduction of, into aromatic compounds (LELLMANN and BONGHOFFER), 1887, A., 254, 935.  
   in the aromatic series, influence of certain groups on the thermochemical value of (ALEXÉEFF and WERNER), 1890, A., 439.  
 Carboxylic acids, conversion of phenols into (MERZ), 1883, A., 802.  
   from aromatic amines (GASIOROWSKI and MERZ), 1884, A., 734.  
   from synthetically prepared pyridine bases (MICHAEL), 1885, A., 60.  
*α*-Carboxy-*β*-naphthylphosphoric acid (RABE), 1889, A., 514.  
*α*-Carboxynaphthylorthophosphoric acid (WOLFFENSTEIN), 1888, A., 714.  
*α*-Carboxynaphthylorthophosphoric pentachloride, chloro- (WOLFFENSTEIN), 1887, A., 963.  
*o*-Carboxyphenylacetic acid (*phenylacetic-o-carboxylic acid*, *homophthalic acid*, *isovitic acid*) (WISLICENUS), 1885, A., 532; 1886, A., 880; (SCHREDER), 1885, A., 798; (LE BLANC), 1889, A., 256.  
   constitution of (SCHREDER), 1885, A., 798.  
   salts of (WISLICENUS), 1885, A., 532.  
   amic acid of (*homo-o-phthalaminic acid*) (GABRIEL), 1887, A., 726.  
   imide of (*homo-o-phthalimide*) (GABRIEL), 1886, A., 812; 1887, A., 50, 725, 1112; (PULVERMACHER), 1887, A., 1111.  
   anhydride of (WISLICENUS), 1885, A., 532.

*o*-Carboxyphenylacetic acid (*phenylacetic-o-carboxylic acid*, *homophthalic acid*, *isovitic acid*), benzylimide of (PULVERMACHER), 1887, A., 1111.  
   imide and methylimide of (GABRIEL), 1887, A., 50.  
*p*-Carboxyphenylacetic acid (*homoterephthalic acid*), and its derivatives (MELLINGHOFF), 1890, A., 240; (FILETI and BASSO), 1891, A., 1057.  
   amide and amic acid of (MELLINGHOFF), 1890, A., 240.  
*o*-Carboxyphenylacetoneitrile (*homophthalonitrile*) (GLOCK), 1888, A., 1291.  
*o*-Carboxyphenylacetopropylimide (LE BLANC), 1889, A., 256.  
*o*-Carboxyphenylbenzylacetamide (*α-benzylhomophthalamide*) (EICHELBaum), 1888, A., 1300.  
*o*-Carboxyphenylbenzylacetic acid, and its imide (EICHELBaum), 1888, A., 1301.  
*o*-Carboxyphenylbenzylacetoneitrile (EICHELBaum), 1888, A., 1300.  
*o*-Carboxyphenylglyceric acid, *δ*-lactone of (BAMBERGER and KITSCHULT), 1892, A., 857.  
*o*-Carboxyphenylglyoxylic acid (SCHERKS), 1885, A., 533.  
 Carboxyphenylloxamic acid (*oxalamidobenzoic acid*), and its derivatives (GRIESS), 1885, A., 1225; (SCHIFF), 1886, A., 549.  
   amido- (GRIESS), 1885, A., 1225; 1888, A., 827.  
 Carboxyphenylorthophosphoric acid, *di*- and *tri*-chlorides of (ANSCHUTZ), 1885, A., 1062.  
 Carboxyphenylorthophosphoric acid, *trichlorides*, *m*- and *p*- (ANSCHUTZ and MOORE), 1887, A., 947.  
 Carboxyphenylorthophosphoric acids, *m*- and *p*- (ANSCHUTZ and MOORE), 1887, A., 947.  
 Carboxyphenylpicolinocarboxylic acid (SEITZ), 1889, A., 526.  
*o*-Carboxyphenylpropionic acid, phenylhydrazine derivative of (ROSEN), 1885, A., 797.  
*p*-Carboxy-*β*-phenylpropionic acid and its derivatives (WIDMAN), 1889, A., 1181.  
 Carboxyphenylsebatic acid (PELLIZARI), 1885, A., 534.  
 Carboxyphenyl-succinamide, -succin-anilide, and -succinic acid (PELLIZARI), 1885, A., 533.  
 Carboxyphenyltartridic acid (SCHIFF), 1886, A., 622.

- α*-Carboxypimelic acid (SCHLEICHER), 1892, A., 428.
- Carboxytartaric acid. See Dihydroxy-tartaric acid.
- Carboxytriphenylenediamine, *dithio*- (GUCCI), 1886, A., 1024.
- Carbuvic acid. See Carboxypotritaric acid.
- Cardamom oil. See Oil.
- Carica Papaya*, alkaloid from (GRESHOFF), 1891, A., 334.  
 latex of (HANSEN), 1886, A., 1060.
- Carlsbad salts (HARNACK), 1883, A., 396.
- Carminic acid (LIEBERMANN), 1885, A., 1076.  
 adulterations of (DECHAM), 1886, A., 399.
- α*- and *β*-bromo- (WILL and LEYMANN), 1886, A., 252, 253.
- Carminic acid (WILL and LEYMANN), 1886, A., 252.
- Carminic acid as a reagent for alkalis (DRAPER), 1885, A., 931.  
 constitution of the hydrocarbon obtained from (DISCHOFF), 1890, A., 1145.
- Carnallite, a cheap substitute for kainite (TROSCHEKE), 1884, A., 868.  
 extraction of rubidium and caesium compounds from (FEIT and KUBIERSCHUKY), 1892, A., 1395.
- Carnauba wax, chemical composition of (STURCKE), 1884, A., 1280.
- Carmine (KRUKENBERG and WAGNER), 1885, A., 674, 920.
- Carpaine, the alkaloid of *Carica Papaya* (GRESHOFF), 1891, A., 334.
- Carrageen moss, galactose from (HAE-DICKE, BAUER and TOLLENS), 1887, A., 791.
- Carrot colour in butter (MOORE), 1887, A., 810.
- Carotene ("carottin") (SCHMITT), 1884, A., 910; (ARNAUD), 1886, A., 711; (REINITZER), 1887, A., 265; (IMMENDORFF; BLANCHARD), 1890, A., 641.  
 in *Dianthus* (BLANCHARD), 1890, A., 640.  
 in leaves (ARNAUD), 1887, A., 859; 1890, A., 285.
- Carrots, cholesterol in (ARNAUD), 1886, A., 830.  
 cooked, composition of (WILLIAMS), 1892, T., 227.  
 See also Agricultural chemistry.
- Cartilage, chemical composition of (KRUKENBERG), 1885, A., 405; (MÜNNER), 1889, A., 736.  
 hyaline, microchemical observations on (MÜNNER), 1888, A., 860.  
 of certain invertebrates, composition of (HALLIBURTON), 1885, A., 1251.
- Carvacrol (*cymenol*) (BEYER), 1884, A., 331; (BRÜHL), 1888, A., 495.  
 preparation of (REYCHLER), 1892, A., 1311.  
 behaviour of, towards reducing agents (BAMBERGER, BERLE and STRASSER), 1892, A., 157.  
 oxidation of (HEYMANN and KOENIGS), 1887, A., 241.  
 derivatives (POLECK and LUSTIG), 1885, A., 659; (LUSTIG), 1886, A., 346; (MAZZARA and PLANCHER), 1892, A., 309; (REYCHLER), 1892, A., 1312.  
 constitution of (MAZZARA), 1891, A., 47, 188.
- Carvacrol, diamido- (MAZZARA), 1891, A., 47.  
 bromo-derivatives of (MAZZARA and PLANCHER), 1892, A., 156.  
 bromamido- (MAZZARA), 1890, A., 884; 1892, A., 595.  
 bromonitroso-, constitution of (MAZZARA), 1890, A., 884.  
 dinitro- (MAZZARA), 1891, A., 47.  
 nitramido-, benzoate (MAZZARA), 1891, A., 47.
- Carvacrolhisdiazotriphenylmethane (MAZZARA), 1886, A., 59.
- Carvacrol-*p*-sulphonic acid (CLAUS and FAHRION), 1889, A., 880.
- p*-Carvacrotic acid (LUSTIG), 1886, A., 346.
- p*-Carvacrotic aldehyde (NORDMANN), 1885, A., 162; (LUSTIG), 1886, A., 346.
- Carvacryl mono- and di-potassium phosphates (HEYMANN and KOENIGS), 1887, A., 241.
- Carvacrylamine (LLOYD), 1887, A., 721.
- Carvene, carveol, and carvol. See Terpenes.
- Carvoxime (*nitrosolasperidene*) (GOLDSCHMIDT), 1884, A., 1138; (GOLDSCHMIDT and ZÜRRER), 1885, A., 1210.  
 rotatory power of (WALLACH and CONRADY), 1889, A., 1072.  
 derivatives (GOLDSCHMIDT and ZÜRRER), 1885, A., 1058.  
 hydrochloride, action of alcohol and bromine on (GOLDSCHMIDT and ZÜRRER), 1885, A., 1210.
- isoCarvoxime (GOLDSCHMIDT and KISSER), 1887, A., 923.
- Cuscara sagrada, constituents of the roots of (SCHWABE), 1889, A., 69.
- Cascarin (LEPRINCE), 1892, A., 1483.
- Casein (CHITTENDEN and PAINTER), 1888, A., 76.

- Casein** in milk (DUCLAY), 1884, A., 762; (EUGLING), 1885, A., 1083; (ROUX), 1891, A., 1404.  
 preparation of soluble (BLCHAMP), 1891, A., 339.  
 absorption spectrum of (HARILEY), 1887, T., 59.  
 heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.  
 action of calcium salts on (RINGER), 1891, A., 340.  
 action of pancreatic and rennet extracts on (EDKINS), 1891, A., 1272.  
 decomposition products of (DRECHSEL), 1889, A., 1021.  
 relation of the salts of milk to the behaviour of (SOLDNER), 1889, A., 634.  
 digestibility of, from heated milk (HOFFMANN), 1883, A., 487, 815.  
 the sulphur of (HAMMARSTEN), 1885, A., 914.  
 estimation of (AURIOL and MONNIER), 1890, A., 312.  
 estimation of, in condensed milk (FABER), 1890, A., 92.  
 estimation of, in cows' milk (FRENZEL and WEYL), 1885, A., 936; (ROUX), 1891, A., 1404.  
 separation of, from albumin in human milk (HOPPE-SEYLER), 1885, A., 845, 1015.  
**Casein**, nitro-, use of, in dyeing (DOLLFUS), 1884, A., 1449.  
**Casein-dyspeptone** (CHITTENDEN), 1889, A., 530.  
**Casein-glue**, a substitute for gum arabic (KATSER), 1885, A., 1024.  
**Caseinogen** (HALLIBURTON), 1891, A., 339; (RINGER), 1891, A., 951.  
 preparation of (RINGER), 1891, A., 341.  
**Casein-peptone** (MERCK and THIERFELDER), 1886, A., 1051; (CHITTENDEN), 1889, A., 530.  
**Caseo-glutin** (WEIDMANN), 1883, A., 693.  
**Caseoses** (CHITTENDEN and PAINTER), 1888, A., 76; (CHITTENDEN), 1889, A., 530.  
**Casks**, enamelling (SPONNAGEL), 1885, A., 316.  
**Cassia oil**. See Oil.  
**Cassiterite** (*tin stone*) from Bolivia (ARZRUINI), 1886, A., 514.  
 from Cornwall (COLLINS), 1886, A., 988.  
 from Dakota (BLAKE), 1884, A., 23.  
 in the Gröfienstein granite (v. MUKLUCHO-MACLAY), 1885, A., 1185.  
**Cassiterite** (*tin stone*) from King Co., N. Carolina, analysis of (BRUCE), 1885, A., 126.  
 from Irish Creek, Rockbridge Co., Virginia (BROWN), 1885, A., 488.  
 See also Tin (*Stannic oxide*).  
**Cast iron**. See Iron.  
**Cast steel**. See Steel.  
**Castanite** from Chili (DARAPSKY), 1891, 405.  
**Castor oil**. See Oil.  
 bean, poisonous principle of (STILL-MARK), 1890, A., 535.  
*Catalpa bignonioides*, bitter principle of (CLAASSEN), 1888, A., 1309.  
**Catalpic acid** (SARDO), 1885, A., 272.  
**Catalpin** (CLAASSEN), 1888, A., 1309.  
*Cataputia minor*, crystalline constituents of the seeds of (TAHARA), 1891, A., 238.  
**Catalysis** (LOEW), 1887, A., 440.  
**Catalytic action**, a particular case of (LORIN), 1885, A., 481.  
 of glass (ALEXLEFF), 1886, A., 591.  
 of metals on oxyhydrogen gas (BERLINER), 1889, A., 206.  
**Catechol**. See Pyrocatechol.  
**Cathartic acid** (STOCKMAN), 1885, A., 991.  
**Cathodes**, unequal electric conduction resistance at (GORE), 1885, A., 324.  
**Cattle**. See Agricultural Chemistry.  
**Cattle marrow** (THUMMEL), 1890, A., 1172.  
**Cauliflower**, cooked, composition of (WILLIAMS), 1892, T., 227.  
**Caustic alkalis**. See Alkalis, caustic.  
**Caustic potash**. See Potassium hydroxide.  
**Caustic soda**. See Sodium hydroxide.  
**Cayenne pepper**, chemical composition and testing of (STROHMER), 1885, A., 452.  
**Cedar oil**. See Oil.  
**Cedrene**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
**Cedrenes**, refraction and dispersion equivalents of (GLADSTONE), 1886, T., 618.  
**Celery**, cooked, composition of (WILLIAMS), 1892, T., 227.  
**Celestite** (*celestine*) occurrence, association and probable mode of formation of (DIEULAFAIT), 1884, A., 25.  
 from the Kaiserstuhl (DECKENKAMP), 1888, A., 659.  
 from Mineral Co., West Virginia (WILLIAMS), 1890, A., 1071.  
 from *Nautilius arctus* (STAHL), 1887, A., 781.

**Celestite** (*celestine*) from Scharfenberg (ZINKEISEN), 1892, A., 1406.  
 from Torda (KUCH), 1890, A., 713.  
 from Transylvania, analysis of (KUCH), 1885, A., 735.  
 pink (CHESTER), 1887, A., 782.  
 artificial production of (GORGUE), 1883, A., 1062.  
 preparation of, by Senarmont's process (BOURGOIS), 1888, A., 116.  
 containing free sulphur (JOHNSTON-LAVIS), 1891, A., 272.  
 action of caustic alkalis on (KONTER), 1886, A., 108.  
 preparation of strontium hydroxide and sulphide from (MOODY), 1885, A., 458.  
 See also Strontium Sulphate.  
**Celestite-bed** of Koppand, mean composition of (NYIREDI), 1890, A., 713.  
**Cell**, galvanic and voltaic. See Electrochemistry.  
**Cell**, plant. See Agricultural Chemistry.  
**Cell-albumin** (HALLIBURTON), 1888, A., 974.  
**Celluloid**, manufacture of (ANON.), 1885, A., 1096.  
**Celluloids**, analysis of (ZAUNSCHEIM), 1891, A., 866.  
**Cellulose**. See Carbohydrates.  
**Cellulose-gum** (HOFFMEISTER), 1892, A., 129.  
*Cellis reticulosa*, scatole (8'-methyl-indole) in the wood of (DUNSTAN), 1890, A., 191.  
**Cement** and its application (ANON.), 1883, A., 131.  
 a natural (KORSCHMELT), 1883, A., 131.  
 natural, from Cairo (SICKENBERGER), 1891, A., 26.  
 preparation and testing of (ROTH; HEINTZEL), 1883, A., 753.  
 constitution of hydraulic (LE CHATELIER), 1888, A., 1030.  
 decomposition of, by water (LE CHATELIER), 1884, A., 1443.  
 hardening of (LE CHATELIER), 1883, A., 331.  
 setting of (MICHEL; LEVOIR), 1886, A., 851.  
 influence of calcination and of carbonic anhydride on the setting of hydraulic (LANDRIN), 1884, A., 933.  
 process for rendering lime and, less subject to atmospheric influences (PUSCHER), 1883, A., 398, 530.  
 adulteration of (ANON.), 1884, A., 128, 1225.  
 analyses of English (ANON.), 1883, A., 530.

**Cement**, estimation of alumina in (PRUNIER), 1885, A., 441.  
*Cephaelis Ipecacuanha*, volatile base from the root of (ARNDT), 1889, A., 918.  
**Cephalanthin** (CLAASSEN), 1890, A., 171.  
**Ceramics**, ancient, analyses of (JENSCH), 1887, A., 218.  
**Cerberin** from *Cerberi Odollam* (GIESHOFF), 1891, A., 337.  
**Cerealin** (GIRARD), 1885, A., 678.  
**Cerealose** (O'SULLIVAN), 1886, T., 73.  
**Cereals**. See Agricultural chemistry.  
**Cerebral hyperthermia**, increased output of nitrogen in (RICHTER), 1891, A., 600.  
**Cerebrose**, identity of, with galactose (BROWN and MORRIS), 1889, P., 167; 1890, T., 57; (THIERFELDER), 1890, A., 121.  
**Cerebrospinal fluid** (HALLIBURTON), 1889, A., 793.  
 proteids of (HALLIBURTON), 1887, A., 614.  
**Ceresin** from Galicia (GRABOWSKI), 1885, A., 487.  
 detection of, in beeswax (HAGER), 1890, A., 421.  
**Ceriferous Hainstadt clays** (STROHECKER), 1887, A., 119; 1888, A., 28.  
**Cerite**, extraction of cerium, lanthanum and didymium from (ARCHE), 1884, A., 557; (AUER VON WELSBACH), 1885, A., 350.  
**Cerium**, atomic weight of (BRAUNER), 1885, T., 880; (ROBINSON), 1885, A., 217.  
 chloride, anhydrous (DIDIER), 1886, A., 123.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
 oxychloride (DIDIER), 1886, A., 123.  
 hydride (WINKLER), 1891, A., 802.  
 molybdate (DIDIER), 1886, A., 595; (COSSA), 1886, A., 772, 981.  
 oxides (STROHECKER), 1886, A., 424.  
 action of hydrogen peroxide on (LECOQ DE BOISBAUDRAN), 1885, A., 635.  
**dioxide**, preparation of (DENRAY), 1883, A., 713.  
 action of magnesium on (WINKLER), 1891, A., 802.  
 hydrated, dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 70, 84.  
*sesquioxide (cerous oxide)*, reaction for (PLUGGE), 1892, A., 239.

- Cerium** phosphate from South Norway (BLOMSTRAND), 1890, A., 111.  
*metaphosphate* (JOHNSON), 1889, A., 756.  
 phosphates (OUVRARD), 1888, A., 1037.  
 silicate (DIDIER), 1886, A., 123.  
 sulphate solutions, specific gravity of (BRATNER), 1888, T., 357; P., 25.  
 hydrogen sulphate (WYRUBOFF), 1890, A., 452.  
 sulphides (DIDIER), 1885, A., 955.  
 tungstates (DIDIER), 1886, A., 595; (COSSA), 1886, A., 981.  
 chlorotungstates (DIDIER), 1886, A., 595.
- Cerium-group** (DEMARÇAY), 1887, A., 551; (BETTENDORFF), 1890, A., 851; 1891, A., 984; 1892, A., 1400.  
 spectroscopic researches on the (SCHOTTLANDER), 1892, A., 686.  
 chemistry of the (BRAUNER), 1893, T., 278; 1885, T., 879.  
 phosphates of the (OUVRARD), 1888, A., 1037.  
 separation of the metals of the (SCHOTTLANDER), 1892, A., 686.
- Cerotic acid** (ZATZEK), 1883, A., 39.  
 from flax fibre (CROSS and BEVAN), 1889, P., 155.  
 preparation of (MARIE), 1891, A., 238.  
 formula of (NAFZGER), 1884, A., 1297.  
 oxidation of, by nitric acid (MARIE), 1890, A., 1237.  
 bromo- (MARIE), 1892, A., 1302.
- Cerous oxide.** See Cerium sesquioxide.
- Cerussite**, crystallised (BROWN), 1887, A., 342.  
 crystals, accidental formation of, on Roman coins (LACROIX), 1895, A., 224.  
 from Maulmain in Burma (MALLET), 1885, A., 1185.  
 See also Lead carbonate.
- Ceryl alcohol** from flax (CROSS and BEVAN), 1889, P., 155; 1890, T., 198.
- Cetane.** See Hexadecane.
- Cetene.** See Hexadecylene.
- Cetraric acid** (HILGER and BUCHNER), 1890, A., 600.
- Cetyl-.** See Hexadecyl-.
- Cetylacetic acid.** See Stearic acid.
- Chabazite** (SADLER), 1883, A., 441; (CROSS and HILLEBRAND), 1883, A., 957.  
 from Colorado (CROSS and HILLEBRAND), 1883, A., 164.  
 from the Faroe Islands (WIDMAN), 1892, A., 1408.
- Chabazite-group** (RAMMELSBURG), 1886, A., 318.
- Chains**, closed, the hydrogenation of (STOHMANN and KLEBER), 1891, A., 376, 1146; 1892, A., 1040.
- Chairamidine and chairamine**, and their salts (HESSER), 1885, A., 64, 67.
- Chalcedony**, expansion of (LE CHATELIER), 1890, A., 1372.
- Chalechuite**, new locality of (BLAKE), 1884, A., 26.
- Chalcocite**, a new mineral species (DES CLOISEAUX and DAMOUR), 1883, A., 31.
- Chalk**, phosphatic, enrichment of (NANTIER), 1889, A., 837.
- Chalk mud**, use of, in the production of crude soda (SCHETTER-KESTNER), 1884, A., 644.
- Chamomile**, Roman, anthemene, a hydrocarbon from (NAUDIN), 1885, A., 37.
- Champignon du muguet**, alcoholic fermentation and conversion of alcohol into aldehyde by (LISSIER and ROUX), 1890, A., 1179; 1891, A., 854.
- "Char."** See Animal Charcoal.
- Charcoal**, oxidising and decolorising properties of (CAZENÈVE), 1890, A., 690.  
 behaviour of, towards gases (BÖHM), 1884, A., 1250.  
 influence of, on the amount of phosphorus in pig-iron (ANON.), 1883, A., 403.  
 animal. See Animal charcoal.  
 firwood, composition of (RINMAN), 1883, A., 533.  
 See also Carbon.
- Chaulmoogra seeds** (*Gynocardin odorata*) (HECKEL and SCHLAGDENHAUFFEN), 1885, A., 927.
- Chavicol**, properties and derivatives of (EIJKMAN), 1890, A., 135.
- Chebulinic acid** (FRIDOLIN), 1885, A., 396.
- Cheese.** See Agricultural chemistry.
- Chen bitter and chen leaves** (WEISS), 1888, A., 1100.
- Chekenetin, chekenone, and cheketin acid** (WEISS), 1888, A., 1100.
- Chelerythrine** (*sanguinarine*) (v. KÜGELGEN), 1885, A., 608; (HENSCHKE), 1887, A., 854; (KÖNIG), 1891, A., 844.
- Chelamide** (*hydroxypyridine*) (LERCUI), 1885, A., 46.
- Chelutite**, from Schneeberg (McCAY), 1884, A., 1099.
- Chelidamic acid.** See Ammonchelidonic acid.

- Chelidonic acid** (*gerric acid*) (LIEBEN and HAITINGER), 1883, A., 870; 1885, A., 47, 965; (LERCH), 1885, A., 45; (SCHMIDT), 1886, A., 868. synthesis of (CLAISEN), 1891, A., 425; (PERATONER and SIRAZZERI), 1891, A., 1334. action of hydroxylamine on (MEYER), 1884, A., 993. derivatives (LIEBEN and HAITINGER), 1883, A., 870; 1885, A., 47, 965; (LERCH), 1885, A., 45. nitrogenous derivatives of (LIEBEN and HAITINGER), 1884, A., 1196; 1885, A., 811.
- Chelidonine** (HENSCHKE), 1887, A., 854; 1889, A., 62. detection of (v. KÜGELGEN), 1885, A., 608; (BROCIKER), 1890, A., 310.
- Chelidonic acid** (SCHMIDT), 1886, A., 869. See also Succinic acid.
- Chelidonium majus**, alkaloids of (SELLE), 1891, A., 229.
- Chelidronic acid** (*xanthochelidonic acid*) and its salts (LERCH), 1885, A., 45; (HAITINGER and LIEBEN), 1885, A., 47.
- Chemical action, affinity, attraction and combination.** See Affinity, chemical.
- Chemical characters**, relations between boiling points, molecular volumes of liquids and (MASSON), 1891, A., 379.
- Chemical combination.** See Affinity, chemical.
- Chemical compounds.** See Compounds, chemical.
- Chemical constitution**, relation between colour and (ARMSTRONG), 1892, T., 789; P., 101, 103, 143, 189, 194. relation between refractive power and (NASINI and BERNHEIMER), 1885, A., 1097. relation between specific rotatory power of organic compounds and (SOROKIN), 1888, A., 768. of liquids, relation between critical data and (HEILBORN), 1891, A., 380. relation between melting and boiling points and (MILLS), 1885, A., 329. of organic substances, relation between heat of combustion and (DIEFFENBACH), 1890, A., 1206. of liquid carbon compounds, relation between viscosity and (GARTENMEISTER), 1891, A., 380. relation between physiological action and (BRUNTON and CASH), 1884, A., 348; 1887, A., 985; 1891, A., 1279.
- Chemical corrosion**, relation of, to voltaic current (GORE), 1885, A., 324.
- Chemical decomposition, dynamics, energy, equilibrium and forces.** See Affinity, chemical.
- Chemical laboratories**, use of steam in (WALTER), 1885, A., 482.
- Chemical metamorphosis** and transformation of forces, relation between, during the germination of seeds (RODEWALD), 1884, A., 1207.
- Chemical nomenclature** (v. DAEYER), 1884, A., 993.
- Chemical phenomena.** See Affinity, chemical.
- Chemistry**, the foundations of (HUNT), 1889, A., 10. integral weights in (HUNT), 1887, A., 1077. and physics, energy content in (WALD), 1891, A., 1414. relations between (COLSON), 1886, A., 961. and thermo-dynamics (LE CHATELIER), 1887, A., 431.
- Chenevixite** from Utah (HILFEBRAND), 1886, A., 517.
- Chenopodium Quinoa**; cultivation of, in Austria (v. RODICZSKY), 1884, A., 769.
- Cherries.** See Agricultural chemistry.
- Cherry laurel**, mannitol and sorbitol in the fruit of (VINCENT and DELACHANAL), 1892, A., 908.
- Chestnut-wood tannin** (TRIMBLE), 1892, A., 716.
- Chestnuts**, common, fatty constituents of (MALERBA), 1884, A., 202.
- Cheviot rock**, analysis of (TEALL), 1884, A., 413.
- Chiastolite** (MÜLLER), 1888, A., 566; (ROHRBACH), 1889, A., 25.
- Chica beer** (MARCANO), 1883, A., 365; (GRIESSMAYER), 1883, A., 535.
- Chicken cholera**, infection of eggs by (BARTHÉLEMY), 1881, A., 1398. value of disinfectants in (COIN), 1885, A., 180.
- Chicory**, roasted, composition of (PETERMANN), 1884, A., 648.
- Chicory root**, analysis of (MAYER), 1886, A., 388.
- Children dying from atrophy**, decrease in weight of individual organs in (OHLMÜLLER), 1883, A., 606. metabolism in (CAMPER), 1885, A., 409. rachitic and normal, constituents of bones and other organs of (BRUBAKER), 1891, A., 847.

- Chili saltpetre.** See Sodium Nitrate.  
*China bicolor* (HENSE), 1887, A., 76.  
**China clay.** See Kaolin.  
**China, "crackle"** (LATH and DUTAILLY), 1889, A., 18.  
**China grass,** preparation and dyeing of (ANON.), 1884, A., 797.  
**Chinenine** (COMSTOCK and KOENIGS), 1884, A., 1383; 1885, A., 910.  
**Chinese fixed oils** (DAVIES), 1885, A., 1022.  
**Chinese-green** (*Tokao*) (KAYSER), 1886, A., 254.  
**Chinethonic acid** (LEHMANN), 1889, A., 236.  
**Chinine.** See Quinine under Alkaloids.  
**Chiolite** (GROTH), 1884, A., 265.  
     chemical composition of (BRANDL), 1883, A., 29.  
**Chitin** (HALLIBURTON), 1885, A., 991.  
     not exclusively epiblastic (HALLIBURTON), 1885, A., 1251.  
     occurrence of, in the Cephalopoda (KRUKENBERG), 1885, A., 826.  
     heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.  
     solubility of (KRUKENBERG), 1886, A., 808.  
**Chloanthite** from Schneeberg (McCAY), 1884, A., 1099.  
**Chloracetal** (AUTENRIETH), 1891, A., 540.  
*tri*Chloracetal dimethyl ether (MAGNANIMI), 1887, A., 28.  
**Chloracetaldehyde,** action of alcohol on (NATTERER), 1885, A., 266.  
**Chloroparacetaldehyde** (NATTERER), 1885, A., 1196.  
*tri*Chloracetaldehyde. See Chloral and Chloral hydrate.  
*tri*Chloracetaldoxime. See Chloral, oxime of.  
**Chloracetamide,** action of bromine on (v. HOFMANN), 1886, A., 45.  
*di*Chloracetamide (ZINCKE and KEGEL), 1890, A., 490.  
**Chloracetamidophenol** (ASCHAN), 1887, A., 814.  
**2:3:4:5-tetraChloracetanilide** (TUNT), 1889, A., 836.  
**Chloracetanilidoacetic acid** (ABENIUS), 1888, A., 854; 1890, A., 268.  
**Chloracetates,** physical properties of (HENRY), 1885, A., 1121.  
**Chloracetic acid.** See Acetic acid.  
*tri*Chloracetodiethylamide and methylamide (FRANCHIMONT and KLOBBER), 1888, A., 1062.  
*m*-Chloracetomethylanilide (STAEDEL), 1886, A., 940.  
*α*-Chloraceto-*β*-naphthalide (CLEVE), 1887, A., 961.  
*tetra*chloride (CLAUS and PHILIPSON), 1891, A., 462.  
**Chloracetone.** See Acetone.  
*tetra*Chloracetoneammonia (LEVY and CURECHOD), 1889, A., 1136.  
**Chloracetonedithylmercaptole** (AUTENRIETH), 1891, A., 568.  
**Chloracetoneitriles.** See Acetonitriles.  
*p*-Chloracetophenone (GAUTIER), 1885, A., 1061.  
*ω*-*di*Chloracetophenone (GAUTIER), 1887, A., 141, 922.  
*ω*-*tri*Chloracetophenone (GAUTIER), 1887, A., 141.  
*ω*-Chloracetophenonecarboxylic acid and its anilide (ZINCKE and COOKSEY), 1890, A., 786.  
**Chlor-*β*-acetophenylhydrazide** (GATTERMANN and HÜZZLE), 1892, A., 844.  
**Chloracetothienone** (GATTERMANN and ROMER), 1886, A., 538.  
**Chloracetotoluidide.** See Acetotoluidide.  
*p*-Chloraceto-*m*-xylylide (CLAUS), 1892, A., 1202.  
**3:5-diChlor-2-acetoxypyridone** (ZINCKE and FUCHS), 1892, A., 449.  
**Chloracetylacetones, mono- and di-** (COMBES), 1890, A., 1354.  
*octo*Chloracetylacetone (ZINCKE and KEGEL), 1890, A., 489.  
**Chloracetylacrylic acid.** See Acetylacrylic acid.  
*octo*Chloracetylbutyric acid (ZINCKE and RABINOWITSCH), 1891, A., 691.  
*penta*Chloracetylcrotonic acid (ZINCKE and RABINOWITSCH), 1891, A., 690.  
**Chloracetylcrotonic acids, hepta- and hepta-** (ZINCKE and FUCHS), 1892, A., 1462.  
*tri*Chloracetylpyridine (BALLY), 1888, A., 965.  
**Chloraceto-*o*-tolylamidoacetic acid** (ABENIUS and WIDMAN), 1888, A., 824.  
**Chloraceto-*p*-tolylamidoacetic toluidide** (BISCHOFF and HAUSDORFER), 1892, A., 1336.  
*o*-*tri*Chloracrylbenzoic acid (ZINCKE and COOKSEY), 1890, A., 785.  
*tri*Chloracrylic acid (MABERY), 1887, A., 570.  
*di*Chloradipic acid (OTTO and BECKURTS), 1885, A., 753; (RUHEMANN), 1890, T., 939.  
**Chloral,** preparation of (PAGE), 1884, A., 1117.  
     density and magnetic rotation of (PERKIN), 1887, T., 808; P., 82.

**Chloral**, condensation of, with paracetaldehyde and ketones (KOENIGS), 1892, A., 694.  
 action of chlorine on anhydrous (GAUHER), 1886, A., 221.  
 action of *o*-dialkylcarbamides on (VAN DER ZANDE), 1889, A., 963.  
 condensation of, with ethylic acetate (MATTHEWS), 1883, T., 202.  
 action of, on glucose (HEFFTER), 1889, A., 845.  
 action of hydroxylamine on (HANTZSCH), 1892, A., 699.  
 condensation of, with succinic acid (FITTIG and MILLER), 1890, A., 586.  
 action of sulphides on (PRUNIER), 1890, A., 291.  
 action of zinc dust on (CHODOŮNSKÝ), 1888, A., 669.  
 combination of, with glycol (DE FORC-RAND), 1889, A., 689.  
 fate of, in the organism (KAST), 1887, A., 613.  
 detection of (REBUFFAT), 1888, A., 127.  
 detection of, in liquids (SCHWARZ), 1889, A., 85.  
 detection of, in milk, food, etc. (CASALI), 1885, A., 695.  
**Chloralacetone** (KOENIGS), 1892, A., 694.  
**Chloralacetophenone** (KOENIGS), 1892, A., 695.  
**Chloralaldol** (KOENIGS), 1892, A., 695.  
**Chloraloxime** (MEYER), 1891, A., 1181; (SCHIFF and TARUGI), 1892, A., 33.  
**Chloral allylate**, action of acid chlorides on (OLIVEH), 1884, A., 1117.  
 borneolates and isoborneolates (HALLER), 1891, A., 575.  
 bornylate (SCHMITT), 1892, A., 228.  
 ethylalcoholate, vapour densities of (RAMSAY and YOUNG), 1886, T., 685; P., 225.  
 hydrate (CERVELLO), 1884, A., 199; (TROOST; FRIEDEL), 1885, A., 746; (PERKIN), 1887, T., 813.  
 density and magnetic rotation of (PERKIN), 1887, T., 808; P., 82.  
 condensation of, with secondary aromatic amines (BOESSNECK), 1888, A., 587.  
 condensation of, with tertiary aromatic amines (BOESSNECK), 1885, A., 976; (KNÖFLER and BOESSNECK), 1888, A., 267.  
 action of hydroxylamine on (NÄGELI), 1883, A., 728.  
 action of, on mercuric salts (COTTON), 1888, A., 670.  
 action of metals on (COTTON), 1885, A., 371.

**Chloral hydrate**, action of oxidising agents on (COTTON), 1885, A., 1048.  
 action of potassium chlorate on (SHUBERT), 1886, A., 331.  
 combination of, with hydrogen phosphide (DE GIRARD), 1886, A., 681.  
 red dye from (LERCH), 1887, A., 793.  
 as an antidote for strychnine and picrotoxin (KUCH), 1887, A., 391.  
 effect of, on hepatic glycogen (NEBELTHAU), 1891, A., 1527.  
 detection of (VITALI and TORNANI), 1885, A., 933; (DRAGENDORFF and TIESENHAUSEN), 1887, A., 866.  
 menthylate (SCHMITT), 1892, A., 228.  
 oxime of (*trichloroacetaldoxime*) (MEYER), 1891, A., 1181; (SCHIFF and TARUGI), 1892, A., 33.  
 thiobenzamide (SPICA), 1886, A., 1026.  
**Chloralammonia**, action of heat on (BÉHAL and CHOAY), 1890, A., 230.  
**Chloralbenzenylamidoxime** (FALCK), 1886, A., 797.  
**Chloralcyanhydrins**, action of carbamide on (PINNER and LIEFSCHÜTZ), 1887, A., 1032.  
**Chloralhydroxylamine** (HANTZSCH), 1892, A., 699.  
**Chloralide**, action of phosphoric chloride on (ANSCHUTZ and HASLAM), 1887, A., 915; 1890, A., 27.  
**Chloralimide** (BÉHAL and CHOAY), 1890, A., 230, 1093; (SCHIFF), 1892, A., 131.  
 dimolecular and trimolecular (SCHIFF), 1892, A., 134.  
*iso***Chloralimide** (BÉHAL and CHOAY), 1890, A., 1093.  
**Chloralimido-compounds** (MOSCHELES), 1891, A., 1003.  
 $\alpha$ -**Chlorallylic alcohol** and its derivatives (HENRY), 1883, A., 173; (VAN ROMBURGH), 1883, A., 450.  
 $\beta$ -**Chlorallylic alcohol** (VAN ROMBURGH), 1883, A., 450.  
**Chlorallylic iodides** (VAN ROMBURGH), 1883, A., 449.  
**Chloraloxalenediamidoxime** (VORLÄNDER), 1891, A., 698.  
**Chloralphenylacetamide** (PURGOTTI), 1891, A., 59.  
**Chloralquinine** (MAZZARA), 1881, A., 186.  
**Chloral-soda reaction**, dead space in the (BUDDÉ), 1891, A., 975.  
 $\alpha$ -**Chloro-*o*-amidobenzaldehyde** (GNEHM), 1884, A., 1028.

- 1 2:4-Chloramidobenzenesulphonic acid (FISCHER), 1892, A., 182.
- 1:4:2-Chloramidobenzenesulphonic acid (CLAUS and MANN), 1891, A., 1488; (FISCHER), 1892, A., 182.
- o*-Chlor-*p*-amidobenzyllic alcohol (WITT), 1892, A., 445.
- tri*Chloramidodiacetyl (LEVY, WILLIE and CURCHOD), 1890, A., 233.
- di*Chlor-3-amidodiethoxypyridine (STOKES and V. PECHMANN), 1887, A., 157.
- 3:5-*di*Chlor-4-amido-2-6-dihydroxypyridine (*dichlorogluconin*) (STOKES and V. PECHMANN), 1887, A., 156.
- penta*Chloramido-*p*-diketohexene (ZINCKE and FUCHS), 1892, A., 450.
- Chlor $\delta$ amidodiphenyl (MENIHA and HEUMANN), 1887, A., 247.
- di*Chlor $\delta$ amidodiphenyl (SCHULTZ), 1884, A., 903.
- 5-Chloro-2-amidodiphenylamine (ERNST), 1891, A., 299.
- 2:3:5-*tri*Chlor-4-amido-6-ethoxypyridine (STOKES and V. PECHMANN), 1887, A., 157.
- Chlor $\delta$ amidoethoxyquinone (KEHRMANN), 1891, A., 904.
- di*Chlor-4-amido-2-hydroxyethoxypyridine (STOKES and V. PECHMANN), 1887, A., 157.
- 2:3:5-*tri*Chlor-4-amido-6-hydroxypyridine (STOKES and V. PECHMANN), 1887, A., 156.
- Chloramidohydroxyquinoneisimide (KEHRMANN), 1890, A., 241.
- Chloramidomaleinimide (CIAMICIAN and SILBER), 1890, A., 25.
- 4-Chlor-1-amido-3-methylquinoline (NOLTING and TRAUTMANN), 1891, A., 327; 1892, A., 728.
- Chloramidonaphthalenesulphonic acid. See Chloronaphthylaminesulphonic acid.
- 2:6-*di*Chlor-4-amidophenol (KOLLEPP), 1886, A., 1018.
- tri*Chlor-*m*-amidophenol (D'ACOMO), 1885, A., 889.
- tri*Chlor-*p*-amidophenol (LAMPERT), 1886, A., 616.
- o*-Chlor-*p*-amidophenolsulphonic acid (KOLLEPP), 1886, A., 1019.
- p*-Chlor- $\alpha$ -amidophenylsulphonepropionic acid (KONIG), 1892, A., 1091.
- 2:5:6-*tri*Chlor-4-amidopyridine (STOKES and V. PECHMANN), 1887, A., 157.
- 2:3:5:6-*tetra*Chlor-4-amidopyridine (STOKES and V. PECHMANN), 1887, A., 157.
- Chlor-*p*-*di*amidoquinol hydrochloride (KEHRMANN and TIESLER), 1890, A., 243.
- Chlor $\delta$ amidoresorcinol stannochloride (KEHRMANN), 1890, A., 241.
- $\omega$ -Chlor-*o*-amidostyrene (LIPP), 1884, A., 1030.
- o*-Chlor-*p*-amidotoluene (WIFI), 1892, A., 445.
- tri*Chloramidotoluenes (SEELIG), 1885, A., 769.
- 2-Chlor-5-amido-*p*-toluic acid (CLAUS and DAVIDSEN), 1892, A., 172.
- 3-Chlor-6-amido-*p*-toluic acid (CLAUS and BOCHER), 1892, A., 173.
- 4:5-*di*Chlor-3:6-*di*amido-*o*-xylene (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1201.
- Chloramylamine (BERG), 1890, A., 952.
- c*-Chloramylamine (GABRIEL), 1892, A., 717.
- di*Chloramylamine (BERG), 1890, A., 952.
- $\gamma$ -*octo*Chloramylene (ZINCKE and KÜSTER), 1890, A., 1256.
- tri*Chloramyllic alcohol. See *tri*Chloromethylpropylcarbinol.
- Chloranil (*tetrachloroquinone*) (ANDRESEN), 1884, A., 431; (ISTRATI), 1890, A., 882; (GRAEBE), 1891, A., 1027.
- action of phosphorus chlorides on (GRAEBE), 1891, A., 1028.
- action of sodium thiosulphate on (PURGOTTI), 1890, A., 1419.
- Chloranilic acid (*dichlorodihydroxyquinone*) (LEVY and JEDLIKA), 1889, A., 390; (GRAEBE), 1891, A., 1027.
- constitution of (LEVY), 1885, A., 1210; (HANTZSCH and SCHNITZER), 1887, A., 1036.
- action of bromine on (LEVY and JEDLIKA), 1887, A., 1106.
- action of halogens on (LANDOLT), 1892, A., 834.
- decomposition products of (HANTZSCH), 1888, A., 1190; 1890, A., 130.
- compound of bromanilic acid and (LING), 1892, T., 574.
- sodium salt of, crystallography of the (POPE), 1892, T., 583.
- penta*Chloranilido-*p*-diketohexene (ZINCKE and FUCHS), 1892, A., 448.
- 2:4-*di*Chlor-1-anilido-3-hydroxyquinoline (ZINCKE), 1891, A., 1250.
- tri*Chlor-1-anilidoketodihydroquinoline (ZINCKE), 1891, A., 1251.
- di*Chloranilidonaphthaquinone (HELLSTRÖM), 1889, A., 149.

- ββ*-Chloranilidonaphthaquinoneanilide (ZINCKE), 1888, A., 711.
- Chloranilidoquinolinequinoneanilide (ZINCKE), 1891, A., 1251.
- Chloraniline and its derivatives. See Aniline.
- 4-Chloraniline-*o*-sulphonic acid (CLAUS and BOPP), 1891, A., 1489.
- 5-Chloraniline-*o*-sulphonic acid (CLAUS and MANN), 1891, A., 1489.
- 4-Chloraniline-*m*-sulphonic acid (CLAUS and MANN), 1891, A., 1488; (FISCHER), 1892, A., 182.
- 6-Chloraniline-*m*-sulphonic acid (FISCHER), 1892, A., 182.
- p*-Chloranilinesulphonic acid (ARMSTRONG and BRIGGS), 1892, P., 40.
- o*-Chloranisaldehyde (*chloromethoxybenzoic aldehyde*), production of, from *p*-nitrotoluene (TIEMANN), 1891, A., 703.
- o*-Chloranisaldoxime (TIEMANN), 1891, A., 704.
- Chloranisisic acid (*chloromethoxybenzoic acid*) [m.p. 214°] (SCHALL and DRALLE), 1885, A., 146.
- o*-Chloranisisic acid [m.p. 208°] (TIEMANN), 1891, A., 704.
- di*Chloranthracene (HAMMERCHLAG), 1886, A., 717; (KIRCHER), 1887, A., 831.
- tetra*Chloranthracene (HAMMERCHLAG), 1886, A., 717; (KIRCHER), 1887, A., 831.
- Chloranthracene- $\gamma$ -carboxylic acid (BERLA), 1886, A., 248.
- Chloranthranilamide (DORSCH), 1886, A., 360.
- di*Chloranthranilamide (FRANKE), 1892, A., 335.
- Chloranthraquinone. See Anthraquinone.
- tetra*Chloranthraquinonedisulphonic acid (KIRCHER), 1887, A., 831.
- Chlorapatites (DE SCHULTEN), 1890, A., 11.
- Chlorates. See Chlorine.
- Chlorazo-. See Azo-.
- Chlorazophenine (FISCHER and HEMP), 1887, A., 1105.
- di*Chloreosin (LE ROYER), 1887, A., 832.
- Chlorerucic acid (HOLT), 1892, A., 429.
- Chlorethane. See Ethane.
- $\beta$ -Chlorethanesulphonic acid, preparation of (JAMES), 1885, T., 365; P., 47.
- action of primary, secondary, and tertiary monamines on their respective salts of (JAMES), 1885, T., 367.
- $\beta$ -Chlorethanesulphonic acid, salts of (JAMES), 1888, T., 41; (HUBNER), 1884, A., 1126.
- $\beta$ -Chlorethanesulphonic chloride, action of ammonia on an ethereal solution of (JAMES), 1883, T., 42.
- tetra*Chlorethenyl-*o*-amidobenzamide (DEHOFF), 1890, A., 802; 1891, A., 84.
- 3-Chlor-4-ethoxynaphthaquinone (ZINCKE), 1888, A., 710.
- di*Chlorethoxyppyridine (KOENIGS and GEIGY), 1884, A., 1369.
- 3'-Chlor-1'-ethoxyquinoline (GABRIEL), 1887, A., 62.
- $\alpha$ -Chlorethyl isocamyl ether (CLAUS and TRAINER), 1887, A., 231.
- Chlorethyl ether (BACHMANN), 1883, A., 726.
- di*Chlorethyl ether, actions of (NATTERER), 1885, A., 365; (WISLICIENUN), 1885, A., 366.
- s-isodi*Chlorethyl ether (*ethylidene chloride*), derivatives of (GEUTHNER), 1885, A., 237.
- Chlorethyl ethers, *tri*- and *tetra*- (GODEFROY), 1886, A., 607.
- Chlorethyl vinyl ethers, *mono*-, *di*- and *tri*- (GODEFROY), 1886, A., 606.
- Chlorethyl-*o*-amidophenol (KNORR), 1889, A., 1219.
- $\beta$ -Chlorethylamine, salts of (GABRIEL), 1888, A., 440.
- Chlorethylaniline hydrochloride (NEMIROWSKY), 1885, A., 741.
- $\beta$ -Chlorethylbenzamide (GABRIEL and HEYMANN), 1890, A., 1267.
- Chlorethylbenzenes, *o*-, *m*-, and *p*- (ISTRATI), 1885, A., 251.
- ω*-*di*Chlorethylbenzene (FORRER), 1884, A., 1020.
- Chlorethylene. See Vinylic chloride.
- ω*-*di*Chlorethylene (HENRY), 1884, A., 719.
- tetra*Chlorethylene, thermochemistry of (BERTHELOT and MATIGNON), 1891, A., 1311.
- tri*Chlorethylglycuronic acid (KÜLZ), 1885, A., 283.
- Chlorethylic acetoacetate, action of nitric acid on (PRÖPPER), 1883, A., 573.
- alcohol. See Ethylic alcohol.
- Chlorethylic bromacetate (HENRY), 1884, A., 421.
- carbamate (NEMIROWSKY), 1885, A., 741; (GATTERMANN), 1888, A., 574.
- chloracetate (HENRY), 1884, A., 421.
- chloroformate (NEMIROWSKY), 1885, A., 741.

- Chlorethylie iodoacetate** (HENRY), 1884, A., 421.  
*disulphide*, constitution of Guthrie's (SPRING and LEFEBVIER), 1888, A., 661.  
*α-diChlorethylie cyanide* (*dichloropropionitrile*), solid (OTTO and VOIGT), 1887, A., 1024.  
*diChlorethylie sulphochloride* (JAMES), 1885, A., 365.  
**Chlorethylidene diethyl ether** (AUTENRIETH), 1891, A., 540.  
*triChlorethylideneacetophenone* (KOENIGS), 1892, A., 695.  
*triChlorethylidenediureide* (PINNER and LIEFSCHUTZ), 1887, A., 1032.  
*triChlorethylidene-2'-methylquinoline* (EINHORN), 1886, A., 264.  
*tetraChlorethylidenic trichlorolactate* (ANSCHUTZ and HASLAM), 1890, A., 27.  
*triChlorethylidenic glycol*. See Chloral hydrate.  
**Chlorethylidene-*p*-toluidine** (BERLINERBLAU and POLIKIER), 1887, A., 813.  
**Chlorethylphthalimide** (SEITZ), 1891, A., 1472.  
*ω-Chlorethylpiperonylic acid* (PERKIN), 1890, T., 1029.  
*2'-ω-diChlorethylquinoline* (CARLIER and EINHORN), 1891, A., 83.  
**Chlorhydric acid**. See Hydrochloric acid under Chlorine.  
**Chlorhydrins**, preparation of (LADENBURG), 1883, A., 1077.  
     rate of decomposition and stereochemistry of (EVANS), 1891, A., 796.  
     action of nitromethane on (PFUNST), 1886, A., 862.  
     action of sodium on an ethereal solution of (BALLO), 1881, A., 766.  
     organic salts of (GORTIE), 1891, A., 707.  
**Chlorides**. See Chlorine.  
**Chlorimetry**, potassium bromide as indicator in (DENTICKS), 1891, A., 615.  
*6-Chlor-1:4-diimido-2:5-quinol* (KEHRMANN and TINSLER), 1890, A., 242.  
**Chlorination**, influence of light and temperature on (GAUFIER), 1887, A., 922.  
     method of (TOLSON and GATTIER), 1886, A., 231.  
     by means of acetic chloride (BECKER), 1887, A., 932.  
*diChlorindene* (HAUSMANN), 1889, A., 1173.  
**Chlorindigo** (GNEHM), 1884, A., 1028.  
*tetraChlorindigo* (GNEHM), 1884, A., 1028; (ANON.), 1886, A., 112.  
*tetraChlorindigotin* (GNEHM), 1884, A., 1028.  
**Chlorine**, preparation of (KNIETSCH), 1891, A., 11.  
     preparation of, in a Kipp's apparatus (WINKLER), 1887, A., 412; (THIELE), 1890, A., 6.  
     preparation of, for laboratory purposes (KLASON), 1890, A., 445.  
     preparation of, from bleaching powder (WINKLER), 1889, A., 821.  
     preparation of, from calcium chloride (TAQUET), 1885, A., 1017; (ANON.), 1885, A., 1268.  
     preparation of, from sodium chloride (HEMPFEL), 1890, A., 10.  
     liberation of, during the decomposition of chlorates (SPRING and PROST), 1889, A., 1105.  
     liberation of, from hydrogen chloride by the action of light in presence of oxygen (MCLEOD), 1886, T., 608; (RICHARDSON), 1887, T., 802; (BERTHELOT), 1890, A., 6.  
     use of platinous chloride as a source of pure (SHENSTONE and BRICK), 1892, T., 445; P., 70.  
     electrolytic production of (FISCHER), 1885, A., 941.  
     constant production of (VOSMAER), 1889, A., 13.  
     the Weldon-Perchney process for the manufacture of, from magnesium chloride (DEWAR), 1888, A., 411.  
     refractive index of (BRUHL), 1887, A., 193.  
     dispersion equivalent of (GLADSTONE), 1888, A., 349.  
     measurement of light intensity by the expansion of (RICHARDSON), 1892, A., 253.  
     behaviour of, under the silent discharge (VERNON), 1891, A., 877.  
     liquid, properties of (KNIETSCH), 1891, A., 11.  
     temperature of solidification of (OLSZAWSKI), 1881, A., 816.  
     density of (FRUEDEL and CRAFTS), 1888, A., 1251.  
     density of, at high temperatures (CRAFTS), 1883, A., 710.  
     arguments for the compound nature of (ALLARY), 1889, A., 13.  
     dissociation of (LANGER and MEYER), 1883, A., 546.  
     displacement of, by other bleaching agents (HURTER), 1881, A., 226.  
     displacement of, by bromine, and reactions accompanied by the absorption of heat (PORTLIZIN), 1884, A., 955.

**Chlorine**, Potilizin's law of mutual displacement of bromine and (THORPE and RODGER), 1888, P., 20.  
 displacement of, by bromine, in silver chloride (HUMPHREY), 1884, A., 1245.  
 displacement of, in chlorides, by oxygen, by means of anhydrous oxalic acid (ANSCHUTZ), 1885, A., 263.  
 exchange of bromine, iodine and, between organic and inorganic compounds (BRIN), 1885, A., 31; (KOHLEIN), 1885, A., 35.  
 exchange of bromine, iodine and, between organic and inorganic haloid compounds (WILDERMANN), 1892, A., 574.  
 absorption of, by carbon, and its combination with hydrogen (BERTHELOT and GUNTZ), 1884, A., 1249.  
 as discharge in calico-printing (SCHEURER), 1884, A., 1234.  
 industry, future of the (HURTER), 1884, A., 225.  
 as a plant food (FARSKÝ), 1883, A., 497.  
 importance of, in the plant (ASCHOFF), 1890, A., 1182.  
 influence of the secretion of gastric juice on the quantity of, in urine (STICKER), 1888, A., 620.  
 compounds, fate of certain, in the organism (KAST), 1887, A., 612.  
 action of light on a mixture of hydrogen and (AMATO), 1884, A., 1237.  
 chemical action of light on an explosive mixture of hydrogen and (PRINGSHEIM), 1888, A., 205.  
 action of, on carbonic anhydride (LUCION), 1889, A., 673.  
 action of, on nitric peroxide (WILLIAMS), 1886, T., 226.  
 action of, on organic compounds in presence of inorganic chlorides (PAGE), 1885, A., 36.  
 action of oxygen and, on hydrogen (HARKER), 1892, A., 1147.  
 action of, on water in the light (PEDLER), 1890, T., 613; P., 65.  
 direct combination of, with metals (GAUTIER and CHARPY), 1892, A., 118; (KREUSLER), 1892, A., 401.  
 equilibrium between oxygen, hydrogen and (LE CHATELIER), 1890, A., 8.  
 function of, in acid chlorides, as exemplified by sulphuryl chloride (ARMSTRONG), 1891, P., 60.

**Chlorine carriers** (MEYER), 1885, A., 1182; (SCHEUFELN), 1885, A., 1182; 1886, A., 340.  
 solubility of, in chromium oxychloride (ROOZEBOOM), 1886, A., 500.  
 solubility of, in water (GOODWIN), 1883, A., 550; 1885, A., 865.  
**Hydrochloric acid** (*chlorhydric acid*, *hydrogen chloride*), origin of, in the gases of volcanoes (RICCIARDI), 1887, A., 643.  
 preparation of, free from arsenic (BECKURTS), 1885, A., 440.  
 production of (HURTER), 1884, A., 226; (MOND), 1884, A., 1442.  
 obtaining a constant stream of (NEUMANN), 1888, A., 784.  
 obtaining, from calcium chloride (SOLVAY), 1885, A., 705.  
 recovery of, as a bye-product in the ammonia-soda process (MOND), 1885, A., 199.  
 purification of (BENSEMANN), 1884, A., 259.  
 simultaneous synthesis of water and (HAUTEFEUILLE and MARGOTTE), 1890, A., 8.  
 magnetic rotatory power of (PERKIN), 1889, T., 702, 739; P., 130.  
 in solution, correspondence between the magnetic rotation and the refraction and dispersion of light by (GLADSTONE and PERKIN), 1889, T., 758.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 693.  
 electrolysis of (TOMMASI), 1883, A., 142.  
 electrolysis of, a lecture experiment (v. HOFMANN), 1883, A., 280; (ROSENFELD), 1887, A., 633.  
 electrical conductivity of, in different solvents (KARLUKOFF), 1890, A., 97.  
 temperature of solidification of (OLSZEWSKI), 1884, A., 816.  
 coefficients of volatility of aqueous (WARDEN), 1889, A., 337; 1891, A., 798.  
 specific gravity of, tables of (LUNGE and MARCHLEWSKI), 1892, A., 11.  
 diffusion of dilute aqueous ammonia into (STEFAN), 1889, A., 1046.  
 diffusion-coefficient of (STEFAN), 1889, A., 1047.  
 chemical equilibrium between hydrogen in conjunction with metals and (RIBALKIN), 1890, A., 685.

**Hydrochloric acid** (*chlorhydric acid*, *hydrogen chloride*), absorption of, by wool, silk and cotton (MILLS and TAKAMINE), 1883, T., 145, 147, 148.  
 action of light on, in presence of oxygen (RICHARDSON), 1887, T., 801.  
 action of oxygen on, under the influence of light (MCLEOD), 1886, T., 608.  
 decomposition of, by oxygen 'on exposure to light (BERTHELOT), 1890, A., 6.  
 influence of water in promoting the interaction between oxygen and, in presence of light (ARMSTRONG), 1887, T., 806.  
 action of, on the decomposition of chlorine-water by light (KLIMENKO and PEKATOROS), 1889, A., 1093.  
 action of, on phosphorus pentoxide (BAILEY and FOWLER), 1888, T., 756; P., 79.  
 action of, on zinc containing lead (SPRING and VAN ARBEL), 1887, A., 1075.  
 complete removal of arsenic from (OTTO), 1886, A., 850.  
 use of, in Marsh's apparatus (BECKURTS), 1885, A., 440.  
 action of free, of the gastric juice (LANDWEHR), 1887, A., 287.  
 detection of free chlorine in (KUPFFERSCHLIGER), 1890, A., 289; (LERQX), 1890, A., 547.  
 systematic method of testing for (LONGI), 1883, A., 1172.  
 detection of free, in gastric juice, by the methyl-violet reaction (KOST), 1888, A., 996.  
 estimation of free, in the stomach (GUNZBURG), 1888, A., 617; (SJOQUIST), 1889, A., 302; (BOAN), 1889, A., 734; 1892, A., 97; (V. JAKSCH), 1889, A., 1242; (SALKOWSKI and KUMAGAWA), 1891, A., 593; (JOLLES), 1891, A., 613; (FLAWITZKY), 1891, A., 767; (GRAFFENBERGER), 1892, A., 236; (LANGERMANN), 1892, A., 1125.  
 estimation of free, in presence of acid phosphates (FRIEDHEIM and LEO), 1891, A., 1288.  
 estimation of, when mixed with chlorine (YOUNGER), 1890, A., 412.  
 estimation of free, in stannous chloride solutions (MINOR), 1891, A., 241.

**Hydrochloric acid** (*chlorhydric acid*, *hydrogen chloride*), method of estimating hydrocyanic, thiocyanic acids and, when simultaneously present (BORCHERS), 1883, A., 1173.  
**Chloride of lime.** See Calcium hypochlorite.  
**"Chloride of lithia"** (KRAUT), 1883, A., 17; 1884, A., 16; (LUNGE), 1884, A., 820.  
**Chlorides**, production of, from metallic oxides (FAURN), 1888, A., 1250.  
 estimation of the molecular weight of volatile (DILTZ), 1888, A., 1241.  
 compressibility of aqueous solutions of (SCHUMANN), 1887, A., 696.  
 decomposition of, in dilute solutions (FOUSSEREAU), 1886, A., 975.  
 dissolved, effect of pressure on the decomposition of (FOUSSEREAU), 1887, A., 697.  
 action of the galvanic current on (LIDOFF and TICHOMIROFF), 1883, A., 149.  
 action of ammonia on (JOANNIS), 1891, A., 643.  
 action of bromine on (BERTHELOT), 1885, A., 632.  
 displacement of two chlorine-atoms by oxygen in, by means of anhydrous oxalic acid (ANSCHUTZ), 1885, A., 263.  
 effect of hydrochloric acid on the solubility of (ENGEL), 1886, A., 505; 1887, A., 445; (JEANNET), 1886, A., 972.  
 hydrochlorides of (ENGEL), 1890 A., 106.  
 acid, action of, on inorganic compounds (LAHOWICZ), 1886, A., 222.  
 double, specific volume of (ROMANIS), 1884, A., 956.  
 metallic, anhydrous, preparation of (WARREN), 1887, A., 702.  
 physical properties of solutions of (SKINNER), 1892, T., 339; P., 27.  
 influence of concentration on the specific heat of aqueous and alcoholic solutions of (BLUMCKE), 1885, A., 8.  
 hydrated, heats of solution and formation of (SABATIER), 1889, A., 1043.  
 loss of water by, in a vacuum (SABATIER), 1889, A., 1049.

**Chlorides**, metallic, action of, on the photochemical decomposition of chlorine water (KLIMENKO and PEKATOROV), 1889, A., 1093.  
 action of magnesium on (SEUBERT and SCHMIDT), 1892, A., 776.  
 organic, action of inorganic iodides on (SPINDLER), 1886, A., 434.  
 conversion of, into iodides by means of calcium iodide (VAN ROMBURGH), 1883, A., 303.  
 influence of gastric juice on the composition of (GIRARD), 1889, A., 1227.  
 the output of, in its relation to proteid metabolism (KANT), 1888, A., 513.  
 bromides and iodides of the alkalis, distinction between (VITALI), 1890, A., 289.  
 bromides and iodides, reactions for distinguishing when mixed together (HAUER), 1885, A., 1010.  
**Chlorine oxyacids**, constitution of (BLUMSTRAND), 1883, A., 645.  
**Chloric acid**, action of light on (PEDLER), 1890, T., 624.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 593.  
 systematic method of testing for (LONGI), 1883, A., 1172.  
 estimation of (GOUGH and SMITH), 1892, A., 236.  
 estimation, volumetric, of (NAMIAS), 1892, A., 1375.  
 estimation, iodometric, of, in chlorates (McGOWAN), 1891, P., 169; 1892, T., 87.  
**Chlorates**, electrolysis of (LIDOFF and TICHOMIROFF), 1884, A., 542.  
 action of the galvanic current on (LIDOFF and TICHOMIROFF), 1883, A., 149.  
 action of disulphites on (PRUD'HOMME), 1885, A., 207.  
 action of, on metallic evaporating pans (LUNGE), 1886, A., 184.  
 liberation of chlorine during the decomposition of (SPRING and PROST), 1889, A., 1105.  
 physiological action of (MARCHANT), 1888, A., 977; (CAHN), 1888, A., 978.  
 poisoning by (FALKENBERG), 1891, A., 853.  
 detection of (FOURMONT), 1885, A., 430; (BÉHAL), 1886, A., 392; (LINDO), 1888, A., 1337.

**Chlorates**, estimation of, by the zinc-copper couple (BOTHAMLEY and THOMPSON), 1887, P., 141; 1888, T., 164.  
 estimation, iodometric, of (DE KONINCK and NIHOUL), 1891, A., 618.  
 estimation, iodometric, of chloric acid in (McGOWAN), 1891, P., 169; 1892, T., 87.  
**Chlorites**, composition of (SCHLAEPFER), 1891, A., 530.  
 constitution of (CLARKE and SCHNEIDER), 1892, A., 125.  
**Hypochlorous acid**, preparation of additive products of (LAUCH), 1885, A., 1194.  
 action of light on (POPPER), 1885, A., 631; (PEDLER), 1890, T., 622; P., 65.  
 in alkaline solution (AUSTEN), 1889, A., 672.  
 detection of, in chlorine water (SALZER), 1891, A., 212.  
**Hypochlorites**, interaction of ammonium salts and (CROSS and BEVAN), 1890, P., 22.  
**Perchloric acid**, molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 593.  
 thermo-chemical investigation of (BERTHELOT), 1883, A., 8.  
**Chlorine hydrate**, dissociation of (LE CHATELIER), 1885, A., 474; 1886, A., 299; (ROOZEBOOM), 1886, A., 117.  
 hydrates (MAUMENÉ), 1883, A., 780.  
 crystallisation of (DITTE), 1883, A., 550.  
 monoxide (v. GARZAROLLI-THURNLACKH and SCHACHERL), 1886, A., 118.  
 for lecture experiments (MEYER), 1884, A., 552, 710.  
**Chlorine detection, estimation and separation:**—  
 detection of (DECHAN), 1886, T., 632; P., 227.  
 detection of, in alkaline thiocyanates (MANN), 1890, A., 663.  
 detection of, in presence of bromides and iodides (DE KONINCK), 1886, A., 179; (DENIGES), 1891, A., 495, 1288.  
 detection of free, in hydrochloric acid (KUPFFERSCHLÄGER), 1890, A., 289; (LEROY), 1890, A., 547.  
 detection of, and bromine, in presence of iodine (MACNAIR), 1892, A., 1514.  
 detection of, in organic compounds (MARSH), 1889, A., 796.

**Chlorine detection, estimation and separation:—**

detection of, and of bromine and iodine (JONES), 1884, A., 492; (HARR), 1885, A., 295; (GOOCH and BROOKS), 1891, A., 361.

test for available, in bleach works and similar establishments (DAUB), 1884, A., 775.

diphenylamine and naphthol as reagents for free (HAGER), 1886, A., 96, 97.

naphthol and sulphuric acid as a reagent for free (HAGER), 1886, A., 99.

estimation of (DECHAN), 1886, T., 682; P., 227; (ŠROLBA), 1888, A., 751; (LINGSIER and LIGNON), 1889, A., 302; (DE LA HARPE and REVERDIN), 1889, A., 1087; (DE KONINCK and LECRENIER), 1892, A., 527.

estimation, volumetric, of (BOHLIG), 1886, A., 178; (WHITE), 1889, A., 302.

estimation of, by Field's method (WILLGERODT), 1886, A., 833.

estimation of, in alkaline thiocyanates (MANN), 1890, A., 663.

estimation of active, in bleaching powder (LIDOFF), 1886, A., 487; (NAMIAS), 1892, A., 1374.

estimation of, in presence of bromine, by Vortmann's method (BERGLUND), 1885, A., 836.

estimation of, direct, in presence of bromine (VORTMANN), 1886, A., 643.

estimation of, in presence of bromine and iodine (VORTMANN), 1883, A., 119; (LYTTE), 1884, A., 694.

estimation, indirect, of bromine, iodine and, by electrolysis of their silver salts (WHITFIELD), 1887, A., 525.

estimation of, direct, in mixtures of chlorides and iodides (GOOCH and MAR), 1890, A., 920.

estimation of, when mixed with hydrogen chloride (YOUNG), 1890, A., 412.

estimation of, in presence of organic matter (POMEROY), 1884, A., 109.

estimation of, in organic compounds (ZULKOWSKI), 1885, A., 1162.

estimation of, in plant ashes (JOLLES), 1889, A., 73.

estimation of, in presence of sulphuretted hydrogen (TORSÖN), 1883, A., 508.

**Chlorine, estimation and separation:—**  
estimation of, in urine (BRIGNONE), 1888, A., 990.

estimation, volumetric, of, in urine (CORVI), 1891, A., 495.

estimation of, in water (HAZEN), 1890, A., 86.

estimation of, in rain water (WARINGTON), 1889, T., 545.

separation of, from mercury, phosphoric and arsenic acids (HAAK), 1892, A., 530.

separation, quantitative, of, from bromine (BERGLUND), 1885, A., 836.

separation of, from bromine and iodine (BARNE), 1883, A., 1167; (DECHAN), 1887, T., 690; (SCHIERHOLZ), 1892, A., 1028.

separation of, from bromine, iodine, and cyanogen (ERRERA), 1889, A., 304.

separation of, from iodine in the dry way (KRUTWIG), 1884, A., 1073.

**Chlorine-atoms, ketonic, displacement of, by hydrogen (LACHOWICZ), 1884, A., 1039.**

**Chlorine-water, action of light on (EDER), 1885, A., 1173.**

decomposition of, in sunlight (POPPER), 1885, A., 631; 1886, A., 301; (V. PEBAL), 1886, A., 302.

rate of decomposition of, by light (GORE), 1890, A., 849.

influence of hydrochloric acid on the decomposition of, by light (RICHARDSON), 1891, T., 539.

action of hydrochloric acid and metallic chlorides on the photochemical decomposition of (KLIMENKO and PEKAROVSK), 1889, A., 1093.

detection of hypochlorous acid in (SALZER), 1891, A., 242.

**Chloro-mono- and -diiodoacrylic acids (STOLZ), 1886, A., 531.**

**pentachloriodobenzene (ISTRATI), 1891, A., 1197.**

**Chloriododihydroxyquinone (KERNMANN and TRESLER), 1890, A., 242.**

**diChloriodoethane (HENRY), 1884, A., 719.**

**rs-Chloriodoethylene (HENRY), 1884, A., 719, 830, 831.**

**diChlorotetridofluorescein (LE ROYER), 1897, A., 832.**

**Chloriodohydrin, methyl, ethyl, and propyl ethers of (PAAL), 1889, A., 31.**

**triChloriodophenetol (LAMPERT), 1886, A., 617.**

**triChloriodophenol (LAMPERT), 1886, A., 617.**

- Chloriodipicoline (OSI), 1883, A., 793.  
*m*-Chloriodosalicylic acid (SMITH and KNERER), 1886, A., 704.  
 Chlorisatoic acid, derivatives of (DOUSCH), 1886, A., 359.  
 Chlorisethionic acid, anilide of (LEHMANN), 1885, A., 787.  
*tri*Chloritamalic acid. See *tri*Chloropyrotartaric acid.  
 Chlorite from Albemarle Co., Virginia (BIRD), 1886, A., 130.  
   from the Bottino, Serravezza (FUSARO and BUSATTI), 1884, A., 271.  
   manganiferous, from Harstigen Mine, Sweden (HAMBERG), 1892, A., 1411.  
   from Vielsalm, Belgium (KLEMENT), 1891, A., 528.  
   See also Clinocllore, Penninite, and Ripidolite.  
 Chlorite-group, theories of the structure of (CLARKE), 1892, A., 794.  
 Chloritoid containing manganese (PROST), 1886, A., 129.  
   from Michigan (KELLER and LANE), 1891, A., 1439; (LANE, KELLER and SHARPLESS), 1892, A., 793.  
   from Morbihan (BAIROIS), 1885, A., 1118.  
 Chloritoid-schist from Grossarl (CATHREIN), 1888, A., 568.  
 diChlorobarbituric acid, mode of formation of (BEHREND), 1887, A., 129.  
 tetraChlorobastin (GROSS and DEVAN), 1883, T., 20.  
 Chlorobenzaldehyde. See Benzaldehyde.  
*m*-Chlorobenzaldehydophenylhydrazone (EICHENGRUN and EINHORN), 1891, A., 1098.  
*o*-Chlorobenzaldoxime (BEHREND and NISSEN), 1892, A., 1199.  
 Chlorobenzene. See Benzene.  
 Chlorobenzeneazo-. See Benzeneazo-.  
*p*-diChlorobenzene- $\alpha$ -dimethyl-*p*-difurfuran- $\beta$ -dicarboxylic acid (KUTA), 1892, A., 610.  
*p*-Chlorobenzenesulphonic chloride (KRAFFT and ROOS), 1892, A., 1220.  
 Chlorobenzil (REDZKO), 1890, A., 783.  
*p*-Chlorobenzoyl-*p*-chloranilide (DITTRICH), 1891, A., 1237.  
 Chlorobenzoic acid. See Benzoic acid.  
*p*-Chlorobenzoic sulphinide (DE ROODE), 1891, A., 1227.  
*o*-Chlorobenzoyl-*p*-nitranilide (WILKENS and RACK), 1884, A., 602.  
 3:5- and 2:6-diChlorobenzonitrile (CLAUS and STAVENHAGEN), 1892, A., 1206.  
*pent*aChlorobenzonitrile (MERZ and WEITZ), 1884, A., 589.  
*p*-Chlorobenzophenone- $\alpha$ -oxime and - $\beta$ -oxime benzyl ether (DEMUTH and DITTRICH), 1891, A., 314.  
*p*-Chlorobenzophenoneoximes (DEMUTH and DITTRICH), 1891, A., 314; (HANTZSCH), 1891, A., 446.  
   intramolecular change of (WEGGHOFF), 1889, A., 1066.  
*s*-*p*-diChlorobenzophenoneoximes (DITTRICH), 1891, A., 1237.  
*p*-Chlorobenzotrichloride (KLEPL), 1884, A., 447.  
*m*-Chlor-*o*-benzoylbenzoic acid (GRAEBE and RIEB), 1886, T., 530.  
 diChlor-*o*-benzoylbenzoic acid (LE ROYER), 1887, A., 832.  
 tetraChlor-*o*-benzoylbenzoic acid (KIRCHER), 1887, A., 831.  
*o*-Chlorobenzyl-*o*-chlorobenzaldoxime (BEHREND and NISSEN), 1892, A., 1199.  
 *$\beta$* -di-*o*-Chlorobenzylidihydroxylamine (BEHREND and NISSEN), 1892, A., 1199.  
*p*-Chlorobenzyl ethyl ether, and its decomposition by heat and by nitric acid (ERRERA), 1887, A., 1103.  
 *$\beta$* -*o*-Chlorobenzylhydroxylamine (BEHREND and NISSEN), 1892, A., 1200.  
*p*-Chlorobenzyl alcohol, derivatives of (ERRERA), 1889, A., 247.  
   ether (ERRERA), 1889, A., 248.  
*o*-Chlorobenzylidenemalononic acid (STUART), 1887, P., 118; 1888, T., 141.  
 Chlorobenzylidenephthalimidine (GABRIEL), 1887, A., 62.  
 Chlorobenzylidenethiobiuret (ABEL), 1891, A., 703.  
*tri*Chlorobenzylidenetrichlorides (*pentachlorotoluenes*),  $\alpha$ - and  $\beta$ - (SEELIG), 1885, A., 770.  
*p*-Chlorobenzoyloxybenzophenone (DEMUTH and DITTRICH), 1891, A., 314.  
 Chlorobrassicic acid (HOLT), 1892, A., 429.  
 diChlorobrassicic acid (HOLT), 1892, A., 429, 1427.  
 diChlorobromacetamide (ZINCKE and KEGEL), 1890, A., 489.  
 1:4-Chlorobromacetanaphthalide (MELDOLA and DESCH), 1892, T., 768.  
 Chlorobromacetone. See Acetone.  
*hexa*Chlorodibromacetylacetone (ZINCKE and KEGEL), 1890, A., 489.  
*tri*Chlorobromacetylarylic acid (KESKULÉ and STRUCKER), 1884, A., 1122.  
 diChlorobromacetylpentachlorobutyric acid (ZINCKE and RABINOWITSCH), 1891, A., 691.

- β*-*d*-Chlorobromacrylic acid and its salts (MABERY and NICHOLSON), 1885, A., 507, 510.
- Chlorodibromacrylic acids,  $\alpha$ - and  $\beta$ -, and their salts (MABERY and LLOYD), 1885, A., 510.
- ω*-*d*-Chlor-*m*-brom-*o*-amidoacetophenone (v. BAeyer and BLOEM), 1884, A., 1027.
- Chlorobromanilic acid (LING), 1887, T., 784.  
from *m*-dichloro-*m*-bromoquinone (LEVY), 1888, A., 1117.  
potassium salt of (LING), 1887, T., 785.  
sodium salt of, crystallography of the (POPE), 1892, T., 584; P., 106.
- tri*Chlorobromazimidobenzene (ZINCKE and ARZBERGER), 1889, A., 502.
- Chlorobromethane. See Ethylenic chlorobromide.
- Chlorodibromethane, action of zinc dust and alcohol on (GUSTAVSON), 1892, A., 1293.
- tri*Chlorobromethane (HENRY), 1884, A., 978.
- Chlorobromiodoacrylic acid (STOLZ), 1886, A., 531.
- Chlorobromiodoethane, and its decomposition (HENRY), 1884, A., 880.
- Chlorobromobenzene. See Benzene.
- Chlorobromobenzoic acids (WILLGERODT and SALZMANN), 1889, A., 985.
- d*-Chlorodibromo-*n*-butane (NEWBURY), 1884, A., 295.
- $\psi$ -Chlorobromocarbostyryl (DECKER), 1892, A., 630.
- Chlorobromocamphor. See Camphor.
- Chlorobromoform (*chlorodibromethane*) (DYKON), 1883, T., 36.
- tri*Chlorobromofurfuran (HILL and JACKSON), 1890, A., 601.
- Chlorobromohydroxyacrylic acid (MABERY and SMITH), 1890, A., 27.
- d*-Chlorodibromoketohydrindene (ZINCKE and FRÖHLICH), 1887, A., 955.
- penta*Chlorobromoketopentene (ZINCKE and KUSTER), 1890, A., 1256.
- Chlorobromomethane (*methylene chlorobromide*) (HENRY), 1886, A., 43.
- Chlorodibromomethane (DYKON), 1883, T., 36, 37.
- Chlorobromomethanesulphonic acid, barium salt of (ANDREASCH), 1886, A., 786.
- 2-Chloro-1:3'-*d*-bromonaphthalene (CLAUS and PHILIPSON), 1891, A., 462.
- $\beta$ -Chloro- $\alpha$ -bromonaphthalene (GUARESCHI), 1889, A., 614.
- Chlorobromonaphthalenes (GUARESCHI and BIGINELLI), 1887, A., 1113.
- p*-Chlorobromo- $\alpha$ -naphthoquinone (GUARESCHI and BIGINELLI), 1887, A., 1114.
- 3'-Chloro-1-bromo- $\beta$ -naphthol (ARMSTRONG and ROSSITER), 1889, P., 72; 1891, P., 33.
- 1-Chloro-6-bromo- $\beta$ -naphthylamine (ARMSTRONG and ROSSITER), 1891, P., 33.
- 1:4-Chlorobromo- $\beta$ -naphthylamine (MELDOLA and DESCH), 1892, T., 768.
- 1:4:2-Chlorobromonitronaphthalene (MELDOLA and DESCH), 1892, T., 768.
- Chlorobromonitrophenol. See Phenol.
- Chlorobromonitroquinone (GARZINO), 1890, A., 1108.
- Chlorobromonitrotetraphthalic acid (WILLGERODT and WOLFEN), 1889, A., 966.
- Chlorobromonitro-*p*-toluic acid (WILLGERODT and WOLFEN), 1889, A., 966.
- 4-Chloro-5-bromonitro-*m*-xylene (CLAUS and GRONWEG), 1891, A., 921.
- "*tri*Chloro-*m*-*d*-bromoxybenzene" (BENEDIKT), 1883, A., 984.
- Chlorobromophenol. See Phenol.
- Chlorodibromophenylic benzoate (GARZINO), 1890, A., 1108.
- Chlorobromo- $\beta$ -phenylpropionic acid (ERLENMEYER), 1883, A., 196.
- 4-Chloro-5-bromophthalic acid (CLAUS and GRONWEG), 1891, A., 921.
- p*-Chlorobromophthalide (GUARESCHI and BIGINELLI), 1887, A., 1111.
- Chlorobromopropionic acid. See Propionic acid.
- d*-Chlorobromopyromucic acids (HILL and JACKSON), 1890, A., 601.
- d*-Chlorobromopyruvic acid (HANTZSCH), 1890, A., 132.
- Chlorobromoquinol. See Quinol.
- Chlorobromoquinone. See Quinone.
- Chlorobromotetraphthalic acid (WILLGERODT and WOLFEN), 1889, A., 966.
- d*-Chlorodibromotetrahydroxydiphenyl (BENEDIKT), 1883, A., 985.
- d*-Chlorodibromotetraketohexamethylene (NEF), 1890, A., 1271.
- $\alpha$ -Chloro-*p*-bromothymoquinol (SCHNITZER), 1887, A., 720.
- Chlorobromotoluenes (WILLGERODT and SALZMANN), 1889, A., 986.
- Chlorobromo-*p*-toluic acid (WILLGERODT and WOLFEN), 1889, A., 966.

- 2 Chloro-5-bromo-*p*-toluic acid (CLAUS and DAVIDSEN), 1892, A., 173.
- 4-Chloro-5-bromo-*m*-xylene and 4:5-dichloro-3-bromo-*m*-xylene (CLAUS and GROENEWEG), 1891, A., 921.
- 2:4-diChloro-5:6-di-bromo-*m*-xylene (KUCH), 1890, A., 1248.
- Chlorobromo-*p*-xylenes, and their derivatives (WILLGERODT and WOLFIEN), 1889, A., 965.
- d*.Chlorobrucine (BRACKHUIS), 1890, A., 1330.
- $\alpha$ -*γ*-diChlorobutaldehyde (NATTERER), 1883, A., 965.
- tri*Chlorobutaldehyde (NATTERER), 1883, A., 966.
- See also Butylchloral.
- Chloroisobutaldehyde (BROCHER), 1892, A., 1292.
- tetra*Chloroisobutane (WILLGERODT and DÜRR), 1887, A., 570.
- penta*Chlorobutinenecarboxylamide (*pentachloropentohamide*) (ZINCKE and KUSTER), 1890, A., 1257.
- penta*Chlorobutinenecarboxylic acid (ZINCKE and KUSTER), 1888, A., 1278.
- Chlorobutyl derivatives, normal and primary (HENRY), 1886, A., 215.
- δ-Chlorobutylamine (GABRIEL), 1892, A., 131.
- Chloroisobutylamines, *mono*- and *di*- (BERG), 1892, A., 1172.
- p*-Chloroisobutylbenzene (v. DOBRZYCKI), 1888, A., 369.
- Chloroisobutylene (SCHESCHUKOFF), 1884, A., 1276.
- di*Chloro- $\psi$ -butylenic *di*/bromide (NEWBURY), 1881, A., 295.
- Chlorobutylglyoxaline (*chlorobutylglyline*) (WALLACH), 1883, A., 50.
- tri*Chlorobutyl alcohol, action and fate of, in the animal organism (KULZ), 1885, A., 283.
- chloride, tertiary (WILLGERODT and DÜRR), 1887, A., 570.
- oxide, tertiary (WILLGERODT and DÜRR), 1887, A., 570.
- per*Chlorobutyl *per*chlorosebacate (HEHRING), 1887, A., 801.
- $\gamma$ -Chlorobutyramide (HENRY), 1886, A., 216.
- $\alpha$ -*di*Chlorobutyranilide (RUGHIMER and SCHRAMM), 1888, A., 502.
- Chlorobutyric acids. See Butyric acids.
- $\gamma$ -Chlorobutyric chloride (HENRY), 1886, A., 216.
- $\alpha\beta$ -*di*Chlorobutyric chloride (ZEISEL), 1886, A., 1007.
- Chlorobutyrimidoether hydrochloride (PINNER), 1884, A., 1292.
- $\gamma$ -Chlorobutyronitrile (HENRY), 1886, A., 215; (GABRIEL), 1890, A., 1221.
- Chlorocaffeine (FISCHER and REESE), 1881, A., 466.
- Chlorocamphor. See Camphor.
- Chlorocamphorsulphonic acids,  $\alpha$ - and  $\beta$ -, salts of (MARSH and COUSINS), 1891, T., 978.
- $\alpha$ -Chlorocamphorsulphonic chloride (MARSH and COUSINS), 1891, T., 978.
- Chlorocamphoryl chloride (MARSH), 1890, A., 995.
- Chlorocarbonylsulphamyl (SCHÖNR), 1885, A., 512.
- p*-Chlorocarbostyryl (*p*-chloro-2'-oxyquinoline) (EINHORN and LAUCH), 1888, A., 501.
- $\beta$ -Chlorocarbostyryl (FRIEDLÄNDER and WEINBERG), 1888, A., 351.
- Chloro- $\psi$ -carbostyryl (EINHORN and LAUCH), 1888, A., 501.
- Chlorocellulose, formation of, electrochemically (GOPPELSIEDER), 1885, A., 208.
- di*Chlorocinchonine (COMSTOCK and KOENIGS), 1892, A., 1011.
- $\alpha$ -Chlorocinnam-aldehyde and -aldoxime (NAAR), 1891, A., 562.
- Chlorocinnamic acid. See Cinnamic acid.
- Chlorocinnoline (BUSCH and KLETT), 1892, A., 1194.
- tri*Chlorocitrazinimide, compound of with aniline (RUEHMANN), 1888, A., 728.
- Chlorocitryl chloride, constitution of (SKINNER and RUEHMANN), 1889, T., 240.
- action of aniline and toluidine, of heat and of water on (SKINNER and RUEHMANN), 1889, T., 236.
- di*Chlorocomanic acid (OST), 1885, A., 49.
- Chlorocoumarone (KRAEMER and SPILKER), 1890, A., 496.
- Chlorocresol. See Cresol.
- Chlorocrotonaldehyde. See Crotonaldehyde.
- di*Chlorocrotonalaldoxime (SCHIFF and TARUHI), 1892, A., 34.
- Chlorocrotonic acids. See Crotonic acids.
- Chlorocrotonylcarbamide (PINNER and LIFSCHUTZ), 1887, A., 1032.
- Chlorocruorine (GRIFFITHS), 1892, A., 1256.
- Chloroethylbenzene (AURENS), 1887, A., 133.
- Chloro-*n*-cumene (*chloropropylbenzene*) (ERRERA), 1887, A., 35.
- Chloro- $\psi$ -cumene (WALLACH and HEUSLER), 1888, A., 362.

- o*-Chlorocumylacrylic acid (WIDMAN), 1891, A., 69.  
*o*-Chlorocumylpropionic acid (WIDMAN), 1891, A., 69.  
 Chlorocyanic acid (BELLMANN), 1884, A., 810.  
 Chlorocyanuric iodide (KLASON), 1886, A., 1001.  
 Chlorocymene. See Cymene.  
 Chlorocymenesulphonic acid (CARRARA), 1890, A., 779.  
 6-Chlorocymene-2-sulphonic acid (ERRERA), 1890, A., 1288.  
*tri*-Chloro-*m*-isocymene-6-sulphonic acid, and its sodium salt (KEILBE), 1883, A., 806.  
 Chlorodecane from American petroleum (LEMOINE), 1884, A., 1107.  
 Chlorodecyl benzoate (GROSJEAN), 1892, A., 691.  
 Chlorodehydrobenzoylacetate, preparation and properties of (PERKIN), 1885, T., 292.  
*di*-Chloroisodehydrocholal (LASSARCOHN), 1892, A., 741.  
 Chlorodehydrocholic acid (LASSARCOHN), 1892, A., 741.  
 Chlorodeoxybenzoin (CURTIUS and LANG), 1892, A., 451.  
 Chlorodeoxybenzoin-*o*-carboxylic acids, *α*-*di*- and -*tetra*- (GABRIEL and HENDESS), 1888, A., 145.  
*p*-Chlorodesaurin (PETRENKO-KRITSCHENKO), 1892, A., 1227.  
 6-Chloro-2:5-diacetamidquinol (KEHRMANN and TIESLER), 1890, A., 243.  
 6-Chloro-2:5-diacetamido-4-quinone (KEHRMANN and TIESLER), 1890, A., 243.  
 Chlorodiacetylacetone (FEISI), 1892, A., 811.  
 derivatives of (LEVY, WITTE and CURCHOD), 1890, A., 232.  
*tetra*-Chlorodiacetyl (*tetrachlorodimethyl diketone*), action of ammonia and ethylenediamine on (LEVY and JEDLIČKA), 1888, A., 443; (LEVY), 1890, A., 475.  
 Chlorodiacetylquinol (SCHNEID), 1884, A., 430.  
 Chlorodiamylamine (BERG), 1890, A., 952.  
 action of sodium and potassium cyanides on (BERG), 1892, A., 804.  
 5-Chloro-3:6-dianilido-2-ethoxy-1:4-quinone (KEHRMANN), 1891, A., 903.  
 Chlorodianilidophenylquinoneimide (ANDRESEN), 1884, A., 431.  
*di*-Chlorodanthranyl (SACHSE), 1888, A., 1201; 1890, A., 638.  
*di*-Chlorodanthranyl octochlorido (SACHSE), 1890, A., 638.  
*tetra*-Chloro-*m*-diazine (*tetrachloropyrimidine*) (CIAMICIAN and MAGNAGHI), 1886, A., 226.  
 Chlorodiaz-. See Diazo- under Azo-  
 Chlorodiisobutylamine (BERG), 1892, A., 1173.  
 Chlorodiisobutylene *dichloride* (MALLBOT and GENTIL), 1889, A., 813.  
 Chloro-2':3' or 1'-diethoxymethylquinoline (RUGHIMER and HOFFMANN), 1886, A., 160.  
 Chlorodiethylamine (GATTERMANN), 1886, A., 796.  
 Chlorodiethylenediamine cobalt chloride (JORGENSEN), 1889, A., 352.  
 Chlorodihydromecenic acid (HILFEBEIN), 1885, A., 1203.  
*p*-*di*-Chlorodihydroterephthalic acid (LEVY and ANDRESCI), 1888, A., 840, 1091.  
 Chloro-3:5-dihydroxybenzoic acids, *di*- and *tri*- (ZINCKE and FUENS), 1892, A., 1461.  
 Chlorodihydroxybutanes, *mono*- and *di*- (ZIKKE), 1885, A., 1016.  
 3:2'-4'-Chlorodihydroxydihydroquinoline (EICHENGRUN and EINHORN), 1890, A., 1128; 1891, A., 1100.  
 6:3:2:5-Chloro-*p*-dihydroxyethoxyquinone (KEHRMANN), 1891, A., 904.  
 Chlorodihydroxy-*α*-picolines, *di*- and *tri*- (HOFFMANN), 1889, A., 856.  
 3'-Chloro-2'-1'-dihydroxy-1-methylquinoline (*chlorohydroxy-*o*-toluarcarbostyryl*) (RUGHIMER and HOFFMANN), 1886, A., 160.  
 1:1'-*di*-Chloro-2:2'-dihydroxynaphthalene and 1:3:3':1'-*tetrachloro*-2:2'-dihydroxynaphthalene (CLAUSIUS), 1890, A., 629.  
*di*-Chlorodihydroxypentane-carboxylic acid (HANTZSCH), 1888, A., 131; 1889, A., 853.  
*tri*-Chlorodihydroxypentane-carboxylic acid (HANTZSCH), 1888, A., 130; 1889, A., 853; (HOFFMANN), 1889, A., 856.  
 2:4'-*di*-Chloro-1:1'-dihydroxyquinoline (HIEBERAND), 1889, A., 61.  
 Chlorodihydroxyisquinoline (RUHEHEIMER), 1886, A., 702.  
 Chloro-3:2:5-dihydroxyquinone (KEHRMANN and TIESLER), 1890, A., 242; (KEHRMANN), 1890, A., 756.  
*di*-Chlorodihydroxyquinone. See Chloroanilic acid.  
*p*-*di*-Chloro-*p*-dihydroxyterephthalic acid (HANTZSCH and ZECKENDORF), 1888, A., 278.

- Chloro-2:4-dihydroxy-*m*-xylene** (*chlorodimethylresorcinol*) (WISCHIN), 1891, A., 74.
- tetraChlorodiketodihdropentene** (ZINCKE and RABINOWITSCH), 1891, A., 691.
- heptaChloro-*m*-diketohexamethylene** (ZINCKE and RABINOWITSCH), 1891, A., 690.
- Chlorodiketohezene.** See Diketohezene.
- diChloro- $\alpha$ -diketohydrindene** (ZINCKE), 1888, A., 489.
- Chlorodiketohydronaphthalene.** See Diketohydronaphthalene.
- Chlorodiketopentamethylene** (HANTZSCH), 1888, A., 132.
- Chlorodiketopentamethylenecarboxylic acid** (HANTZSCH), 1888, A., 132.
- Chlorodiketopentamethylenedihydroxycarboxylic acids, mono- and di-** (HANTZSCH), 1890, A., 131, 132.
- triChlorodiketopentamethylenedihydroxycarboxylic acid** (HANTZSCH), 1888, A., 1190; (LANDOLT), 1892, A., 835.
- tetraChlorodiketopentamethylenedihydroxycarboxylic acid** (LANDOLT), 1892, A., 836.
- monoChloro- and  $\epsilon$ -dichloro- $\alpha$ - $\delta$ -diketopentane-carboxylic acids** (HANTZSCH), 1889, A., 854.
- hexaChlorodiketotetrahydrobenzene** (ZINCKE and KUSTER), 1888, A., 1277.
- triChlorodimethylacetal** (MAGNANIMI), 1887, A., 28.
- triChlorodimethylamidophenylquinone-imide** (MÖHLAU), 1884, A., 595.
- Chlorodimethylanilines, *o*- and *p*-, and derivatives** (HEIDLBERG), 1887, A., 474.
- 4-Chloro-2:6-dimethylpyridine** (4-chloro-2:6-lutidine) and its derivatives (CONRAD and EPSTEIN), 1887, A., 501.
- diChlorodimethylquinol** (CLAUS and RUNSCHE), 1890, A., 1247.
- tetraChlorodimethylquinoxaline** (LEVY, WITTE and CURCHOD), 1890, A., 232.
- Chlorodimethylresorcinol** (*chloro-2:4-dihydroxy-*m*-xylene*) (WISCHIN), 1891, A., 74.
- s*- $\alpha$ -diChlorodimethylsuccinamic acid** (OTTO and HOLST), 1890, A., 958.
- $\alpha$ -diChloro-*s*-dimethylsuccinic anhydride** (OTTO and HOLST), 1890, A., 957.
- action of phenylhydrazine on (OTTO and HOLST), 1890, A., 1327.
- tetraChlorodimethyltartar-amide and -imide** (LEVY, WITTE and CURCHOD), 1890, A., 233.
- perChlorodioxidiphenylene** (HUGOUNENQ), 1889, A., 1150.
- perChlorodiphenyl** (MERZ and WEITH), 1884, A., 589.
- p*-Chlorodiphenylamine** (IKUTA), 1888, A., 467.
- di-*p*-Chlorodiphenylcarbamide** (HEWITT), 1891, T., 212.
- Chlorodiphenylcarbamides, *m*- and *p*-** (GOLDSCHMIDT and BARDACH), 1892, A., 979.
- diChlorodiphenyldi-*m*-carboxylic acid** (STOLLE), 1888, A., 700.
- o*-diChlorodiphenylsulphone** (FRIEDEL and CRAFTS), 1887, A., 1101.
- tetraChlorodiphthalyl** (GRAEBE and GUYE), 1886, A., 882.
- diChloroditolylidiacetylene-*di*-amide** (BISCHOFF and NASTVOGEL), 1890, A., 1161.
- diChloroditolyl** (STOLLE), 1888, A., 699.
- Chlorodurene.** See Durene.
- Chlorodurenesulphonic acid** (TÜHL), 1892, A., 1465.
- $\alpha$ -diChlorofluorene** (HODGKINSON and MATTHEWS), 1893, T., 170.
- triChlorofluorene** (HOLM), 1883, A., 922.
- $\beta$ -Chlorofluorescein** (GRAEBE and REE), 1886, T., 530.
- diChlorofluorescein** (LE ROYER), 1887, A., 832.
- tetraChlorofluorescein** (GRAEBE), 1887, A., 833.
- Chloroform** (*trichloromethane*), preparation of (ANON.), 1885, A., 46; (MICHAELIS and MAYER), 1886, A., 999.
- preparation of, from acetone (OUBORFF and JESSEL), 1889, A., 34.
- purification of (WERNER), 1888, A., 570.
- molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- thermochemistry of (BERTHELOT and MATIGNON), 1891, A., 1311.
- coefficient of expansion of (CHANCEL and PARMENTIER), 1885, A., 631.
- peculiar phenomena in the solidification of (PIETER), 1892, A., 1138.
- specific gravity of, at different temperatures (CHANCEL and PARMENTIER), 1885, A., 631.
- action of ammonia and water on (ANDRÉ), 1886, A., 521.
- action of potash on a mixture of acetone and (ENGEL), 1887, A., 569.
- action of sodium benzenesulphinate on (R. and W. OTTO), 1888, A., 841.
- action of sulphides on (PRUNIER), 1890, A., 291.



- di*Chlorohydroxydiketohydrindocarb-  
oxylic acid (ZINCKE), 1888, A., 489.  
2:4-*di*Chloro-1-hydroxy-1'-ethoxy-  
quinoline (HEBERBRAND), 1889, A., 61.  
*tri*Chlorohydroxyethylidene-2'-methyl-  
β-naphthaquinoline (SEITZ), 1889, A.,  
527.  
2'-Chloro-4'-hydroxy-3'-ethylquinoline  
(RÜGHEIMER and SCHRAMM), 1887,  
A., 738.  
Chlorohydroxyethyltrimethyl-  
ammonium platinochloride (BODE),  
1892, A., 807.  
*tetra*Chloro-α-hydroxyhydrindene and  
*di*chlorohydroxyketohydrindene  
carboxylamide (ZINCKE and ARNST),  
1892, A., 858.  
*di*Chlorohydroxyketohydrindenecarb-  
oxylic acid, chlorinated and  
brominated (ZINCKE and GERLAND),  
1888, A., 1198, 1199.  
Chlorohydroxyketoindene (ZINCKE and  
GERLAND), 1888, A., 1199.  
3'-Chlorohydroxy-1-methylcarbostyryl  
[(OH)<sub>2</sub> = 2':4'] (RUGHEIMER and  
HOFFMANN), 1886, A., 160.  
2'-Chloro-4'-hydroxy-1-methyl-3'-  
ethylquinoline (RUGHEIMER and  
SCHRAMM), 1887, A., 738.  
*di*Chlorohydroxymethylpurin (FIS-  
CHER), 1884, A., 996.  
Chloro-δ-hydroxy-β-methylquinazoline  
(DEHOFF), 1890, A., 802.  
2':3'-*di*Chloro-4'-hydroxy-1-methyl-  
quinoline, 3':4'-*di*chloro-2'-hydroxy-  
1-methylquinoline and 3':4'-*di*-  
chloro-2'-hydroxy-3-methylquinoline  
(RUGHEIMER and HOFFMANN), 1886,  
A., 160.  
Chlorohydroxymethylisoquinoline  
(GABRIEL), 1887, A., 1112.  
*tri*Chlorohydroxymethylsuccinic acid,  
and its salts (FITTIG and MILLER),  
1890, A., 586.  
Chlorohydroxynaphthaquinone. See  
Hydroxynaphthaquinone.  
ββ-Chlorohydroxynaphthaquinoneanil-  
ide (ZINCKE and KEGEL), 1889, A.,  
268.  
Chlorohydroxynaphthaquinone-α-carb-  
oxylic acid (EKSTRAND), 1889, A.,  
153.  
Chlorohydroxynaphthaquinoneimide  
and β-chlorohydroxy-α-naphthaquin-  
oneoxime (ZINCKE and SCHMUNK),  
1890, A., 1147.  
Chloro-α-hydroxynaphthaquinonesulph-  
onic acid (CLAUS and VAN DER  
CLOET), 1888, A., 603.  
Chlorohydroxy-α-naphthoic acid (EK-  
STRAND), 1889, A., 153.  
αβ-*di*Chloro-β-hydroxy-α-naphthyl-  
phenylamine (ZINCKE and KEGEL),  
1889, A., 268.  
Chlorohydroxyoxydipropionic acid  
(WILLGERODT and SCHIFF), 1890, A.,  
959.  
γγ-*hexa*Chloro-α-hydroxypentene cyan-  
ide (ZINCKE and KÜSTER), 1890, A.,  
1256.  
γγ-*hexa*Chlorohydroxypentenecarb-  
oxylic acid (ZINCKE and KÜSTER),  
1890, A., 754.  
Chlorohydroxyphenindulone (KEHR-  
MANN and MESSINGER), 1891, A.,  
747.  
ββ-*di*Chloro-α-hydroxyphenylpyridone  
and its carboxylic acid (ZINCKE and  
FUCHS), 1892, A., 448, 449.  
Chlorohydroxyphenylthiazole (SCHATZ-  
MANN), 1891, A., 745.  
Chlorohydroxypicolinic acid. See Hydr-  
oxypicolinic acid.  
β-*tri*Chloro-α-hydroxypropenyl-amid-  
oxime and -ethenylazoxime (RICH-  
TER), 1892, A., 321.  
α-*tri*Chloro-β-hydroxypropylacridine  
(*methyl acridinechloral*) (BERNHUSEN  
and MUHLERT), 1887, A., 849.  
*tri*Chlorohydroxypropylamine (FAU-  
CONNIER), 1888, A., 1265.  
α-*tri*Chlorohydroxypropylpyrrolone  
(EINHORN and LIEBRECHT), 1887,  
A., 845.  
*tri*Chloro-α-hydroxypropylquinoline  
(EINHORN), 1886, A., 721.  
*di*Chlorohydroxypyridine (KÖNIGS and  
GEIGY), 1884, A., 1869.  
Chlorohydroxyquinoline. See Hydroxy-  
quinoline.  
Chlorohydroxyisoquinolines, *mono*- and  
*di*- (RUGHEIMER), 1886, A., 702.  
2-Chloro-3-hydroxyquinolinequinone  
and its anilide (ZINCKE) 1891, A.,  
1251.  
p-Chlorohydroxyquinone (STIEGLITZ),  
1891, A., 156.  
Chlorohydroxy-*o*-toluencarbostyryl. See  
3'-Chloro-2':4'-*di*hydroxy-1-methyl-  
quinoline.  
*di*Chlorohydroxytrimethyluracil (HA-  
GEN), 1888, A., 582.  
Chlorohydroxyvaleric acids (MELI-  
KOFF and PETRENKO-KRITSCHENKO),  
1890, A., 736, 862; (MELIKOFF),  
1888, A., 1177.  
Chloroketodihydroquinolines, *tri*- and  
*tetra*- (ZINCKE), 1891, A., 1250.  
*tetra*Chloroketohydrindene (ZINCKE and  
FRÖHLICH), 1887, A., 955.  
Chloroketohydronaphthalene. See Keto-  
hydronaphthalene.

- tri*Chloro- $\beta$ -ketohydronaphthalene- $\alpha$ -oxime (ZINCKE and SCHMUCK), 1890, A., 1148.
- $\gamma$ -Chloro- $\alpha$ -ketojuloline (REISSER), 1892, A., 881.
- Chloroketonaphthalene. See Ketonaphthalene.
- hexa*Chloroketopentene [m.p. 31°] (ZINCKE and KUSTER), 1889, A., 1278.
- $\gamma\gamma$ -*hexa*Chloroketopentene [m.p. 92°] (ZINCKE and KUSTER), 1889, A., 599; 1890, A., 754, 1255.
- penta*Chloro- $\alpha$ -ketophenyl- $\gamma$ -piperidone (ZINCKE and FUCHS), 1892, A., 449.
- tri*Chloroketoquinoline (HEBE BRAND), 1889, A., 61.
- penta*Chloroketoquinoline, derivatives of (HEBE BRAND), 1889, A., 62.
- Chloroketotetrahydrobenzoic acids, *penta*- and *hexa*- (ZINCKE and WALBAUM), 1891, A., 708, 710.
- tetra*Chloroketotetrahydroquinoline hydrate (ZINCKE), 1891, A., 1252.
- tetra*Chloroketotrihydroxypentamethylenecarboxylic acid (HANTZSCH), 1890, A., 130.
- tri*Chlorolactic acid, preparation of glyoxal derivatives from (PINNER), 1884, A., 1298.
- Chlorolactic acids, decomposition products of the sodium salts of (REISSER), 1890, A., 1097.
- $\alpha$ -Chloro- $\gamma$ -lupidine. See 2'-Chloro-4'-methylquinoline.
- tri*Chlorolimettin (TILDEN), 1892, T., 349.
- Chlorolevulinic acids, *mono*- and *di*- (SIESSL), 1889, A., 489.
- Chloro-2:6-lutidine. See Chloro-2:6-dimethylpyridine.
- di*Chloromaleinamic acid (CIAMICIAN and SILBER), 1890, A., 25.
- Chloromaleic acid (KAUDER), 1885, A., 652; (PERKIN), 1888, T., 706; P., 75.
- di*Chloromaleic acid and its anhydride (KAUDER), 1885, A., 652.
- Chloromaleic anhydride (PERKIN), 1888, T., 703; P., 75.
- di*Chloromaleic phenylimide and  $\alpha$ - and  $\beta$ -*di*chloromaleic *tetrachlorides* (KAUDER), 1885, A., 652.
- Chloromaleinimide. See Maleinimide.
- di*Chloromaleinphenylimido-chloride and -dimethyl and -diethyl ethers (ANSCHÜTZ and BEAVIS), 1891, A., 1047, 1048.
- Chloromecenic acid and its salts (HILSEBEIN), 1885, A., 1202.
- per*Chloromecylene (OSI), 1883, A., 796.
- Chloromercuric acid (NEUMANN), 1889, A., 1050.
- tri*Chloromesitylene (FRIEDL and GRAFES), 1887, A., 1101.
- Chloromethane. See Methylene chloride.
- di*Chloromethane. See Methylene dichloride.
- tri*Chloromethane. See Chloroform.
- tetra*Chloromethane. See Carbon tetrachloride.
- Chloromethanedisulphonic acid (ANDREASCH), 1886, A., 787.
- Chloromethoxybenzoic acid (*chloranisic acid*) (SCHALL and DRALLE), 1885, A., 146.
- Chloromethoxybenzoic anhydride (*chloraninvaldehyde*) (TIEMANN), 1891, A., 703.
- tetra*Chloromethoxyethane (MAGNANIMI), 1887, A., 28.
- 4'-Chloro-*p*-methoxy-2'-methylquinoline (CONRAD and LIMPACH), 1888, A., 853.
- Chloromethoxyisoquinoline [m.p. 73°-71°] (GABRIEL), 1887, A., 62.
- Chloro-*p*-methoxytoluene (SCHALL and DRALLE), 1885, A., 146; (LIMPACH), 1889, A., 499.
- Chloromethyl *tetrachloropropyl* ketones, *di*- and *tri*- (ZINCKE and FUCHS), 1892, A., 1462, 1463.
- di*Chloromethyl chlorovinyl *o*-diketone (ZINCKE and RABINOWITSCH), 1891, A., 690.
- Chloromethylamidobenzoic acids (LA COSTE and BODEWIG), 1885, A., 793.
- diper*Chloromethylamidocyanidine and *diper*chloromethyl/iamidocyanidine (WEDDIGE), 1886, A., 321.
- penta*Chloromethylamido-*p*-diketohexene (ZINCKE and FUCHS), 1892, A., 419.
- $\alpha$ -Chloromethyl-*o*-amidostyrene (LIPP), 1885, A., 167.
- p*-Chloromethylaniline (MELOLA and STREATHFIELD), 1889, T., 436; P., 98.
- o*-Chloromethylbenzamide (GABRIEL), 1887, A., 1038.
- Chloro- $\alpha$ -methylcinnamic acid. See Chlorophenylcrotonic acid.
- Chloromethylcrotonic acid. See Chlorotiglic acid.
- Chloro-3-methyl-2':3'- or 4'-diethoxyquinoline (RUGHEIMER and HOFFMANN), 1886, A., 160.
- Chloromethylenephthalide (ZINCKE and COCKREY), 1890, A., 786.
- tri*Chloromethylethylacetal (MAGNANIMI), 1887, A., 28.

- Chloro-5-methyl-1-ethylglyoxaline** (*chlorozulethylin*) and its derivatives (WALLACH), 1883, A., 49.
- m*-Chloro- $\beta$ -methylhydrindone (v. MILLER and ROHDE), 1890, A., 1140.
- $\alpha$ -Chloro- $\alpha$ -methylhydroxybutyric acid (MELIKOFF and PETENKO-KRITSCHENKO), 1890, A., 862.
- $\beta$ -Chloro- $\alpha$ -methyl- $\alpha$ -hydroxybutyric acid (MELIKOFF), 1888, A., 1177.
- Chloromethylindene** (v. MILLER and ROHDE), 1889, A., 984.
- Chloromethyl- $\psi$ -isatin** (LA COSTE and BODEWIG), 1885, A., 792.
- Chloro- $\alpha$ - and - $\beta$ -methylnaphthalenes** (SCHERLER), 1892, A., 494.
- Chloro- $\beta$ -methylnaphthalenes**, *di*-, *tri*- and *tetra*- (SCHERLER), 1892, A., 493.
- Chloro-2'-methyl- $\beta$ -naphthaquinoline** (EPHRAIM), 1892, A., 1488.
- di*Chloromethylloxindole (COLMAN), 1889, T., 4; P., 95.
- di*Chloromethylparacetic acid (FITTIG and MILLER), 1890, A., 587.
- tri*Chloromethylparacetic acid (FITTIG), 1888, A., 252; (FITTIG and MILLER), 1890, A., 586.
- tetra*Chloromethylphthalide (ZINCKE and COOKSEY), 1890, A., 786.
- Chloromethylpiaselenole** (HINSBERG), 1890, A., 973.
- tri*Chloromethylpropylcarbinol (*trichloramyllic alcohol*) and its derivatives (v. GARZAROLI-THURNLACKER), 1881, A., 1118.
- tri*Chloromethylpurin (FISCHER), 1881, A., 996.
- Chloromethylpyridine**. See Chloro- $\alpha$ -picoline.
- $\alpha\beta$ -*tri*Chloromethyl- $\gamma$ -pyridone and its carboxylic acid (ZINCKE and FUCHS), 1892, A., 450.
- Chloromethylquinoline** and its derivatives. See Methylquinoline.
- Chloromethylstilbene** (SUDBOUGH), 1892, A., 1224.
- tri*Chloromethylsulphonic chloride (McGOWAN), 1885, A., 367.  
preparation of (BASSETT), 1886, A., 1000.  
dissociation of (NÖLTING), 1883, A., 38.  
action of ammonia on (McGOWAN), 1884, A., 1126.
- tri*Chloromethylsulphonylthiocarbamide (McGOWAN), 1887, T., 669.
- Chloromethylthiazolecarboxylic acid** (WOMANN), 1891, A., 226.
- $\beta$ -*di*Chloromuconamic acid (RUHEMANN and ELLIOTT), 1890, T., 931.
- di*Chloromuconic acid, reduction products of (v. BÄDYER and RUPP), 1890, A., 875.
- $\beta$ -*di*Chloromuconic acid and its amide (RUHEMANN and ELLIOTT), 1890, T., 932.
- di*Chloro- $\alpha$ -naphtha/*di*chloroquinol (CLAUS), 1886, A., 714.
- Chloronaphthalene**. See Naphthalene.
- $\beta$ -Chloronaphthalenedisulphonic acids (ARMSTRONG and WYNNE), 1890, P., 131.
- 2-Chloronaphthalene-1:6-disulphonic acid chloride** (FORSLING), 1889, A., 276.
- Chloronaphthalenesulphonic acid**. See Naphthalenesulphonic acid.
- di*Chloro-1:4-naphthaquinol (CLAUS), 1886, A., 714.
- Chloronaphthaquinone**. See Naphthaquinone.
- anilide. See Naphthaquinone anilide.
- di*Chloronaphthaquinonecarboxylic acid (EKSTRAND), 1889, A., 152.
- Chloro- $\beta$ -naphthaquinone derivatives** (ZINCKE), 1887, A., 53.
- di*Chloro- $\alpha$ -naphthaquinone *di*chloride (CLAUS), 1890, A., 786.
- Chloro- $\beta$ -naphthaquinone- $\alpha$ -oximes**, *mono*- and *di*- (ZINCKE and SCHMUCK), 1890, A., 1146, 1147.
- 2:3-*di*Chloro- $\alpha$ -naphthaquinone-3'-sulphonic acid** (CLAUS and VAN DER CLOET), 1888, A., 602.
- $\beta$ -Chloronaphthaquinonetoluidides, *o*- and *p*- (CLAUS and MUELLER), 1886, A., 247.
- Chloronaphthoic acid**. See Naphthoic acid.
- $\alpha$ -Chloronaphthoic trichloride (WOLFENSTEIN), 1888, A., 711; 1889, A., 615.
- $\beta$ -Chloronaphthoic trichloride (RADE), 1889, A., 514.
- Chloronaphtholactone** (EKSTRAND), 1889, A., 153.
- Chloronaphthol**. See Naphthol.
- Chloro- $\beta$ -naphthol-3'-sulphonic acid**, derivatives of (ARMSTRONG and ROSSITER), 1889, P., 72.
- Chloro- $\alpha$ -naphthonitrile** (EKSTRAND), 1884, A., 1361.
- Chloro- $\beta$ -naphthonitriles**, *mono*- and *di*-, and their derivatives (EKSTRAND), 1891, A., 932.
- 4'-Chloronaphthostyryl** (EKSTRAND), 1889, A., 153.
- di*Chloronaphthostyryl (EKSTRAND), 1886, A., 715.
- Chloronaphthylamine**. See Naphthylamine.

- $\beta$ -Chloro- $\alpha$ -naphthylamine-2'-sulphonic acid** (CLEVE), 1892, A., 1179.
- $\alpha$ -Chloro- $\beta$ -naphthylaminesulphonic acids** (the [1:2:4'], [1:2:3'], and [1:2:2'] acids) (ARMSTRONG and WYNNE), 1889, P., 36, 48.
- Chloro- $\alpha$ - and - $\beta$ -naphthylethylenes** (LEROY), 1892, A., 495.
- 6-Chloronicotinic acid** (v. FICHMANN and WELSH), 1885, T., 151.
- di*-Chloronicotinic acid** (SEYFFERTH), 1887, A., 158.
- o-di*-Chloro-*o*-nitroacetophenone** (GEYKOKT), 1884, A., 445.
- Chloro-3-nitr-*p*-acetotoluidide** (ECKENROTH and DONNER), 1891, A., 195.
- 3:6-Chloronitr-*p*-acetotoluide** (CLAUS and BÜCHER), 1892, A., 173.
- Chloro-*o*-nitranilidonaphthalene** (CLEVE), 1890, A., 626.
- p*-Chloro-*m*-nitraniline and its derivatives** (CLAUS and STIEBEL), 1887, A., 810.
- di*-Chloronitr-, 2:4:6-*tri*-chloro-3:5-*di*-nitr-, and 2:4:6-*tri*-chloro-3-nitr-anis-oil** (HUGOUNENQ), 1890, A., 210.
- Chloronitrazobenzene**. See Azobenzene.
- Chloronitrethylbenzenes** (ISTRATI), 1888, A., 260.
- o-di*-Chloronitrethylbenzoylcarboxylic acid** (ZINCKE and LATTEN), 1892, A., 1229; (ZINCKE and SCHARFENBERG), 1892, A., 1232.
- di*-Chloronitrethyl-*m*-diazine** (PINNER), 1889, A., 1007.
- Chloronitriles, volatility of** (HENRY), 1885, A., 1014.
- Chloronitrobenzaldehyde**. See Benzaldehyde.
- p*-Chloro-*o*-nitrobenzanilide** (RAVEILL), 1884, A., 601.
- Chloronitrobenzene**. See Benzene.
- 4-Chloro-3-nitrobenzenesulphonic acid** (FISCHER), 1892, A., 182.
- 2-Chloro-5-nitrobenzenesulphonic acid** (CLAUS and MANN), 1891, A., 1188; (FISCHER), 1892, A., 182.
- Chloronitrobenzoic acid**. See Benzoic acid.
- Chloronitrobenzonitriles** (CLAUS and KURZ), 1888, A., 591.
- o*-Chloro-*p*-nitrobenzyl alcohol, anilide and methyl and ethyl ethers** (WITT), 1892, A., 444.
- bromide** (TRIEMANN), 1891, A., 704.
- derivatives of** (WITT), 1892, A., 444.
- Chloronitrocamphor**. See Camphor.
- $\alpha$ -Chloro-*o*-, *m*- and *p*-nitrocinnamaldehydes** (NAAR), 1891, A., 562.
- m*-Chloro-*o*-nitrocinnamic acid and ketone** (EICHENGRUN and EINHORN), 1891, A., 1098.
- Chloro-*o*- and -*m*-nitrocinnamic acids** (NAAR), 1891, A., 561.
- 2:5-Chloronitr-*p*-cymene and 2-chloro-*di*-nitro-*p*-cymene** (FLETCHER and ROSA), 1889, A., 493.
- Chloronitrocymenesulphonic acid** (CARBARA), 1890, A., 780.
- o-di*-Chloro-*p-di*-nitro-dibenzylamine and -dibenzylaniline** (WITT), 1892, A., 415.
- 2:3:5-*di*-Chloronitrodihydroterephthalic acid** (LEVY and ANDREOCCI), 1888, A., 1091.
- 3:1:3-*di*-Chloronitr 1:2-diketohydronaphthalene hydrate** (ZINCKE and SCHARFENBERG), 1892, A., 1232.
- allo-m*-Chloro-*o*-nitrodiphenylhydrazine, preparation of** (WILLGERODT and ELLON), 1891, A., 1361.
- m*-Chloro-*o*-nitrohydrazobenzene** (WILLGERODT and FERKO), 1888, A., 830.
- o*-Chloronitrohydroxyethylbenzoic acid, lactone of** (ZINCKE and LATTEN), 1892, A., 1230.
- 3:4'-*di*-Chloro-*di*-nitro-2'-hydroxy-3-methylquinoline** (RUGHEIMER and HOFFMANN), 1886, A., 160.
- m*-Chloro-*o*-nitro- $\beta$ -hydroxyphenylethyl methyl ketone** (EICHENGRUN and EINHORN), 1890, A., 1128; 1891, A., 1099.
- m*-Chloro-*o*-nitro- $\beta$ -hydroxyphenylpropionamide** (EICHENGRUN and EINHORN), 1890, A., 1127; 1891, A., 1100.
- m*-Chloro-*o*-nitro- $\beta$ -hydroxyphenylpropionic acids** (EICHENGRUN and EINHORN), 1890, A., 1127; 1891, A., 1099.
- m*-Chloro-*o*-nitro- $\beta$ -hydroxyphenylpropionaldehyde** (EICHENGRUN and EINHORN), 1891, A., 1100.
- Chloro-*di*-nitromethane, reduction of** (RASCHIG), 1886, A., 323.
- di*-Chloro-*di*-nitromethane** (LOSANTSCH), 1884, A., 1108.
- tri*-Chloronitromethane**. See Chloropicrin.
- o*-Chloronitromethoxyethylbenzoic acid** (ZINCKE and LATTEN), 1892, A., 1231.
- di*-Chloronitromethylphthalide** (ZINCKE and LATTEN), 1892, A., 1231.
- 4'-Chloro-3'-nitro-2'-methylquinoline** (CONRAD and LIMPACH), 1888, A., 1111.
- $\beta$ -Chloro- $\alpha$ -nitronaphthalene [1:2']** (ARMSTRONG and WYNNE), 1889, P., 71.

- di*Chloro-*di*nitronaphthalenes (CLEVE), 1890, A., 626.
- $\beta$ -Chloro- $\alpha$ -nitronaphthalene-2'-sulphonic acid (CLEVE), 1892, A., 1478.
- $\alpha\beta$ -Chloronitro- $\beta$ -naphthaquinone (ZINCKE and KEGEL), 1889, A., 266.
- 5-Chloro- $\delta$ -nitro- $\alpha$ -naphthoic acid (EKSTRAND), 1886, A., 156.
- 1.1':4'-Chloronitronaphthoic acid (EKSTRAND), 1889, A., 53.
- $\beta$ -Chloro-2'-nitronaphthol (GAFFES), 1892, A., 1229.
- Chloro-*di*nitronaphthol (CLEVE), 1890, A., 627.
- Chloro-*di*nitronaphthylamine (CLEVE), 1890, A., 626.
- Chloronitro-*nitroso*azoxybenzene (WILLGERODT and MÜCHE), 1892, A., 455.
- tri*Chloronitrophenetol (LAMPERT), 1886, A., 616.
- Chloronitrophenol. See Phenol.
- m*-Chloro-*o*-nitrophenyl- $\beta$ -bromopropionic acid (EICHENGRÜN and EINHORN), 1890, A., 1127.
- Chloronitrophenylethanes (ISTRATI), 1888, A., 260.
- di*Chloronitrophenylethylglyoxylic acid (ZINCKE and LATFEN), 1892, A., 1229; (ZINCKE and SCHARFENBERG), 1892, A., 1232.
- tri*Chloronitrophenylic-*m*- and -*o*-nitrobenzoates (DACCOMO), 1885, A., 890.
- 1':4':3'-Chloronitrophenylisoquinoline (GABRIEL), 1886, A., 631.
- di*Chloronitropyromucic acid (HILL and JACKSON), 1890, A., 601.
- Chloronitroquinones (GUARENCHI and DACCOMO), 1885, A., 891.
- 2:4:6-Chloro-*di*nitrosorcinol (KEHRMANN), 1890, A., 211.
- Chloronitrosoazobenzene. See Azobenzene.
- p*-Chloro-*di*nitrosoazoxybenzene (WILLGERODT and BOHM), 1891, A., 905.
- p*-*di*Chloro-*p*-*di*nitrosobenzene (KEHRMANN), 1889, A., 245.
- Chloro-*p*-nitrosodiphenylamine (IKUTA), 1888, A., 468.
- Chloronitrosonaphtharesorcinol (v. KOSTANECKI), 1889, A., 887.
- di*Chloro-*di*nitrosoditoluene (*his-o-chloronitrosylbenzyl*) (BEHREND and NISSEN), 1892, A., 1200.
- o*-*di*Chloro-*p*-*di*nitrostilbene (WITT), 1892, A., 444.
- $\omega$ -Chloro-*o*-nitrostyrene (LIPP), 1881, A., 1030.
- m*-Chloro-*o*-nitrostyryl methyl ketone (EICHENGRÜN and EINHORN), 1891, A., 1099.
- o*-*di*Chloro-*di*nitrosyldibenzyl (BEHREND and NISSEN), 1892, A., 1200.
- Chloronitrothiophen (ROSENBERG), 1886, A., 534.
- tri*Chloronitrotoluens. See Toluene.
- Chloronitro-*p*-toluic acid. See *p*-Toluic acid.
- 2-Chloro-5-nitro-*p*-toluidine and 2-chloro-6-nitro-*p*-toluidine (CLAUS and DAVIDSEN), 1892, A., 172.
- 3-Chloro-6-nitro-*p*-toluidine and 3-chloro-6-nitro-*p*-toluonitrile (CLAUS and BOCHER), 1892, A., 173.
- 2-Chloro-5-nitro-*p*-toluonitrile (CLAUS and DAVIDSEN), 1892, A., 172.
- 4-Chloro-5-nitro-*m*-xylene (CLAUS and GROENEWERD), 1891, A., 921.
- 4-Chloro-6-nitro-*m*-xylene (AHRENS), 1892, A., 1437.
- 4:6-*di*Chloro-2:5-*di*nitro-*m*-xylene (KOEHL), 1890, A., 1248.
- 4:5-*di*Chloro-3:6-*di*nitro-*o* xylene (CLAUS, RAUS, HERFELDT and BERKEFELD), 1891, A., 1201.
- 2:5-*di*Chloro-*di*nitro-*p*-xylene (KLUGE), 1885, A., 1208.
- Chlorononane, from American petroleum (LEMOINE), 1884, A., 1106.
- Chloropal, analyses of (SMITH), 1881, A., 602.
- variety of, from Albemarle Co., Virginia (CHAPPELL), 1885, A., 228.
- di*Chloropararasaniline (HEUMANN and HEIDELBERG), 1886, A., 942.
- Chloropentamethylbenzene (TÜHL), 1892, A., 968.
- Chloro- $\alpha$ -pentaresorcinoldichroin ether (BRUNNER and CHUIT), 1888, A., 1182.
- Chloropentenyl alcohol. See Methylchlorallylcarbinol.
- Chloropentethylbenzene (ISTRATI), 1886, A., 231.
- penta*Chloropentolamide. See *penta*-chlorobutinenecarboxylamide.
- di*Chlorophenanthrone, reduction of (LACHOWICZ), 1881, A., 81.
- tri*Chlorophenetol (LAMPERT), 1886, A., 616.
- Chlorophenol. See Phenol.
- o*-*p*-*di*Chlorophenol-*o*-sulphonic acid, action of sulphuric acid on (GORDON), 1891, P., 64.
- tri*Chlorophenomallic acid. See Acetylacrylic acid, trichloro-.
- tri*Chlorophenoxyethylene (*phenyl trichlorovinyl ether*) (MICHAEL), 1886, A., 614.
- Chlorophenylacetoneitrile (MICHAEL and JEANPRÉTRE), 1892, A., 1088.

- di*-Chlorophenylamido- $\beta$ -naphthol (ZINCK and KEGEL), 1889, A., 205.
- p*-Chlorophenylisobutane (v. DOERZSCH), 1888, A., 369.
- Chlorophenylbutyric acid (FATH and MORRIS), 1890, A., 891; (v. MILLER and ROHDE), 1890, A., 1119.
- di*-*p*-Chlorophenylcarbamide (HEWITT), 1891, T., 212.
- Chlorophenylcrotonic acids. See Phenylcrotonic acids.
- di*-Chlorophenylenediamine hydrochloride (MOHLAU), 1886, A., 941.
- Chlorophenylethanes, *o*-, *m*- and *p*- (ISIRATI), 1885, A., 251.
- Chlorophenylhydrazine and its derivatives. See Phenylhydrazine.
- Chlorophenyl benzoates (MUSSO), 1888, A., 456.
- o*-, *m*- and *p*- (DACCOMO), 1892, A., 308.
- phthalate (MUSSO), 1888, A., 456.
- sulphide (MICHAELIS and GODCHAUX), 1891, A., 715.
- di*thiocarbonate (DACCOMO), 1892, A., 306, 307.
- sulfonate (DACCOMO), 1892, A., 308.
- tri*-Chlorophenyl *m*-nitrobenzoate (DACCOMO), 1885, A., 890.
- p*-Chlorophenyl phenylsemithiocarbamide (HEWITT), 1891, T., 212.
- p*-Chloro-2'-phenylindazole (PAAL), 1891, A., 724.
- Chloro-2'-phenylindole (BISCHLER), 1892, A., 1466.
- Chlorophenylmethylenesulphone (ORIO), 1888, A., 453.
- m*-Chloro- $\beta$ -phenyl- $\alpha$ -methylpropionic acid (v. MILLER and ROHDE), 1890, A., 1140.
- di*-Chlorophenylmethylpyrazolonesulphonic chloride (MOLLENHOF), 1892, A., 1246.
- Chlorophenylmethylsulphones, *mono*- and *di*- (ORIO), 1890, A., 380, 381.
- Chlorophenylparaconic acid. See Phenylparaconic acid.
- $\alpha$ -Chlorophenyl- $\alpha'$ -phenyl-naphthotriazine (MEHLER and FOLKERT), 1891, T., 690.
- Chlorophenylphenylsemithiocarbazides, *o*- and *p*- (HEWITT), 1891, T., 210, 212.
- p*-Chloro- $\beta$ -phenylpropionic acid (MIERSCH), 1892, A., 1222.
- di*-Chloro- $\beta$ -phenylpropionic acids,  $\alpha$ - and  $\beta$ - (ERLENMEYER), 1883, A., 196.
- Chloro- $\beta$ -phenylpropionic acids, *m*-, *o*-, and *p*- (HERZBERG), 1885, A., 661.
- $\alpha$  $\beta$ -*tri*-Chloro- $\gamma$  phenylpyridone and  $\alpha$  $\beta$  $\gamma$ -*tri*-chlorophenyl- $\gamma$ -pyridonecarboxylic acid (ZINCK and FUCHS), 1892, A., 448.
- o*-Chlorophenylsemicarbazine (HEWITT), 1891, T., 210.
- p*-Chlorophenylsulphonehydroxypropionic acid (KONIG), 1892, A., 1091.
- p*-Chlorophenylurazole (HEWITT), 1891, T., 212.
- Chlorophloroglucinols (HAZURA and BENEDIKT), 1886, A., 52.
- tri*-Chlorophloroglucinol (WEBER), 1885, T., 423; (ZINCK and KEGEL), 1889, A., 967.
- Chlorophthalic acids. See Phthalic acids.
- Chlorophthalic anhydride. See Phthalic anhydride.
- Chlorophthalic chloride (GRAEBE and RIE), 1886, T., 527.
- di*-Chlorophthalide (LE ROYER), 1887, A., 832.
- p*-*di*-Chlorophthalide (GUARDESCHI), 1886, A., 808.
- $\beta$ -Chlorophthalimide (GRAEBE and RIE), 1886, T., 529.
- di*-Chlorophthalimide (LE ROYER), 1887, A., 832.
- Chlorophyll and chlorophyllan. See Agricultural chemistry.
- Chlorophyllite from Loquidy, near Nantes (BART), 1883, A., 443.
- Chloro- $\alpha$ -picolines (*chloromethylpyridine*), *mono*-, *hexa*- and *penta*- (OST), 1883, A., 793.
- di*-Chloro- $\alpha$ -picoline (COLLIE and MYERS), 1892, T., 725.
- Chloropicolinic acid, [m.p. 180°] (SEYFFERT), 1887, A., 157.
- Chloropicolinic acid [m.p. 168°], *di*chloropicolinic acid and their salts (OST), 183, A., 794.
- Chloropicin, reduction of (RASCHIG), 1887, A., 323.
- syntheses with (ELBY), 1883, A., 1000.
- di*-Chloropiperazine (SCHMIDT and WIRHMANN), 1892, A., 211.
- Chloroplastids and chloroplastin (SHWARZ), 1888, A., 983.
- Chloroplatinic acid (PIGEON), 1891, A., 1325.
- Chloroprehnitenes, *mono*- and *di*- (TOHL), 1892, A., 967.
- $\alpha$ -*di*-Chloropropaldehyde (SPRING and TART), 1890, A., 955.
- Chloropropanes, *tri*- and *tetra*- (SPRING and WINSINGER), 1883, A., 659.
- 1,2,3-*tri*-Chloropropane. See Trichlorohydrin.

*hexa*Chloropropane (LEVY and CURECHOD), 1889, A., 1136.

Chloropropanesulphonic acid (SPRING and WINSINGER), 1883, A., 659.

*tri*Chloropropenylquinoline (EINHORN and LEHNKEHING), 1888, A., 1208.

$\beta$ -*di*Chloropropionic acid, and its derivatives (FROMME and OTTO), 1887, A., 912.

*tetra*Chloropropionic acid (MABERY and SMITH), 1890, A., 27.

$\alpha$ -*di*Chloropropionic anhydride (OTTO and HOLST), 1890, A., 1327.

$\alpha$ -*di*Chloropropionitrile, solid (OTTO and VOIET), 1887, A., 1024.  
molecular weight of (OTTO), 1890, A., 726.

*o*-*penta*Chloropropionylbenzoic acid (ZINCKE and COCKSEY), 1890, A., 785.

$\beta$ - and  $\gamma$ -Chloropropylbenzamides (GABRIEL and HEYMANN), 1890, A., 1268; (GABRIEL and ELFELDT), 1892, A., 218.

Chloropropylbenzene. See Chloronumene.

*tri*Chloropropyleneoxidecarboxylamide (LEVY, WITTE and CURECHOD), 1890, A., 234.

Chloropropylenes. See Propylenes.

Chloropropylene oxide. See Epichlorhydrin.

Chloroisopropyl benzoate, preparation of (MORLEY and GREEN), 1885, T., 135.

2'-Chloro-2-isopropylquinoline (WIDMAN), 1886, A., 465.

Chloropyrenepicric acid (GOLDSCHMIEDT and WEGSCHIEDER), 1883, A., 1001.

Chloropyridine. See Pyridine.

Chloropyridine- $\alpha$ -carboxylic acid [m.p. 180°] (*chloropicolinic acid*) (SEYFFERTH), 1887, A., 157.

Chloropyridine- $\alpha$ -carboxylic acids, *mono*- and *di*- (OST), 1883, A., 794.

Chloropyridine- $\beta$ -carboxylic acid (*chloropicotinic acid*) (V. PECHMANN and WELSH), 1885, T., 151.

*di*Chloropyridinecarboxylic acid [ $\text{Cl}_2 : \text{COOH} = 1 : 6 : 4$ ] (BEHRMANN and V. HOFMANN), 1885, A., 139.

*di*Chloropyridine- $\beta$ -carboxylic acid (SEYFFERTH), 1887, A., 158.

2:6:*di*Chloropyridine-3:5-dicarboxylic acid (GUTHZEIT and DRESSEL), 1891, A., 940.

Chloropyrimidine. See Chloro-*m*-diazine.

*tetra*Chloropyrocatechol (ZINCKE), 1887, A., 808; (ZINCKE and KUSTER), 1888, A., 1278.

*per*Chloropyrocoll, action of phosphorus pentachloride on (CIAMICIAN and SILBER), 1884, A., 176.

octochloride or perchloride of (CIAMICIAN and SILBER), 1884, A., 292.

*tri*Chloropyrogallol (WEBSTER), 1884, T., 205; (HANTZSCH and SCHNITER), 1887, A., 925.

Chloropyromecenic acid (HILSEBEIN), 1885, A., 1203.

*tri*Chloropyromucamide (HILL and JACKSON), 1890, A., 601.

Chloropyromucic acid. See Pyromucic acid.

Chloropyrottritaric acid (DIETRICH and PAAL), 1887, A., 658.

*tetra*Chloropyrroline, and synthesis of (CIAMICIAN and SILBER), 1884, A., 292, 293.

*di*Chloropyruvic acid (HANTZSCH), 1890, A., 132.

$\beta$ -*di*Chloroquinazoline (ABT), 1888, A., 610.

Chloroquinol (SCHEIDT), 1884, A., 429.

*m*-*di*Chloroquinol (KEHRMANN and TIENSLER), 1890, A., 242.

*tetra*Chloroquinol (SUTKOWSKI), 1887, A., 42.

$\alpha$ -Chloro- $\beta$ -quinolinecarboxylic acid (FRIEDLÄNDER and GÜHRING), 1884, A., 1020.

Chloroquinolines and derivatives. See Quinolines.

1-Chloroquinoline-4-sulphonamide, sulphonic acid and -sulphonic chloride (CLAUS and FOSSELT), 1890, A., 522, 523.

Chloroquinone. See Quinone.

Chloroquinonechlorimide (KOLLETT), 1886, A., 1019.

*tri*Chloroquinonechlorimide and *mono*- and *di*-chloroquinonediazylides (ANDRESEN), 1884, A., 431.

*di*Chloroquinonedichlorimide (MÖHLAU), 1886, A., 941.

*di*Chloroquinonedihydrodicarboxylic acid (HANTZSCH and ZECKENDORF), 1888, A., 278.

*tri*Chloroquinoneimide hydrochloride (ANDRESEN), 1884, A., 431.

Chlor- $\alpha$ -oreinoldichroin (BRUNNER and CHUTT), 1888, A., 1183.

Chlororesorcinol. See Resorcinol.

*di*Chlororufigallol (WEBSTER and HUNT), 1889, A., 405.

5-Chlorosalicylic acid (SMITH and KNERR), 1886, A., 704.

Chlorosalicylic acids, 3-, 4-, and 5- (VARNHOLT), 1887, A., 945.

2:4-*di*Chlorosalicylic acid (ZINCKE and WALBAUM), 1891, A., 711.

- 5,5'-*Chlorosuccinic acids* (EINHORN and KETEL, 1886, A., 704; (HECHT, 1890, A., 1418.
- 7-*Chlorosilicon-di-β-naphthylidiamide, -diphenylidiamide, -β-ditolyldiamide and -dixylyldiamide* HARDEY, 1886, P., 251; 1887, T., 43, 40, 41.
- Chlorosis in plants* (V. SACHS), 1887, A., 70.
- action of iron compounds in (LANDWEHR, 1888, A., 176.
- treatment of, with hydrochloric acid (WHITTE), 1892, A., 1117.
- Chlorostannic acid* ENGL, 1886, A., 984; (SEIDEL, 1887, A., 554.
- Chlorostearic acids, mono- and di-* (PIOTROWSKI, 1890, A., 1896.
- Chlorostyrychne* (SHENSTON), 1885, T., 141; P., 5.
- tri-Chlorostyrychne* (SPOHR), 1891, A., 86.
- Chlorosuberlic acid*, action of potassium cyanide and potassium hydroxide on (BATER, 1883, A., 970.
- Chlorosuccinic acid* (ANSHUTZ and BENNER), 1890, A., 363.
- Chlorosulphacetic acid* (ANDREASCH), 1886, A., 786.
- Chlorosulphonic acid*, new mode of formation of (BILLITZ and HEUMANN), 1883, A., 710.
- di-Chlorosulphopyromucic acid* (HILL and JACKSON), 1890, A., 601.
- Chloroterebic acid*, and some of its salts (ROSEN), 1884, A., 460.
- p-di-Chloroterephthalamide* (LEVY and CURRIED), 1889, A., 1179.
- Chloroterephthalic acid* (FILETI and CROCI), 1889, A., 496.
- di-Chloroterephthalic acid* (LEVY and ANDERSON), 1888, A., 841, 1091.
- p-di-Chloroterephthalic chloride* (LEVY and CURRIED), 1889, A., 1179.
- tri-Chlorotetraketohexamethylene hydrate* (LANDOLI, 1892, A., 835.
- tetra-Chlorotetraketohexamethylene* (NEFI), 1890, A., 1271; (LANDOLI), 1892, A., 836.
- tetra-Chlorotetra-methoxy- and -ethoxy-quinhydrones* (KEHRMANN), 1891, A., 905.
- Chlorotetramine-chromic and -cobalt salts* (JORGENSEN), 1890, A., 1213, 1214.
- di-Chlorotetrapyridinerhodium hydrochloride* (JORGENSEN), 1889, A., 352.
- μ-Chlorothiazole* (SCHATZMAN), 1891, A., 745.
- Chlorothiophen* (WETZ), 1884, A., 1130.
- tri-Chlorothiophen*, and its derivatives (ROSENBERG), 1886, A., 534.
- tetra-Chlorothiophen tetrachloride* (WILLERODI, 1886, A., 339.
- Chlorothiophenols, o-, m-, and p-* (DARCOM, 1892, A., 308.
- tri-Chlorothiophensulphonic anhydride* (ROSENBERG), 1886, A., 534.
- α-Chlorothymoquinol* (SCHNIER), 1887, A., 720.
- Chlorothymoquinones, o- and m-* (SCHNIER), 1887, A., 720; (MAZARAU), 1890, A., 753.
- Chlorotiglamide and chlorotiglic acids* (OTTO and HOLST), 1890, A., 958.
- Chlorotiglic acid* (OTTO and BECKURIN), 1885, A., 755; (ISBERT), 1886, A., 1010.
- action of potash on (FRIEDRICH), 1883, A., 969.
- ω-Chloro-m-toluidamide* (REINGLASS), 1891, A., 1344.
- ω-Chloro-p-toluidamide* (MELLINGHOFF), 1890, A., 239.
- Chlorotoluene*. See Toluene.
- penta-Chlorotoluene* (SEELIG), 1885, A., 770.
- o-Chlorotoluene-p-sulphonamide* (PAYSAU), 1884, A., 72.
- p-Chlorotoluene-o-sulphonamide* (HEFFTER), 1884, A., 73.
- Chlorotoluenesulphonic acid*. See Toluenesulphonic acid.
- Chlorotoluic acid*. See Toluic acid.
- Chlorotoluidine*. See Toluidine.
- tri-Chlorotoluquinol* (CLAUS and RIEMANN), 1883, A., 1112.
- Chlorotoluquinone* [4-oxo-3-] (CLAUS and SCHWEITZER), 1886, A., 614; (SCHNIGER), 1887, A., 1036.
- tri-Chlorotoluquinone* (CLAUS and RIEMANN), 1883, A., 1112.
- Chloro-p-tolyl methyl ether*. See Chloro-p-methoxytoluene.
- o-Chloro-m-tolyl and m-chloro-o-tolyl methyl ketones* (CLAUS), 1891, A., 911.
- μ-Chloro-m-tolyl methyl ketone, and ketoxime* (CLAUS), 1892, A., 1201.
- tri-Chloro-o-tolylacetamide* (CLOKZ), 1887, A., 1098.
- di-Chlorotetrabzoic acid* (LE ROYER), 1887, A., 832.
- di-o-Chloro-m-tolylcarbamide* (KOCK), 1887, A., 810.
- tri-Chlorotolylenediamines, α- and β-* (SEELIG), 1885, A., 770.
- di-Chloro-o-tolyl phosphite* (STUART), 1888, T., 403; P., 24.
- Chloro-p-tolylmethylsulphones, mono- and di-* (OTTO), 1890, A., 380, 381.
- 1'-Chloro-3'-m-tolylisquinoline* (HEILMANN), 1890, A., 625; 1891, A., 202.

- 1'-Chloro-3'-*p*-tolylisoquinoline (RUEHMANN), 1892, A., 474.
- di*-*o*-Chloro-*m*-tolylthiocarbamide (KOCK), 1887, A., 810.
- di*Chlorotriisobutylene *dichloride* (MARTBOT and GENTIL), 1889, A., 843.
- Chlorotriethylallylammonium chlorides,  $\alpha$ - and  $\beta$ - (REBOUL), 1883, A., 307.
- hexa*Chlorotriketohexamethylene (ZINCKE and KEGEL), 1889, A., 967.
- tri*Chlorotriketopentamethylene (HANTZSCH), 1888, A., 1190; (LANDOLT), 1892, A., 835.
- tri*Chlorotriketovaleric acid (PLANTZSCH), 1888, A., 1192.
- Chlorotrimethylene and its derivatives. See Trimethylene.
- hexa*Chlorotrimethylenetrisulphone (CAMPS), 1892, A., 592.
- 4'-Chloro-1:3:2'-trimethylquinoline (CONRAD and LIMPACH), 1888, A., 503.
- Chlorotrimethyluracil (HAGEN), 1888, A., 582.
- Chlorotriphenylfurfuran, reduction of (JAPP and KLINGEMANN), 1889, P., 136; 1890, T., 674.
- tri*Chlorotriphenylrosanilines (HEUMANN and HEIDLBERG), 1886, A., 943.
- Chlorovalerolactone (WOLFF), 1885, A., 1124.
- di*Chloro-*o*-vinylbenzoic acid (ZINCKE and FRÖHLICH), 1887, A., 955; (ZINCKE), 1888, A., 159.
- tri*Chloro-*o*-vinylbenzoic acid (ZINCKE and FRÖHLICH), 1887, A., 955; (ZINCKE), 1888, A., 490.
- o*-*di*Chlorovinylbenzoylcarboxylic acid (ZINCKE and KEGEL), 1889, A., 270.
- o*-*tri*Chlorovinylbenzoylcarboxylic acid (ZINCKE), 1888, A., 490.
- o*-*di*Chloro- and *trichloro*-vinyl *di*-*o*-chlorophenylacetic acids (ZINCKE and KEGEL), 1889, A., 270.
- Chloroxalamylne. See Chlorobutylglyoxaline.
- Chloroxalethylne. See Chloro-5-methyl-1-ethylglyoxaline.
- p*-*di*Chloro-*p*-oximidoquinone (KREHMANN), 1889, A., 244.
- Chloroxyadic acid, lactone of (RUEHMANN), 1890, T., 940.
- m*-*di*Chloroxyazobenzene (SCHULTZ), 1884, A., 903.
- Chloroxybenzene, derivatives of (BENEDIKT), 1883, A., 984.
- 1'-Chlor-2'-oxy-1'-benzylisoquinoline (EICHELBaum), 1888, A., 1301.
- Chloroxybutane (ZIKES), 1885, A., 1046.
- Chloroxypentachlorobenzene (BENEDIKT and v. SCHMIDT), 1883, A., 1119.
- di*Chloroxy *dichloro* *tribromodiphenyl* quinone (BENEDIKT), 1883, A., 984.
- di*Chloroxydimethylpurin (FISCHER), 1881, A., 987.
- Chloroxylene. See Xylene.
- 5-Chloro-*o*-xyldine [1:2:4] (CLAUS), 1892, A., 1202.
- 2-Chloro-*p*-xyldine [1:4:5] (KLUGER), 1885, A., 1208.
- 4:6-*di*Chloro-*m*-1:3-xylo-2:5-quinol and -quinone (CLAUS and RUNSCHKE), 1890, A., 1247.
- 4:5-*di*Chloro-*o*-xylo-3:6-quinol and -quinone (CLAUS, RAPP, HERFELD and BERKEFELD), 1891, A., 1201.
- 3-Chloro-1:2-xylyl methyl 6(?)-ketone and its derivatives (CLAUS), 1892, A., 1202.
- 4-Chloro-1:2-xylyl methyl 5-ketone and derivatives (CLAUS), 1891, A., 912; 1892, A., 1201.
- Chloroxylenephthalimide (STRASSMANN), 1888, A., 475.
- tetra*Chloroxylenic oxide (GRAEBE), 1887, A., 832.
- di*Chloroxymethyluracil (BEHREND), 1887, A., 129.
- Chloro-2'-oxyquinoline. See Chlorocarbostyryl.
- Chloroxyisoquinoline (GABRIEL), 1887, A., 62.
- "Chlorozon" (LUNGE and LANDOLT), 1886, A., 399.
- Chocolate (BOUSSINGAULT), 1884, A., 202. detection of foreign starches in (HARTWICH), 1889, A., 192.
- Cholamide (PELIZZARI), 1889, A., 286.
- Cholanic acid and its ethyl and methyl salts (LATSCHINOFF), 1886, A., 566.
- iso*Cholanic acid (LATSCHINOFF), 1886, A., 817.
- Choleic acid (LATSCHINOFF), 1886, A., 270; 1887, A., 682, 683.
- Cholera (RAMON DE LUNA), 1881, A., 349. changes in the chemical composition of certain secretions during (PORCHET), 1885, A., 576. formation of ptomaines in (VILLIERS), 1885, A., 404. supposed ptomaines of (OLIVIERI), 1886, A., 1049. transmission of, by drinking water (ANON.), 1884, A., 1081.
- Cholesterin (*cholesterol*) (RAYMAN), 1887, A., 926; (OBERMÜLLER), 1891, A., 298. appendix to Schulze and Barbieri's paper on (SCHULZE), 1883, A., 586. in the carrot (ARNAUD), 1886, A., 830. in melon seeds (FOUET), 1891, A., 357. in plants (SCHULZE), 1890, A., 1457.

- Cholesterin** (*Cholesterol*) in red blood corpuscles (MANASSE), 1890, A., 1017.  
 in *Synapta striata* of DUNCAN and CHASLON, 1890, A., 403.  
 vegetable (GLIARD), 1892, A., 1294.  
 in vegetable fats (HECKEL and SCHLAGDENHAUFFEN), 1886, A., 529.  
 molecular weight of (ABEL), 1890, A., 914.  
 rotatory dispersion of (GRIMBERT), 1888, A., 330.  
 action of OBERMULLER, 1890, A., 932.  
 higher homologue of (MARINO-ZUCO), 1890, A., 757.  
 derivatives (REINITZER), 1888, A., 1076.  
 potassium and sodium compounds of (OBERMULLER), 1891, A., 299.  
 estimation of (OBERMULLER), 1892, A., 248; (LEWKOWITZCH), 1892, A., 544.  
 See also Lanolin and Phytostearin.  
**isoCholesterin** (SCHULZE), 1883, A., 586.  
 reaction for (SCHULZE), 1890, A., 1474.  
**Cholesterin-fats** in man, detection of (LIEBREICH), 1891, A., 97.  
**Cholesteryl acetate** (RAYMAN), 1887, A., 926.  
 modifications of (REINITZER), 1888, A., 1076.  
 benzoate (OBERMULLER), 1891, A., 299.  
 modifications of (REINITZER), 1888, A., 1076.  
 bromobenzoate and benzyl ether (OBERMULLER), 1891, A., 299.  
 chloride and its *d*-bromide (RAYMAN), 1887, A., 926.  
 phthalate (OBERMULLER), 1891, A., 299.  
 propionate (OBERMULLER), 1890, A., 932; 1891, A., 299.  
*d*-bromide (OBERMULLER), 1891, A., 299.  
**Cholestol**. See Cinchol.  
**Cholic acid** (MYLIUS), 1886, A., 430, 952; 1887, A., 982; 1889, A., 508; (LASSAR-COHEN), 1892, A., 741.  
 a new acid analogous to (LATSCHINOFF), 1886, A., 270.  
 anhydrous (LATSCHINOFF), 1887, A., 682.  
 empirical formula of (LATSCHINOFF), 1888, A., 303.  
 molecular weight of (ABEL), 1890, A., 914.  
 action of phosphorus oxychloride on (CAMPANI), 1889, A., 171.  
 methyl and ethyl salts of (SCHOTTEN), 1886, A., 565.  
 iodo- (MYLIUS), 1887, A., 606.
- Choline** from the Arca nut (JAHNS), 1891, A., 91.  
 in cotton-seed foods (MAXWELL), 1892, A., 330.  
 in germinating plants (SCHULZE), 1887, A., 747.  
 in hops (GRIESS and HARROW), 1885, T., 293.  
 in seeds (SCHULZE), 1889, A., 1029; 1891, A., 490.  
 action of hydriodic and hydrobromic acids on (SCHMIDT), 1892, A., 808.  
 relations between neurine and (SCHMIDT), 1892, A., 219.  
 analogues of (NIEMILOWICZ), 1886, A., 933.  
 derivatives of (BODE), 1892, A., 806; (SCHMIDT), 1892, A., 905.  
**isoCholine** and its salts (MEYER), 1883, A., 568.  
**Choloidanic and  $\psi$ -choloidanic acids** (LATSCHINOFF), 1886, A., 817.  
**Cholomethæmoglobin** (WERTHEIMER and MEYER), 1889, A., 637.  
**Chondrin**, heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.  
**Chondrin balls** (MORNER), 1888, A., 860.  
**Chondrodite** from Nyakopparberg, analysis of (v. WINGARD), 1886, A., 29.  
 composition of (SJÖGREN), 1883, A., 436.  
 minerals, composition of (SJÖGREN), 1883, A., 436.  
**Chondroitie acid** (KRUKENBERG), 1885, A., 405; (MORNER), 1889, A., 737.  
**Chondromucoid** (MORNER), 1889, A., 736.  
**Chondropeptone** (DANILEWSKY), 1884, A., 1388.  
**Chondrosin** (KRUKENBERG), 1886, A., 481.  
*Chondrus crispus*, galactose from (HAR-DICKE, BAUER and TOILENS), 1887, A., 791.  
 iodine in (VAN ITALLIE), 1890, A., 402.  
*Chonemorpha macrophylla*, alkaloid from (GRESHOFF), 1891, A., 337.  
**Chorionin** (TROMBROFF), 1886, A., 1001, 1150.  
**Choroid**, black pigment of (HIRSCH-FELD), 1889, A., 788.  
**Chromammonium compounds**. See under Chromium.  
**Chromates**. See under Chromic acid.  
**Chromatin** (SCHWARTZ), 1888, A., 933.  
**Chromatology of the Actiniae** (MACMUNN), 1885, A., 1251.  
 animal (MACMUNN), 1889, A., 1231.  
 invertebrate (MACMUNN), 1887, A., 613.

**Chromatometer** (ANDRIEU), 1886, A., 1070.

**Chrom-diopside** from Cornwall (TEALL), 1891, A., 276.

**Chrome iron ore.** See **Chromite**.

**Chrome-mordanting process** (KOEHLIN), 1885, A., 208.

**Chrome-orange** for calico-printing, preparation of (ANON.), 1883, A., 896.

**Chrome paints**, analysis of (BROWN), 1887, A., 304.

**Chrome-yellows**, analysis of (LACHAUD and LÉPIERRE), 1892, A., 663.

**Chromic acid.** See under **Chromium**.

**Chromite** (*chromic iron ore*) (VENTON and ETIENNE), 1887, A., 532; (MEUNIER), 1890, A., 568; (FRESSENIUS and HINIZ), 1890, A., 828; (BURGHARDT), 1890, A., 1027; (DONATH), 1892, A., 1031.

from the Andaman Islands (MALLET), 1885, A., 1185.

from Australia (MACIVOR), 1888, A., 428.

from New South Wales (LIVERSIDGE), 1886, A., 774.

from Servia (SCHAFARZIK), 1885, A., 730.

from the United States (PEMBERTON), 1891, A., 992.

deposits of, in the Urals (COSSA and ARZRUNI), 1883, A., 444.

artificial preparation of (MEUNIER), 1889, A., 354; 1890, A., 568.

decomposition of (DONATH), 1887, A., 619; (JANNASCH and VOGTHER), 1892, A., 240.

decomposition of, by the electric current (SMITH), 1891, A., 1294, 1398.

analysis of (WALLER and VULFÉ), 1892, A., 1525.

estimation of chromium in (REINHARDT), 1890, A., 298; (KINNICUTT and PATTERSON), 1891, A., 366.

**Chromium** (JAGER and KRÜSS), 1889, A., 1117.

atomic weight of (BAUBIGNY), 1884, A., 894; (LUTTON), 1888, P., 81;

(RAWSON), 1889, T., 213; P., 81; (MEINEKE), 1891, A., 882.

atomic heat of (JAGER and KRÜSS), 1889, A., 1121.

(metal) preparation of, from potassium chromium chloride and magnesium (GLATZEL), 1891, A., 152.

— attempts to prepare, from chromic fluoride (EVANS), 1892, A., 19.

phosphorescence of (CROOKES), 1887, A., 1067.

**Chromium** in fluorescent mixtures, degree of oxidation of (LECOQ DE BOISBAUDRIN), 1888, A., 329, 541, 1001, 1229; 1889, A., 2.

**Chromium blue**, artificial production of (GARNIER), 1891, A., 271.

**Chromium chlorate**, use of, in cotton printing (LAUBER and WEINREB), 1885, A., 1272.

*dichloride*. See **Chromous chloride**.

*trichloride*. See **Chromic chloride**.

double fluorides (PETERSEN), 1889, A., 107.

*s sesquioxide* (*chromic oxide*) colloidal (VAN BREMMELSEN), 1888, A., 1162.

molecular states of (RECOURA), 1886, A., 597.

influence of, on the decomposition of potassium chlorate (FOWLER and GRANT), 1890, T., 277.

estimation of (BAUMAN), 1892, A., 104.

estimation of, by titration (PAWOLLEK), 1884, A., 640.

hydroxide, colloidal solution of (POTON and LINDER), 1892, T., 154.

*trioxide*. See **Chromic anhydride**.

oxides, colours of, in acid solution (V. DER PFORDTEN), 1884, A., 559.

action of hydrogen peroxide on (MARTINON), 1886, A., 984.

oxychloride. See **Chromyl chloride**.

oxyfluoride. See **Chromyl fluoride**.

oxyhaloid derivatives of (RAWSON), 1889, A., 678.

potassium arsenate (LEFÈVRE), 1890, A., 1378.

chloride (GODEFROY), 1884, A., 660.

fluoride (CHRISTENSEN), 1887, A., 448.

pyroarsenate (LEFÈVRE), 1890, A., 1378.

sodium arsenate (LEFÈVRE), 1890, A., 1378.

sulphide (BRUNNER), 1890, A., 215.

*heptasulphide*, non-existence of (BENDER), 1887, A., 553.

sulphites, preparation of (MANZONI), 1885, A., 725.

**Chromammonium salts** (JØRGENSEN), 1883, A., 554; 1885, A., 23; 1892, A., 782; (KRAUT), 1886, A., 849.

constitution of (JØRGENSEN), 1890, A., 1213; 1892, A., 783.

**Luteochromium salts** (JØRGENSEN), 1885, A., 23.

**Luteo- and roseo-chromium hydrogen nitrates** (JØRGENSEN), 1891, A., 1327.

- Chromammonium salts**, Rhodosechromium salts (JORGENSEN), 1892, A., 782.
- Chromic acid** (PRUD'HOMME and BINDER), 1883, A., 22; (FIELD), 1892, T., 405; P., 47.  
 preparation of (MOISSAN), 1884, A., 1267; (ROWELL), 1886, A., 103.  
 absorption spectra of (SABATIER), 1886, A., 838.  
 conductivity of aqueous solutions of (OSTWALD), 1888, A., 1009.  
 heat of formation of (BERTHELOT), 1883, A., 642.  
 basicity of (OSTWALD), 1888, A., 1009.  
 behaviour of some acids towards (SALZER), 1888, A., 996.  
 action of barium hydroxide and oxygen on (PÉCHARD), 1891, A., 1431.  
 action of hydrogen peroxide on (MOISSAN), 1884, A., 20; (BERTHELOT), 1889, A., 350, 468, 571.  
 estimation of (BAUMANN), 1892, A., 103; (LUNGE), 1892, A., 538.  
 estimation, volumetric, of, in chromates and dichromates (HARVEY), 1883, A., 686.  
 salts of, heat of formation of (BERTHELOT), 1883, A., 642.
- Chromates** (PRUD'HOMME and BINDER), 1883, A., 22; (JÄGER and KRÜSS), 1889, A., 1117.  
 manufacture of (MASSIGNON and VATEL), 1891, A., 1430.  
 double (LACHAUD and LEMPIERRE), 1890, A., 1065.  
 heat of solution of (SABATIER), 1886, A., 962.  
 action of acids on (BERTHELOT), 1883, A., 707.  
 compounds of, with mercuric chloride (JÄGER and KRÜSS), 1889, A., 1120.  
 detection of (VOGEL), 1888, A., 1129.  
 estimation of, in presence of dichromates (McCULLOCH), 1887, A., 304.  
 estimation: volumetric, of (SOLTSZEN), 1891, A., 115; (NAMIAS), 1892, A., 1375.
- Dichromates**, process for preparing (ANON.), 1883, A., 890; (ROEMER), 1884, A., 783.  
 action of a red heat on (BAUBIGNY), 1884, A., 559.
- Chromic anhydride** (*chromium trioxide*), purification of (MOISSAN), 1884, A., 1267.  
 combustion by means of (CROSS and BEVAN), 1888, T., 889; P., 76.
- Chromic anhydride** (*chromium trioxide*), action of gaseous hydrogen chloride on (MOISSAN), 1884, A., 1267.  
 action of sulphur on (SENDERENS), 1892, A., 770.
- Chromic salts** (RECOURA), 1891, A., 1430; 1892, A., 411.  
 action of heat on solutions of (RECOURA), 1891, A., 1430; (HARTLEY), 1892, A., 571.
- Chromic antimonate** (BEILSTEIN and BLÄSE), 1889, A., 1124.  
 bromide, isomeric forms of (RECOURA), 1890, A., 1063.  
 chloride (*chromium trichloride*), preparation of (QUANTIN), 1885, A., 23; (VOSMAER), 1889, A., 832.  
 isomeric modifications of (RECOURA), 1886, A., 508.  
 vapour density of (NILSON and PETERSSEN), 1888, T., 829; P., 87.  
 solutions of (PICTON and LINDER), 1892, T., 153.  
 anhydrous, solution of (RECOURA), 1886, A., 669.  
 double salts of, with other metallic chlorides (GODEFROY), 1884, A., 1266; (NEUMANN), 1888, A., 655.  
 hydrates of (GODEFROY), 1885, A., 352.  
 fluoride, violet (FABRIS), 1891, A., 271.  
 oxide. See *Chromium sesquioxide*.  
 phosphate (BLOXAM), 1886, A., 17.  
*metaphosphate* (JOHNSON), 1889, A., 757.  
 potassium hydrogen *pyrophosphate* (SCHERNING), 1892, A., 1053.  
 selenite (TAQUET), 1883, A., 717.  
 hydrogen selenite, preparation of (TAQUET), 1884, A., 397.  
 sulphate (BAUBIGNY), 1884, A., 558; (RECOURA), 1891, A., 1430; 1892, A., 411.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
*dithionate* (KLUSK), 1888, A., 1156.
- Chromiodates** (BERG), 1887, A., 776; 1890, A., 1378; (BLUMSTRAND), 1890, A., 107.
- Chromiodic acid** (BERG), 1887, A., 776; 1890, A., 1378.
- Chromosulphuric acid** and its salts (RECOURA), 1892, A., 783.
- Chromous chloride** (*chromium dichloride*), conversion of, into chromic chloride (RECOURA), 1886, A., 597, 669.  
 heat of transformation of, into chromic chloride (RECOURA), 1885, A., 1102.

**Chromous chloride** (*chromium dichloride*), vapour density of (NILSON and PETERSSON), 1888, T., 830; P., 87.

hydrochloride of (RECOURA), 1885, A., 875.

sulphate (MOISSAN), 1883, A., 22.

explosion of a tube containing (VAN BEMMELEN), 1888, A., 1041.

**Chromyl bromide**, bromo-, non-existence of (RAWSON), 1889, A., 678.

**chloride** (*chromium oxychloride*) (MOISSAN), 1884, A., 1267.

method of preparing (MOISSAN), 1885, A., 638.

actions of (QUANTIN), 1885, A., 23.

action of, on acenaphthene (EWAN and COHEN), 1889, T., 582.

action of ammonia on (RIDEAL), 1886, T., 367; P., 175.

action of carbon tetrachloride on (QUANTIN), 1887, A., 330.

solubility of chlorine in (ROOZEBOOM), 1886, A., 500.

fluoride (OLIVERI), 1886, A., 983.

**Chromium organic compounds:—**

**Chromammonium thiocyanate**, derivatives of (CHRISTENSEN), 1892, A., 798.

**Chromium compounds**, analogous to ferro- and ferri-cyanides of potassium, preparation of (CHRISTENSEN), 1885, A., 737.

**Chromium**, series of salts containing urea and (SELL), 1883, A., 178; 1889, A., 695.

dextrosate (CHAPMAN), 1891, T., 324; P., 66.

**Chromocyanic acid** (MOISSAN), 1885, A., 738.

**Chromorganic acids** (WERNER), 1887, T., 383; P., 2; 1888, T., 404; P., 33.

**Chromoxalic acid** and its salts (WERNER), 1887, T., 383; P., 2; 1888, T., 404; P., 33; (HARTLEY), 1887, P., 5.

**Chromium detection, estimation and separation:—**

test for (McCAY), 1892, A., 1133.

detection and estimation of traces of (DONATH and JELLER), 1887, A., 531.

estimation of (BAUBIGNY), 1884, A., 1428; (VIGNAL), 1886, A., 580.

estimation of, in alloys (PETERSON), 1885, A., 194.

estimation of, in chromium aluminium alloys (HUNT, CLAPP and HANDY), 1892, A., 1131.

**Chromium detection, estimation and separation:—**

estimation of, in chrome iron ore (KINNIGUTT and PATTERSON), 1891, A., 366.

estimation of, in foods (DE KONINGH), 1890, A., 195.

estimation of, by means of hydrogen peroxide (CARNOT), 1889, A., 311, 443.

estimation of, in iron ores (CLAASSEN), 1887, A., 449.

estimation of, in iron and steel (REINHARDT), 1890, A., 85; (HOGG), 1892, A., 538.

estimation of, in iron and steel, in presence of phosphorus (ARNOLD and HARDY), 1888, A., 757.

estimation of, in presence of organic matter (POMEROY), 1884, A., 109.

estimation of, in rock analysis (CHATARD), 1891, A., 768.

estimation, volumetric, of (SELL), 1887, A., 303.

estimation, volumetric, of, in chrome iron ore (REINHARDT), 1890, A., 298.

estimations, electrolytic, with (BRAND), 1890, A., 294.

separation of, from uranium (FORMÁNEK), 1888, A., 531.

**Chromochrome** from Servia (SCHAFARZIK), 1885, A., 730.

**Chromogenic groups** (v. RICHTER), 1888, A., 1189.

**Chromometer** (STEAD), 1883, A., 1032; (RIDSDELE), 1888, A., 625.

**Chromophyll** (ENGELMANN), 1883, A., 820.

**Chrom-tourmaline** from Maryland (GILL), 1892, A., 1057.

in the Urals (COSSA and ANZURINI), 1883, A., 444.

**Chrysaniline** (*diamidophenylacriline*) (FISCHER and KÖRNER), 1884, A., 748; 1885, A., 260; (ANSCHÜTZ), 1884, A., 1034.

preparation of (TRILLAT and DE RACZKOWSKI), 1892, A., 1095.

action of methyl iodide and hydroxide on (TRILLAT and DE RACZKOWSKI), 1892, A., 1095.

azo- and alkyl-compounds of, and the dyes therefrom (TRILLAT and DE RACZKOWSKI), 1892, A., 1095.

picrate (ANSCHÜTZ), 1884, A., 908.

**Chrysanthemine** (MARINO-ZUCO), 1891, A., 334; 1892, A., 84.

**Chrysanthemum** *cinerariæfolium*, alkaloid from (MARINO-ZUCO), 1891, A., 333; 1892, A., 84.

- Chrysanthemum cinerariæfolium*. constituents of the buds of (THOMAS), 1892, A., 349.  
homologue of cholesterin from (MARINO-ZUCCHI), 1890, A., 757.
- Chrysarobin**, therapeutical substitutes for (LIEBERMANN), 1888, A., 518.  
physiological action of (WEYL), 1889, A., 539.
- Chrysotropic acid** (KUNZ), 1886, A., 255.
- Chrysene** (BAMBERGER and BURGDORF), 1890, A., 1312.  
synthesis of (KRAEMER and SPILKER), 1890, A., 515.  
constitution of (BAMBERGER and KRANZFELD), 1885, A., 1069.  
boiling point of (SCHWEITZER), 1891, A., 1240.  
derivatives of (ABEGG), 1891, A., 730.  
hydrides (LIEBERMANN and SPIEGEL), 1889, A., 405.  
amido- (ABEGG), 1890, A., 789; (BAMBERGER and BURGDORF), 1890, A., 902, 1313.
- Chrysenic and isochrysenic acids** (BAMBERGER and BURGDORF), 1890, A., 1312, 1313.
- Chrysidines**, and derivatives of (PICER and ERLICH), 1891, A., 217; 1892, A., 197.
- Chrysocolla** (*copper silicate*) from Arizona (EUCIUS), 1884, A., 28.  
from California (JANNETTAZ), 1888, A., 565.  
from Etna (FREDA), 1885, A., 643.  
from Gila Co., Arizona, analysis of (ROBERTSON), 1885, A., 130.
- Chrysofluorene**, and the alcohol from it (BAMBERGER and KRANZFELD), 1885, A., 1070.
- Chrysoglycollic acid** (BAMBERGER and KRANZFELD), 1885, A., 1070.
- Chrysoidine** (*benzocyclo-m-phenylone-dimine*), description and measurement of the spectrum of (HARTLEY), 1887, T., 178.
- Chrysoidinecarbamide** (JENTZSCH), 1889, A., 45.
- Chrysoketone** (BAMBERGER and KRANZFELD), 1885, A., 1070; (BAMBERGER and BURGDORF), 1890, A., 1312.
- Chrysolin** (MICHARD), 1888, A., 497.
- Chrysonaphthazine** (LIEBERMANN and WITT), 1887, A., 1049.
- Chrysophanhydranthrone** (LIEBERMANN), 1888, A., 492.
- Chrysophanic acid** (*dihydroxymethyl-anthraquinone*) (GRANDIS), 1892, A., 1354.
- Chrysophanic acid** (*dihydroxymethyl-anthraquinone*), reactions for distinguishing, from the santonin colouring matter in urine (HOPPE-SEYLER), 1887, A., 406.
- Chrysophenol** (FISCHER and KORNER), 1884, A., 748.
- Chryoquinol**, amido-, salts of (ABEGG), 1891, A., 731.
- Chryoquinone**, preparation of (BAMBERGER and BURGDORF), 1890, A., 1312.  
azines of (LIEBERMANN and WITT), 1887, A., 1049.  
amido-, salts of (ABEGG), 1891, A., 731.
- Chrysotile** from the Pyrenees (GUGUEL), 1891, A., 407.  
from Shipton, Canada (SMITH), 1885, A., 361.  
analysis of (TERRELL), 1885, A., 490.
- Chrysotoluazine** (LIEBERMANN and WITT), 1887, A., 1049.
- Chrysotobalite** (MALLARD), 1890, A., 1071.
- Chrysylacetamide** and its derivatives (ABEGG), 1891, A., 730.
- Chrysyl-carbimide**, -thiocarbamide and -methylthiocarbamide (ABEGG), 1891, A., 730.
- Churn**, testing, Jacobsen's (FLEISCHMANN and SACHTLEBEN), 1883, A., 253.
- Chydrazine** (*ammonia protoxide*) (MAUMENÉ), 1889, A., 14.
- Chyle**, destruction of glucose by (LÉPINE), 1890, A., 810, 1172.  
human (NOËL-PATON), 1890, A., 394; (MUNK and ROSENSTEIN), 1891, A., 755, 849.  
soaps as constituents of (HOPPE-SEYLER), 1885, A., 573.  
sugar in the (GINSBERG), 1890, A., 276.
- Chyluria**, blood in (FREUND and OELMAYER), 1891, A., 1124.
- Cienta maculata*, examination of (GLENK), 1892, A., 232.
- Cieutine** (OECHSNER DE JONINCK), 1884, A., 1047.
- Cider**, examination of 5 apple-must and of cider obtained therefrom (KAYNER), 1884, A., 8.  
apples, analysis of some (LEZÉ), 1884, A., 203.  
ash (LECHARTIER), 187, A., 520.  
must, application of the densimeter to (LECHARTIER), 155, A., 842.
- Ciders**, concentration of, by freezing (LECHARTIER), 1888A., 188.

- Cigarettes**, Egyptian (ANON.), 1888, A., 1331.
- Cimolite** from Maine, analysis of (CLARKE and CHATARD), 1885, A., 492.
- Cinchone**. See Cinchenine under Alkaloids.
- Cinchocerotic acid** (HELMs), 1884, A., 332.
- Cinchocerotin** (HELMs), 1884, A., 331; (HESSE), 1885, A., 1076.
- Cinchol** (*cholesterol*, *oxyquinolterpene*) (LIEBERMANN), 1884, A., 1191; 1885, A., 1075; (HESSE), 1885, A., 1076; 1887, A., 58.  
comparison of, with cholesterol (LIEBERMANN), 1885, A., 1075.  
reaction (SCHULZE), 1890, A., 1474.  
acetate and propionate (HESSE), 1885, A., 1076.
- Cincholepidine**. See 4'-Methylquinoline.
- Cincholeupone and cincholeuponic acid** (SKRAUP), 1889, A., 282.
- Cincholeupone**, preparation of, from quinidine (SKRAUP and WURSTL), 1889, A., 1073.
- Cincholine** (HESSE), 1892, A., 1492.
- Cinchomeranamic acid** (STRACHE), 1890, A., 1157.
- Cinchomeronic acid** (*pyridine-3:4-dicarboxylic acid*) (OECHSNER DE CONTINCK), 1883, A., 739; (MAYER), 1892, A., 1357.  
anhydride of (GOLDSCHMIEDT and STRACHE), 1889, A., 1016.  
imide of (GOLDSCHMIEDT and STRACHE), 1889, A., 1016; (STRACHE), 1890, A., 1157.  
dianilide and phenylimide of (STRACHE), 1890, A., 1158.  
amido- (GOLDSCHMIEDT and STRACHE), 1889, A., 1016.  
bromo- (EDINGER and BOSSUNG), 1891, A., 580.
- isoCinchomeronic acid** (*pyridine-2:5-dicarboxylic acid*) (EPSTEIN), 1885, A., 815; (WEIDEL and HERZIG; HANTZSCH), 1886, A., 477.  
synthesis of (WEISS), 1886, A., 719.  
constitution of (HANTZSCH), 1885, A., 1078.
- Cinchona**, liquid extract of (PAUL), 1883, A., 693.  
alkaloids. See Alkaloids.
- Cinchona bark** grown in Jamaica (PAUL), 1883, A., 1165.  
ash of (HOOPER), 1887, A., 394.  
assay of (PETIT), 1885, A., 447.  
estimation of the total alkaloid in (HAUDENSAK), 1891, A., 1402.
- Cinchona bark**, so-called fat or wax from (HESSE), 1885, A., 1075.
- Cinchonamide** (VAN DER KOLF and VAN LEENT), 1889, A., 1017.
- Cinchonamine**. See Alkaloids.
- Cinchonas**, analysis of (LANDRIN), 1889, A., 802.
- Cinchonibine**. See Alkaloids.
- Cinchonic acid** (*quinoline-4'-carboxylic acid*) (CLAUS and MUTHALL), 1885, A., 560; (MUTHMANN and NEF), 1887, A., 598; (CLAUS and KICKELHAYN), 1887, A., 816.  
alkyl and alkylene derivatives of (CLAUS), 1892, A., 1488.  
derivatives (CLAUS and MUTHALL), 1883, A., 560.  
halogen-derivatives of (CLAUS), 1885, A., 908.  
sulpho- (v. GEORGEVICS), 1888, A., 501; (BUSCH and KOENIGS), 1890, A., 1435.
- Cinchonidine**. See Alkaloids.
- isoCinchonidine**. See Alkaloids.
- Cinchonifine**. See Alkaloids.
- Cinchonigine**. See Alkaloids.
- Cinchonine**. See Alkaloids.
- isoCinchonine**. See Alkaloids.
- apoCinchonine**. See Alkaloids.
- Cinchoxinic acid**, alkylene derivatives of (CLAUS), 1892, A., 1488.
- Cinene** (*cynene*). See Terpenes.
- Cineol** (*eucalyptol*). See Terpenes.
- Cineolic acid** (WALLACH and GILDEMEISTER), 1888, A., 1205; (WALLACH), 1891, A., 1084; (ELKELES), 1892, A., 1480.  
constitution of (WALLACH), 1890, A., 1315; (COLLIE), 1892, A., 866.  
anhydride (WALLACH), 1890, A., 1314.
- Cineolic allylamide, diethylamide, phenylhydrazide, piperidide and  $\gamma$ -toluidide** (ELKELES), 1892, A., 1480.
- Cinnabar** from Servia (SCHAFARZIK), 1885, A., 730.  
artificial production of (DOELTER), 1886, A., 208.  
natural solutions of (BECKER), 1887, A., 555.  
See also Mercuric sulphide.
- Cinnamaldehyde**, synthesis of (PEINE), 1884, A., 1345.  
action of, with acetone (DIEHL and EINHORN), 1885, A., 1221.  
action of ammonia and, on diacetyl and on phenanthraquinone (WADSWORTH), 1890, T., 11.  
action of, with alkali hydrogen sulphites (HEUSLER), 1891, A., 1052.

- Cinnamaldehyde**, action of, with ammonia and ethylic acetoacetate (ERSTEIN), 1886, A., 257.  
 action of ethylic acetoacetate on (BIGINELLI), 1890, A., 708.  
 action of, on malonic acid (STUART), 1886, T., 365.  
 action of, with *p*-nitrobenzyl cyanide (REMSIE), 1891, A., 208.  
 estimation of, in oil of cassia (SCHIMMEL), 1892, A., 924.  
 derivatives of (ZINCKE and HAGEN), 1884, A., 1343; (PEINE), 1884, A., 1344.  
 anilide, salts of (PEINE), 1884, A., 1315.  
 cyanhydrin (PINNER), 1884, A., 1292.
- Cinnamaldehyde**, bromonitro- and chloronitro-derivatives of (NAAR), 1891, A., 563.  
*α*-chloro- (NAAR), 1891, A., 562.  
*m*-nitro-, preparation and derivatives of (KINKELIN), 1885, A., 791.  
*o*-nitro- (V. BAEYER and DREWSEN), 1884, A., 59.  
 preparation of (DIEHL and EINHORN), 1885, A., 1221.  
 action of, on malonic acid (EINHORN and GEHRENBEEK), 1890, A., 163.  
 condensations with (EINHORN), 1884, A., 1315.  
 condensation products of, with acetone (DIEHL and EINHORN), 1885, A., 1222.  
 phenylhydrazine derivative of (DIEHL and EINHORN), 1885, A., 1222.  
*p*-nitro- (GOHRING), 1885, A., 527.  
 preparation of (DIEHL and EINHORN), 1885, A., 1221.  
 derivatives of (EINHORN and GEHRENBEEK), 1890, A., 161.  
*α*-trithio- (BAUMANN and FROMM), 1891, A., 1051.
- Cinnamaldehyde**, *α*-thioglycollic acid (BUNGARTZ), 1886, A., 937; 1888, A., 478.
- Cinnamaldoxime** (BORNEMANN), 1886, A., 799.  
*α*-bromo- (NAAR), 1891, A., 563.  
*α*-chloro- (NAAR), 1891, A., 562.  
*p*-nitro- (EINHORN and GEHRENBEEK), 1890, A., 161.
- Cinnamene**. See Styrene.
- Cinnamenyl-** (*phenylallenyl-*). See also Styl-.
- Cinnamenylamidoxime** (*phenylallenyl-amidoxime*), (WOLFF), 1886, A., 795.
- Cinnamenylamidoxime** (*phenylallenyl-amidoxime*), derivatives (WOLFF), 1886, A., 798; 1890, A., 41.
- Cinnamhydrazine**, *o*-nitro- (CORNELIUS and HOMOLKA), 1886, A., 1026.
- Cinnamic acid** (*β-phenylacrylic acid*) (GABRIEL), 1883, A., 195.  
 in the products of decomposition of crude cocaine (FRANKFELD), 1889, A., 419.  
 in the Ericaceæ (EIJKMAN), 1887, A., 517.  
 preparation of (MICHAEL), 1884, A., 446; (PERKIN), 1886, T., 320; (CLAISEN), 1890, A., 891; (EDELHANS), 1890, A., 892.  
 thermochemistry of (OSSIPOFF), 1889, A., 460; (STOHMANN, KLEDER and LANGBEIN), 1889, A., 1096.  
 action of sulphuric acid on (ERDMANN), 1883, A., 474.  
 condensation of, with gallic acid (JACOBSEN and JULIUS), 1888, A., 56.  
 condensation of, with hydrocarbons (LIEBERMANN and HARTMANN), 1892, A., 1228.  
 condensation of, with phenols (LIEBERMANN and HARTMANN), 1892, A., 848.  
 nitration of, in the side chain (ERDMANN), 1891, A., 1433.  
 oxidation of (FITTIG), 1888, A., 595; (FITTIG and RYER), 1892, A., 936.  
 nature of the isomerism of *isocinnamic acid* and (LIEBERMANN), 1890, A., 495.  
 conversion of, into *isocinnamic acid* (ERLENMEYER), 1891, A., 200.  
 homologues of, preparation of (CLAISEN), 1890, A., 891.  
 derivatives (GABRIEL), 1883, A., 195; (ERLENMEYER), 1883, A., 196; (ERLENMEYER and LIPP), 1883, A., 992; (GABRIEL and HERZBERG), 1883, A., 1123; (HANTER), 1884, A., 603, 1172; (HEINZBERG), 1885, A., 661.  
 nitration of (FRIEDLÄNDER), 1885, A., 1137.  
 benzoyllactimide of (REBUFFAT), 1890, A., 624.  
 hydrazines of (FISCHER and KUZEL), 1884, A., 440; (FISCHER and TAFEL), 1885, A., 540.  
 sulphur derivative of, synthesis of (LOVEN), 1886, A., 241.
- Cinnamic acid**, *α*-amido- (PLÜCH), 1884, A., 1349.  
 derivatives of (ROTHSCHILD), 1890, A., 1123; 1891, A., 198.

- Cinnamic acid**, *p*-amido-, nitration of (FRIEDLÄNDER and LAZARUS), 1885, A., 1139.
- $\alpha$ -bromo- [m.p. 181°] (MICHAEL and BROWNE), 1886, A., 703; 1887, A., 582; (ANSCHÜTZ and SELDEN), 1887, A., 829.
- allo*- $\alpha$ -bromo- [m.p. 120°] (MICHAEL and BROWNE), 1886, A., 703; (ANSCHÜTZ and SELDEN), 1887, A., 829.
- (?)  $\beta$ -bromo- [m.p. 159°] (MICHAEL and BROWNE), 1886, A., 703.
- evobromo*- [m.p. 138°] (MICHAEL and BROWNE), 1887, A., 582.
- $\beta$ -*libromo*- (NISSEN), 1892, A., 1464.
- $\alpha$ -bromo-*m*-nitro- (STUART), 1886, T., 361; (NAAR), 1891, A., 564.
- $\alpha$ -bromo-*o*-nitro- (NAAR), 1891, A., 563.
- $\alpha$ -chloro-, formation of, from ethylic benzoylacetate (PERKIN), 1885, T., 257.
- $\beta$ -*dichloro*- [m.p. 228°] (SEELIG), 1887, A., 363.
- $\alpha\beta$ -*dichloro*- [m.p. 120°] (NISSEN), 1892, A., 1464.
- chloro-*o*- and -*m*-nitro- (NAAR), 1891, A., 563.
- m*-chloro-*o*-nitro- (EICHENGRÜN and EINHORN), 1891, A., 1099.
- $\alpha$ -cyano- (CARHICK), 1892, A., 1087.
- o*-cyano- (DRORY), 1891, A., 1462.
- o*-fluoro- (GRIESS), 1885, A., 788.
- diiodo*- (LIEBERMANN and SACHSE), 1891, A., 1483; 1892, A., 470.
- o*-nitro-, preparation of (STUART), 1883, T., 408.
- o*- and *m*-nitro-, nitration of (FRIEDLÄNDER and LAZARUS), 1885, A., 1138.
- o*-nitro-, derivatives of (EINHORN), 1884, A., 65; (MORGAN), 1884, A., 747.
- p*-nitro-, nitration of (FRIEDLÄNDER and MÄHL), 1885, A., 1137.
- p*-*dinitro*-, and its methyl and ethyl salts (FRIEDLÄNDER and MÄHL), 1885, A., 1137.
- $\alpha$ - and  $\beta$ -nitro-*o*-amido- (FRIEDLÄNDER and LAZARUS), 1885, A., 1139.
- sulpho- (KAFKA), 1891, A., 722.
- isoCinnamic acid** (LIEBERMANN), 1890, A., 494, 620, 1417; 1891, A., 832.
- in the alkaloids of cocaine (LIEBERMANN), 1890, A., 494.
- conversion of cinnamic acid into (ERLENMEYER), 1891, A., 200.
- alloCinnamic acid** (LIEBERMANN), 1890, A., 1417; 1891, A., 822.
- alloCinnamic acid**, formation of, from phenylpropionic acid (LIEBERMANN and SCHOLZ), 1892, A., 848.
- condensation of, with phenols (LIEBERMANN and HARTMANN), 1891, A., 1484; 1892, A., 848.
- Cinnamic acids**, stereoisomeric and polymeric (LIEBERMANN), 1892, A., 469.
- amido-, derivatives of (ROTHSCHILD), 1890, A., 1123; 1891, A., 198.
- bromo- (PLÜCHL), 1883, A., 194; (GABRIEL), 1883, A., 195.
- isomeric, reduction of the (MICHAEL), 1887, A., 668.
- $\alpha$ -bromo-, isomeric (RUHEMANN), 1892, T., 278; P., 28.
- chloro- (PLÜCHL), 1883, A., 194; (MICHAEL and PENDLETON), 1889, A., 1063.
- halogen (ERLENMEYER), 1883, A., 196.
- Cinnamic acid series**, isomerism in (MICHAEL and BROWNE), 1886, A., 702; 1887, A., 582; (ERLENMEYER), 1886, A., 945; (ROSER and HASELHOFF), 1887, A., 830.
- Cinnamic chloride**, action of aluminium chloride on (HUGHES), 1891, P., 71.
- diphenylhydrazide (BOLING and TAFEL), 1892, A., 981.
- etheral salts, aromatic, decomposition of, by heat (ANSCHÜTZ), 1885, T., 898.
- ketone, *m*-chloro-*o*-nitro- (EICHENGRÜN and EINHORN), 1891, A., 1098.
- isoCinnamic chloride** (LIEBERMANN), 1890, A., 1418.
- Cinnamide**,  $\alpha$ -bromo- (ANSCHÜTZ and SELDEN), 1887, A., 829.
- nitramido- (V. MILLER and KINKELIN), 1889, A., 990.
- Cinnamon oil** (GILBERT), 1890, A., 423; (WEBER), 1892, A., 1509.
- Cinnamone**. See Distyryl ketone.
- Cinnamonitrile**,  $\beta$ -amido- (HOLTZWART), 1889, A., 683.
- Cinnamoylacetone**, *o*-nitro- (FINCHER and KUZEL), 1883, A., 587, 588.
- Cinnamoylacetaldehyde**, *o*-nitro- (EINHORN), 1884, A., 1316.
- Cinnamoylcocaine** (LIEBERMANN), 1889, A., 283.
- from coca leaves (LIEBERMANN), 1890, A., 76; (PAUL and COWNEY), 1890, A., 310; (GIESSEL), 1890, A., 390.
- Cinnamoyldiphenylamide** (BERTHSEN), 1887, A., 814.
- Cinnamoylcegonine** (LIEBERMANN), 1889, A., 283.
- Cinnamoyl~~extro~~cegonine** (DECKERS and EINHORN), 1891, A., 475.

- Cinnamoylformic acid** (*styrylglucosyllic acid*), *o*-nitro- (V. REYER and DREWSEN), 1883, A., 341.
- 3'-Cinnamoylindole** (ZARTI and FERRATINI), 1890, A., 989.
- Cinnamoylmethyldestrucgonine** (DECKERS and EINHORN), 1891, A., 475.
- Cinnamoylphenylazimide**, formation of (RUEHMANN), 1892, T., 282.  
reduction of (RUEHMANN), 1892, T., 284.
- Cinnamoylphenylhydrazide** (KNORR), 1887, A., 665.
- Cinnamoylpiperidide** (HERSTEIN), 1889, A., 1214.
- $\psi$ -Cinnamoylpyrroline**, and its derivatives (CIAMICIAN and DENNSTEDT), 1885, A., 378.
- Cinnamoyltropeine** (LADENBURG), 1883, A., 671.
- Cinnamoyl- $\psi$ -tropeine** (LIEBERMANN), 1891, A., 1266.
- Cinnamyl alcohol**, refractive power of, at different temperatures (PERKIN), 1892, T., 306.
- Cinnamylidene-*o*- and -*p*-amidophenols** (HAEGELE), 1892, A., 1451.
- Cinnamylidenazaine** (CURTIUS and JAY), 1889, A., 393.
- Cinnamylidenecamphor** (HALLER), 1891, A., 1498.
- Cinnamylidenediacetonamine** (ANTRICK), 1885, A., 503.
- Cinnamylidenediureide** (BIGINELLI), 1892, A., 57.
- Cinnamylidenephnylmethylpyrazolone** (KNORR), 1887, A., 602.
- Cinnamylidenetolidine** (SCHIFF and VANNI), 1890, A., 1299.
- Cinnamylidene-*m*-tolylenediamine** (SCHIFF and VANNI), 1890, A., 139.
- Cinnamylidenic diacetate** (REBUFFAT), 1891, A., 69.
- n*-Cinnamylphenylhydrazine** (MICHAEL and CLAESSEN), 1889, A., 1161.
- Cinnamyl-**. See also Styryl-.
- Cinnidimabenzil and cinnimabenzil** (JAPP and WYNN), 1886, T., 471, 472.
- Cinnoline**, derivatives of (V. RICHTER), 1883, A., 1105; (BUSCH and KLETT), 1892, A., 1494.  
chloro- (BUSCH and KLETT), 1892, A., 1494.
- Circulation**, influence of carbohydrates on (ALBERTONI), 1889, A., 1023.
- Cistern deposits** (CHAPMAN), 1889, A., 1111.
- Citraconanil**. See Citraconic acid, phenylimide of.
- Citraconfluorescein** (HEWITT), 1891, T., 301; P., 59.
- Citraconic acid**, synthesis of, from ethylic propanetricarboxylate (BISCHOFF), 1890, A., 1101.  
molecular weight of (PATERNO and NANINI), 1888, A., 1059.  
constitution of (KANONNIKOFF), 1886, A., 335; (ANSCHUTZ), 1887, A., 917.  
magnetic rotatory power of (PERKIN), 1887, P., 98; 1888, T., 580, 591.  
molecular refraction of (KNOPS), 1888, A., 938; 1889, A., 198.  
heat of combustion of (LUGININ), 1888, A., 893.  
thermochemistry of (GAL and WERNER), 1887, A., 205.  
action of aniline on (ANSCHUTZ and REUTER; SCHARFENBERG), 1890, A., 368.  
action of, on naphthylamine (MORAWSKI and GLÄSER), 1888, A., 1096.  
conversion of, into its isomerides by soda (DELISLE), 1892, A., 297.  
derivatives of (CIAMICIAN and DENNSTEDT), 1883, A., 312.  
 $\alpha$ -naphthylamide of (*citracon- $\alpha$ -naphthil*) (MORAWSKI and GLÄSER), 1888, A., 1096.  
phenylimide of (*citraconanil*) (ANSCHUTZ), 1888, A., 1092; 1890, A., 774; 1891, A., 73; (REINSEIT), 1890, A., 1102.  
constitution of (REINSEIT), 1888, A., 694, 954.  
*p*-bromo- and *p*-chloro- (MORAWSKI and KLAUDY), 1888, A., 53.  
*p*-tolylimide of (*citracontolil*) (MICHAEL and PALMER), 1888, A., 462.
- Citraconic anhydride**, magnetic rotatory power of (PERKIN), 1887, P., 98; 1888, T., 576, 596.  
anilide (MICHAEL and PALMER), 1888, A., 462.
- Citraconimide** (CIAMICIAN and DENNSTEDT), 1883, A., 313.  
*mono*- and *di*-bromo- (MENDINI), 1885, A., 1126.
- Citracon- $\alpha$ -naphthil**. See Citraconic acid,  $\alpha$ -naphthylimide of.
- Citracontolil**. See Citraconic acid, *p*-tolylimide of.
- Citraconmalic acid** (NIEME and V. PECHMANN), 1891, A., 675.
- Citral** (SEMMER), 1891, A., 540.
- Citramalic acid** (*methoxysuccinic acid*), constitution of (MICHAEL and TISSOT), 1891, A., 1455.
- Citramide and citramonamic acid** (BEHRMANN and V. HOFMANN), 1885, A., 138.

- Citrates**, alkali (SALZER), 1892, A., 149.  
distillation products of (BISCHOFF and HAUSDORFER), 1890, A., 1102.
- Citrazinic acid** (2:6-dihydroxypyridine-3-carboxylic acid) (BEHRMANN and V. HOFMANN), 1885, A., 139; (RUHEMANN), 1887, T., 407; (EASTERFIELD and SELL), 1892, T., 1008.  
action of heat on (GUTHZELT and DRESSEL), 1891, A., 940.  
salts of (BEHRMANN and V. HOFMANN), 1885, A., 139.
- Citrazinimide** (RUHEMANN), 1887, T., 406.  
constitution of (RUHEMANN), 1890, A., 736.  
trichloro-, compound of, with aniline (RUHEMANN), 1888, A., 728.
- Citrene**. See Limonene under Terpenes.
- Citric acid** (SKINNER and RUHEMANN), 1889, T., 235; P., 54; (BUCHNER and WITTER), 1892, A., 824.  
in the seeds of Leguminosae (RITTHAUSEN), 1884, A., 1304.  
in milk (SOXHLER), 1889, A., 178; (HENKEL; SCHEIBE), 1891, A., 1276.  
in *Oryzococcus palustris* (KONSOVÍČ), 1888, A., 314.  
in Virginia creeper (*Cissus quinquefolia*) (PHIPSON), 1885, A., 1255.  
synthesis of (HALLER and HELD), 1891, A., 178; (DUNSCHMANN and V. FECHMANN), 1891, A., 672.  
thermochemistry of (STOHMANN, KLEBER and LANGHEIN), 1890, A., 101; (MASSON), 1892, A., 763.  
heat of neutralisation of (GAL and WERNER), 1887, A., 205.  
dissociation constant of (WALKER), 1892, T., 708.  
distillation of, with glycerol (DE CLERMONT and CHAUFFARD), 1888, A., 15.  
dry distillation of, with excess of lime (FREYDL), 1883, A., 658.  
fermentation of (WATTS), 1887, A., 235.  
rate of loss of water from different specimens of, in dry air (GROSJEAN), 1883, T., 331.  
action of monamines on (HECHT), 1887, A., 154.  
action of, on minerals (BOLTON), 1883, A., 857.  
action of phosphorus pentachloride on (KLIMENKO and BUCHSTAB), 1891, A., 178.  
amides of, and their conversion into pyridine-derivatives (BEHRMANN and V. HOFMANN), 1885, A., 138.
- Citric acid**, anhydro-derivatives of (EASTERFIELD and SELL), 1892, T., 1008; P., 153.  
bismuth salt of (CAVAZZI), 1885, A., 653.  
etheral salts of (ANSCHUTZ and KLINGEMANN), 1885, A., 1050.  
iron and iron-sodium salts of (ROTHER), 1883, A., 458.  
lithium salt of (THOMPSON), 1883, A., 1086.  
potassium and sodium salts of (SALZER), 1892, A., 149.  
sodioferrous salt of (ROTHER), 1883, A., 458.  
triphenylimide of, trinitro- (SCHNEIDER), 1888, A., 465.
- Citric acid**, detection, estimation and separation:—  
detection of, in milk (SCHEIBE), 1891, A., 1276.  
test for (MANN), 1885, A., 843.  
test for tartaric acid in (PUSCH), 1885, A., 445; (SALZER), 1888, A., 996; (CRISMER), 1892, A., 516.  
turneric, use of, as an indicator for (WATTS), 1887, A., 307.  
estimation of, in lemon juice (WILLIAMS), 1890, A., 88.  
estimation of, in lemon and other juices (GROSJEAN), 1883, T., 332.  
estimation of, in milk (HENKEL; SCHEIBE), 1891, A., 1276.  
estimation of, in plants (CLAASSEN), 1891, A., 120.  
estimation of, when mixed with tartaric acid (WARD), 1889, A., 447.  
separation of malic acid from (MICKO), 1892, A., 1531.
- isoCitric acid** (FITTIG), 1888, A., 252; (FITTIG and MILLER), 1890, A., 537.
- Citrobenzidilic acid** (SCHNEIDER), 1888, A., 465.
- Citrodiamic acid**, and its salts (BEHRMANN and V. HOFMANN), 1885, A., 138.
- Citrodianilide** (KLINGEMANN), 1889, A., 768.
- Citrodicumidic acid** and **citro-di- and -tri-cumidides** (SCHNEIDER), 1888, A., 464.
- Citrodinaphthylidamic acid** (HECHT), 1887, A., 154.
- Citro-p-ditoluidic acid** [m.p. 161°] and **-p-ditoluidide** (GILL), 1887, A., 40.
- Citro-p-ditoluidic acid** [m.p. 189°] (KLINGEMANN), 1889, A., 768.
- Citronellaldehyde** (DODGE), 1890, A., 231; 1891, A., 235; (KRUMMERS), 1892, A., 1068.
- Citronella oil** and **citronellyl alcohol** (DODGE), 1890, A., 231.

- Citronellylidenephosphoric acid** (DODGE), 1891, A., 286.
- Citro-*p*-toluidic acid and -*p*-toluidide** (GILL), 1887, A., 40.
- Citrotolylene diamide** (SCHNEIDER), 1888, A., 465.
- Citro-trimethylamide and -trinaphthylamide** (HECHT), 1887, A., 154.
- Citrus**, crystalline substances from the fruits of various species of (TILDEN and BECK), 1890, T., 323; P., 30.
- Citrus Bergamia**, stearoptene from the oil of (POMERANZ), 1892, A., 71.
- Citrus Linetta**, essential oil of the leaves of (WATTS), 1886, T., 316; P., 158.
- Citryl chloride**, chloro-, constitution of (SKINNER and RÜHEMANN), 1889, T., 240.  
action of aniline, of heat, of toluidine, and of water on (SKINNER and RÜHEMANN), 1889, T., 236.
- Clamps** for gas analysis apparatus (LUNGE), 1892, A., 524.
- Claret**, detection of artificially coloured (HEHZ), 1887, A., 91; (SAMUELSON), 1887, A., 187.
- Clark's cell**. See Electrochemistry.
- Clark's soap test**, standard solution for (NELSON), 1890, A., 198.  
modification of (NEUGEBAUER), 1891, A., 116.
- Clay**, chromiferous, from Brazil (TERRELL), 1892, A., 1057.  
blue, from Farmington, Maine (ROBINSON), 1888, A., 352.  
from Lóthain, analysis of (SEGER), 1888, A., 627.  
analysis of (MEINEKE), 1887, A., 1139.  
china. See Kaolin.  
pink, analysis of (DAMOUR), 1887, A., 647.  
See also Agricultural chemistry.
- Clay-ironstone** of Rheinhesse (TECKLENBURG), 1883, A., 448.
- Clays**, composition of (ANON.), 1883, A., 888; (KOMMANN), 1885, A., 1020; (VOGT), 1890, A., 1060.  
constitution of (LE CHATELIER), 1887, A., 785.  
ferruginous, origin of, in limestone districts (DIEULAFAIT), 1884, A., 1272.
- Hainstadt**, absence of rare metals in (BLOMSTRAND), 1886, A., 678.  
occurrence of rare earths in (STROHECKER), 1886, A., 314.
- Japanese**, for the manufacture of ultramarine (IWABUCHI), 1885, A., 460.
- Clays**, refractory (WAGENER), 1883, A., 397.  
action of heat on (LE CHATELIER), 1887, A., 785.
- Clay-slate** (V. GRODDECK), 1888, A., 795.
- Cliftonite** (FLETCHER), 1888, A., 30.
- Clinocllore** from Chester, Pennsylvania, and Brewster, New York (SCHLAEFFER), 1891, A., 531.  
percentage of water in (JANNASCH), 1885, A., 642.  
See also Chlorite.
- Clinoclase** from Utah (HILLEBRAND and WASHINGTON), 1888, A., 1044.  
See also Copper arsenate.
- Clinohumite**, composition of (SjÖGREN), 1883, A., 436.
- Cloanthite**, action of acids on (VOLLHARDT), 1888, A., 1257.
- Clotting**. See Coagulation.
- Clover**. See Agricultural chemistry.
- Cloves**, oil of, valuation of (THOMS), 1892, A., 250.
- Coagulation** (BÉCHAMP), 1891, A., 838.  
influence of calcium salts on (PEKELHARING), 1892, A., 87; (GRIESBACH; RINGER), 1892, A., 1112.  
intravascular (WOOLDRIDGE), 1886, A., 821; (KRÜGER), 1888, A., 305; (WRIGHT), 1891, A., 953.  
of the blood (PEKELHARING), 1892, A., 87; (GRIESBACH), 1892, A., 1112.  
chemical theory of (ARTHUS and PAGÈS), 1891, A., 596.  
of blood, etc., influence of salts of the alkalis and alkaline earths on (RINGER and SAINSBURY), 1890, A., 1176.  
of blood and lymph, effect of peptone on (SHORE), 1891, A., 481.  
of proteids by heat (CORIN and ANSTANT), 1891, A., 1521.  
action of salts on (RINGER and SAINSBURY), 1891, A., 954.
- Coal**, a bed of, discovered in Algiers, and the layers of white sand accompanying the same (PINARD), 1883, A., 160.  
an English (SCHEURER-KESTNER and MEUNIER-DOLLFUS), 1888, A., 345.  
bituminous, from Alabama, Tennessee, and Kentucky, analyses of (LUTTON), 1885, A., 1185.  
from Antioquia and Canoas, analysis of (BOUSSINGAULT), 1883, A., 941.  
from the North of France, heat of combustion of (SCHEURER-KESTNER), 1888, A., 774.

**Coal**, brown, of Istria and Dalmatia (LODIN), 1885, A., 125.  
 from the Muaraze, analysis of (GUYOT), 1883, A., 299.  
 from Ronchamp, heat of combustion of (SCHEURER-KESTNER), 1885, A., 848.  
 from Ruhr, composition and heat of combustion of (SCHEURER-KESTNER), 1885, A., 1020.  
 from Servia (LOSANITSCH), 1888, A., 31.  
 formation of (SPRING), 1888, A., 925.  
 composition of (REINISCH), 1885, A., 876.  
 composition and properties of, in relation to the plants from which it is derived (CARNOT), 1885, A., 639.  
 carbonized, composition of (WINKLER), 1884, A., 1441.  
 heat of combustion of (SCHEURER-KESTNER), 1884, A., 122; 1885, A., 848, 1020; 1888, A., 774; (ALEXÉEFF), 1886, A., 757.  
 use of the calorimetric bomb for determining the heat of combustion of (SCHEURER-KESTNER), 1891, A., 520.  
 formulæ for calculating the heating power of (SCHEURER-KESTNER), 1892, A., 1148.  
 action of dilute nitric acid on (FRISWELL), 1892, P., 9.  
 coking of (SMITH), 1884, A., 224.  
 coking of, with conversion of its nitrogen into ammonia (SCHEURER-KESTNER), 1884, A., 126.  
 combustion of, spontaneous (ANON.), 1883, A., 892.  
 destructive distillation of, behaviour of the nitrogen during, with some observations on the estimation of nitrogen in coal and coke (FORSTER), 1883, T., 105.  
 destructive distillation of, behaviour of the nitrogen during, and a comparison of the amounts of nitrogen left in cokes of various origin (SMITH), 1884, T., 144.  
 destructive distillation of, bye-products from (DAVIS), 1884, A., 525.  
 destructive distillation of, heat of combustion of products of the (MAHLER), 1892, A., 395.  
 origin and distribution of phosphorus in cannel coal and (CARNOT), 1884, A., 1270.  
 use of limed, in gas making (WANKLYN), 1884, A., 223.

**Coal**, valuation of, for use in steam boilers (WARREN), 1892, A., 668.  
 estimation of coke and volatile products in (GALLOWAY), 1883, A., 517.  
 estimation of the fuel value of, according to Scheurer-Kestner (STOHMANN), 1884, A., 930.  
 estimation of nitrogen in (FOSTER), 1883, T., 105; (SCHMITZ), 1886, A., 1071.  
 estimation of sulphur in (DROWN), 1883, A., 383; (ATKINSON), 1887, A., 296; (BAILEY), 1890, A., 414; (NEILSON), 1891, A., 1137.  
 See also Anthracite and Coke.  
**Coal-dust** explosions, lecture experiment to illustrate the phenomena of (THORPE), 1892, T., 414; P., 53.  
 influence of, in colliery explosions (GALLOWAY), 1883, A., 127; 1885, A., 463.  
 utilisation of, for gas regenerative furnaces (ANON.), 1885, A., 1272.  
**Coal-fire**, blue flame produced by sodium chloride in a (LEONARD), 1889, A., 336.  
**Coal-gas**, composition of, at various stages of the distillation of coal (WRIGHT), 1884, T., 104.  
 composition of, influence of the temperature of distillation on the (WRIGHT), 1884, T., 99.  
 composition of, cannel gas and, in relation to their illuminating powers (P. FRANKLAND), 1884, T., 189.  
 illuminating power of, influence of certain gases on the (WRIGHT), 1884, T., 102.  
 illuminating power of, influence of aqueous vapour on the (P. FRANKLAND), 1884, T., 232.  
 incandescence, flameless, produced by (PARMENTIER), 1892, A., 768.  
 combustion of air in (CRAIG), 1888, A., 1244.  
 heat of combustion of (MAHLER), 1892, A., 396.  
 calorific power of, in various states of dilution (WRTZ), 1885, A., 472.  
 as a source of heat (FLETCHER), 1884, A., 697.  
 utilisation of, for heating and cooking purposes (ANON.), 1885, A., 1166.  
 formation of sulphuric acid in burning (LIEBEN), 1892, A., 1374.  
 formation of sulphuric acid and ammonium sulphate by burning (PIRWOZNIK), 1892, A., 1151, 1389.  
 trimethylamine and pyrraline from (WILLIAMS), 1885, A., 369.

**Coal-gas**, analysis of (P. FRANKLAND), 1881, T., 193; (WRIGHT), 1887, A., 81.  
 estimation of benzene in (TREADWELL and STOKES), 1889, A., 190; (BERTHELOT), 1889, A., 1030.  
 estimation of cyanogen in (WRIGHT), 1887, A., 86; (LEYBOLD), 1891, A., 367.  
 estimation of hydrogen sulphide and carbolic anhydride in (WRIGHT), 1883, T., 267; 1887, A., 86.  
 estimation of sulphur in (KNUTLAUCH), 1883, A., 332.  
 estimation of sulphur and impurities in (FAIRLEY), 1887, A., 297.  
**Coal gas flames**, carbon deposited from (FOSBER), 1892, P., 46.  
 experiments on (SMITHELLS and INGLE), 1892, T., 205.  
 luminosity of (LEWES), 1892, T., 322; P., 2.  
**Coal-mines**, air of (NASMYTH), 1888, A., 1026.  
**Coal-tar**, new compounds from (SCHWARZ), 1883, A., 204.  
 constituents of (SCHULZE), 1887, A., 471.  
 blast-furnace, phenol constituents of, an examination of the (SMITH, COUTTS and BROTHERS), 1885, P., 104; 1886, T., 17.  
 coumarone in (KRAEMER and SPILKER), 1890, A., 496.  
 hydrocarbons of, relation between petroleum and the (KRAEMER and BUTTCHER), 1887, A., 619.  
 indene and cinnamene in (KRAEMER and SPILKER), 1891, A., 205.  
 nitrogen in (SMITH), 1884, T., 146.  
 phenols of high boiling point contained in (SCHULZE), 1885, A., 667.  
 pyridine bases from (GOLD-SCHMIDT and CONSTANT), 1884, A., 611; (MOHLER), 1888, A., 727.  
 products of the distillation of (KÖHLER), 1890, A., 463.  
 xylenes, English and Scotch (LEVINSTEIN), 1884, A., 898.  
 estimation of the three xylenes in (REUTER), 1884, A., 1431.  
**Coal-tar dyes**. See Colouring Matters.  
**Coal-tar oil** boiling between  $170^{\circ}$ - $210^{\circ}$ , fractions of (SCHULZE), 1886, A., 232.  
 benzoic acid in (SCHULZE), 1885, A., 792.  
 diphenyl in (SCHULZE), 1884, A., 1030.  
 hydrocarbons from (JACOBSEN), 1887, A., 35.  
 nitrogen in (SMITH), 1884, T., 146.

**Cobalt** (KRÜSS and SCHMIDT), 1889, A., 349, 1114.  
 occurrence of (KÖSSLER), 1888, A., 658.  
 atomic weight of (ZIMMERMAN), 1886, A., 596; (WINKLER), 1889, A., 759; (SCHUTZENBERGER), 1892, A., 1159.  
 (metal) extraction of, from its ores (ANON.), 1884, A., 1233; (MANHES), 1885, A., 204.  
 malleable, preparation of (ANON.), 1885, A., 308.  
 refraction and dispersion of (DU BOIS and RUBENS), 1891, A., 373.  
 anomalous rotatory dispersion in (LOBACH), 1890, A., 673.  
 electrical resistance of, in a magnetic field, variations in the (FAL.), 1887, A., 760.  
 occlusion of hydrogen by (NEUMANN and STREINTZ), 1892, A., 567.  
 solution for depositing (WARREN), 1889, A., 348.  
 passivity of (SAINT-EDME), 1889, A., 1114.  
 actions of (TERREIL), 1892, A., 1132.  
 action of nitric acid on (MONTMARTINI), 1892, A., 1279.  
 action of nitric oxide on (SABATIER and SENDERENS), 1892, A., 1152.  
 relation of, to iron, as indicated by absorption spectra (RUSSELL and ORSMAN), 1889, P., 14.  
 ultra-violet spectrum of (LIVEING and DEWAR), 1889, A., 89.  
**Cobalt salts** (KEHRMANN), 1887, A., 220.  
 colour of solutions of (ETARD), 1892, A., 278.  
 effect of temperature on the magnetism of (PLESSNER), 1890, A., 678.  
 dissolved, water of crystallisation of (KALLIN), 1888, A., 23.  
 action of alkali polysulphides on (DE KONINCK and LEDENT), 1892, A., 537.  
 action of hydrogen sulphide on (BAUBIGNY), 1888, A., 113.  
 action of sodium carbonate and bromine on solutions of (GIBSON), 1890, A., 568.  
 oxidation of, by electrolysis (MARSHALL), 1891, T., 760; P., 124.  
 nickel salts and, relative absorption of, by animal organs (CHITTENDEN and NORRIS), 1889, A., 538.

- Cobalt alums** (MARSHALL), 1888, A., 557.
- Cobaltammonium** (*cobaltamine*) compounds (VORTMANN), 1883, A., 25; 1885, A., 1041; (MAQUENNE), 1883, A., 557; (JÖRGENSEN), 1885, A., 874; 1887, A., 775; 1890, A., 953, 1213; 1892, A., 783; (VORTMANN and BLASBERG), 1890, A., 14.
- action of hydrogen sulphide on (SMITH and KELLER), 1891, A., 272.
- mercury derivatives of (VORTMANN and MORGULIN), 1890, A., 13; (VORTMANN and BORSBACH), 1890, A., 1377.
- Cobaltammonium molybdate** (CARNOT), 1889, A., 1116.
- sulphites (VORTMANN and MAGDEBURG), 1890, A., 14.
- tungstate and vanadate (CARNOT), 1889, A., 1116.
- Luteocobalt salts** (JÖRGENSEN), 1887, A., 775.
- hydrogen nitrate (JÖRGENSEN), 1891, A., 1327.
- permanganate (KLOBB), 1888, A., 280.
- Purpureocobaltic tungstate and vanadate** (CARNOT), 1889, A., 1117.
- Roseocobalt salts** (JÖRGENSEN), 1885, A., 726.
- hydrogen nitrate (JÖRGENSEN), 1891, A., 1327.
- pyrophosphate (JÖRGENSEN), 1887, A., 776.
- Cobalt antimonate** (EBEL), 1890, A., 216.
- arsenate and potassium and sodium arsenates (LEFKVIRK), 1890, A., 564.
- carbonate, optical properties of (BERTRAND), 1883, A., 1062.
- chloride (cobaltous), dissolved, spectroscopic observations on (RUSSELL), 1885, P., 67.
- variations in colour of (ENGEL), 1892, A., 569.
- vapour pressure of aqueous solutions of (CHIAPPE), 1892, A., 263.
- hydrates of (POTILIZIN), 1884, A., 967; 1892, A., 571; (ENGEL), 1892, A., 570.
- hydrochloride (SABATIER), 1888, A., 1041; (ENGEL), 1888, A., 1248.
- chromiodate (BERG), 1890, A., 1378.
- fluoride (POULENC), 1892, A., 1160.
- potassium fluoride (POULENC), 1892, A., 782.
- fluoroxhypovanadate (PICCINI and GIORGIS), 1892, A., 787.
- Cobalt hydroxide** (cobaltous), crystallised (DE SCHUTTEN), 1889, A., 1111.
- (cobaltic), dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 78, 90.
- molybdate (COLORIAVU), 1889, A., 760.
- nitrate (cobaltic) (MARSHALL), 1891, T., 770.
- caesium, rubidium and thallium nitrites (ROSENBLADT), 1887, A., 12.
- nitro- (SABATIER and SENDERENS), 1892, A., 1390.
- dioxide (ROUSSEAU), 1889, A., 1115; (VORTMANN), 1891, A., 1429.
- sesquioxide (CARNOT), 1889, A., 678.
- influence of, on the decomposition of potassium chlorate (FOWLER and GRANT), 1890, T., 278.
- tetroxide ( $\text{Co}_2\text{O}_4$ ) (GORGEU), 1885, A., 351.
- oxides (SCHRÖDER), 1890, A., 1213.
- alkali phosphates (OUVRARD), 1888, A., 1035.
- selenites (BOUTZOURFANU), 1888, A., 220; 1891, A., 262.
- o-silicate (BOURGEOIS), 1889, A., 831.
- sulphate, basic (ATHANASENCO), 1886, A., 982.
- (cobaltous) (VORTMANN), 1883, A., 25; (KLOBB), 1892, A., 941; (LEPIERRE and LACHAUD), 1892, A., 1283.
- (cobaltic) (MARSHALL), 1891, T., 767.
- copper and nickel potassium sulphates (ROY), 1887, P., 53.
- sodium sulphide (BRUNNER), 1890, A., 215.
- dithionate (KLÜSS), 1888, A., 1156.
- thiosulphate (FOCK and KLÜSS), 1890, A., 330.
- sodium thiosulphate (VORTMANN and PADBERG), 1890, A., 12.
- Cobalt organic compounds:**—
- carbonyl ferrocyanide (MULLER), 1890, A., 117.
- potassium sodium oxalate (KEHRMANN), 1887, A., 220.
- luteocobalt diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1001.
- mercuric thiocyanate (BEHRENS), 1892, A., 10.
- Cobalt detection, estimation and separation:**—
- detection of (HAMBLY), 1892, A., 1525.
- estimation of (CARNOT), 1889, A., 678; (HOPE), 1890, A., 1470; (KRAUSS), 1891, A., 1139.

**Cobalt detection, estimation and separation:—**

- estimation of, in manganese ores (MOORE), 1892, A., 917.
- estimation, electrolytic, of (CLASSEN), 1885, A., 192; (BRAND), 1890, A., 294.
- estimation, volumetric, of (v. REIS and WIGGERT), 1891, A., 620.
- estimation, volumetric, of, in presence of manganese, nickel, etc. (MCULLOCH), 1887, A., 1141; 1889, A., 442.
- titration of, with potassium manganate (JULLES), 1889, A., 798.
- separation of, from aluminium, iron, manganese, nickel and zinc (MOORE), 1888, A., 631.
- separation of, from iron (MACKINTOSH), 1887, A., 1141; (LEROY), 1891, A., 1139; (CAMPBELL), 1892, A., 103.
- separation of, from manganese (JANASCH and FRANZEK), 1892, A., 240.
- separation of, from nickel (VORTMANN), 1883, A., 621; (CLARK), 1884, A., 498; (v. ILINSKI and v. KNORRE), 1885, A., 840; (ROSENBLAUT), 1886, A., 492; (GUCCI), 1886, A., 1077; (MACKINTOSH), 1887, A., 1141; (BAUBIGNY), 1888, A., 423; (FISCHER), 1889, A., 653; (CARNOT), 1889, A., 747; (KRAUSS), 1891, A., 1139; (LEROY), 1891, A., 1139.
- separation of, from nickel, in the form of nitrites (BAUBIGNY), 1889, A., 188.
- separation of, from zinc (v. BERG), 1887, A., 182; (BAUBIGNY), 1889, A., 653.
- separation, electrolytic, of, from cadmium, mercury and silver (SMITH and FRANKEL), 1890, A., 664.
- separation, electrolytic, of, from gold (SMITH), 1891, A., 1141; (SMITH and MÜHR), 1891, A., 1296, 1396.
- Cobaltamine compounds.** See Cobalt-ammonium compounds.
- Cobaltite** (*cobaltine*), from Schladming (McCAY), 1884, A., 1099.
- Cobalt ores** (VOLLHARDT), 1888, A., 1257, from New Caledonia (READMAN), 1886, A., 320.
- Chinese treatment of (BOWLER), 1888, A., 1253.
- Cobra poison** (WOLFENDEN), 1886, A., 1057; (WARDEN), 1887, A., 170; (KANTHACK), 1892, A., 1118.
- Coca bases** (HESSE), 1889, A., 731; (LIEBERMANN), 1889, A., 732.

- Coca leaves** (BIGNON), 1886, A., 388.
- Javan, alkaloid from (HENNE), 1887, A., 1125; (LIEBERMANN), 1891, A., 1265; (GIESEL), 1892, A., 361.
- cinnamylcocaine occurring naturally in (LIEBERMANN), 1890, A., 76; (PAUL and COWNLEY), 1890, A., 310; (GIESEL), 1890, A., 390.
- estimation of alkaloids in (VAN DER MARCK), 1890, A., 310.
- Cocaic acid** (HESSE), 1889, A., 732.
- Cocaicine** (BENDER), 1886, A., 85.
- Cocaine.** See Alkaloids.
- Cocamine** (HESSE), 1887, A., 1126; 1889, A., 731.
- Cocatannic acid** (WARDEN), 1888, A., 1090.
- Coccerin** (LIEBERMANN), 1885, A., 1045, in living cochineal (LIEBERMANN), 1886, A., 441.
- Cocceryl alcohol and derivatives** (LIEBERMANN), 1885, A., 1046; (LIEBERMANN and BERGAMI), 1887, A., 650.
- Coccerylic acid** (LIEBERMANN), 1885, A., 1046; (LIEBERMANN and BERGAMI), 1887, A., 650.
- salts (LIEBERMANN), 1885, A., 1046.
- Coccinin**, and a hydrocarbon from (FÜRTH), 1884, A., 84.
- Coccus acid**, nitro-. See *tri*Nitro-hydroxy-*m*-toluic acid.
- Cocethyline**, and its platinochloride, artificial preparation of (MERCK), 1886, A., 163.
- Cochineal** (LIEBERMANN), 1885, A., 1076.
- adulteration of (LOEWE), 1883, A., 408.
- colouring matter from (FÜRTH), 1884, A., 84; (WILL and LEYMAN), 1886, A., 252.
- detection of, in alimentary substances (LAGORCE), 1889, A., 324.
- test for, in wine (PALMIERI and CANONIA), 1889, A., 655.
- Cochineal carmine** (LIEBERMANN), 1885, A., 1076; (LAFAR), 1891, A., 578.
- Cochineal fat** (LIEBERMANN), 1885, A., 1045; (RAIMANN), 1886, A., 441.
- Cochineal wax** (LIEBERMANN), 1885, A., 1045.
- Cocoa** (BOUSSINGAULT), 1884, A., 202.
- Cocoa butter** (*cocounut oil*) (BOUSSINGAULT), 1884, A., 203.
- composition of (TRAUB), 1884, A., 40.
- constituents of (GRAF), 1889, A., 35.
- adulteration of lard with (ALLEN), 1889, A., 320.
- iodine number for (FILSINGER), 1891, A., 869.

- Cocoa butter** (*cocoonut oil*), detection of, in butter (MUTER), 1892, A., 391.  
detection of sesame oil in (ZITPNER), 1888, A., 1136.
- Cocoonut meal** for horses (ANON.), 1884, A., 852.
- Cocoonut oil.** See Cocoa butter.
- Cocoonuts**, milk of ripe and unripe (VAN SLYKE), 1891, A., 764.
- Cocrylegonine** (HESSE), 1889, A., 732.
- Cocrylic acid** (HESSE), 1889, A., 732.
- Codaine.** See Alkaloids.
- Codaine-violet** (CAZENEUVE), 1892, A., 360.
- Codethyline, codo-methine and -methyline.** See Alkaloids.
- Cod-liver oil.** See Oil.
- Cerulignol** (GRÄTZEL), 1883, A., 393; (PASTROVICH), 1883, A., 1005.  
nitro- (PASTROVICH), 1883, A., 1006.
- Coffee** (PAUL and COWNLEY), 1887, A., 1002.  
caffeine, amount of, in various kinds of (PAUL and COWNLEY), 1887, A., 394.  
caffeine in, improved method of estimating (SMITH), 1888, A., 539.  
ground, preserving (SCHNITZER), 1884, A., 880.  
Mussocenda seeds as a substitute for (DUNSTAN), 1890, A., 285.  
substitutes for, analysis of (MOSCHELES and STELZNER), 1892, A., 1534.  
physiological action of (FOUR), 1883, A., 745.  
effect of, on the composition of the blood and on nutrition (COURY), 1884, A., 1392.
- Coffees**, analyses of (PADÉ), 1887, A., 1002.
- Cognac**, adulterations of (FRESSENIUS), 1890, A., 1196.
- Cohenite** (WEINSCHEK), 1891, A., 27.
- Cohesion**, molecular, effect of concentration on (TRAUBE), 1891, A., 1409.  
specific gravity and capillarity, relation between (SCHALL), 1885, A., 1180.
- Cohesion figures** (ACKROYD), 1886, A., 971; (TOMLINSON), 1887, A., 209.  
radiating and arborescent (V. BEZOLD), 1885, A., 335.
- Coins**, nickel, assay of (ROBERTS-AUSTEN), 1886, A., 101.  
Roman, accidental formation of cerussite crystals on (LACROIX), 1885, A., 224.  
silver, German standard, presence of gold in (ANON.), 1883, A., 629.
- Coke** of various origin, a comparison of the amounts of nitrogen left in (SMITH), 1881, T., 144.  
production of, from coal (SMITH), 1881, A., 221.  
reducing action of, on nitric acid (LUNGE), 1885, A., 936.  
gases occluded by (STORER and LEWIN), 1884, A., 377.  
estimation of nitrogen in (FOSTER), 1883, T., 105; (SCHMITZ), 1886, A., 1071.  
estimation of sulphur in (ATKINSON), 1887, A., 296; (BLUM), 1888, A., 1333.  
See also Coal.
- Coke-ovens**, recovery of ammonia from the gases of (WINKLER), 1881, A., 1111.
- Coking process**, the Jameson (JAMESON), 1886, A., 288.
- Colchicine** (ZEISEL), 1883, A., 672; 1884, A., 1387; 1887, A., 284.
- Colchicine.** See Alkaloids.
- apo*Colchicine (ZEISEL), 1883, A., 673; 1884, A., 1387.
- Colchicine acid** (ZEISEL), 1888, A., 614.
- Colemanite** (VOM RATH), 1885, A., 221; (JACKSON), 1885, A., 358; (HJORTDAHL), 1885, A., 730; (WHITFIELD), 1888, A., 347.  
from California (BONEWIG and vom RATH), 1885, A., 957.  
crystalline form of (JACKSON), 1885, A., 876.  
identity of, with priceite and pandermite (KENNGOTT), 1885, A., 1117.
- $\alpha$ -Collidine.** See 6-Methyl-4-ethylpyridine.
- $\beta$ -Collidine.** See 4-Methyl-3-ethylpyridine.
- $\gamma$ -Collidine.** See 2:4:6-Trimethylpyridine.
- Collidinecarboxylic acid.** See 2:4:6-Trimethylpyridine-3-carboxylic acid.
- Collidinedicarboxylic acid.** See 2:4:6-Trimethylpyridine-3:5-dicarboxylic acid.
- Colliery explosions**, influence of coal dust in (GALLOWAY), 1883, A., 127; 1885, A., 463.
- Colloid**, nitrogenous, derived from amidobenzoic acid (GRIMAU), 1884, A., 905.
- Colloidal solutions.** See Solutions.
- Colloids** (GRIMAU), 1884, A., 957.  
and the water they contain (VAN BEMMELEN), 1888, A., 1157.

- Colloids**, molecular weights of (GLADSTONE and HIBBERT), 1889, A., 1207; (PATERNO and NASINI), 1890, A., 725.  
determination of the molecular weights of, in solution (ARMSTRONG), 1889, P., 109.  
cryoscopic investigation of (SABANIEFF), 1890, A., 1215; 1891, A., 145.  
behaviour of, with reference to Raoult's law (PATERNO), 1890, A., 105.  
absorptive power of (VAN BEMMELEN), 1888, A., 985.  
thermal phenomena of (WIEDEMAN and LUTDEKING), 1885, A., 1031.  
coagulation of (FRIMATX), 1884, A., 1250; 1885, A., 1146.  
precipitation of, by salts (NASSE), 1889, A., 99.  
**Colocynthis**, detection of (JOHANNSON), 1885, A., 606.  
**Colocynthin** (HENKE), 1884, A., 181.  
**Colophanthrenes** (RENARD), 1884, A., 83.  
**Colophene**, action of heat on (TILDEN), 1884, T., 417.  
dihydride (VENTERBERG), 1886, A., 1039.  
**Colophony**, destructive distillation of (RENARD), 1881, A., 83.  
methyl alcohol in the products of the dry distillation of (KELBE and LWOFF), 1883, A., 738.  
products of the distillation of (RENARD), 1883, A., 599.  
**Colorado beetle**, vesicating substance in (FOREB), 1881, A., 350.  
**Colorimetric determinations** (GIANNEINI), 1886, A., 738.  
**Colour**, origin of, in carbon compounds (ARMSTRONG), 1888, P., 27; 1892, T., 789; P., 101, 103, 143, 189, 194; (HARTLEY), 1892, P., 188.  
appearance of, in quinoline derivatives (ARMSTRONG), 1892, T., 789; P., 143.  
impressions upon the retina, duration of (NICHOLS), 1885, A., 468.  
of chemical compounds, mainly as a function of the atomic weights of the component elements (CARNELLEY), 1884, A., 1252.  
and constitution of compounds (SCHÜTZE), 1892, A., 561.  
relation between chemical change and (ARMSTRONG), 1892, T., 789; P., 101, 103, 143, 189, 194.  
as an evidence of isodynamic change (ARMSTRONG), 1892, P., 103.  
**Colour**, assimilation and (ENGELMANN), 1883, A., 819.  
**Colour-analysis** by means of the tintometer (LOVIBOND), 1890, A., 1461.  
**Colour-mordants** for wood (ANON.), 1884, A., 379.  
**Colour-photometry** (ABNEY), 1891, P., 150.  
**Colour-tints**, apparatus for comparison of (STOKES), 1887, P., 135.  
**COLOURING MATTERS**—  
**Colouring matters** (ANON.), 1883, A., 406; (BESTHOHN and FISCHER), 1883, A., 600; (MELDOLA), 1884, T., 119; (ZULKOWSKI), 1884, A., 1169; (PETRIEFF), 1884, A., 1322; (ROSPENDOWSKI), 1884, A., 1449; (WITT), 1885, A., 945; (HARTLEY), 1887, T., 152; (ZIEGLER), 1887, A., 322.  
fluorescent and non-fluorescent (NIETZKI, DIETZE and MAECKLER), 1890, A., 156.  
extraction of, by a solution of borax (PALM), 1884, A., 83.  
formation of, by means of hydrogen peroxide (WURSTER), 1888, A., 141.  
preparation of (ANON.), 1883, A., 636; 1884, A., 1450; 1885, A., 310, 312, 944, 1095, 1275; 1886, A., 290.  
(blue), preparation of (ANON.), 1883, A., 759; 1884, A., 798, 943.  
(red), preparation of (ANON.), 1884, A., 1451.  
(violet), preparation of (ANON.), 1883, A., 759; 1884, A., 1451; 1885, A., 711, 1171.  
constitution of (ARMSTRONG), 1888, P., 27.  
constitution of, which can be fixed with mordants (V. KOSTANECKI), 1888, A., 274.  
relation between the composition and absorption spectra of (VOGEL), 1888, A., 97.  
absorption spectra of some (GIRARD and PABST), 1885, A., 1098.  
resistance to light of, on dyed tissue (JOFFRE), 1889, A., 12.  
action of, in increasing the sensibility of silver salts (EDER), 1885, A., 703.  
action of boric acid on (JOLY), 1885, A., 440.  
action of micro-organisms on (RAULIN), 1889, A., 67.  
fixation of, by ferro- and ferricyanides (REBER), 1885, A., 946.

## COLOURING MATTERS—

- Colouring matters, fixation of, by means of metallic sulphides** (ANON.), 1884, A., 539.
- fixation of, by tannin** (WITT), 1885, A., 1024.
- mordants used for fixing artificial** (KOECHLIN), 1883, A., 256, 894; (REBER), 1885, A., 946; (WITT), 1885, A., 1024.
- for printing** (ULLRICH), 1886, A., 137.
- influence of substituted elements and radicles on the shade of** (HEUMANN and HEIDELBERG), 1886, A., 942.
- combination of silver salts with** (LEA), 1885, A., 850, 611.
- Liebermann's, amidophenolsulphonic acids and their relationship to** (BRUNNER and KRAEMER), 1884, A., 1354.
- tests for, qualitative** (WITT), 1887, A., 91.
- (blue), testing of** (ROSPENDOWSKI), 1884, A., 1449.
- testing of, on tissues** (MARGARY), 1885, A., 711.
- detection of, in confectionery** (STROHMER), 1886, A., 183.
- detection of, in yarns or tissues** (JOFFRE), 1883, A., 523; (MARGARY), 1885, A., 711.
- estimation of, by spectroscopic method** (PATTERSON), 1890, A., 1476.

**Animal Colouring Matters:—**

- animal** (MICHAILOFF), 1885, A., 676.
- of bile of invertebrates and vertebrates and unusual urine pigments** (MACMUNN), 1883, A., 1159; 1884, A., 194.
- from cochineal** (FURTH), 1884, A., 84; (LIEBERMANN), 1885, A., 1076; (WILL and LEYMANN), 1886, A., 252; (LAFAR), 1891, A., 578.
- on tissues, synthesis of** (MARGARY), 1885, A., 710.
- of urine** (PLÓSZ), 1883, A., 814; (v. LEUBE), 1888, A., 179.
- of yolk of egg** (BEIN), 1890, A., 840.

**Coal-tar and other artificially prepared colouring matters in general:—**

- from alizarin and other anthracene colouring matters suitable for calico printing** (ANON.), 1885, A., 312.

## COLOURING MATTERS—

**Coal-tar and other artificially prepared colouring matters in general:—**

- from amethyleamphophenolsulphone** (CAZENEUVE), 1890, A., 1153.
- from amidoazo-*p*-toluene** (NÖLTING and WITT), 1884, A., 743.
- from diamidodixylyls** (NÖLTING and STRICKER), 1889, A., 135.
- from diamidoethoxydiphenylsulphonic acid** (FEER and MÜLLER), 1889, A., 258.
- from *p*-amidophenol** (NÖLTING and WEINGÄRTNER), 1885, A., 381.
- from *p*-amidophenylpiperidine** (LELMANN and GELLER), 1888, A., 1108.
- from *o*-diamidostilbene** (BISCHOFF), 1888, A., 1094.
- from aromatic amines by oxidation** (BARNIŁOWSKY), 1888, A., 140.
- anthraquinone** (ENGELING), 1884, A., 945; (WALDER), 1888, A., 961; (SCHMIDT; GATTERMANN), 1891, A., 935.
- secondary and tertiary azo-compounds** (MELDOLA), 1883, T., 425; 1884, T., 106; 1885, T., 657.
- from azonaphthalene derivatives** (NIETZKI and GOLD), 1886, A., 245.
- of carboic acid (red)** (FABINI), 1891, A., 1198.
- from carbotrithioharabromide by the action of heat** (HELL and URECH), 1883, A., 907.
- red, from chloral hydrate** (LERCH), 1887, A., 793.
- from chrysaniline** (TRILLAT and DE RACZKOWSKI), 1892, A., 1095.
- from *p*-diamines and monamines by simultaneous oxidation** (NIETZKI), 1884, A., 740.
- (brown) diazo-, from chrysoidine** (ANON.), 1884, A., 537.
- coal-tar, containing nitrogen** (MEYER), 1884, A., 587.
- from coal-tar quinoline** (SPALTEHOLZ), 1883, A., 1150; 1885, A., 400.
- (violet) from codeine** (CAZENEUVE), 1892, A., 360.
- from *p*-diazoacetanilide and  $\beta$ -naphtholdisulphonic acid** (NIETZKI), 1884, A., 1016.
- from dimethylaniline and chloranil** (WICHELHAUS), 1883, A., 1093.
- from glycocine by oxidation** (RADZISZEWSKI), 1884, A., 987.

## COLOURING MATTERS—

## Coal-tar and other artificially prepared colouring matters in general:—

- from *p*-hydroxybenzoic acid (v. KOTANECKI and ZIBELL), 1891, A., 1038.
- from ketomethyljuloline (REISNER), 1892, A., 498.
- from 2'-methylhydroquinoline (v. MILLER and FLOCHL), 1891, A., 1102.
- from methyllepidone (*as ylinemethyl-quinoline*) (REISNER), 1892, A., 498.
- from 4'-methylquinoline (HOOGWERFF and VAN DORP), 1885, A., 673.
- (violet) from morphine (CAZENAVE), 1891, A., 1120; 1892, A., 361.
- from  $\alpha$ -naphtholsulphonic acid (ANON.), 1884, A., 1451.
- from  $\beta$ -naphthylaminesulphonic acid (LAND-HUFF), 1883, A., 1135.
- from dinitroanthraquinone (LIFSHUTZ), 1884, A., 1187.
- nitrosophenol (dichroin) (BRUNNER and CHUIF), 1888, A., 363, 1152.
- from phenates of amido-bases (DALE and SCHORLEMMER), 1883, T., 185.
- from phenols (KRAEMER), 1884, A., 1340; (BRUNNER and ROBERT), 1885, A., 525; (BRUNNER and CHUIF), 1888, A., 363.
- from phenols, reacting with amido-bases (DYSON), 1883, T., 466.
- from phenols by union with aromatic aldehydes (ZULKOWSKI), 1884, A., 837.
- (green), from phenols and phenylamines by action of benzotrichloride (DOEBNER), 1883, A., 861.
- from phthalic anhydride by the action of coal tar quinoline (JACOBSEN and REIMER), 1883, A., 922.
- (yellow) from potassium nitrophenol-*p*-sulphonate (BEYER and KEGEL), 1885, A., 269.
- from pyridine methiodides and ethiodides (OECHSNER DE CONINCK), 1885, A., 272.
- from  $\alpha$ -pyrocresole (BOTT and MILLER), 1888, P., 110; 1889, T., 54.
- from the quinoline bases (SPALTENHOLZ), 1885, A., 400; (OECHSNER DE CONINCK), 1886, A., 82.

## COLOURING MATTERS—

## Coal-tar and other artificially prepared colouring matters in general:—

- from quinoline and pyridine bases (JACOBSEN), 1884, A., 798, 944.
- from tetrahydroquinoline (LEHMANN and BOYE), 1890, A., 1005.
- from tetrazostilbene (BENDER and SCHULTZ), 1887, A., 268.
- thiazine, production of, by electrolysis (EWER and PICK), 1886, A., 187.
- from thiophen (MEYER), 1884, A., 586.
- from triphenylmethane derivatives (RENOFF), 1883, A., 981.
- Vegetable colouring matters:—**
  - from the cones of *Abies excelsa* (MACCHIARI), 1890, A., 641.
  - in *ligarius ruber* (PHIPSON), 1883, A., 100.
  - of chlorophyll (BORODIN), 1884, A., 910; (SACHSSE), 1885, A., 670; (HANSEN), 1888, A., 967; 1890, A., 171; (IMMENDORFF), 1890, A., 641.
  - from cotton-seed oil (LONGMORE), 1885, A., 108.
  - of currants, red and black (KEIM), 1891, A., 1539.
  - from *Diapionus* analogous to carotene (BLANCHARD), 1890, A., 640.
  - of *Drosera Whittakerii* (RENNIE), 1887, T., 371; P., 36.
  - of ebony wood (BÉLOHOUBEK), 1885, A., 396.
  - of ergot (PALM), 1884, A., 376.
  - of fungi (ZOFF), 1889, A., 919.
  - of fustic wood (SCHMID), 1886, A., 894.
  - of grapes (MAUMONT), 1883, A., 215.
  - of leaves (ARNAUD), 1885, A., 670.
  - from oakbark (ETTI), 1883, A., 995; (BOTTINGER), 1884, A., 321.
  - of *Peziza carantia* and *P. convexula* (ROSNOL), 1884, A., 847.
  - (red) of the Phanerogams, relations of, to the migration of starch (PICK), 1884, A., 1402.
  - (yellow) from poplar wood (ANON.), 1886, A., 558.
  - of *Purpura lapillus* (LETELLIER), 1889, A., 1207; 1890, A., 1452.
  - from seaweed (NETTLEFOLD), 1888, A., 1313.
  - from the tannins (WITT), 1886, A., 403.

## COLOURING MATTERS—

**Vegetable colouring matters:—**

from turmeric (JACKSON and MENKE), 1883, A., 481; 1885, A., 271.

of vegetables (TERREIL), 1885, A., 1142.

**Wines, foreign** (BONI), 1884, A., 502; (JAY), 1885, A., 309, 711.

natural (MAUMENÉ), 1883, A., 215; (GANTTER), 1883, A., 1141; (TERREIL), 1885, A., 1142; (VOGEL), 1888, A., 1187; (MONNET), 1890, A., 311; (HUGOUNENQ), 1891, A., 1563.

detection of artificial (THOMAS), 1883, A., 625; 1884, A., 370; (PASTROVICH), 1884, A., 502; (JAY), 1885, A., 298; (GIRARD and PABST), 1885, A., 1098; (CARLEN), 1886, A., 105; (STROHMER), 1886, A., 183; (CAZENÈVE), 1886, A., 397; (BLAREZ and DENIGES), 1886, A., 1084; (HERZ), 1887, A., 91; (SAMUELSON), 1887, A., 187; (HOLTERMAN DO REGO), 1887, A., 405; (CURTMAN), 1887, A., 1147; (STICA), 1888, A., 95; (PARMIERI and CASORIA), 1889, A., 655; (SOSTEGNI), 1889, A., 1091; (PAPASOGLI), 1890, A., 1563.

estimation of (NESSLER and BARTH), 1884, A., 1432; (JEAN), 1892, A., 246.

**Alizarin, nitro-derivatives of** (BRASCH), 1891, A., 1077.

**Alizarin-blue** (ANON.), 1883, A., 635; (SCHEURER), 1885, A., 106; (BRUNNER and CHUARD), 1885, A., 806.

soluble (BRUNCK and GRAEBE), 1883, A., 74.

hydroxy-derivatives of (SCHMIDT and GATTERMANN), 1891, A., 1382.

**Alizarin-bordeaux** (SCHMIDT and GATTERMANN), 1891, A., 935.

**Alizarineyanin (R)** (SCHMIDT and GATTERMANN), 1892, A., 935.

**Alizarin-green and alizarin indigo blue** (GRAEBE and PHILIPS), 1891, A., 1240; (SCHMIDT and GATTERMANN), 1891, A., 1383.

**Alizarinsulphonic acids** (SCHMIDT), 1891, A., 934.

**Aniline-black, formation of** (ZÜRCHER), 1885, A., 1276.  
dyeing with, in the dry way (GRAWITZ), 1892, A., 323.

## COLOURING MATTERS—

**Aniline-black**, dyeing on cotton yarn (RENARD), 1884, A., 942.

**Aniline-blue**, theory of the formation of (HIRSCH), 1889, A., 503.

**Aniline chromate dyes** (GRAWITZ), 1888, A., 54.

**Aniline colours** (PETRIEFF), 1884, A., 1322.

fixation of (ANON.), 1884, A., 539.

**Anthraquinone derivatives** (A. G. and W. H. PERKIN), 1885, T., 679.

dyes, leuco-compounds of (LIEBERMANN), 1888, A., 492, 717.

**Auramines** (ANON.), 1884, A., 1450; (FEHRMANN), 1888, A., 156;

(GRAEBE), 1888, A., 158.

**Azo-colours** (ANON.), 1883, A., 871; (RIEMERSCHMIED), 1883, A., 1148; (SCHULTZ; NIETZKI), 1884, A., 1036; (MARTIUS), 1886, A., 887.

from *o*-diamidostilbene (BISCHOFF), 1888, A., 1094.

mixed, from aromatic diamines (LANGE), 1886, A., 886.

from dimethylaniline,  $\alpha$ -hydroxy-naphthoic acid, and  $\alpha$ -naphthylamine (BISCHOFF), 1890, A., 1148.

from diphenyl (CARSELLEY and SCHLESELMANN), 1886, T., 380; P., 184.

from diphenyldiisindole (MÜHLAU), 1883, A., 342.

of the hydroxyquinolines (MATTHÉUS), 1888, A., 851.

iodated (OESTERMAYER), 1885, A., 673.

of the naphthalene series, reduction products of (WITT), 1889, A., 270.

of the naphthalene series (WITT and SCHMIDT), 1892, A., 862.

from naphtharesorcinol (v. KOSTANETZKI), 1890, A., 260.

of mixed naphtholsulphonic acids, separation of (ANON.), 1884, A., 1451.

from the  $\beta$ -naphtholtrisulphonic acids (ANON.), 1884, A., 237.

theory of the formation of (ARMSTRONG), 1889, P., 9.

preparation of (ANON.), 1885, A., 945, 1172.

constitution of (ARMSTRONG), 1888, P., 29.

combination of, with hydrogen sulphites (SPIEGEL), 1885, A., 987.

## COLOURING MATTERS—

- Azo-colours**, benzidine, colouring properties of (MÜHLAU), 1886, A., 947.  
 (brown), preparation of (ANON.), 1884, A., 238; 1886, A., 187.  
 (red), preparation of (ANON.), 1884, A., 238.  
 (yellow), preparation of (ANON.), 1885, A., 850, 1172.
- Azonaphthol colours**, constitution of (LIEBERMANN), 1884, A., 609.
- Azophenine** (WITT and THOMAS), 1883, T., 115; (WITT), 1887, A., 821; 1888, A., 54; (FISCHER and HEPP), 1887, A., 1105; 1888, A., 472, 1291; 1890, A., 614; (V. BANDROWSKI), 1888, A., 1081.
- Azoresorcinol and azoresorufin** (BRUNNER and CHUIT), 1884, A., 1333.
- Azulene** (HOCK), 1884, A., 82.
- Azylines** (LIPPMANN and FLEISSNER), 1883, A., 55, 184, 868, 1100; 1884, A., 178, 179; (NÖLTING), 1885, A., 895.
- Benzaldehyde-green**, preparation of some dyes from (ANON.), 1885, A., 311.  
 acetamido- (FISCHER and SCHMIDT), 1884, A., 1316.
- Benzaldehyde-greens**, manufacture of (MÜHLHAUSEN), 1887, A., 579.  
 substituted (KÄSEWURM), 1886, A., 552.
- Benzein** (HEIMANN and REY), 1890, A., 157.
- Benzidine colouring matters** (COLLON), 1889, A., 1152; (BRASCH and FREYSS), 1891, A., 1231.
- "Canarin-yellow"** (SCHMIDT), 1884, A., 797; (ANON.), 1884, A., 1449; (GOPPELSROEDER), 1885, A., 107; (MILLER), 1885, A., 365; 1886, A., 186.
- Carbazole-blue** (BAMBERGER and MÜLLER), 1887, A., 959.
- Carmine** (LIEBERMANN), 1885, A., 1076.  
 adulterations of (DEUTAN), 1886, A., 399.  
 $\alpha$ - and  $\beta$ -bromo- (WILL and LEYMANN), 1886, A., 252, 253.
- Carmine-red** (WILL and LEYMANN), 1886, A., 252.
- Carrotene** ("carottine") (SCHMITT), 1884, A., 910; (ARNAUD), 1886, A., 711; (REINTZER), 1887, A., 265; (IMMENDORFF; BLANCHARD), 1890, A., 641.  
 in leaves (ARNAUD), 1887, A., 859; 1890, A., 285.

## COLOURING MATTERS—

- Chrome-orange**, production of, by steaming process (ANON.), 1883, A., 896.
- Chrome-yellow dyes** (LACHAUD and LEPIERRE), 1892, A., 663.
- Codeine-violet** (CAZENEUVE), 1892, A., 360.
- Congo-red**, constitution of (WITT), 1886, A., 889.  
 colloidal solutions of (PICTON and LINDER), 1892, T., 156.  
 behaviour of, towards some acids and salts (V. BRÜCKE), 1888, A., 625.  
 behaviour of, with urine and acid salts (V. BRÜCKE), 1888, A., 381.
- Crocein-scarlet**, process for preparing (ANON.), 1883, A., 635.  
 description and measurement of the spectrum of (HARTLEY), 1887, T., 195.  
 iodo- (OSTERMAYER), 1885, A., 673.
- Crocein-yellow**, process for preparing (ANON.), 1883, A., 635.
- Crocin** from saffron (KAYSER), 1885, A., 59.
- Cyanine** (*quinoline-blue*) (HOOGWERFF and VAN DORP), 1885, A., 673.
- Dichroins** (BRUNNER and CHUIT), 1888, A., 363, 1182.
- Dye**, light rose, "red spots" in (LAUBER), 1886, A., 108.
- Dye-forming substances**, aromatic acids as (ZULKOWSKI), 1884, A., 1169.
- Dyes**. See also Colouring matters.
- Ethyl-orange** (BERNTSEN and GOSKE), 1887, A., 666.
- Eurhodines** (WITT), 1886, T., 391; P., 187; A., 473; 1887, A., 153; 1888, A., 1186.  
 constitution of (WITT), 1888, A., 491; (KEHRMANN), 1890, A., 1265; (FISCHER and HEPP), 1890, A., 1444; (KEHRMANN and MESSINGER), 1891, A., 746, 1213; (NIETZKI and HASTERLIK), 1891, A., 944.
- Eurhodole** (WITT), 1886, T., 397; A., 473; (ZINCKE), 1892, A., 859.
- Gallocyanin** (PABST), 1883, A., 70; (KOECHLIN), 1883, A., 796; (NIETZKI and OTTO), 1888, A., 949.
- Galloflavin** (BOHN and GRAEBE), 1887, A., 1107.
- Helianthin** (*methyl-orange*) (THOMSON), 1883, A., 632, 824, 827; 1884, A., 691, 869; (MÜHLAU), 1884, A., 1149; (BERNTSEN and GOSKE), 1887, A., 666.

## COLOURING MATTERS—

- Helianthin** (*methyl-orange*), spectrum of (HARTLEY), 1887, T., 192.
- Hofmann's violet**, spectrum of (HARTLEY), 1887, T., 171.
- Hydroxylizarin-blue** (SCHMIDT and GATTERMANN), 1891, A., 1383.
- Hydroxyanthraquinone dyes** (LIEBERMANN and WENSE), 1887, A., 593.
- o-Hydroxyazo-dyes** (v. KOSTANECKI and ZIBELL), 1891, A., 1038; (ZIBELL), 1891, A., 1473.
- constitution of (GANELIN and v. KOSTANECKI), 1892, A., 506.
- Hydroxyketone dyes** (GRAEBE and EICHENGRÜN), 1891, A., 706; 1892, A., 1224.
- Indamines** (NIETZKI and OTTO), 1888, A., 949.
- Indazine** (*indazole*) (FISCHER and KUZEL), 1884, A., 441; (FISCHER and HEPP), 1891, A., 1047.
- derivatives (FISCHER and TAFEL), 1885, A., 510; (STRASSMANN), 1890, A., 781; (WITT, NOLTING and GRANDMOUTGIN), 1891, A., 312; (PAAL), 1892, A., 67.
- synthesis of (PAAL), 1891, A., 723.
- Indian yellow**. See Purree.
- Indigo dyes**. See under Indigo.
- Indophenol** (*α-naphthol-blue*) (PARST), 1883, A., 69; (KOEHLIN), 1883, A., 695; (MÜHLAU), 1886, A., 147.
- preparation of (ANON.), 1883, A., 759; (MÜHLAU), 1884, A., 594.
- colours (MÜHLAU), 1884, A., 593; (WITT), 1884, A., 743; (NIETZKI and OTTO), 1888, A., 949.
- Induline** from fluorindene (FISCHER and HEPP), 1890, A., 1445.
- Indulines** (WITT and THOMAS), 1883, T., 112; (WITT), 1884, A., 743; 1887, A., 821; (ULLRICH), 1886, A., 187; (FISCHER and HEPP), 1887, A., 1105; 1888, A., 1291; 1890, A., 761, 908; 1891, A., 1044; 1892, A., 341, 1476; (KEHRMANN), 1890, A., 1265; (KEHRMANN and MESSENGER), 1891, A., 1213; (ISTEL), 1892, A., 492.
- manufacture of (WITT and THOMAS), 1883, T., 113.
- Iodine-green**, spectrum of (HARTLEY), 1887, T., 174.
- Iodocrocein-scarlet** (OSTERMAYER), 1885, A., 673.

## COLOURING MATTERS—

- Kamala** (A. G. and W. II. PERKIN), 1887, A., 272; (JAWEIN), 1887, A., 498.
- Lac dye** (SCHMIDT), 1887, A., 734.
- Laemoid** (TRAUB and HOCK), 1885, A., 148; (DRAPER), 1885, A., 931; (THOMSON), 1885, A., 1157; (HARTLEY), 1888, A., 295; (FOEISTER), 1891, A., 241.
- Lauth's violet** (BERNTSEN), 1883, A., 916; 1884, A., 595, 1186; 1885, A., 259.
- Leucomalachite-green** (*tetramethyldiamidodiphenylmethane*) (ELBS), 1884, A., 1019; (FISCHER and SCHMIDT), 1884, A., 1315; (LOW), 1886, A., 461; (DOEBNER and PETSCHOW), 1888, A., 288; (NENCKI), 1889, A., 510.
- Leucomethylene-azure** (BERNTSEN), 1886, A., 55.
- Leucomethylene-blue** (*methylene-white*) (BERNTSEN), 1883, A., 916; (MÜHLAU), 1884, A., 740.
- constitution of (BERNTSEN), 1886, A., 54.
- Leucomethylene-violet** (BERNTSEN), 1886, A., 55.
- Lokao or Chinese green** (KAYSER), 1886, A., 254.
- Madder colours** (WURTZ), 1883, A., 598.
- Magdala red** (*naphthalene-red*), composition of (JULIUS), 1886, A., 712.
- fluorescence of (WESSENDONCK), 1886, A., 585; (WIEDEMANN), 1891, A., 189.
- solutions of (PICTON and LINDER), 1892, T., 160, 163.
- Magenta**, manufacture of (SCHROOP), 1886, A., 290.
- detection and estimation of, in extract of archil (KERTÉSZ), 1885, A., 1015; (RAWSON), 1888, A., 877.
- test for, in wine (PALMIERI and CASORIA), 1889, A., 655.
- use of, with sulphurous acid as a micro-chemical test for aldehydes (LOEW and BOKORNY), 1883, A., 829.
- Malachite-green** (MANNS), 1889, A., 261.
- preparation of (MÜHLHAUSER), 1887, A., 580.
- Malachite-green, p-acetamido-** (KAESEWURM), 1886, A., 553.
- o-nitro-** (FISCHER and SCHMIDT), 1884, A., 1315.

## COLOURING MATTERS—

**Methylene-azure** (BERNTHSEN), 1886, A., 55.

**Methylene-blue** (ERLENMEYER; BERNTHSEN), 1884, A., 595; (MÖHLAU), 1884, A., 740; (ANDRESEN), 1886, A., 1026.

and allied dyes (BERNTHSEN), 1883, A., 916; 1884, A., 595, 1156; 1885, A., 259; 1886, A., 53; 1889, A., 775.

formation of, as a reaction for hydrogen sulphide (FISHER), 1884, A., 109.

manufacture of (MÜHLHÄUSER), 1887, A., 480.

synthesis of (MÖHLAU), 1884, A., 306.

constitution of (BERNTHSEN), 1886, A., 53; (ARMSTRONG), 1888, P., 31.

**Methylene-red and violet** (BERNTHSEN), 1886, A., 51.

**Methylene-white.** See Leucomethylene blue.

**Methyl-orange.** See Helianthin.

**Methyl-violet** (FISCHER and GERMAN), 1883, A., 1098; (FISCHER and KÖRNER), 1884, A., 606.

bases of (WICHELHAUS), 1884, A., 595; 1885, A., 895; 1886, A., 362.

crystallized (v. HOFMANN), 1885, A., 791.

preparation of (ANON.), 1885, A., 711; (RATHKE), 1886, A., 460.

preparation of the sulphonic acids of (ANON.), 1885, A., 208.

reaction for the detection of free hydrochloric acid in gastric juice (KOST), 1888, A., 996.

reduction of, by invert sugar (WOHL), 1888, A., 995.

**Morin and its derivatives** (BENEDIKT and HAZURA), 1884, A., 81, 1179; 1885, A., 533, 554.

preparation of (BENEDIKT and HAZURA), 1884, A., 1179.

oxidation and reduction of (BENEDIKT and HAZURA), 1884, A., 846, 1179.

**Morindin** (THORPE and GREENALL), 1886, P., 256; 1887, T., 52.

**Morindon** (THORPE and GREENALL), 1886, P., 256; 1887, T., 52; (THORPE and SMITH), 1888, T., 171; P., 2.

**Morphine-blue** (CHASTAING and BARILLOT), 1888, A., 1165.

**Morphine-violet** (CAZENEUVE), 1891, A., 1120; 1892, A., 361.

## COLOURING MATTERS—

**Naphthalene-red.** See Magdala-red.  
**Naphthaleosin** (TERRISSE), 1885, A., 667.

**$\alpha$ -Naphthol-blue.** See Indophenol.

**Naphthol-green,** preparation of (GANS), 1885, A., 312.

physiological action of (WEYL), 1888, A., 1122.

**Naphthol-violet,** action of aromatic bases on (HIRSCH and KALCKHOFF), 1891, A., 77.

**Naphthol-yellow, S.,** constitution of (ARMSTRONG and WYNNE), 1890, P., 16.

physiological action of (WEYL), 1888, A., 1122.

**Encocyanin** (MAUMENÉ), 1883, A., 215.

**Opiaurin** (LIEBERMANN and SEIDLER), 1887, A., 580.

**Orcinaurin** (GRIMAU), 1890, A., 1111.

**Orcinol colouring matters** (KRAEMER), 1884, A., 1341; (NIETZKI and MAECKLER), 1890, A., 762; (ZULKOWSKI and PETERS), 1890, A., 1405.

**Oxazine colours** (MÖHLAU), 1892, A., 887.

See also under Naphthol-violet, Galloeyanin, and Colouring matters.

**Oxyaurin** (TRZCIŃSKI), 1884, A., 591.

**Phenol-blue** (MÖHLAU), 1884, A., 594; 1886, A., 146; (FUGH), 1888, A., 592.

**Phenosafranin** (NIETZKI), 1883, A., 731; (ANON.), 1884, A., 538; (BERNTHSEN), 1887, A., 140; (WITT), 1887, A., 250; (BARRIER and VIGNON), 1888, A., 688; (NIETZKI and OTTO), 1888, A., 831.

See also Safranin.

**Phenylnaphthylamine-blue** (HAUSDORFER), 1890, A., 1308.

**Phthalein colouring matters** (MEYER), 1891, A., 1029.

constitution of (ARMSTRONG), 1888, P., 30.

**Phycocerythrin,** isomeric modifications of (SCHÜTT), 1889, A., 623.

**Piperidine colouring matters** (LACHOWICZ), 1888, A., 1314.

**Primuline colouring matters** (TRAUTMANN), 1891, A., 195.

**Primuline,** history of (GATTERMANN and JACOBSON), 1889, A., 868.

nature of (GATTERMANN), 1889, A., 602.

## COLOURING MATTERS—

**Primuline**, constitution of (GREEN), 1889, T., 227; P., 46; (PFITZINGER and GATTERMANN), 1889, A., 867.

“**Prune**” dye (NIETZKI and ORTO), 1888, A., 949.

**Purpurin** (DRALLE), 1884, A., 1040; (NOAH), 1886, A., 475.  
amido- and nitro- (BRASCH), 1891, A., 1078.

**Purree** (*Indian yellow, piuri*) (SPIEGEL), 1883, A., 219; (ANON.), 1885, A., 620; (KULZ), 1887, A., 498; (GRAEBE), 1890, A., 504.

**Pyrroline colouring matters** (CIAMICIAN and SILBER), 1884, A., 740; (MEYER and STADLER), 1884, A., 1045.

**Quinoline-blue**. See Cyanine.

**Resazurin** (NIETZKI, DIETZE and MAECKLER), 1890, A., 156.  
formula of (NIETZKI), 1892, A., 164.

**Resorcinol azo-colours**, nitroso-derivatives of (V. KOSTANECKI), 1889, A., 137.

**Resorcinol-blue** (TRAUB and HOCK), 1885, A., 148; (BENEDIKT and JULIUS), 1885, A., 386; (WESELSKY and BENEDIKT), 1885, A., 526; (NIETZKI, DIETZE and MAECKLER), 1890, A., 156; (NIETZKI), 1892, A., 163.

**Resorcinol colour** (brownish-red) (SEYEWITZ), 1890, A., 370.

**Resorcinol colours**, Weselsky's (NIETZKI, DIETZE and MAECKLER), 1890, A., 156.

**Resorcinol colouring matters** (WESELSKY and BENEDIKT), 1885, A., 526; (NIETZKI and MAECKLER), 1890, A., 762.

tests for (BENEDIKT), 1883, A., 689.

**Rosamines** (HEUMANN and REY), 1890, A., 157.

**Rosaniline colouring matters** (MELDOLA), 1883, A., 807.

(blue) (NÖLTING and COLLIN), 1884, A., 1048.

(yellow), preparation of (MACHENHAUER), 1885, A., 310.

derivatives (NÖLTING), 1883, A., 54.

**Safranine** (NIETZKI), 1883, A., 731; 1887, A., 249; (ANDRESEN), 1886, A., 1026; (WITT), 1888, A., 1186.

constitution of (BERNTSEN), 1887, A., 139, 480; (NIETZKI), 1887, A., 249, 250; (WITT), 1887, A., 250.

## COLOURING MATTERS—

**Safranine**, benzylated (MELDOLA and COSTE), 1889, T., 595.

physiological action of (CAZENÈVE and LÉPINE), 1886, A., 272; (WEYD), 1888, A., 1122.

**Safranines**, formation of (BARBIER and VIGNON), 1888, A., 141.

relation to eurhodines and indolines (KEHRMANN and MESSINGER), 1891, A., 1213.

eurhodines and (WITT), 1888, A., 491.

related dyes and (NIETZKI and ORTO), 1888, A., 831.

substituted (BARBIER and VIGNON), 1888, A., 54.

**Styrogallol** (JACOBSEN and JULIUS), 1888, A., 56.

**Tartrazines** (ZIEGLER and LOCHER), 1887, A., 578.

**Tetramethylamidotriphenylmethane**. See Leucomalachite-green.

**Thiophen-green** and its derivatives (PETER), 1885, A., 763; (LEVI), 1887, A., 481.

**Tolylene-blue and -red** (BERNTSEN and SCHWEITZER), 1887, A., 139; (NIETZKI and ERNST), 1890, A., 1114.

**Triphenylmethane colours** (NÖLTING), 1891, A., 727; 1892, A., 187.

(violet) (FISCHER and GERMAN), 1883, A., 1097; (FISCHER and KÖRNER), 1884, A., 606, 749.

**Victoria-blue** (NATHANSON and MILLER), 1889, A., 1190.

**Victoria-yellow** (*dinitro-p-cresol*) colour reactions of (FLECK), 1887, A., 624.

**Colouring matters**. See also Indicators, Mordants and Pigments.

**Colours**, action of sunlight, daylight, and electric-arc light on water- and oil-, used in dyeing and printing (DECATU), 1884, A., 700.

blue, artificial, examination of (ROSPENDOWSKI), 1884, A., 1449.

incombustible (MEYER), 1884, A., 379.

**Columbates** containing earthy oxides, methods of analysing (SMITH), 1885, A., 1012.

methods of analysing, by means of hydrofluoric acid (SMITH), 1884, A., 111.

**Columbite** (DANA), 1887, A., 20.

from the Black Hills, South Dakota (BLAKE), 1885, A., 360; 1891, A., 1329; (HEADDEN), 1891, A., 886.

- Columbite**, from Colorado (HEADEN), 1857, A., 347.  
 from Craveggia, in Piedmont (STRUVER), 1855, A., 732; (COSSA), 1887, A., 645.  
 from Delaware Co., Pennsylvania (GENTH), 1891, A., 1168.  
 from Standish, Maine (DANA), 1887, A., 343.  
 from the Val Vigizzo, mineral associated with (PICCINI), 1887, A., 1085.  
 analysis of (HALLOCK), 1883, A., 434.
- Comanic acid** (OST), 1885, A., 49;  
 (HATTINGER and LIEBEN), 1885, A., 965.  
 action of hydroxylamine and ethylamine on (OST), 1884, A., 1302.  
 ethylic salt of, from chelidonic acid (HATTINGER and LIEBEN), 1885, A., 965.
- Comanic acid dichloro-** (OST), 1885, A., 49.  
 oximido- (*dihydrocypyridinecarboxylic acid*) (OST), 1884, A., 1302.
- Comazinic acid** (KRIPPENDORFF), 1885, A., 1244.
- Combustion**, chemistry of (LUDEKING), 1888, A., 1263.  
 by means of chromic anhydride (CROSS and BEVAN), 1888, T., 889; P., 76.  
 demonstration of the increase in weight of bodies on (ROSENFELD), 1884, A., 258.  
 formation of ozone and nitrogen acids in (ILOVAY), 1890, A., 447.  
 imperfect, in gaseous explosions (DIXON and SMITH), 1889, A., 337.  
 in dried gases (BAKER), 1885, T., 349; P., 37.  
 in dried oxygen (BAKER), 1889, A., 465.  
 incomplete, analysis of the products of (LEWES), 1892, A., 407.  
 of carbonic oxide and oxygen, influence of steam and other gases on (BEKETOFF), 1892, A., 274.  
 of organic substances in oxygen at high pressure (SFORMANN, KLEBER and LANGBEIN), 1889, A., 929.  
 rapid, formation of ozone during (LOEW), 1890, A., 330.  
 slow, of gaseous mixtures (KRAUSE and MEYER), 1891, A., 1153; (ASKENASY and MEYER), 1892, A., 938.  
 of organic substances (SCHLOSING), 1889, A., 639.  
 under a high pressure (HEMPFEL), 1890, A., 1050.
- Combustion**, with lead chromate (DE ROODE), 1890, A., 926.
- Combustion-furnace** (FUCHS), 1892, A., 1514.  
 a modified Glaser's (ANSCHÜTZ and KEKULÉ), 1885, A., 1035.
- Comenamic acid** (*dihydrocypyridinecarboxylic acid*) (OST), 1883, A., 792.
- Comenic acid**, action of ethylamine on (OST), 1884, A., 1303.  
 action of hydroxylamine on (OST), 1884, A., 1302.  
 nitrogenous derivatives of (MENNEL), 1885, A., 1203.  
 amido-, action of phosphorus pentachloride on (BELLMANN), 1884, A., 840.
- Comets**, light emitted by (BERTHELOT), 1883, A., 261.
- Comma bacillus**. See *Bacillus comma*.
- Commutator**, for the determination of the magnetic rotatory polarisation of compounds (PERKIN), 1884, T., 423.
- Compositæ**, inulin in the capitula of (DANIEL), 1890, A., 191.
- Compost manure**. See *Manure*.
- Compounds**, chemical, colour of, mainly as a function of the atomic weights of the component elements (CARNELLEY), 1884, A., 1252.  
 rendered phosphorescent by the action of light or the electrical discharge, spectroscopic study of (BROQUEREL), 1885, A., 1098.  
 stability of (ALEXÉEFF), 1885, A., 114.  
 chemical energy of (BEKETOFF), 1888, A., 1244.  
 which contain the dicarbonyl-group, condensations of, with aldehydes and ammonia (JAPP), 1883, T., 197.  
 class of, analogous to the phthaleins (REMSEN), 1885, A., 539.  
 aromatic. See *Aromatic compounds*.  
 double, solubility of (BEHREND), 1892, A., 1047, 1385.  
 fatty, conversion of benzene derivatives into (HANTZSCH), 1888, A., 130.  
 liquid, constitution of (SCHRÖDER), 1883, A., 422.  
 organic. See *Organic compounds*.  
 unsaturated, molecular rotation of (PERKIN), 1884, T., 561.  
 action of nitrous and hyponitric acids on (GABRIEL), 1886, A., 620.  
 oxidation of (WAGNER), 1889, A., 231.

- Compounds**, unsaturated, the part played by water in the oxidation of (WAGNER), 1889, A., 232.
- Compressibility**, indices of refraction of liquids and, relations between (QUINCKE), 1892, A., 669.
- relation between that of a solution and those of its component parts (BRAUN), 1888, A., 214.
- of an aqueous solution of ethylaniline (ISAMBERT), 1888, A., 216.
- of gases (AMAGAT), 1884, A., 145; 1889, A., 8; 1891, A., 378; (ANDREWS), 1889, A., 95.
- of solutions of gases (ISAMBERT), 1888, A., 20.
- of gases, liquefaction and (JAMIN), 1884, A., 5.
- of liquids (AMAGAT), 1888, A., 215; 1891, A., 378.
- of liquids, attempt to eliminate the influence of the change in volume of the vessel when measuring (V. BOGUSKI), 1888, A., 1019.
- of mixtures of air and carbonic anhydride (LALA), 1891, A., 253.
- of mixtures of air and hydrogen (LALA), 1891, A., 631.
- of rock salt (BRAUN), 1888, A., 404; (RÖNTGEN and SCHNEIDER), 1888, A., 1019.
- of saline solutions (GILBAULT), 1892, A., 766.
- of solutions of potassium and calcium chlorides (DRECKER), 1888, A., 1010.
- of sylvin and aqueous solutions of potassium chloride (RÖNTGEN and SCHNEIDER), 1888, A., 1019.
- of water (RÖNTGEN and SCHNEIDER), 1888, A., 548.
- of hot water (BARUS), 1891, A., 631.
- Compression** experiments, Spring's, simple method of demonstrating (TOLLENS), 1884, A., 958.
- repeated, influence of, on the amount of sulphides formed by pressure (SPRING), 1884, A., 959.
- of air (ANTOINE), 1889, A., 460.
- of the moist powder of solid substances, and the formation of rocks (SPRING), 1888, A., 1243.
- Comptonite**, altered, from Vesuvius (SCACCHI), 1891, A., 23.
- Concentration**, effect of, on alcoholic fermentation (BROWN), 1892, T., 369; P., 33.
- influence of, on the vapour tension of ethereal solutions (RAOULT), 1887, A., 631.
- of solutions by gravitation (GOTY and CHAPERON), 1887, A., 1013.
- Conchairamidine** and its salts (HESSÉ), 1885, A., 61.
- Conchiolin** (KRUKENBERG), 1885, A., 826; 1886, A., 481.
- Concusconidine** (HESSÉ), 1888, A., 602; 1885, A., 69.
- Concusconine** and its salts (HESSÉ), 1888, A., 602; 1885, A., 64.
- Condensation**, chemical, in mineral chemistry (HUNT), 1891, A., 258.
- evaporation and, spheres of (LEHMANN), 1892, A., 1149.
- phenomena of (MENDELÉEFF), 1885, A., 114.
- use of, in fractionating apparatus (CLAUDON), 1885, A., 331.
- Condensation-products**, use of dry oxalic acid in the formation of (ANSCHUTZ), 1884, A., 1019.
- Condensations**, inner (RÖSSING), 1886, A., 65.
- Condenser**, new (EVERS), 1892, A., 400.
- Conductivity**, electrical. See Electrical conductivity under Electrochemistry.
- heat. See Thermochemistry.
- molecular. See Molecular conductivity.
- Conductors**, hollow, in electrolytes, distribution of electricity on (TRIBE), 1884, A., 248.
- Conduct-pipes**, luting for (ANON.), 1888, A., 536.
- Condurangin** (CARRARA), 1892, A., 1352.
- Conduransterin** (CARRARA), 1891, A., 1387.
- Conessine** (*wrightlin*) (WARNECKE), 1886, A., 372; 1888, A., 855; (POLSTORFF and SCHIRMER), 1886, A., 372; (POLSTORFF), 1886, A., 901.
- Confectionery**, detection of colouring matters in (STROHMER), 1886, A., 183.
- Conglutin** from lupines, behaviour of, towards saline solutions (RITTHAUSEN), 1883, A., 360.
- decomposition products of (SIEGFRIED), 1891, A., 590.
- Congo-red**. See Colouring matters.
- Conhydrine** (*weyrconine*) and  $\psi$ -conhydrine. See Alkaloids.
- Coniceidine** and coniceine. See Alkaloids.
- Conichalcite** (MACKENZIE), 1887, A., 20.
- Coniferin**. See Glucosides.
- Conine**. See Alkaloids.
- Conilene**-. See Conylene-.
- Coninic acid** (SCHOTTEN), 1883, A., 813.
- Conium**, estimation of the alkaloids of (CRIPPS), 1888, A., 540.

- Conium maculatum*, new alkaloid from (LADENBERG and ADAM), 1891, A., 1119.
- Connective tissue fibres**, action of digestive fluids on (EWALD), 1889, A., 913.
- Connellite** (PENFIELD), 1891, A., 157.
- Conquinine**. See Quinidine under Alkaloids.
- Contact actions** (MENDELÉEFF), 1836, A., 415.
- Contact-potential**, differences of (GOUTY) 1892, A., 553.  
difference of, of metals (PASCHEN), 1891, A., 139.  
of metals and their salts (PELLAT), 1889, A., 661.
- Contractile tissues**, peculiarities of the chemical composition of (KRÜCKENBERG and WAGNER), 1885, A., 920.
- Convallamaretin**, convallamarin and convallarin (LANGLEBERT), 1885, A., 271.
- Convallaria majalis* (*lily of the valley*) (LANGLEBERT), 1885, A., 271.
- Convolvulin**, physiological action of (DRAGENDORFF), 1887, A., 291.
- Conylenaminephthalein** and **conylene-phthalamie acid** (PIUTTI), 1881, A., 453.
- Conylphenyl-carbamide** and **thiocarbamide** (GEBHARDT), 1885, A., 384.
- Conylurethane**, action of nitric acid on (SCHOTTEN), 1883, A., 813.  
and derivatives of (SCHOTTEN), 1883, A., 220.
- Coryrine**. See *α-n*-Propylpyridine.
- Copaiba balsam**. See Balsam.
- Copalite** (*copalite*) from Hütteldorf, near Vienna (STARKI), 1886, A., 21.
- Copellidine**. See Methylethylpiperidine and trimethylpiperidine.
- Copiapite** (МАККИНО-П), 1890, A., 454; (ДАРАБСКИЙ), 1890, A., 456.
- Copper**, atomic weight of (BAURIGNY), 1884, A., 256; (SHAW), 1887, A., 444; (RICHARDS), 1888, A., 916, 917; 1891, A., 805.  
(metal) crystallised, from Schneeberg (v. FOULON), 1885, A., 220.  
native, crystallisation of (DANA), 1887, A., 341.  
native, pseudomorphs of, after azurite (YEATES), 1890, A., 453.  
smelting (ANON.), 1884, A., 515.  
slag, red (BERRY), 1887, A., 417.  
containing artificial cuprite (JARMAN and McCALLEN), 1889, A., 467.  
extraction, electrolytic, of (FISCHER), 1884, A., 934.
- Copper**, extraction of, modification of the Hunt-Douglas process for the (HUNT), 1883, A., 400.  
formation of crystals of, artificial (BROWN), 1887, A., 312.  
black. See Copper ores.  
pure, production of, in a crystalline condition (DUNCAN), 1890, P., 95.  
purification of (MÜLLER), 1885, A., 1167; (ANON.), 1886, A., 109.  
phosphorescence of, in the sulphides of the alkaline earth metals (KLATT and LENARD), 1890, A., 201.  
spectrum of (HARTLEY), 1883, T., 396.  
spectroscopic evidences of new element in (GRUNWALD), 1890, A., 434.  
electrical resistance of (LE CHATELIER), 1891, A., 5.  
electrical resistance of, at very low temperatures (v. WROBLEWSKI), 1885, A., 1099.  
electrochemical equivalent of (F. and W. KOHLRAUSCH), 1884, A., 1089; (VANNI), 1892, A., 105.  
electrolysis of (GRAY), 1887, A., 315; 1888, A., 545.  
iron junction, inversion of the electromotive force of, at a high temperature (LE ROUX), 1885, A., 110.  
polarisation of, by the extension of the surface in contact with a liquid conductor (KROUCHKOLI), 1887, A., 757.  
precipitation of, by electrolysis and the electrolytic purification of (ANON.), 1886, A., 109.  
precipitation of, by electrolysis, improvement in the apparatus used for (FOOTE), 1885, A., 597.  
specific heat of (NACCARI), 1888, A., 1236.  
commercial, specific gravity of (WATSON), 1884, A., 218.  
occlusion of gas by, electrolytic (SORET), 1889, A., 105, 946.  
occlusion of hydrogen by (NEUMANN and STREINTZ), 1892, A., 567.  
precipitation of, by iron (ESSENER), 1892, A., 276.  
transference of, across a stratum of gas (BLONDLOT), 1886, A., 422.  
action of (DENIGES), 1889, A., 747.  
action of ammonia on, at a red heat (WARREN), 1887, A., 702.  
action of chlorine and of bromine on (GAUTIER and CHARPY), 1892, A., 118.  
action of, on nitric acid, conditions of (VELEY), 1890, A., 701; 1891, A., 525.

**Copper**, action of nitric oxide on (SABATIER and SENDEREWS), 1892, A., 1152.  
 action of nitric peroxide on (DIVERS and SHIMIDZU), 1885, T., 633.  
 action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 658.  
 action of sulphur vapour on (WARREN), 1888, A., 555.  
 action of, on sulphurous acid (CAUSSE), 1886, A., 423.  
 combination of, with nitrogen (BLONDIOT), 1886, A., 422.  
 displacement of, by zinc (DESTREME), 1888, A., 555.  
 oxidation of (DEBRAY and JOANNIS), 1885, A., 22.  
 slow oxidation of, in presence of dilute sulphuric acid, or of a solution of ammonium carbonate (TRAUBE), 1885, A., 1107.  
 reduced, retention of hydrogen and carbon by (NEUMANN), 1892, A., 942.  
 reduction velocity of alkaline solutions of (URECH), 1889, A., 462.  
 solution of, in acids (VELEY), 1889, T., 381.  
 lowering of the freezing point of bismuth by (HEYCOCK and NEVILLE), 1892, T., 893.  
 lowering of the freezing point of cadmium by (HEYCOCK and NEVILLE), 1892, T., 898.  
 lowering of the freezing point of lead by (HEYCOCK and NEVILLE), 1892, T., 905.  
 influence of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 379.  
 influence of, on iron and steel (OSMOND), 1890, A., 567.  
 influence of, on the working of steel (WASUM), 1883, A., 404.  
 influence of, on the estimation of sulphur (BRUGMAN), 1887, A., 296.  
 in vines treated with copper sulphate and lime (MILLARDET and GAYON), 1886, A., 738.  
 influence of, on the organism of ruminants (ELLENBERGER and HOFMEISTER), 1884, A., 474.  
 zinc couple, action of, with nitric oxide (GLADSTONE and TRIBE), 1883, T., 346.  
 action of, on organic compounds (GLADSTONE and TRIBE), 1885, T., 448; P., 60.  
**Copper alloys** electrical resistance of (LE CHATELIER), 1891, A., 5.

**Copper alloys** with antimony, electric conductivity and other properties of (KAMENSKY), 1885, A., 323.  
 with antimony and with tin (BALL), 1887, P., 136; 1888, T., 167.  
 with iron and manganese, electrical resistance of (NICHOLS), 1890, A., 1356.  
 with iron and platinum (MAUMENÉ), 1887, A., 778.  
 with lead and tin (FRENCH), 1890, A., 335.  
 with silver, estimation of silver in (RÜSSLER), 1888, A., 755.  
 with tin and with zinc, constitution of (LAURIE), 1887, P., 117; 1888, T., 101.  
**Copper compounds** as poisons (DU MOULIN), 1886, A., 483.  
 effect of, on plants (FORMENTO), 1891, A., 491.  
**Copper salts**, electromotive dilution constants of (MISLER), 1887, A., 1072.  
 alleged action of (A. and P. BUISINE), 1889, A., 795.  
 interaction of iodides with (CARNEGIE), 1889, P., 2.  
 action of, on metallic cyanides (VARRÉ), 1890, A., 464.  
 action of sodium thiosulphate on (VORTMANN), 1888, A., 787.  
 basic, action of water on (ROUSSEAU and TITE), 1891, A., 1423.  
**Copper antimonate** (BEILSTEIN and v. BLÄSE), 1889, A., 1124; (EDEL), 1890, A., 216.  
 antimonide (LAIST and NORTON), 1888, A., 658.  
 arsenate, basic (COLORIANT), 1886, A., 771.  
 See also Clinoclase, Erinite and Olivenite.  
 thioarsenate (PREIS), 1890, A., 1053.  
 arsenates (COLORIANT), 1886, A., 771; (HIRSCH), 1891, A., 644.  
 sodium arsenates (HIRSCH), 1891, A., 644.  
 bromide. See Cuprous bromide.  
 oxybromide analogous to atacamite (BRUN), 1889, A., 1112.  
 potassium carbonate solution, estimation of sugars with (OST), 1890, A., 1031.  
 chloride. See Cuprous chloride.  
 dichloride. See Cupric chloride.  
 lithium chloride (CHASSEVANT), 1892, A., 118.  
 potassium chloride and its solutions, vapour pressure of (VRIENS), 1891, A., 783.

**Copper potassium chloride**, reversible transformation of (MEYERHOFFER), 1889, A., 819.

**chlorides**, action of, on metallic sulphides (RASCHIG), 1884, A., 962.

**oxychlorides** (ROUSSEAU), 1890, A., 1058.

**chromate**, basic (BALBIAN), 1888, A., 1219.

**sodium chromate**, basic (STANLEY), 1887, A., 111.

**chromioidate** (BERG), 1890, A., 1379.

**fluorine compounds of** (BALBIAN), 1884, A., 1284.

**glance**, artificial production of (DOELTER), 1886, A., 208.

oxidation of, by the electric current (SMITH and WALLACE) 1892, A., 239.

See also Copper Sulphide.

**bismuth glance**, artificial (SCHNEIDER), 1890, A., 337.

**hydrides** (LEDIC), 1891, A., 1422.

**periodate** (KIMMINS), 1889, T., 150.

**ioidide**. See Cuprous ioidide.

**diiodide**. See Cupric ioidide.

**permolybdate** (PÉCHARD), 1892, A., 1160.

**ammonium thiomolybdate** (DEBRAY), 1883, A., 1054.

**nitrate**, crystallised, basic (BOURGEON), 1890, A., 714; (ROUSSEAU), 1890, A., 1376.

**nitrate**, basic, decomposition of, by water (ROUSSEAU and TITE), 1892, A., 1272.

**nitrates**, basic, artificial (WELLS and PENFIELD), 1886, A., 315.

**nitride** (WARREN), 1887, A., 702; (ASLANOULOU), 1892, A., 409.

**lead potassium nitrite** (VAN LESSEN), 1891, A., 1157.

**nitro-** (SABATIER and SENDERENS), 1892, A., 1390.

**oxide**. See Cupric and cuprous oxides.

**peroxide** (KRÜSS), 1885, A., 124.

**oxides** (JOANNIS), 1885, A., 372; (OSBURN), 1887, A., 334.

absorption of oxygen by (DEBRAY and JOANNIS), 1885, A., 22.

reduction of, by magnesium (WINKLER), 1890, A., 333.

**phosphates and sodium phosphates** (STERNSCHEIDER), 1891, A., 1423.

**phosphates**, double (OUVRARD), 1890, A., 1379.

**phosphides** (GRANGER), 1892, A., 410.

**pyrites**, artificial (DOELTER), 1886, A., 208; (SCHNEIDER), 1889, A., 354.

**Copper pyrites**. See also Copper ores.

**selenite** (BOUTZOURANT), 1888, A., 221; 1891, A., 262.

See also Chalcominite.

**silicate**. See Chrysocolla.

**sulphate**, crystallised, anhydrous (KLOBB), 1892, A., 941, 1399.

basic, precipitate of, formed in ordinary water (GRIMBERT and BARRÉ), 1890, A., 851.

solutions, dilute, cryoscopy of (PICKERING), 1892, A., 1045.

very dilute, determination of the maximum electrical conductivity of (SACK), 1891, A., 965.

electrolysis of mixed aqueous solutions of zinc sulphate and (HOULLEVIGNE), 1890, A., 678.

quantity of heat evolved in the electrolysis of (JAHN), 1883, A., 1043.

anhydrous, monhydrated and pentahydrated, heat of solution of (PICKERING), 1886, T., 294, 310, 296.

vapour pressure of (ANDREAE), 1891, A., 782.

dissociation of (MÜLLER-ERZBACH), 1887, A., 208; 1888, A., 104.

hydrated, dissociation of (LESŒUR), 1886, A., 842.

formation of cuprous chloride and bromide from (DENIGES), 1889, A., 675.

compound of methylic alcohol with (DE FORCRAND), 1886, A., 524.

reduction of, during alcoholic fermentation (QUANTIN), 1887, A., 171.

solubility of (EFARD), 1887, A., 772.

solubility of, in presence of ammonium sulphate (ENGEL), 1886, A., 305.

use of, to destroy mildew (PENNEY), 1885, A., 77.

testing (BAUDOUIN), 1887, A., 1139.

**ammonium sulphate** (ANDRÉ), 1885, A., 873; (KLOBB), 1892, A., 1399.

**cobalt potassium sulphate** (ROY), 1887, P., 53.

**iron ammonium sulphate** (ROY), 1887, P., 53.

**magnesium potassium sulphate** (ROY), 1887, P., 53.

**potassium sulphate**. See Potassium copper sulphate.

**sulphates**, basic (PICKERING), 1883, A., 853; (SHENSTONE), 1885, T., 375; P., 51; (KLOBB), 1892, A., 1399.

- Copper** sulphates, basic, crystalline (SHENSTONE), 1885, T., 375; P., 51; (MIERS), 1885, T., 377; P., 51; (ANDRÉ), 1885, A., 873; (PICKERING), 1885, A., 1113.
- sulphide, colloidal (SPRING), 1883, A., 904; (WRIGHT), 1883, A., 1054; (SPRING and DE BOECK), 1888, A., 227.
- precipitated, composition of (ANTONY and LUCCHESI), 1890, A., 1217.
- action of, on potassium sulphide (DITTE), 1884, A., 963.
- solubility of, in alkaline thiomolybdates (DEBRAY), 1883, A., 1054.
- See also Copper glance.
- potassium sulphide (DITTE), 1884, A., 963.
- hydrosulphides (LINDER and PICTON), 1890, P., 50; 1892, T., 120.
- oxysulphides (KLICHE), 1890, A., 1211.
- sulphites (NEWBURY), 1892, A., 1051.
- cuprosocupric sulphites, transformations of (ETARD), 1883, A., 20.
- dithionates (KLUSS), 1888, A., 1156.
- pentathionate (DEBUS), 1888, T., 300.
- barium thiosulphate (COHEN), 1887, T., 39.
- potassium thiosulphate, hydrated and anhydrous (COHEN), 1887, T., 38.
- Cuprammonium** salts (BAUBIGNY), 1887, A., 773.
- manufacture of, and their technical application (WRIGHT), 1884, A., 1232.
- Cuprammonium** bromides (RICHARDS), 1891, A., 399.
- ammonium cyanide (FLEURENT), 1892, A., 420.
- tet iodide and hex iodide (SAGLIER), 1886, A., 852.
- iodides (SAGLIER), 1886, A., 851; 1887, A., 772.
- oxide (FRUD'HOMME), 1892, A., 18.
- sulphate, basic (PICKERING), 1883, T., 336.
- Cupric** chloride (*copper dichloride*), electrolysis of (QUINCKE), 1889, A., 458.
- solutions, thermal behaviour of (REICHER and VAN DEVENTER), 1890, A., 1206.
- solubility of, in various organic liquids (ETARD), 1892, A., 558.
- action of aluminium on (TOMMASI), 1888, A., 19.
- action of hydrogen chloride on (ENGEL), 1888, A., 558.
- Cupric** chloride (*copper dichloride*), ammoniacal, action of potassium cyanide on (FLEURENT), 1892, A., 1065.
- saturated solutions of compounds of, with potassium chloride (MEYERHOFFER), 1890, A., 564.
- hydrated (CHUARD), 1889, A., 17.
- hydrochloride of (SABATIER), 1888, A., 1036, 1037; (ENGEL), 1888, A., 1248.
- iodide (*copper diiodide*) (TRAUBE), 1884, A., 962; (CARNEGIE), 1889, P., 2.
- oxide (CuO) (KLOBB), 1892, A., 1399.
- modifications of (JOANNIS), 1886, A., 666.
- decomposition of, by heat (DEBRAY and JOANNIS), 1885, A., 21; (MAUMENÉ), 1885, A., 124.
- combination of, with starches, sugars and mannitols (GUIGNER), 1889, A., 1133.
- compound of manganese sesquioxide with (SCHNEIDER), 1887, A., 1081.
- influence of, on the decomposition of potassium chlorate (FOWLER and GRANT), 1890, T., 279.
- hydroxide, stability of (TOMMASI), 1888, A., 19.
- Cuprous** bromide, formation of, from copper sulphate (DENIGES), 1889, A., 675.
- chloride, formation of, from copper sulphate (DENIGES), 1889, A., 675.
- preparation of (CAVAZZI), 1886, A., 771.
- vapour density of (BILTZ and MEYER), 1889, A., 674.
- measurement of the vapour pressures of solutions of (EWAN and ORMANDY), 1892, T., 775.
- influence of hydrogen chloride on the solubility of (ENGEL), 1890, A., 109.
- estimation of, in copper liquors (RAWSON), 1884, A., 872.
- iodide (TRAUBE), 1884, A., 962.
- compounds of, with ammonium thiosulphate (BRUN), 1892, A., 1157.
- oxide (Cu<sub>2</sub>O), behaviour of, at high temperatures (BAILEY and HOPKINS), 1890, T., 269; P., 19.
- estimation of, in metallic copper by Hampe's method (DEWEY), 1889, A., 1033.
- See also Cuprite.

**Copper ores.** tourmaline-bearing, from (HILL & GIBBOLD), 1885, A., 506; 1890, A., 114.  
 variegated, from New Mexico, microscopic character of (BAVHART), 1886, A., 22.  
 from Nova Scotia, analysis of (GRIFFITHS), 1883, A., 859.  
 from Sunneiskog, Sweden (LINDSTRÖM), 1887, A., 343.  
 rare, from Utah (MACKENZIE), 1887, A., 19.  
 decomposition of (ANON.), 1885, A., 940.  
 treatment of, with molten lead (ANON.), 1886, A., 109.  
 black, composition of (ANON.), 1884, A., 515.  
 pyrites, crystals of (PENFIELD), 1891, A., 273.  
 oxidation of the sulphur in, by an electric current (SMITH), 1889, A., 926.  
 slate, Mansfeld, analysis of (SCHNEIDER), 1883, A., 1069.

**Copper organic compounds:—**

**Copper,** organic substances containing, analysis of (WALKER), 1890, A., 296.  
 acetylides (KEISER), 1892, A., 1416.  
 preparation of (KUNTZMANN), 1892, A., 421.  
 carbonylferrocyanide (MÜLLER), 1890, A., 117.  
 diphenyl (FABINI), 1891, A., 1198.  
 mercuric thiocyanate (BEHRENS), 1892, A., 10.

**Cuprammonium acetobromide** (RICHARDS), 1892, A., 953.

**Cuprosocupric cyanide** (VARET), 1889, A., 359.

**Copper, detection, estimation and separation:—**

detection of tellurium in (EGLESTON), 1883, A., 531.  
 detection, electrolytic, of (KOHN), 1892, A., 541.  
 detection of traces of, in distilled water (THOMAS), 1891, A., 620.  
 detection of, in wine (GIGLI), 1888, A., 873.  
 microchemical test for (v. HAUSHOFER), 1887, A., 300.  
 analysis of (STAHL), 1887, A., 529.  
 assays (WESTMORELAND), 1888, A., 1343.  
 assay of, wet and dry (WESTMORELAND), 1887, A., 80.

**Copper, detection, estimation and separation:—**

assaying, precipitation of, as thiocyanate in (JOHNSON), 1890, A., 547.  
 estimation and valuation of commercial (WELSHORLAND), 1887, A., 80.  
 commercially pure, examination of (ANON.), 1884, A., 1084.  
 metallic, estimation of arsenic in (LUHMANN and MAGER), 1886, A., 100, 920.  
 estimation of traces of bismuth and antimony in (JUNGFER), 1888, A., 321.  
 estimation of cuprous oxide in, by Hampe's method (DEWEY), 1889, A., 1033.  
 estimation of sulphur in (PHILLIPS), 1891, A., 362; (LOBBY DE BRUYN), 1892, A., 753.  
 estimation of (QUESSAUD), 1885, A., 441; (CARNOT), 1886, A., 580, 650; (ETARD and LEBEAU), 1890, A., 665.  
 estimation of, and silver in the same solution (QUESSAUD), 1885, A., 441.  
 estimation of, by de Haen's (Brown's) method (LOBBY DE BRUYN and VAN LEENT), 1892, A., 753.  
 estimation of, by the iodide method (WILLIAMS), 1889, A., 309.  
 estimation of, by Weil's method (ANON.), 1883, A., 509.  
 estimation, electrolytic, of (CLAESSEN), 1885, A., 190, 1095; (MOORE), 1886, A., 921; (SHAND), 1887, A., 1000; (CLAESSEN and SCHILLIE), 1889, A., 77; (RUDORFF), 1889, A., 188; (BRAND), 1890, A., 294.  
 estimation, electrolytic of, in arsenical ores, slags, etc. (ANON.), 1885, A., 941.  
 estimation of, in aluminium (HUNT, CLAPP, and HANDY), 1892, A., 1131.  
 estimation of, in presence of arsenic (CLAESSEN), 1888, A., 523.  
 estimation of, in iron and steel (REINHARDT), 1890, A., 85.  
 estimation, volumetric, of (C. and J. J. DERINGER), 1884, A., 113; (LOW), 1886, A., 920; (ELLIS), 1890, A., 547; (ETARD and LEBEAU), 1890, A., 665; (FESSENDEN), 1890, A., 926; (DONATH and HATTENSAHN), 1891, A., 112.  
 separation of, from arsenic, and their estimation in a case of poisoning (GUCCI), 1888, A., 630.

**Copper separation:—**

- separation of, qualitative and quantitative, from bismuth (LOEWE), 1884, A., 497.
- separation of, from cadmium (GUCCI), 1885, A., 193; (BÉHAL), 1885, A., 1012; (KASTLE), 1890, A., 295; (WARREN), 1891, A., 1138; (WELLS), 1892, A., 534.
- separation of, from cadmium, lead, manganese, etc. (V. KNORRE), 1887, A., 530.
- separation of, from cadmium, zinc, nickel, etc. (CARNOT), 1886, A., 580, 650.
- separation of gold, silver, lead and, from sulphides by air blast (ANON.), 1883, A., 400.
- separation of, from lead (CLASSEN), 1888, A., 529.
- separation of, from lead by refining in Freiberg (ANON.), 1883, A., 400.
- separation of, from mercury and palladium (ROSENBLADT), 1887, A., 302.
- separation, electrolytic, of, from aluminium, cadmium, chromium, cobalt, iron, nickel or zinc (SMITH), 1890, A., 1028.
- separation, electrolytic, of, from arsenic (SMITH and FRANKEL), 1890, A., 1029; (MCCAY), 1891, A., 114.
- separation, electrolytic, of, from cadmium (SMITH and FRANKEL), 1890, A., 665.
- separation, electrolytic, of, from gold (SMITH and MUHN), 1891, A., 1296, 1396.
- separation, electrolytic, of, from mercury (SMITH and FRANKEL), 1889, A., 797; (SMITH and MACCAULEY), 1892, A., 239.
- Copper magnesium group**, isomorphous mixtures of sulphates of (ROY), 1887, P., 53.
- mixed double sulphates of (RAY), 1889, A., 346.
- Coprine chloride** (NIEMENTOWSKI), 1886, A., 933.
- Coptis trifolia**, alkaloids of (SCHULTZ), 1885, A., 403.
- Copying-paper**, new photographic (SHAWCROSS), 1886, A., 106.
- Coquimbite** (MACKINTOSH), 1890, A., 454.
- Coral**, solubility of, in sea water (THOLET), 1889, A., 682.
- Cordierite** (*dichroite*, *iolite*) from A-ma-Yama (HUSSAK), 1884, A., 407.

- Cordierite** (*dichroite*, *iolite*) of Glencullen (JOLY), 1888, A., 117.
- in the trachytes of Hungary (SZABÓ DE ST. MIKLÓS), 1883, A., 166.
- twin crystals of, from the Laacher See (V. LASAULX), 1884, A., 407.
- distribution of, in rocks (HUSSAK), 1885, A., 1190.
- altered, from Tuscany (SCACCHI), 1887, A., 1086.
- as contact mineral (KIKUCHI), 1892, A., 1056.
- artificial production of (BOURGEOIS), 1884, A., 565.
- composition of (FARRINGTON), 1892, A., 793.
- Cordierite-gneiss** from Connecticut (HOVEY), 1889, A., 25.
- Coriander oil and coriandrol** (SEMMLER), 1891, A., 540.
- Cork**, composition of (URBAIN), 1884, A., 861.
- Cork cells**, suberin, and (GILSON), 1891, A., 465.
- Corn**. See Agricultural Chemistry.
- Corn-cockle** (*Agrostemma githago*), metabolism in pigs fed on (KORNAUTH and ARCHE), 1892, A., 1018.
- sapotoxin from (KRUSKAL; KOBERT), 1892 A., 350.
- seeds, poison of (LEHMANN and MORI), 1890, A., 1458.
- Cornea**, action of ethylenic chloride on the (DUBOIS and ROUX), 1888, A., 517.
- Cornein** (KRUKENBERG), 1884, A., 1390; 1886, A., 481.
- Cornikrystallin** (KRUKENBERG), 1884, A., 1391.
- Cornutine** (KOBERT; TANRET), 1885, A., 821; (BOMBELON), 1888, A., 970.
- Corpses**, human, basic products (*ptomaines*) from (BRIEGER), 1885, A., 278.
- detection of colchicine in (OBOLONSKI), 1891, A., 135.
- detection and estimation of organic and inorganic poisons in (SEYDA), 1891, A., 117.
- Corpuscles**, permeability of, in relation to their isotonic coefficients (HAMBURGER), 1890, A., 809.
- red, lecithin and cholesterol in (MANASSE), 1890, A., 1017.
- stromata of the (HALLIBURTON and FRIEND), 1889, A., 1231.
- "Corrosiv,"** Kohn and Co.'s (BELLMER), 1884, A., 1088.
- Corrosive sublimate**. See Mercuric chloride.

- Corundum**, remarkable occurrences of (GENTH), 1884, A., 267.  
 in graphite (WICHMANN), 1886, A., 23.  
 gems in India (SHEPARD), 1884, A., 23.  
 in Patrick Co., Virginia (GENTH), 1890, A., 570.  
 synthesis of (BRUHNS), 1890, A., 112.  
 optical properties and micro-structure of (V. LASAULX), 1886, A., 23.
- Corycavine** (FREUND and JOSEPHI), 1892, A., 1367.
- Corydaline**. See Alkaloids.
- Corydalis cava**, alkaloids of (ADERMANN), 1891, A., 1266; (FREUND and JOSEPHI), 1892, A., 1366.
- Corydalis tuberosa**, alkaloid from (DOBBIE and LAUDER), 1892, T., 244, 605; P., 13, 123.
- Corylus Avellana**, pollen of (SCHULZE and V. PLANTA), 1886, A., 736.
- Cosalite**. See Rezbanyite.
- Cosmical powder** which fell on the Cordilleras, near San Fernando, Chili (V. NORDENSKIÖLD), 1887, A., 22.
- Cossaite** from the Upper Susa Valley (PIOLTI), 1890, A., 344.
- Cotarnic acid** (ROSER), 1889, A., 418; 1890, A., 529.
- Cotarnine**. See Alkaloids.
- Cotarn-lactone and -lactonic acid** (ROSER), 1890, A., 529.
- Cotarnmethine methiodide** (ROSER), 1889, A., 417.  
 methochloride (ROSER), 1890, A., 528.
- Cotarnone and oxime** of (ROSER), 1889, A., 417, 418.
- Cotarnonenitrile** (ROSER), 1890, A., 528.
- Coto bark**, constituents of (CIAMICIAN and SILBER), 1892, A., 873.  
 hydrocotoin from (CIAMICIAN and SILBER), 1891, A., 578.
- Paracoto bark**, constituents of (CIAMICIAN and SILBER), 1892, A., 62.
- Cotonoleic acid** (DE VARDA), 1892, A., 584.
- Cotton**, thermochemistry of (VIGNON), 1890, A., 939.  
 absorption of weak reagents by (MILLS and TAKAMINE), 1883, T., 142.  
 bleaching of, by hydrogen peroxide (PRUD'HOMME), 1891, A., 1447.  
 fixing indigo on (SCHLIEFER and BAUM), 1884, A., 136.  
 estimation of, in tissues (RÉMONT), 1885, A., 96.  
 dyeing (VIGNON), 1891, A., 662.  
 fabrics, dyed, microscopic investigation of (MEYER), 1883, A., 751.
- Cotton oil**. See Oil.
- Cotton plant**, chemical study and feeding value of (MCBRYDE), 1892, A., 1510.
- Cotton printing**, use of chromium chlorate in (LAUBER and WEINER), 1885, A., 1272.
- Cotton seed**, analyses of (KONIG), 1885, A., 425.  
 betaine in (RITTHAUSEN and WEGER), 1885, A., 50.  
 products (FAPASOGLI), 1892, A., 584.
- Cotton seed foods**, choline and betaine in (MAXWELL), 1892, A., 380.
- Cotton-seed oil**. See Oil.
- Cotton-yarn**, dyeing with aniline-black in the cold (RENARD), 1884, A., 942.
- Coumalanilidic acid**, monomethyl salt of (V. PECHMANN and WELSH), 1885, T., 152.
- Coumalin (coumalone)** (NIEME and V. PECHMANN), 1891, A., 675; (V. PECHMANN), 1891, A., 1460.
- Coumalinic acid** and its derivatives (V. PECHMANN), 1884, A., 1124; 1885, A., 175; 1891, A., 1457; (V. PECHMANN and WELSH), 1885, T., 145; A., 174.
- Coumalmethanic acid**, monomethyl salt of (V. PECHMANN and WELSH), 1885, T., 154.
- Coumalone**. See Coumalin.
- o-Coumaraldehyde (hydroxycinnamic aldehyde)** (TIEMANN and KEES), 1885, A., 1073.
- Coumaraldehydes**, nitro- (V. MILLER and KINKELIN), 1887, A., 939.
- p-Coumarhydrin** (CIAMICIAN and SILBER), 1892, A., 873.
- Coumaric acid (hydroxycinnamic acid)**,  $\alpha$ -benzoyllactamide of (REBUFFAT), 1890, A., 624.
- $\alpha$ -Coumaric acid**. See Coumarinic acid.
- m-Coumaric acid** and derivatives (TIEMANN and LUDWIG), 1883, A., 189; (LUDWIG), 1885, A., 663.
- o-Coumaric acid**, action of hydrobromic acid and bromine on (EBERT), 1885, A., 391.
- o-Coumaric acids**,  $\alpha$ - and  $\beta$ -, oxidation of (TIEMANN and WILL), 1883, A., 200.
- p-Coumaric acid** (WILL), 1885, A., 907; (EIGEL), 1887, A., 1109.  
 constitution of (WILL), 1887, A., 497.  
 dibromide, bromo- (EIGEL), 1887, A., 1110.  
 3-nitro- (EINHORN and GRABFIELD), 1888, A., 478.
- Coumaric acids**, isomeric (V. MILLER and KINKELIN), 1889, A., 990.

- Coumaric acids**, 2- and 6-nitro- (LUFF), 1889, A., 507.  
*o*-nitro- and  $\alpha$ - and  $\beta$ -3-nitro- (V. MILLER and KINKELIN), 1889, A., 989, 990.
- Coumaric series** (V. MILLER and KINKELIN), 1889, A., 989.  
 transition from the, to the quinoline series (V. MILLER and KINKELIN), 1889, A., 990.
- Coumarilic acids** (*coumarone- $\alpha$ -carboxylic acids*) and derivatives (FITTIG and EBERT), 1888, A., 474; (HANTZSCH and LANG), 1886, A., 706.
- Coumarin** (EBERT), 1883, A., 471; (V. PECHMANN and WELSH), 1884, A., 1346.  
 source of (MOLISCH and ZEINEL), 1889, A., 644.  
 formation of (V. PECHMANN), 1884, A., 1173.  
 crystallography of (SCACCHI), 1885, A., 901.  
 action of hydrobromic acid and bromine on (EBERT), 1885, A., 391.  
 derivatives of (FITTIG and CLAUS), 1892, A., 988.
- Coumarin**, 5-amido-, preparation of (TAEGER), 1887, A., 939; 1891, A., 918.  
*m*-nitro- (TAEGER), 1887, A., 939; 1891, A., 918.  
*o*-nitro- (V. MILLER and KINKELIN), 1889, A., 989.  
 thio- (TIEMANN), 1886, A., 880.  
 and its analogues (ALDRINGEN), 1892, A., 329.
- Coumarins**, substituted (V. PECHMANN and DUISBERG), 1884, A., 66; (V. PECHMANN and COHEN), 1885, A., 56.  
 thio-, and their behaviour towards hydroxylamine and phenylhydrazine (ALDRINGEN), 1890, A., 624.
- Coumarincarboxylic acid** (STUART), 1886, T., 367; P., 178.
- isocoumarincarboxylic acid** (ZINCKE), 1892, A., 970.
- Coumarinic acid** ( *$\alpha$ -coumaric acid*), *o*-nitro- (V. MILLER and KINKELIN), 1889, A., 989.
- Coumarinic series** (V. MILLER and KINKELIN), 1889, A., 989.
- Coumarinpropionic acid** (FITTIG), 1890, A., 584; (FITTIG and BROWN), 1890, A., 777.
- Coumarone** (FITTIG and EBERT), 1883, A., 474; (BIZZARRI), 1891, A., 566.  
 in coal tar (KRAEMER and SPILKER), 1890, A., 496.
- Coumarone**, various actions of (DOHME), 1891, A., 455.  
 action of hydrobromic acid and bromine on (EBERT), 1885, A., 391.  
 reduction of (ALEXANDER), 1892, A., 1318.  
*dibromide* and *dichloride* (KRAEMER and SPILKER), 1890, A., 496.  
*bromo-* and *chloro-* (KRAEMER and SPILKER), 1890, A., 496.
- p*-Coumarone** (KRAEMER and SPILKER), 1890, A., 496.
- Coumarone- $\alpha$ -carboxylic acids**. See Coumarilic acids.
- Coumaroxime** and its ethyl ether (TIEMANN), 1886, A., 880.
- m*-Coumaroxyacetic acid**, methyl ketone of (ELKAN), 1887, A., 259.
- o*-Coumaroxyacetic acid** and its derivatives (RÜSSING), 1885, A., 389; 1886, A., 66.
- Coumaroxyacetic acids**, *m*- and *p*- (ELKAN), 1887, A., 259.
- Coumarphenyl- $\alpha$ -methylhydrazide** (ALDRINGEN), 1890, A., 624.
- o*-Coumarylic alcohol** (TIEMANN and KEES), 1885, A., 1074.
- Couples**, galvanic, a probable cause of the difference between the observed E.M.F. of, and that calculated from thermochemical data (CHAPERON), 1884, A., 802.  
 metallic, electromotive force of the currents yielded by, in simple saline solutions (DAMIEN), 1886, A., 190.  
 thermoelectric, influence of temperature on the E.M.F. of (LE CHATELIER), 1886, A., 587.
- Covellite** (*covellite*), artificial production of (DOELTER), 1886, A., 208.  
 See also Breithauptite.
- Cow**. See Agricultural Chemistry.
- Cowberry** (*Vaccinium Villos-Idax*), bitter principle of (CLAASSEN), 1885, A., 1254.
- Craigtonite** from Aberdeenshire (HEDDLE), 1886, A., 131.
- Cranberry juice**, fermentation and composition of (MACH and PORTELE), 1890, A., 1455.
- Cratægus Oxyacantha***, calcium oxalate in the leaves of (WEHMER), 1890, A., 191.
- Crayfish**, gastric juice of (STAMATI), 1889, A., 534.
- Cream of tartar**. See Tartaric acid, potassium hydrogen salt of.
- Creatine compounds** of the aromatic group (GRIESS), 1883, A., 669.

- Creatines** (Duvillier), 1884, A., 613; 1885, A., 819; 1887, A., 850.
- Creatinine** (Duvillier), 1884, A., 613; 1885, A., 819; 1886, A., 1046; 1887, A., 850; (Johnson), 1888, A., 506; 1889, A., 165.  
has it basic properties? (Salkowski), 1888, A., 505.  
actions of (Colasanti), 1887, A., 1056.  
influence of muscular work on the elimination of (Moitessier), 1892, A., 364.  
kynurenate and picrate (Jaffé), 1886, A., 1056.  
detection of, in urine (Campari), 1885, A., 702.  
Weyl's reaction for (Guarenchi), 1887, A., 1122.  
estimation of, in urine (Salkowski), 1886, A., 397; (Grocco), 1887, A., 513; (Moitessier), 1892, A., 1135.
- Creatinine group**, compounds of the (Duvillier), 1883, A., 220, 1153.
- Creolin** (Weyl), 1889, A., 389.
- Creosolcarboxylic acid** (Wende), 1887, A., 45.
- Creosote** from beechwood tar (Grätzel), 1883, A., 393.  
detection of phenol in (MacEwan), 1885, A., 1013.
- m-Cresol** ( $\text{CH}_3\text{:OH} = 1:3$ ) (*m*-hydroxytoluene) (Staedel), 1886, A., 232.  
direct preparation of, from toluene (Friedel and Crafts), 1889, A., 241.  
derivatives of (Claus and Hirsch), 1889, A., 389.
- m-Cresol, 6-amido-** (Staedel and Kolb), 1891, A., 187.  
*dichloro-* [m.p. 46°] (Claus and Schweitzer), 1886, A., 614.  
*iodo-*, and its salts (Willgerodt and Kornblum), 1889, A., 698.  
*nitro-* (Staedel), 1889, A., 497; (Staedel and Kolb), 1891, A., 187.  
*trinitro-* (Nölting), 1886, A., 345.  
*nitrodiamido-* (Nietzki and Rumpf), 1891, A., 309.
- o-Cresol** ( $\text{CH}_3\text{:OH} = 1:2$ ), derivatives of (Claus and Jackson), 1889, A., 128.  
aluminium derivatives of, and products of decomposition by heat (Gladstone and Tribe), 1885, P., 111; 1886, T., 35.
- o-Cresol, 4-amido-** (Wallach), 1883, A., 329.  
*5-amido-* (Nölting and Kohn), 1884, A., 902, 1003; (Hirsch), 1885, A., 892.
- o-Cresol, 6-amido-** (Ullmann), 1884, A., 1317.  
*5-bromo-3-amido-* and *5-bromo-3-nitro-* (Claus and Jackson), 1889, A., 128.  
*dichloro-*, and its derivatives (Claus and Riemann), 1883, A., 1111; (Claus and Schweitzer), 1886, A., 614.  
*3:4-diiodo-* (Willgerodt), 1888, A., 940.  
*4-nitro-*, and its derivatives (Nölting and Collin), 1884, A., 1007.  
*5-nitro-*, and its derivatives (Staedel), 1883, A., 861; (Hirsch), 1885, A., 892.  
*6-nitro-* (Ullmann), 1884, A., 1317.  
*trinitro-* (Nölting and Collin), 1884, A., 1007.  
*nitroso-* (Nölting and Kohn), 1884, A., 1003; (Goldschmidt and Schmid), 1884, A., 1327.
- p-Cresol** ( $\text{CH}_3\text{:OH} = 1:4$ ), sodium derivative of, action of chlorine, bromine and iodine on (Schall and Dralle), 1885, A., 145.  
*3-amido-*, and its ethyl derivative (Nölting and Kohn), 1884, A., 901; (Maassen), 1884, A., 1145.  
*3-bromo-* and *3:5-dibromo-* (Schall and Dralle), 1885, A., 146.  
*3-chloro-* (Schall and Dralle), 1885, A., 146.  
*dichloro-*, and its derivatives (Claus and Riemann), 1883, A., 1111.  
*3:5-diiodo-* (Schall and Dralle), 1885, A., 146.  
*3:5-dinitro-*, and its salts (Limpricht), 1885, A., 1233; (Richter), 1886, A., 152.  
constitution of (Staedel), 1883, A., 865.  
*dinitro-*, colour reactions of (Fleck), 1887, A., 624.  
poisonous properties of (Weyl), 1888, A., 520.  
physiological action of (Weyl), 1888, A., 1122.
- Cresols**, absorption spectra of (Hartley), 1888, T., 643.  
action of iodine on, in alkaline solution (Messinger and Vortmann), 1889, A., 1150.  
condensation of *dichlorether* with (Bruckner), 1890, A., 1140.  
physiological action of the three (Gibbs and Hare), 1890, A., 813.  
crude, examination of (Staveley), 1890, A., 425.  
*azo-* and *diazo-*compounds of (Nölting and Kohn), 1884, A., 900.

- Cresols**, chloro- (CLAUS and SCHWEITZER), 1886, A., 614.  
 iodo-, and their salts (WILLGERODT and KORNBUM), 1889, A., 698.  
 nitro- (NOLTING and V. SALIS), 1883, A., 59; (STAEDL), 1883, A., 662, 861, 864.  
*o*-Cresolbenzein (SCHROETER), 1890, A., 898.  
*p*-Cresolchloral (MAZZARA), 1884, A., 187.  
**Cresoleinnamic acids**, *o*-, *m*-, and *p*- (OGIALORO-TODARO and FORTI), 1891, A., 320.  
**Cresoldiamine sulphate** (LIMPRICHT), 1885, A., 975.  
*m*-Cresoldisulphonic acid (CLAUS and KRAUSS), 1888, A., 281.  
*o*-Cresoldisulphonic acid (HASSE), 1886, A., 151.  
**Cresoldisulphonic acids** and their salts (LIMPRICHT), 1885, A., 1233.  
**Cresolsulphonic acid**, *dithio*- (KLASON), 1887, A., 492.  
*m*-Cresol-*p*-sulphonic acid (CLAUS and KRAUSS), 1888, A., 280.  
*di*iodo- (KEHRMANN), 1889, A., 994.  
*m*-Cresolsulphonic acids (CLAUS and KRAUSS), 1888, A., 280.  
 bromination of (CLAUS and DREHER), 1889, A., 863.  
*o*-Cresol-5-sulphonic acid, 3-iodo- (KEHRMANN), 1888, A., 841.  
*o*-Cresolsulphonic acids (HANTKE), 1888, A., 281.  
 derivatives of (CLAUS and JACKSON), 1889, A., 129.  
*m*-Cresoltrisulphonic acid (CLAUS and KRAUSS), 1888, A., 281.  
**Cresorcinol**. See 2:4-Dihydroxytoluene.  
**Cresorsellinic acid**. See 5:3:2:1-Dihydroxytoluic acid.  
**Cresotic acid**. See Hydroxytoluic acid.  
*p*-Cresotodichlorhydrin (FRITSCH), 1891, A., 708.  
**Cresyl**-. See Toly-  
**Cribrifrom vessels** of "*Cucurbita pepo*," contents of (ZACHARIAS), 1884, A., 1067.  
**Crystalline or glaciale** ("*Mesembryanthemum crystallinum*") (MANGON), 1883, A., 499; (HECKEL), 1883, A., 680.  
**Crystalite** from Mexico (VOM RATH), 1887, A., 559.  
**Critical atomic coefficients** (GUYE), 1890, A., 444.  
**Critical data** of liquids (HEILBORN), 1891, A., 969.  
 relation between their chemical constitution and (HEILBORN), 1891, A., 380.  
**Critical point** in chemical decompositions (VAN'T HOFF), 1885, A., 1181.  
 determination of molecular weight at the (GUYE), 1891, A., 1411.  
 of gases (ANDRELL), 1883, A., 277; (JAMIN), 1883, A., 898.  
**Critical points**, molecular constitution of compounds at their (GUYE), 1890, A., 443.  
 relation between boiling points and (BARTOLI), 1885, A., 859.  
 pressure curves of fluids at their (v. WROBLEWSKI), 1886, A., 964.  
**Critical pressure**, so-called, of solids (v. RICHTER), 1886, A., 656.  
**Critical temperature** of liquids, Mendeléeff's formula for the expansion of liquids, and Thorpe and Rucker's formula for determining, from their coefficient of expansion (BARTOLI and STRACCIATI), 1885, A., 859.  
**Critical temperatures** (PAWLEWSKI), 1884, A., 252.  
 of alkyl salts (PAWLEWSKI), 1883, A., 276.  
 of bodies, relation between their thermal expansion as liquids and (THORPE and RUCKER), 1884, T., 135; 1887, A., 429.  
 of mixed liquids (SCHMIDT), 1892, A., 262.  
 determination of critical pressures and (CAILLETET and COLARDEAU), 1891, A., 779.  
**Critical volume**, determination of (NADESHDIN), 1888, A., 775.  
**Critical volumes** of liquids (DEWAR), 1885, A., 331.  
**Crocein-scarlet**, process for preparing (ANON.), 1883, A., 635.  
 description and measurement of the spectrum of (HARTLEY), 1887, T., 195.  
 iodo- (OSTERMAYER), 1885, A., 673.  
**Crocein-yellow**, process for preparing (ANON.), 1883, A., 635.  
**Crocein** from saffron (KAYSER), 1885, A., 60.  
**Crocidolite** (*krokidolite*) (KENNGOTT), 1886, A., 128.  
 from the Cape (RENARD and KLEMENT), 1886, A., 603.  
 from Cumberland, Rhode Island (CHESTER and CATINS), 1888, A., 118.  
 quartz, from Greenland (FISCHER), 1883, A., 435.  
**Crocin** from saffron (KAYSER), 1885, A., 59.  
**Crocoite** (*crocoisite*) analysis of (BAERWALD), 1883, A., 1063.

- Crocoite** (*crocoisite*), artificial production of (BOURGOIS), 1887, A., 781.  
 synthesis of (LUDEKING), 1892, A., 792.
- Croconamic acid** (NIETZKI and BENCKISER), 1886, A., 540; (NIETZKI and SCHMIDT), 1888, A., 944.
- Croconic acid** and its derivatives (NIETZKI and BENCKISER), 1886, A., 449, 540.  
 formation of, from benzene derivatives (NIETZKI), 1887, A., 805.  
 hexahydroxybenzene derivatives and their relation to (NIETZKI and BENCKISER), 1885, A., 779.  
 thio- (NIETZKI and BENCKISER), 1886, A., 450.
- Crocose** (*saffron sugar*) from saffron (KAYSER), 1885, A., 60.  
 identity of, with dextrin (FISCHER), 1888, A., 590.
- Cromfordite** (*phosgenite*) from Chili (v. SANDBERGER), 1887, A., 902.  
 artificial production of (FRIEDEL and SARASIN), 1883, A., 431.
- Crops.** See Agricultural Chemistry.
- Crotolaria retusa** and *C. striata*, alkaloid from (GRESHOFF), 1891, A., 335.
- Croton oil** (ROBERT), 1887, A., 798.  
 purgative principle of (SENIER), 1884, A., 947.  
 vesicating principle of (SENIER), 1884, A., 909.
- Crotonaldehyde**, formation of, from acetaldehyde (MICHAEL and KOPP), 1884, A., 420.  
 preparation of (PERKIN), 1883, T., 88; (NEWBURY), 1884, A., 294; (MULLER), 1892, A., 809; (ORNDORFF and NEWBURY), 1892, A., 1423; (LIEBEN), 1892, A., 1424.  
 actions of (NEWBURY), 1884, A., 294.  
 action of, on alcohol (NEWBURY and CALKIN), 1891, A., 285.  
 action of dry ammonia on (COMBES), 1883, A., 1079.  
 action of chlorine on (ZEISEL), 1886, A., 1006.  
 action of sulphurous anhydride on (HATBNER), 1892, A., 424.  
 hydration of (WURTZ), 1884, A., 420.
- Crotonaldehyde**, chloro- (LIEBEN and ZEISEL), 1883, A., 963.  
*α*-dichloro-, a condensation product of monochloraldehyde (NATTERER), 1883, A., 964.  
 action of zinc ethyl on (NATTERER), 1885, A., 497.  
 compound formed by the addition of hydrochloric acid to (NATTERER), 1884, A., 1293.
- isoCrotonaldehyde**, presence of, in a brandy (MULLER), 1892, A., 810.
- Crotonaldoxime** (SCHINDLER), 1892, A., 32, 580.  
*dichloro-* (SCHIEFF and TARUGI), 1892, A., 34.
- Crotonanilide**, *β*-amido- (KNORR), 1892, A., 708; (LEDERER), 1892, A., 965.
- Crotonic acid** (HOMOLKA), 1885, A., 758.  
 and its salts, preparation of (BEILSTEIN and WIGAND), 1885, A., 740.  
 an acid isomeric with (FITTIG and ROEDER), 1884, A., 295.  
 molecular weight of (SCHULZ), 1889, A., 1140; (SÜLC), 1890, A., 737.  
 formation of amidobutyric acid from (ENGEL), 1888, A., 1063.  
 oxidation of (FITTIG and KOCHS), 1892, A., 957.
- Crotonic acid**, *allo-α*-chloro- (WISLIZENUS), 1887, A., 655; (MICHAEL and BROWNE), 1887, A., 1029.  
*β*-chloro- (AUTENRIETH), 1891, A., 170.  
*allo-β*-chloro- [m.p. 59.5°] (FRIEDRICH), 1883, A., 968.  
*α*- and *β*-chloro-, action of potash on (FRIEDRICH), 1883, A., 968.
- isoCrotonic acid**, addition of hypochlorous acid to (MELIKOFF), 1888, A., 311.  
 oxidation of (FITTIG and KOCHS), 1892, A., 957.  
 derivatives of (MELIKOFF and PETRENKO-KRIVSHENKO), 1892, A., 293.
- isoCrotonic acid**, *α*-bromo- (WISLIZENUS, TEISLER and LANGBEIN), 1889, A., 236.  
*α*-chloro- (WISLIZENUS), 1887, A., 655.  
*β*-chloro-, action of potash on (FRIEDRICH), 1883, A., 968.
- Crotonic acids**, action of hydriodic acid on (MICHAEL and FREER), 1889, A., 1057.  
 isomeric, derivatives of (MELIKOFF), 1883, A., 969.  
 substituted (AUTENRIETH), 1887, A., 797.  
 and their halogen substitution derivatives, geometrical constitution of (WISLIZENUS, TEISLER and LANGBEIN), 1889, A., 236; (MICHAEL), 1889, A., 1057.  
 monohalogen derivatives of, action of alkalis on (FRIEDRICH), 1883, A., 968.  
 sulphone derivatives of (AUTENRIETH), 1891, A., 203.  
 thio-derivatives of (AUTENRIETH), 1890, A., 361.

- Crotonic acids**, bromo- (FITTIG and CLUTTERBUCK), 1892, A., 961.  
intramolecular changes in (MICHAEL and PENDLETON), 1888, A., 1176.  
bromo-additive-derivatives of (KOLBE), 1883, A., 573.
- Crotonic acid series**, *alloisomerism* in (MICHAEL and PENDLETON), 1888, A., 1176; (MICHAEL and SCHULTHESS), 1891, A., 1184.  
*isomerism* in (MICHAEL and BROWNE), 1887, A., 656, 1029.
- Crotonitrile**, constitution of (PALMER), 1889, A., 686; (LIPPMANN), 1892, A., 27.  
imido-ethers from (PINNER), 1884, A., 1292.  
 $\beta$ -amido- (HOLTZWART), 1889, A., 688.
- Crotonylcarbamide**, chloro- (PINNER and LIFSCHUTZ), 1887, A., 1032.
- Crotonylene**. See Butinene.
- isoCrotylic chloride** (SCHESCHUKOFF), 1884, A., 1276.
- Crotylpyridine** (MATZDORFF), 1890, A., 1436.
- Cruciferae**, localisation of active principles in the seeds of (GUIGNARD), 1891, A., 490.  
estimation of mustard oil in the seeds of (FOERSTER), 1888, A., 1350.
- Cruorine**, chloro- (GRIFFITHS), 1892, A., 1256.
- Crusc creatinine** (GAUTIER), 1886, A., 634.
- Crustaceae**, decapod, blood of (HALLIBURTON), 1886, A., 639.  
blue colouring matter of the blood of (HEIM), 1892, A., 898.
- Cryohydrates**, nature of (PICKERING), 1890, T., 361.  
of mixtures of salts (MAZZORRO), 1891, A., 388.  
researches on (GUTHRIE), 1885, A., 337.
- Cryolite** (KLEIN), 1883, A., 427; (GROTH), 1884, A., 265; (DES CLOIZEAUX), 1886, A., 430.  
from Colorado (CROSS and HILLEBRAND), 1884, A., 21.  
from Greenland (DES CLOIZEAUX), 1886, A., 430.  
artificial (v. ANSÖTH), 1891, A., 806.  
artificial products from (NOELLNER), 1883, A., 80.  
chemical composition of (BRANDL), 1883, A., 29.  
electrolysis of (HAMPE), 1889, A., 676.  
estimation of iron and silicon in (FRESSENIUS and HINTZ), 1889, A., 927.
- Cryolite glass** (WEINREB), 1885, A., 1019.
- Cryoscopic determinations** (TRAUBE), 1892, A., 765.  
apparatus for (ELJKMAN), 1889, A., 336; (v. KLOBUKOFF), 1889, A., 1043; (BECKMANN), 1891, A., 784.  
experiments (GOLDSCHMIDT), 1891, A., 1211.  
investigation of colloids (SABANÉEFF), 1890, A., 1215; 1891, A., 145.  
observations (VAN BIJLERT), 1891, A., 1411.  
studies on racemic acid and racemates (RAOULT), 1888, A., 361.
- Cryoscopy** as a means of determining molecular weights (RAOULT), 1886, A., 197; (ELJKMAN), 1890, A., 324; (NERNST), 1891, A., 389.  
determination of the latent heat of fusion from the reduction of the freezing point (ELJKMAN), 1889, A., 666.  
electrical conductivity and (TRAUBE), 1891, A., 971.  
osmotic pressure and (PICKERING), 1890, A., 846.  
osmotic pressure, electrical conductivity and, relation between (VAN'T HOFF and REICHER), 1889, A., 668.  
alteration of freezing point (KOLÁČEK), 1887, A., 879.  
of alkaline solutions (RAOULT), 1884, A., 254.  
of aqueous solutions (RAOULT), 1885, A., 858.  
of benzene (PATERNO), 1889, A., 101.  
of calcium chloride solutions (PICKERING), 1891, P., 45; A., 973; 1892, A., 1045.  
of cane sugar solutions (ELJKMAN), 1891, A., 972; (PICKERING), 1892, A., 109, 1045; (RAOULT), 1892, A., 678.  
of dilute alcohol and other solutions (PICKERING), 1892, A., 1045.  
of dilute aqueous solutions (RAOULT), 1888, A., 1242; (ARRHENIUS), 1888, A., 1242; 1891, A., 1148.  
of dilute aqueous solutions of electrolytes and non-electrolytes (PICKERING and TRAUBE), 1891, A., 971.  
of dilute solutions (PICKERING), 1891, A., 971; 1892, A., 678, 1045; (TRAUBE), 1892, A., 8.  
of very dilute solutions, determination of (RAOULT), 1892, A., 935.  
of solutions; abnormal depression of the freezing point (VAN BIJLERT), 1891, A., 1411.

- Cryoscopy** of solutions of salts of the alkali metals (RAOULT), 1884, A., 701.  
 of solutions of salts of divalent metals (RAOULT), 1884, A., 808.  
 of solutions of various double salts (RAOULT), 1885, A., 122.  
 of sulphuric acid solutions (PICKERING), 1889, P., 106, 150; 1890, T., 331; 1892, A., 678.
- Cryptidine** (LEEDS), 1883, A., 669.
- Cryptogams**, assimilation of free nitrogen by (FRANK), 1892, A., 370; (SCHLESING), 1892, A., 378.  
 vascular, aluminium in (CHURCH), 1889, A., 182.
- Cryptopine** and its derivatives (KAUDER), 1887, A., 1122; (BROWN and PERKIN), 1891, P., 166.
- Cryptotile** (SATER), 1888, A., 34.
- Crystal beds** of Topaz Butte (SMITH), 1887, A., 452.
- Crystalline structures**, difference between anisotropic and (v. EBNER), 1885, A., 631.
- Crystallisation** (BRÜGELMANN), 1888, A., 147; 1885, A., 114; (MARIGNAC; LEHMANN), 1885, A., 215.  
 apparatus for, at low temperatures and in absence of moisture and air (BRUHL), 1889, A., 464; 1890, A., 1043.  
 by diffusion (GUIGNET), 1887, A., 101.  
 experiments in, exemplifying Berthollet's law of affinity (BRÜGELMANN), 1883, A., 148.  
 of mixtures (LEHMANN), 1888, A., 342.  
 of salts during the electrolysis of their solutions (PAGLIANI), 1888, A., 892.  
 of substances at high pressures (JANNETTA, NEEL and CLERMONT), 1884, A., 548; (SPRING), 1884, A., 549.  
 physical union and (BRÜGELMANN), 1889, A., 817.  
 water of. See Water, pure.
- Crystallographical investigations** (v. HAUSHOFER), 1886, A., 341.
- Crystallography** of dibenzoylcinnamene-derivatives (TUTTON), 1890, T., 714; P., 139.  
 of some organic compounds (ZINGEL), 1886, A., 62; (WICKEL), 1886, A., 234; (HEINTZE), 1886, A., 235.
- Crystals**, fluid (LEHMANN), 1890, A., 106.  
 mixed (KOPF), 1884, A., 958; (HERRMANN), 1886, A., 972; (RETGERS), 1892, A., 1048.
- Crystals**, mixed, formation of (BEHRENS), 1892, A., 10.  
 solubility of (ROOZEBOOM), 1892, A., 265, 266; (NERNST), 1892, A., 560.  
 influence of foreign substances on the form, purity and size of (RETGERS), 1892, A., 937.  
 symmetry of (MINNIGERODE), 1885, A., 1105.  
 theory of the structure of (SCHÖNFLIES), 1892, A., 572.  
 do they grow only by juxtaposition of new molecules? (WULFF), 1886, A., 9.  
 artificial colouring of (LEHMANN), 1892, A., 269.  
 explanation of the colour phenomena of pleochroic (VOIGT), 1885, A., 621.  
 apparatus for measuring the angle of the optic axes of (LIEBISCH), 1885, A., 622.  
 optical activity of, explanation of the (FOCK), 1891, A., 513.  
 optical modifications produced in, by the action of heat (KLEIN), 1885, A., 622.  
 dilatation of, on change of temperature (FLETCHER), 1884, A., 1096.  
 elasticity of (KOCH), 1884, A., 1096; (BECKENKAMP), 1885, A., 729; (MINNIGERODE), 1885, A., 1105.
- Cubebin** (SCHAR), 1887, A., 970; (POMERANZ), 1888, A., 62, 1100.
- Cucumbers**, cooked, composition of (WILLIAMS), 1892, T., 227.
- Cucurbita pepo*, contents of the tribriform vessels of (ZACHARIAS), 1884, A., 1067.
- Cudbear**, detection and estimation of magenta in (RAWSON), 1888, A., 877.
- Culm conglomerate**, containing variolite, at Hausdorf, in Silesia (DATHE), 1884, A., 408.
- Cultivation**. See Agricultural Chemistry.
- Cumaloxime** (WESTENDERGER), 1884, A., 581.
- Cumamide** (FILETI), 1887, A., 43.
- Cumene** (*isopropylbenzene*) (DA SILVA), 1884, A., 1356; 1885, A., 1054.  
 dispersive power of (BARBIER and ROUX), 1889, A., 805.  
 influence of light on the bromination of (SCHRAMM), 1889, A., 240.  
 action of aluminium chloride on (HEISE and TOHL), 1892, A., 1309.  
 oxidation of, with chromyl chloride (v. MILLER and RODE), 1891, A., 898.

- Cumene** (*isopropylbenzene*) derivatives, reciprocal transformations of cymene derivatives and (FILET), 1887, A., 36, 471; (WIDMAN), 1887, A., 133.
- Cumene**, amido-. See Cumidine.
- nitro- (PONPECHOFF), 1886, A., 458.
- n*-Cumene (*propylbenzene*), formation of (WISPEK and ZUBER; DA SILVA), 1885, A., 972.
- synthesis of (HEISE), 1891, A., 685.
- action of chromyl chloride on (V. MILLER and RÖHDE), 1890, A., 978.
- nitration of (LESTIAU), 1890, A., 962.
- n*-Cumene, *p*-diamido- (KEHRMANN and MESSINGER), 1891, A., 298.
- o*-bromo- (CLAUS and WELZEL), 1890, A., 503.
- p*-bromo- (MEYER), 1886, A., 915; (CLAUS and WELZEL), 1890, A., 503.
- p*- $\alpha$ -tribromo- (SCHRAMM), 1891, A., 398.
- chloro- (ERRERA), 1887, A., 35.
- p*-dinitro- and dinitroso- (KEHRMANN and MESSINGER), 1891, A., 298.
- $\psi$ -Cumene (1:3:4-*trimethylbenzene*) in different mineral oils (ENGLER), 1885, A., 1209.
- action of methylenic chloride on, in presence of aluminium chloride (FRIEDEL and CRAFTS), 1887, A., 1102.
- bromination of (SCHRAMM), 1886, A., 451.
- derivatives of (NOLTING and BATTMANN), 1885, A., 893; (KELBE and PATHE), 1886, A., 804.
- o*-amidoazo-compounds of (ZINCKE and JAENKE), 1888, A., 469.
- $\psi$ -Cumene, 5-bromo- (WALLACH and HEUSLER), 1888, A., 362.
- preparation of (SUNSENGUTH), 1883, A., 469; (JACOBSEN), 1886, A., 710.
- 6-bromo-, action of sulphuric acid on (JACOBSEN), 1889, A., 994.
- 5:6-*d*-bromo-, and its derivatives (JACOBSEN), 1886, A., 710.
- 2-bromo-5:6-*d*-nitro- (JACOBSEN), 1889, A., 39.
- 6-chloro- (WALLACH and HEUSLER), 1888, A., 362.
- 6-fluoro- (WALLACH and HEUSLER), 1888, A., 362; (TÖHL), 1892, A., 968.
- 5-iodo- (WALLACH and HEUSLER), 1888, A., 362.
- 6-iodo-, action of sulphuric acid on (KURZEL), 1889, A., 995.
- $\psi$ -Cumene, 5-nitro-, and its derivatives (EDLER), 1885, A., 771.
- trinitro-, reduction of (MAYER), 1887, A., 36, 659.
- Cumene series**, intramolecular change in the propyl group of (WIDMAN), 1887, A., 132; 1891, A., 45.
- Cumeneazo- $\beta$ -naphtholdisulphonic acid**, description and measurement of the spectrum of (HARTLEY), 1887, T., 187.
- $\psi$ -Cumeneazophenol (GOLDSCHMIDT and BRUBACHER), 1891, A., 1210.
- $\psi$ -Cumenediazopiperidine (WALLACH and HEUSLER), 1888, A., 362.
- $\psi$ -Cumene $\beta$ thaloylic acid, crystalline form of (SORET), 1886, A., 619.
- $\psi$ -Cumene-quinol and -quinone, nitro- (NEF), 1887, A., 255.
- " $\psi$ -Cumenestylene" (KRAEMER, SPILKER and EBBENHARDT), 1891, A., 207.
- Cumene- $\beta$ -sulphonamide** (CLAUS and TONN), 1885, A., 904.
- Cumene- $\beta$ -sulphonic acid** (CLAUS and SCHULTE IM HOFE), 1887, A., 264.
- Cumenesulphonic acids**, and their salts (CLAUS and TONN), 1885, A., 903.
- n*-Cumenesulphonic acids (CLAUS and WELZEL), 1890, A., 503.
- $\psi$ -Cumene-5-sulphonic acid, and 6-bromo- (JACOBSEN), 1886, A., 709.
- $\psi$ -Cumene-6-sulphonic acid, iodo- (KURZEL), 1889, A., 995.
- $\psi$ -Cumene-5- and -6-sulphonic acids, 2-bromo- (JACOBSEN), 1889, A., 995.
- o*-Cumenol (*o*-*isopropylphenol*), and its derivatives (FILET), 1886, A., 789.
- o*-*n*-Cumenol (*o*-*propylphenol*) (FRANKLAND and TURNER), 1883, T., 358.
- $\psi$ -Cumenol [b.p. 217°] (ENGEL), 1885, A., 1215.
- [1:3:4:2-] (JACOBSEN), 1886, A., 710.
- [1:3:4:5-] (EDLER), 1885, A., 771; (JACOBSEN), 1886, A., 710.
- action of bromoform and iodoform on (AUWERS), 1886, A., 143.
- derivatives of (AUWERS), 1885, A., 380.
- sulphamic acids and hydroxy-acids derived from (JACOBSEN and MEYER), 1883, A., 589.
- $\psi$ -Cumenol (1:3:4:6-), amido-, and the action of acetic anhydride on (LIEBERMANN and v. KOSTANECKI), 1884, A., 1147.
- m*-nitro- (AUWERS), 1886, A., 144.
- 2:5-*d*-nitro- (AUWERS), 1885, A., 381; 1886, A., 144.
- Cumenyl-**. See Cumyl-.
- Cumic**. See Cuminic.

- Cumidic acids**,  $\alpha$ - and  $\beta$ - (SCHNAPAUFF), 1887, A., 52.
- Cumidines** (*amidocumenes*), *o*- and *p*- (CONSTANT and GOLDSCHMIDT), 1888, A., 681.
- $\psi$ -Cumidine** [1:2:4:5] (V. HOFMANN), 1883, A., 324; (NÖLTING and KOHN), 1885, A., 383; (HALLER), 1885, A., 522; (NÖLTING and FOREL), 1886, A., 58; (AUWERS), 1886, A., 143.
- constitution of (FRÖHLICH), 1885, A., 154.
- nitration of (NÖLTING and STOECKLIN), 1891, A., 693.
- methyl derivatives of (V. HOFMANN), 1883, A., 324.
- citrate (SCHNEIDER), 1888, A., 465.
- commercial (KROMER), 1891, A., 1351.
- derivatives of (FRÖHLICH), 1884, A., 1318; (NÖLTING and BAUMANN), 1885, A., 384, 893.
- [b.p. 223°], and its derivatives (ENGEL), 1885, A., 1215.
- [b.p. 236°], and its derivatives (MAYER), 1887, A., 660.
- [1:3:4:5], and its derivatives (EDLER), 1885, A., 771.
- $\psi$ -Cumidine**, thio-bases from (ANSCHÜTZ and SCHULTZ), 1889, A., 603.
- $\psi$ -Cumidinealloxan** (PELLIZZARI), 1888, A., 682.
- $\psi$ -Cumidinesulphonic acid**, nitro- (MAYER), 1887, A., 953.
- $\psi$ -Cumidoethylphthalimide** (NEWMAN), 1891, A., 1208.
- Cuminaldehyde** (*cuminol*), *o*-nitro- (EINHORN and HESS), 1884, A., 1352.
- Cuminaldehydphenylhydrazone** (RUDOLPH), 1889, A., 251.
- isoCuminaldoxime** (GOLDSCHMIDT), 1890, A., 1263.
- Cuminic acid**, *m*-sulpho- (WIDMAN), 1889, A., 1186.
- isoCuminic acid** (*isopropylbenzoic acid*) (MEYER), 1886, A., 944.
- synthesis of (MEYER and MÜLLER), 1883, A., 63.
- heat of combustion of (BERTHELOT and LUGNIN), 1887, A., 762.
- thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.
- isoCuminic acid**, *o*-amido- (WIDMAN), 1886, A., 466.
- o*- and *p*-dibromo- (FILETI and BONISCONTRO), 1892, A., 605.
- o*-nitro- (WIDMAN), 1886, A., 466.
- diamido-, and its hydrochloride (LITTMANN), 1883, A., 194.
- isoCuminic acid**, bromo- and bromo-nitro-, derivatives of (FILETI and CROSA), 1891, A., 1055.
- o*-Cuminic acid** (CLAUS and SCHULTE IM HOF), 1887, A., 264.
- p*-Cuminic acid** (FRANCKSEN), 1884, A., 1009.
- n*-Cuminic acid** (*propylbenzoic acid*), and its salts (KÖRNER), 1883, A., 322.
- preparation of (WIDMAN), 1888, A., 1086.
- n*-Cuminic acid**, 2-nitro- (KÖRNER), 1883, A., 322; (WIDMAN), 1886, A., 464.
- 3-nitro-, action of light on (ALEXIEFF), 1885, A., 794.
- 3-nitro-, and some of its salts (KÖRNER), 1883, A., 322.
- $\psi$ -Cuminic acid**, bromo-, and its salts (SUSSENGUTH), 1883, A., 469.
- $\psi$ -Cuminic acid** (*durylic acid*, 2:4:5-trimethylbenzoic acid) (GISSMANN), 1883, A., 333; (CLAUS), 1890, A., 981.
- derivatives of (NEF), 1886, A., 64, 241.
- $\psi$ -Cuminic acid**, diamido- (NEF), 1888, T., 433.
- dinitro- (GISSMANN), 1883, A., 334.
- $\psi$ -Cuminic acid** (2:4:6-trimethylbenzoic acid) (CLAUS), 1890, A., 981.
- Cuminic acids**,  $\alpha$ -,  $\beta$ -, and  $\gamma$ - (*isodurylic acids*,  $\alpha$ -,  $\beta$ -, and  $\gamma$ -) (JACOBSEN), 1883, A., 52.
- Cuminic acids** (*propylbenzoic acids*), synthesis and constitution of the two (MEYER), 1886, A., 944.
- o*- and *m*-bromo- (FILETI), 1891, A., 1023.
- m*-brom-*o*-amido- (FILETI and CROSA), 1891, A., 1056.
- Cuminildioximes**, isomeric (HOFFMANN), 1890, A., 1143.
- Cuminol**. See Cuminaldehyde.
- Cuminylacetone and cuminylacetozone** (WIDMAN), 1889, A., 1183.
- Cuminyllallythiocarbamide** (GOLDSCHMIDT and GESSNER), 1889, A., 774.
- Cuminylamidodimethylaniline** and cuminylamidophenol (UEBEL), 1888, A., 1073.
- Cuminylamine** (*isopropylbenzylamine*) (GOLDSCHMIDT and GESSNER), 1887, A., 1039; 1889, A., 773; (UEBEL), 1888, A., 1079; (KROMER), 1891, A., 1352.
- Cuminylanilide** (SMITH), 1892, A., 489.
- Cuminylaniline** (UEBEL), 1888, A., 1078.

- Cuminylcamphor** (HALLER), 1891, A., 1498.
- Cuminylic alcohol** (KRÖMER), 1891, A., 1352.
- carbamate (GOLDSCHMIDT and GESSNER), 1889, A., 773.
- cyanide (RONSOLOMO), 1889, A., 861.
- oxide (FILETI), 1885, A., 776.
- Cuminylmaleonic acid** (WIDMAN), 1889, A., 1182.
- Cuminylthiocarbamide** (GOLDSCHMIDT and GESSNER), 1887, A., 1039.
- Cuminylthiohydantoin hydrochloride** (GOLDSCHMIDT and GESSNER), 1889, A., 774.
- Cuminyltoluidine** (UEBEL), 1888, A., 1078.
- Cumonitrile**, propoxy-derivatives of (FILETI and ABBONA), 1892, A., 595.
- $\psi$ -Cumo-quinol and -quinone**, nitro- (NEF), 1887, A., 255; 1888, T., 438.
- Cumostyryl** (WIDMAN), 1886, A., 465.
- $\psi$ -Cumyl methyl ketone** (CLAUS), 1890, A., 981.
- Cumyl series**, the propyl group in the (WIDMAN), 1886, A., 453.
- $\alpha$ -Cumylacetaldehyde** (*isopropylcinnamaldehyde*), *m*-nitro- (V. MILLER and RÖDHE), 1889, A., 984.
- Cumylacrylic acid** (*isopropylcinnamic acid*), nitration of (WIDMAN), 1892, A., 43.
- dibromide and its *o*-nitro-derivative (WIDMAN), 1886, A., 464.
- Cumylacrylic acid**, *o*- and *m*-amido- (WIDMAN), 1886, A., 467.
- m*-nitro-, and derivatives (WIDMAN), 1886, A., 467.
- o*-nitro-, and its salts (EINHORN and HESS), 1884, A., 1351.
- Cumylacrylic acids**, *o*-bromo- and *o*-chloro- (WIDMAN), 1891, A., 69.
- nitro-, and their derivatives (WIDMAN), 1885, A., 55.
- $\psi$ -Cumylantipyrin** (HALLER), 1885, A., 818.
- $\psi$ -Cumylazo-**. See under Azo-.
- Cumylbromacetic acid** (FILETI and AMORETTI), 1891, A., 1060.
- $\psi$ -Cumylbenzylidenetrihydrazine** (RUHEMANN), 1890, T., 55.
- $\psi$ -Cumylcarbamide** (ENGEL), 1885, A., 1216.
- Cumylchloracetic acid** (FILETI and AMORETTI), 1891, A., 1060.
- 2'-Cumylcinchoninic acid** (DOEBNER), 1889, A., 411.
- Cumylcinnamic acid** (*isopropylphenylcinnamic acid*) (MAGNANIMI), 1886, A., 467.
- $\psi$ -Cumylenediamine** (EDLER), 1885, A., 772; (NÖLTING and BAUMANN), 1885, A., 893.
- m*- $\psi$ -Cumylenediamine** (MAYER), 1887, A., 659.
- Cumylenediazosulphide** (JACOBSON and NEY), 1889, A., 772.
- $\psi$ -Cumylenethenylamidine**, amido- (AUWERS), 1886, A., 144.
- Cumylglycollic acid** (FILETI), 1886, A., 790; (FILETI and AMORETTI), 1891, A., 1059.
- Cumylglyoxylic acid** (DITTRICH and MEYER), 1891, A., 1225.
- $\psi$ -Cumylhydrazine** (HALLER), 1885, A., 523; (RUHEMANN), 1890, T., 54.
- $\psi$ -Cumylhydrazinepyruvic acid** (RUHEMANN), 1890, T., 55.
- $\psi$ -Cumylic cyanate and cyanurate** (FRENTZEL), 1889, A., 241.
- nitrate, *m*-nitro- (AUWERS), 1885, A., 380.
- Cumylideneamidodimethylaniline** (NUTH), 1885, A., 784; (UEBEL), 1888, A., 1078.
- Cumylideneamidophenol** (UEBEL), 1888, A., 1078.
- Cumylidenebenzidine** (SCHIFF and VANNI), 1890, A., 1298.
- Cumylidene acetone** (CLAISEN and PONDER), 1884, A., 1167.
- camphor (HALLER), 1891, A., 1498.
- diureide (BIGNELLI), 1892, A., 57.
- Cumylidenemaloninic acid** (WIDMAN), 1889, A., 1182.
- Cumylidenetolidine** (SCHIFF and VANNI), 1890, A., 1299.
- Cumylidenetoluidine** (UEBEL), 1888, A., 1078.
- Cumylidene-*m*-tolylenediamine** (SCHIFF and VANNI), 1890, A., 139.
- $\psi$ -Cumyl- $\gamma$ -ketonic acid** (CLAUS and SCHLARB), 1887, A., 827.
- $\psi$ -Cumylmethoxyquinizine**. See Oxypheyltetramethylpyrazole.
- Cumylisnitrosoacetic acid** (FILETI and AMORETTI), 1891, A., 1060.
- $\psi$ -Cumyloxamic acid**, and inner anhydride of (MAUTHNER and SUIDA), 1889, A., 140.
- $\psi$ -Cumylphosphinic acid** (MICHAELIS and RÖDHE), 1892, A., 1035.
- $\psi$ -Cumylphthalide** (GRESLY), 1886, A., 1029.
- Cumylpropionic acid** (WIDMAN), 1887, A., 132.
- constitution of (WIDMAN), 1889, A., 1182; 1891, A., 69.
- Cumylpropionic acid**, *m*-amido- (WIDMAN), 1886, A., 467.
- o*-chloro- (WIDMAN), 1891, A., 69.

- 2'-Cumylquinoline (DOEBNER), 1889, A., 411.
- ψ-Cumylsemicarbazide (RUHEMANN), 1890, T., 55.
- Cuprammonium. See under Copper.
- Cuprea bark (KORNER), 1883, A., 66; (HESSE), 1883, A., 601.  
alkaloids of (PAUL and COWNLEY), 1885, A., 563.
- Cupreine. See Alkaloids.
- Cupreol and its acetate and propionate (HESSE), 1885, A., 1076.
- Cupric. See Copper.
- Cuprite, artificial, contained in a red copperslag (JARMAN and McCABE), 1889, A., 467.  
artificial crystallised (BROWN), 1887, A., 342.  
hemihedrism of (MIERS), 1885, A., 358.  
See also Cuprous oxide under Copper.
- Cupro-desclowitzite (RAMMELSBERG), 1885, A., 731; (GENTH), 1888, A., 564.  
from Mexico (PISANI), 1892, A., 1055.
- Cupro-uranite (*uranite*) from Madagascar (JANNETTAZ), 1889, A., 22.  
from Mitchell Co., N. Carolina (HIDDEN), 1883, A., 1064.
- Cuprous. See Copper.
- Curare (BOHM), 1887, A., 1125.  
influence of, on the glycogen of liver and muscle (DEMANT), 1886, A., 1054.  
physiological action of (NIKOLSKY and DOGIEL), 1891, A., 487.
- Curarine from *Strychnos toxifera* (VILLER), 1885, A., 997.  
reaction of (FERREIRA DA SILVA), 1891, A., 1562.
- Curcas purgans*, oil from the seeds of (HORN), 1888, A., 674.
- Cureumin (JACKSON and MENKE), 1885, A., 371.  
dihydride, and an anhydride of (JACKSON and MENKE), 1883, A., 481.  
tetrabromo- (JACKSON and MENKE), 1883, A., 481.  
pentabromo-, dibromide, and tetrabromide (JACKSON and MENKE), 1883, A., 481.
- Curine (BOHM), 1887, A., 1125.
- Currant juice, fermentation of (KEIM), 1891, A., 1539.
- Currants, red and black, colouring matters of (KEIM), 1891, A., 1539.  
ripe, studies on (AMTHOR), 1884, A., 766.
- Current and currents. See Electrochemistry.
- Curvature, the recognition of changes of, by means of a flexible lath (PICKERING), 1892, A., 767.
- Cuspuria trifoliata*, constituents of (BECKURTS and NEHRING), 1892, A., 642.
- Cusparidine (BECKURTS and NEHRING), 1892, A., 643.
- Cusparine and its salts (KÖRNER and BÖHRINGER), 1884, A., 341; (BECKURTS and NEHRING), 1892, A., 643.
- Cutose (URBAIN), 1884, A., 859; (FREMY and URBAIN), 1885, A., 369.
- Cuttle fish, excretory product from the liver of (GRIFFITHS), 1884, A., 94.  
ptomaine from (OECHSNER DE CONINCK), 1889, A., 421.
- Cyamelide, constitution of (MULDER), 1888, A., 1046.
- Cyamic acid, chloro- (BELLMANN), 1884, A., 840.
- Cyanacetalddehyde (CHAUTARD), 1888, A., 810.
- Cyanacetamide (HENRY), 1887, A., 796.
- Cyanacetanilide (QUENDA), 1892, A., 1072.
- Cyanacetates (HALLER), 1888, A., 1298.  
of the benzene series (HALLER), 1888, A., 823.
- Cyanacetic acid (HENRY), 1887, A., 796.
- γ-Cyanacetoacetates, and their chlorimido-derivatives (HALLER and HELD), 1891, A., 171.
- Cyanacetobenzylamine (GUARESCHI), 1892, A., 1072.
- Cyanacetone, the so-called (HANTZSCH), 1890, A., 1094, 1095.
- Cyanacetophenone (HALLER), 1886, A., 240; 1887, A., 826; 1889, A., 873; (BARTHE), 1888, A., 951; (CLAISEN and STUCK), 1891, A., 451; (OBRÉGLIA), 1892, A., 324; (GARELLI), 1892, A., 845.  
action of hydroxylamine on (OBRÉGLIA), 1892, A., 324.  
derivatives (HALLER), 1889, A., 873; (OBRÉGLIA), 1892, A., 324; (GARELLI), 1892, A., 845.
- Cyanacetoethienone (SALVATORI), 1892, A., 804.
- Cyanacetylpipeidine (GUARESCHI), 1892, A., 1072.
- Cyanalkines. See m-Diazines.
- Cyanamide, action of, on benzenesulphonic acids (VILLE), 1887, A., 833.  
preparation of (TRAUBE), 1885, A., 739.  
derivatives of (SMOLKA and FRIEDREICH), 1889, A., 951.

**Cyanamide derivatives**, constitution of (SMOLKA), 1890, A., 1222.

**diCyan diamide** (BAMBERGER), 1888, A., 907, 1090; (DUVILLIER), 1884, A., 613; (BAMBERGER and SEEBERGER), 1891, A., 838.

constitution of (WUNDERLICH), 1886, A., 217.

**diCyan diamidine**, preparation of (SMOLKA and FRIEDREICH), 1889, A., 951.

**Cyanamines**, a new class of dyes (WITT), 1890, A., 1307.

**Cyanamyline** (*homocyanethine*) (TRÜGER), 1888, A., 802.

**Cyananilidobenzylthiocarbamide** (FREUND and IMMERWAHR), 1890, A., 1408.

**Cyananiline**, and its derivatives (SENF), 1885, A., 1060; 1887, A., 928.

**Cyanates**. See Cyanic acid under Cyanogen.

**p-Cyanazobenzene** (MENTHA and HEUMANN), 1887, A., 248.

**diCyan diacetethylenediamine** (GUARESCHI), 1892, A., 1071.

**diCyan diacetopentamethylenediamine** (GUARESCHI), 1892, A., 1071.

**Cyanethine** (*4-amido-5-methyl-2,6-diethyl-m-diazine*) (V. MEYER), 1883, A., 352; 1889, A., 685.

formation of (SCHWARZE), 1890, A., 1158.

formation of, from ethylic cyanide (V. MEYER), 1888, A., 802.

preparation of (V. MEYER), 1889, A., 360.

constitution of, and of its analogues (V. MEYER), 1889, A., 577.

action of bromine on (V. MEYER), 1883, A., 353.

action of ethylic chlorocarbonate on compounds of (V. MEYER), 1885, A., 140.

action of nitrous acid on (V. MEYER), 1883, A., 352.

bases from (V. MEYER), 1883, A., 352.

derivatives of (RIEBS), 1885, A., 235; (V. MEYER), 1889, A., 685.

**Cyanethine carboxylamide** (V. MEYER), 1885, A., 140.

carboxylanilide (V. MEYER), 1885, A., 140.

**Cyanetholine** (? *ethylic cyanate*) (MULDER), 1883, A., 304.

a reaction of the compounds of normal cyanuric acid and (MULDER), 1883, A., 305.

**Cyanhydric acid**. See Hydrocyanic acid under Cyanogen.

**Cyanhydrins**, action of carbamide on (PINNER and LIFSCHÜTZ), 1887, A., 1054.

action of phenylhydrazine on (REISERT), 1884, A., 1152.

of nitroso-compounds (LIPPMANN and FLEISNER), 1885, A., 1212.

**Cyanic acid**. See under Cyanogen.

**Cyanides**. See Hydrocyanic acid under Cyanogen.

**isoCyanilic acid** (SCHOLVIEN), 1886, A., 137.

**Cyanine** (*quinoline-blue*) (HOGEWERFF and VAN DORP), 1885, A., 673.

**Cyanite**. See Kyanite.

**Cyanmethethine**, and its derivatives (V. MEYER), 1883, A., 653; (RIESS and V. MEYER), 1885, A., 646.

**Cyanmethine** (*4-amido-2:6-dimethyl-m-diazine*) (V. MEYER), 1883, A., 653.

formation of (SCHWARZE), 1890, A., 1158.

synthesis of (HOLTZWART), 1889, A., 683.

derivatives of (V. MEYER), 1883, A., 653; (KELLER), 1885, A., 961.

**Cyanobenzaldehydes**, *m*- and *p*- (REINGLASS), 1891, A., 1345, 1346.

**m-diCyanobenzene** (*isophthalonitrile*), preparation of (GOLDBERG), 1890, A., 147.

derivatives of (LUCKENBACH), 1884, A., 1157.

"**diCyanobenzenylamidoxime**" (NORDENSKIÖLD), 1890, A., 1120.

**Cyanobenzine** (PINNER), 1884, A., 1292.

**o-Cyanobenzotrichloride** (GABRIEL and WEISE), 1883, A., 261.

**m-Cyanobenzoic acid** (SANDMEYER), 1885, A., 981; (BRÜMME), 1887, A., 484.

derivatives of (BRÜMME), 1887, A., 484.

**Cyanobenzoic acids**, behaviour of, on distillation (BRÜMME), 1887, A., 484.

**p-diCyanobenzophenone** (BRÜMME), 1887, A., 484.

**α-Cyanobenzoylacetone** (BURNS), 1892, A., 451.

**Cyanobenzyl chloride**. See Benzyl chloride.

cyanide. See Phenylacetone nitrile, cyano-.

**o-Cyanobenzyl bromide** (DRORY), 1891, A., 1461.

**diselenide** and **methylic selenide** (DRORY), 1891, A., 1461.

**methylic sulphide** (DAY and GABRIEL), 1890, A., 1250.

- o*-Cyanobenzyllic selenocyanate (DRORY), 1891, A., 1460.  
 thiocyanate (DAY and GABRIEL), 1890, A., 1249.
- ω*-Cyanobenzylidenephthalide (GABRIEL), 1885, A., 902.
- m*-Cyanobenzylidenic chloride (REINGLASS), 1891, A., 1344.
- o*-Cyanobenzylidenic chloride (GABRIEL and WEISE), 1888, A., 261; (DRORY), 1891, A., 1460.
- Cyanobenzylidene (6-*amido*-5-*phenyl*-2:4-*dibenzyl-m-diazine*) (WACHE), 1889, A., 684.
- m*-Cyanobenzylphthalimide (REINGLASS), 1891, A., 1345.
- o*-Cyanobenzylphthalimide (GABRIEL), 1887, A., 1038.
- p*-Cyanobenzylphthalimide (GUNTHER), 1890, A., 977.
- Cyanobutene (*homocyanethine*) (TRÖGER), 1888, A., 801.
- Cyanocamphor. See Camphor.
- Cyanocarbamides (HECHT), 1892, A., 702.
- Cyanocarbimidoamidobenzoic acid, derivatives of (GRIESS), 1885, A., 1225.
- Cyanocarboxamidobenzoic acid (GRIESS), 1885, A., 1226.
- α*-Cyanocinnamic acid [m.p. 178°] (CARICK), 1892, A., 1037.
- o*-Cyanocinnamic acid [m.p. 252°] (DRORY), 1891, A., 1462.
- Cyanocouline and its derivatives (V. MEYER), 1883, A., 352.
- Cyano-derivatives containing oxygen, volatility of (HENRY), 1885, A., 880.
- o*-*di*-Cyanodibenzylamine (DAY and GABRIEL), 1890, A., 1251.
- di*-*o*-Cyanodibenzyllic disulphide (DAY and GABRIEL), 1890, A., 1251.
- Cyanodiethylpropine (6-*amido*-2:4:5-*triethyl-m-diazine*) (WACHE), 1889, A., 684.
- Cyanodiphenylethine (4-*amido*-2:6-*diphenyl-5-methyl-m-diazine*) (V. MEYER), 1889, A., 578; 1890, A., 68; (SCHWARZE), 1890, A., 1159.
- Cyanodiphenylsuccinic acid (POPPE), 1890, A., 504.
- Cyanodiphenylethylidenediamine (CHAUTARD), 1888, A., 810.
- Cyanogen, preparation of gaseous (JACQUEMIN), 1885, A., 880.  
 refraction of (CHAPPUIS and RIVIÈRE), 1886, A., 837; 1887, A., 753.  
 compressibility of (CHAPPUIS and RIVIÈRE), 1887, A., 753.  
 liquid, vapour tension of (CHAPPUIS and RIVIÈRE), 1887, A., 764.
- Cyanogen, combustion of (DIXON), 1886, T., 384; P., 171.  
 flame, experiments on (SMITHELLS and INGLE), 1892, T., 215.  
 decomposition of (BERTHELOT), 1883, A., 303.  
 substitution of, for the amido-group (AHRENS), 1888, A., 266.  
 use of aniline as an absorbent of, in gas analysis (LOEB), 1888, T., 812; P., 87.
- Paracyanogen, constitution of (MULDER), 1888, A., 1046.
- Cyanogen compounds, constitution of some simple (CAMELS), 1884, A., 1277.  
 additive products of (RATHKE), 1886, A., 217.  
 detection of (HILGER and TAMBA), 1891, A., 1555.  
 estimation of, in the products of the distillation of coal (PENDRY), 1889, A., 653.
- Hydrocyanic acid (*cyanhydric acid*; *hydrogen cyanide*; *formonitrile*) (V. MEYER), 1888, A., 242.  
 distribution of, in the vegetable kingdom (GRESHOFF), 1891, A., 338.  
 from animals (WEBER), 1884, A., 343.  
 formation of, from fulminates (DIVERS and KAWAKITA), 1884, T., 14.  
 synthesis of (FIGUIER), 1886, A., 521.  
 properties of (BRAME), 1883, A., 129.  
 heat of formation of (TOMMASI), 1885, A., 716.  
 heats of combustion and formation of (BERTHELOT and PETIT), 1889, A., 812.  
 condensation of (V. DER PFORDTEN), 1885, A., 1120.  
 action of, on calomel (FOUQUET), 1890, A., 223.  
 action of, on hydrochloric acid and alcohol (PINNER), 1883, A., 730.  
 action of, on mercurous salts (VITALI), 1892, A., 1416.  
 action of, on seeds (SCHÄR), 1886, A., 575.  
 simultaneous oxidation and reduction by means of (MICHAEL and PALMER), 1886, A., 155.  
 influence of germination and growth on the development of, in the flax and sweet almond (JONISSEY), 1885, A., 181.  
 physiological action of (GRÉHANT), 1889, A., 1232.

**Hydrocyanic acid** (*cyanhydric acid*; *hydrogen cyanide*; *formonitrile*), poisoning by (BISCHOFF), 1883, A., 1022; (BELKY), 1887, A., 392.

poisoning, antidote for (KROHL), 1892, A., 1019.

poisoning, dextrose and lactic acid in (ZILLESSEN), 1891, A., 1126.

poisoning by, applied to the surface of the eye (GRÉHANT), 1891, A., 99.

**Hydrocyanic acid, detection and estimation:—**

detection of (BRAME), 1884, A., 371; (ROBERT), 1892, A., 361.

detection of traces of (VORTMANN), 1886, A., 1082.

detection of, in chemico-judicial investigations (BECKURTS), 1884, A., 222.

systematic method of testing for (LONGI), 1883, A., 1172.

estimation of (CRIPPS), 1883, A., 1174; (SIEBOLD), 1885, A., 600;

(LINDE), 1887, A., 1143; (VENTUROLI), 1892, A., 1530.

hydrochloric, thiocyanic and, method of estimating when simultaneously present (BOUCHERS), 1883, A., 1173.

**Cyanides**, preparation of, from trimethylamine (WILLM), 1884, A., 1276.

a reddish coloration of solutions of (HABEL), 1885, A., 233.

action of cupric salts on metallic (VARET), 1890, A., 464.

condensation of, with ethereal salts (FLEISCHHAUER), 1892, A., 431.

hydration of (ARMSTRONG), 1889, P., 122.

detection of, in presence of compound cyanides (TAYLOR), 1885, A., 196.

*iso*Cyanides, refractive power of (COSTA), 1892, A., 757.

*n*-Cyanic acid, properties of (MULDER), 1883, A., 304.

derivatives of (MULDER), 1886, A., 38.

thio-. See Thiocyanic acid.

**Cyanic acids**, additive products of (TRAUBE), 1889, A., 393.

**Cyanates**, aromatic, and their polymericides (FRENTZEL), 1889, A., 241.

aromatic (GATTERMANN and CANTZLER), 1892, A., 832.

actions of (LEUCKART), 1885, A., 773.

**Cyanates**, aromatic, presence of, in the first runnings of the distillation of crude benzene (NÜLTING), 1885, A., 463.

organic, conversion of, into thiocarbimides (MICHAEL and PALMER), 1885, A., 526.

thio-. See Thiocyanates.

**Cyanogen** bromide, polymerisation of (PONOMAREFF), 1886, A., 216;

(MULDER), 1886, A., 859.

melting and boiling points of (MULDER), 1886, A., 38.

action of, on ethylic alcohol (MULDER), 1886, A., 859.

additive compounds of normal ethyl cyanurate with (MULDER), 1886, A., 38.

iodide (V. MEYER), 1888, A., 242.

vapour density and melting point of (SEUBERT and POLLARD), 1890, A., 949.

action of, on certain metallic salts (CALMELS), 1884, A., 1277.

action of sulphuric acid on (GOSSIN), 1885, A., 645.

sulphydrate (ANSCHÜTZ), 1890, A., 351.

*disulphhydrate* (WOLLNY), 1884, A., 1109; (EPHRAIM), 1889, A., 1142;

(FORMÁNEK), 1890, A., 29; (FOSSSELL), 1891, A., 1003; (WALLACH and REINHARDT), 1891, A., 1008.

persulphide (SCHNEIDER), 1885, A., 1193.

**Cyanogen**,  $\psi$ -thio-, properties of (HECTOR), 1892, A., 292.

**Cyanogen**, detection, estimation and separation:—

detection of (VOGEL), 1885, A., 297.

estimation of, in coal gas (WRIGHT), 1887, A., 86; (LEYBOLD), 1891, A., 367.

estimation of chlorine, iodine, bromine, and (ERRERA), 1889, A., 304.

estimation of, by Field's method (WILLGERODT), 1886, A., 833.

estimation of, in gaseous mixtures (JACQUEMIN), 1885, A., 933.

separation of, from chlorine, iodine and bromine (ERRERA), 1889, A., 304.

**Cyanomalonic acid**, ethereal salts of (HALLER), 1889, A., 858.

**Cyanomethæmoglobin** (ROBERT), 1892, A., 361.

**Cyanonaphthalene**. See Naphtho-nitrile.

1:2-*di*Cyanonaphthalene (CLEVE), 1892, A., 1477.

- α*-Cyanonaphthalenesulphonic acid** (ARMSTRONG and WILLIAMSON), 1887, P., 48.
- Cyanonaphthaphenazine** (BRUNNER and WITT), 1888, A., 59.
- "*di*Cyano-*β*-naphthenylamidoxime"** (NORDENSKIÖLD), 1890, A., 1121.
- Cyanopalmitic acid** (HELL and IORDANOFF), 1891, A., 821.
- o*-Cyanophenol** (AHRENS; MEYER), 1888, A., 266.
- p*-Cyanophenol** (KLEPL), 1884, A., 447.
- p*-Cyanophenylacetamide** (MELLINGHOFF), 1890, A., 239.
- p*-Cyanophenylacetic acid** (MELLINGHOFF), 1890, A., 239.
- Cyanophenylacetoneitrile.** See Phenylacetoneitrile.
- "*di*Cyanophenylbenzylidenehydrazine"** (BLADIN), 1889, A., 702.
- "*di*Cyano-*o*-phenylenediamine"** (BLADIN), 1885, A., 257.
- p*-Cyanophenylethenylamidoxime** (ROSENTHAL), 1890, A., 147.
- Cyanophenylformamidine** (COMSTOCK and WHEELER), 1892, A., 707.
- Cyanophenylhydrazine** and its hydrochloride (SENF), 1887, A., 929.
- "*di*Cyanophenylhydrazine,"** action of ethylic acetoacetate on (BLADIN), 1892, A., 597.
- condensation of, with fatty aldehydes (BLADIN), 1892, A., 596.
- derivatives of (BLADIN), 1885, A., 979; 1886, A., 146; 1887, A., 138; 1889, A., 702.
- iso*Cyanophenyllic dichloride** (NEF), 1892, A., 1439.
- Cyano-*n*-phenylosotriazole** (JONAS and V. PECHMANN), 1891, A., 1114.
- γ*-Cyanopropylphthalimide** (GABRIEL), 1890, A., 360.
- Cyano- and *di*cyano-pyrene** (GOLDSCHMIEDT and WEGSCHEIDER), 1883, A., 1003, 1004.
- Cyanopyrenepicric acid** (GOLDSCHMIEDT and WEGSCHEIDER), 1883, A., 1004.
- m*-Cyanquinoline** (FISCHER), 1883, A., 92.
- o*-Cyanquinoline** (FISCHER), 1883, A., 92; (LELLMANN and REUSCH), 1889, A., 905.
- p*-Cyanquinoline** (FISCHER and WITTMACK), 1884, A., 1051.
- α*-Cyanostearic acid** (HELL and SADOMSKY), 1891, A., 1451.
- di*Cyanostillbene** (CHALANEY and KNOBVENAGEL), 1892, A., 618.
- di*Cyanothiophen** (JAEKEL), 1886, A., 339.
- di*Cyano-*m*-*p*-tolenylidiamine**, and its derivatives (BLADIN), 1885, A., 257.
- ω*-Cyano-*p*-toluamide** (MELLINGHOFF), 1890, A., 239.
- o*-Cyanotoluene.** See Toluonitrile.
- ω*-Cyano-*p*-toluic acid** (MELLINGHOFF), 1890, A., 240.
- Cyano-*o*-, *m*- and *p*-toluidines** and their salts (BLADIN), 1884, A., 1142, 1141.
- Cyano-*p*-tolylformamidine** (COMSTOCK and WHEELER), 1892, A., 707.
- iso*Cyano-*o*- and *p*-tolyllic dichlorides** (NEF), 1892, A., 1441, 1442.
- o*-Cyanotriphenylmethane** (DROBY), 1891, A., 1461.
- di*Cyanotri-*p*-tolylguanidine**, and its salts (BLADIN), 1884, A., 1141.
- γ*-Cyanovaleic acid** (WISLICIENUS), 1886, A., 880.
- γ*-Cyanovalerolactone** (BLOCK and TOLLENS), 1886, A., 533.
- Cyanoxylic acid** (SENF), 1887, A., 929.
- Cyanphenine.** See Cyaphenine.
- Cyanpropine** (*amidomethylidipropyl-m-diazine*) and its derivatives (V. MEYER), 1888, A., 800.
- formation of (SCHWARZE), 1890, A., 1159.
- Cyanuracetic acid** (KRÜGER), 1891, A., 163.
- Cyanuramides.** See Melamines.
- Cyanurates** (CLAUS and PUTZENEN), 1889, A., 30.
- n*-Cyanuric acid** (MULDER), 1886, A., 38.
- synthesis of (BAMBERGER), 1890, A., 1082.
- constitution of (V. HOFMANN), 1886, A., 42, 931; (PONOMAREFF), 1886, A., 216.
- compounds, an action of (MULDER), 1883, A., 305.
- compounds of, with ethers and alcohols (KLASON), 1887, A., 789.
- derivatives of (KLASON), 1886, A., 325; (MULDER), 1886, A., 860.
- etheral salts of (PONOMAREFF), 1884, A., 1273.
- Cyanuric acid, *dithio*-** (KLASON), 1886, A., 325.
- trithio*-**, and its salts (V. HOFMANN), 1885, A., 1193; (KLASON), 1886, A., 324.
- iso*Cyanuric acid** (SCHOLVIEN), 1886, A., 137.
- Cyanuric acids**, supposed isomeric (SENIER), 1886, T., 693, 743.
- Cyanuric derivatives** (FRIES), 1886, T., 314, 739; P., 167.
- crystallography of (V. HOFMANN), 1886, A., 929.

**Cyanuric bromide** (MERZ and WEITH), 1884, A., 588.  
 chloride (FRIES), 1886, T., 739; P., 229; (KLASON), 1886, A., 1001.  
 preparation of (JAMES), 1887, T., 269.  
 action of ammonia and amines on (v. HOFMANN), 1886, A., 38.  
 action of benzamide on (SENIER), 1886, T., 312; P., 166.  
 action of naphthylamine on (FRIES), 1886, T., 314; P., 167.  
 action of sodium acetate, formate, and benzoate on (SENIER), 1886, T., 311, 312; P., 166.  
 ethers (v. HOFMANN), 1886, A., 929.  
 iodide and chloro-derivative of (KLASON), 1886, A., 1001.  
 disulphide (KLASON), 1886, A., 325.  
**Cyanuric triethyglycolic acid** (KLASON), 1886, A., 325.  
**Cyaphenine** (*cyanphenine*), preparation of (PINNER), 1885, A., 142; (KLASON), 1887, A., 363; (OTTO; KRAFFT), 1889, A., 951; (EITNER and KRAFFT), 1892, A., 1183.  
**Cyclamin and cyclaminic acid** (MICHAUD), 1888, A., 496.  
**Cyclamiretin** (HILGER and MUTSCHLER), 1886, A., 366; (MICHAUD), 1888, A., 497.  
**Cyclamose**, a new sugar (MICHAUD), 1886, A., 782.  
**Cyclothraustic acid** (WEIDEL and STRACHE), 1886, A., 950; (WEIDEL and WILHELM), 1887, A., 979.  
**Cymatolite**, from spodumene (BRUSH and DANA), 1883, A., 439.  
**Cymene** (*p-isocymene*), from homocumic acid (PATERNO), 1884, A., 426.  
 synthesis of (DA SILVA), 1885, A., 1054; (TÜHL), 1891, A., 1022; (REUTER), 1892, A., 1310.  
 constitution of (WIDMAN), 1891, A., 686, 897; (MEYER), 1891, A., 688; (FILETI), 1891, A., 1344.  
 nature of the propyl-group in (WIDMAN), 1891, A., 686.  
 action of chlorine on (ERRERA), 1885, A., 655.  
 action of chlorine on boiling (ERRERA), 1884, A., 300.  
 action of chromyl chloride on (v. RICHTER and SCHUCHNER), 1884, A., 1342; (v. MILLER and RÖHDE), 1890, A., 978; 1891, A., 898; (ERRERA), 1890, A., 1254; 1891, A., 1020.  
 nitration of (HOLLEMAN), 1886, A., 1017.

**Cymene** (*p-isocymene*), oxidation of (WIDMAN and BLADIN), 1886, A., 541; (REMSEN and EMERSON), 1887, A., 147; (CLAUS and PIŁSZCZEK), 1887, A., 240; (ODDO), 1892, A., 724.  
 derivatives, constitution of (MAZZARA), 1891, A., 46.  
 cumene derivatives and, reciprocal transformation of (FILETI), 1887, A., 36, 471; (WIDMAN), 1887, A., 133.  
 hydrochloride, *diamido*- (LIEBERMANN and ILINSKY), 1886, A., 240.  
**Cymene, amido-**. See Cymidine.  
 3-bromo-, from thymol (FILETI and CROSA), 1887, A., 37.  
 bromo-, from thymol and from cymene, oxidation of (FILETI and CROSA), 1889, A., 495.  
 2:5-*di*bromo- (MAZZARA), 1890, A., 366.  
 3:6-*diamido*- (CLAUS), 1888, A., 583; (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1199.  
 2:5-bromonitro- (FILETI and CROSA), 1889, A., 493.  
 3-bromo-(?)nitro- (MAZZARA), 1886, A., 1016; (FILETI and CROSA), 1889, A., 494.  
 bromodinitro- [n.p. 94°] (MAZZARA), 1886, A., 1016; (FILETI and CROSA), 1889, A., 494.  
 bromodinitro- [m.p. 125°-126°] (FILETI and CROSA), 1889, A., 494.  
 chloro-, from cymene and from thymol, oxidation of (FILETI and CROSA), 1889, A., 495.  
 from thymol (FILETI and CROSA), 1883, A., 37.  
 action of sulphonic chloride on (CARRARA), 1890, A., 1288.  
 tetrachloro- (KELBE), 1883, A., 806.  
 2:5-chloronitro- (FILETI and CROSA), 1889, A., 494.  
 2-chlorodinitro- (FILETI and CROSA), 1889, A., 494.  
 nitro- (WIDMAN and BLADIN), 1886, A., 542; (SCHUMOFF), 1888, A., 469.  
 preparation and oxidation products of (SÜDERBAUM and WIDMAN), 1888, A., 1076.  
 $\beta$ -nitro- (HOLLEMAN), 1886, A., 1017; 1888, A., 454.  
 dinitro- and 2:6-dinitro-3-amido-, constitution of (MAZZARA), 1890, A., 753.  
**m-Cymene** (Me:Pr=1:3) (*m-propyltoluene*) (SPICA), 1883, A., 459.  
 4:6-*di*bromo- (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1200.

- m*-Cymene (Me:Pr=1:3) (*m*-propyltoluene), 4:6-dibromo-2:5-diamido- (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1200.
- 4:6-dibromo-2:5-dinitro- (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1200.
- o*-Cymene (Me:Pr=1:2) (*o*-propyltoluene), presence of, in resin spirit (KELBE), 1886, A., 939.
- 4:5-dibromo- (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1200.
- 4:5-dibromo-3:6-dinitro- (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1201.
- p*-Cymene (Me:Pr=1:4) (*p*-propyltoluene; methylpropylbenzene) (WIDMAN), 1891, A., 686.
- p*-Cymene, 2:5-dibromo- (CLAUS), 1888, A., 583.
- 2:5-dibromo-3:6-diamido- and 2:5-dibromo-3:6-dinitro- (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1201.
- m*-isocymene (*m*-methylisopropylbenzene) (ARMSTRONG and MILLER), 1884, A., 43, 299.
- 4:6-dibromo- (KELBE and V. CZARNOMSKI), 1887, A., 147.
- nitro-, action of dilute nitric acid on (KELBE and WARTH), 1884, A., 46.
- p*-isocymene. See Cymene.
- Cymenes, chloro-, three isomeric, and their derivatives (ERRERA), 1885, A., 655.
- Cymene series, the propyl group in the (WIDMAN), 1886, A., 453.
- Cymenecarboxylic acid (CLAUS and CROPP), 1886, A., 463.
- p*-Cymenecarboxylic acid (CLAUS), 1891, A., 564.
- Cymene- $\alpha$ -sulphonamide, nitro- (ERRERA), 1890, A., 1287.
- Cymene- $\beta$ -sulphonamide, oxidation of (REMSEN and DAY), 1884, A., 456.
- bromo- (REMSEN and DAY), 1884, A., 456.
- Cymene-2-sulphonic acid (*p*-methylisopropylbenzenesulphonic acid), derivatives of (WIDMAN), 1891, A., 687.
- amido-. See Cymidine-2-sulphonic acid.
- 5-bromo- (WIDMAN), 1886, A., 470.
- 6-bromo- and 6-chloro- (ERRERA), 1890, A., 1288.
- 6-nitro-, and an isomeride (ERRERA), 1890, A., 1287, 1288; 1891, A., 1066.
- Cymene-3-sulphonic acid, 6-bromo- (REMSEN and DAY), 1884, A., 456; (CLAUS and CHRIST), 1886, A., 1032.
- Cymenesulphonic acids (PATERNO), 1883, A., 999; 1884, A., 321; (CLAUS), 1883, A., 1129.
- chloro- and chloronitro- (CARRARA), 1890, A., 779.
- Cymenesulphonic acids, *m*- and *p*- (SPICA), 1883, A., 320; (CLAUS), 1883, A., 918.
- Cymenesulphonic acids,  $\alpha$ - and  $\beta$ - (KELBE and KOSCHNITZKY), 1886, A., 884.
- derivatives of (WIDMAN), 1891, A., 687.
- m*-isocymene-4-sulphonic acid (*m*-methylisopropylbenzenesulphonic acid) (KELBE and V. CZARNOMSKI), 1884, A., 1355.
- action of bromine and water on (KELBE and V. CZARNOMSKI), 1887, A., 147.
- 6-bromo- (KELBE and V. CZARNOMSKI), 1887, A., 147.
- m*-isocymene-6-sulphonic acid, action of chlorine on (KELBE), 1883, A., 806.
- 4-bromo- (KELBE and V. CZARNOMSKI), 1887, A., 147.
- trichloro-, and its sodium salt (KELBE), 1883, A., 806.
- m*-isocymenesulphonic acids, preparation of (ARMSTRONG and MILLER), 1884, A., 43.
- Cymenol. See Carvacrol.
- m*-isocymenol (*m*-isocymophenol), and tribromo-derivative (JESURUN), 1886, A., 696, 697.
- Cymenotic acid (*m*-isocymenolcarboxylic acid) (JESURUN), 1886, A., 696.
- m*-isocymidine and its derivatives (KELBE and WARTH), 1884, A., 46.
- nitro- (KELBE and WARTH), 1884, A., 47.
- Cymidine-6-sulphonic acid (WIDMAN), 1886, A., 470.
- Cymidine-2-sulphonic acids (ERRERA), 1890, A., 1287.
- Cyminyl-. See Cymyl-.
- Cymophane, formation of (HAUTEFEUILLE and PERREY), 1888, A., 562.
- m*-isocymophenol. See *m*-isocymenol.
- m*-Cymo-2:5-quinol, 4:6-dibromo- (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1200.
- o*-Cymo-3:6-quinol, 4:5-dibromo- (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1201.
- p*-Cymo- and *p*-isocymo-3:6-quinols and quinones, 2:5-dibromo- (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1201, 1200.

- m*-Cymo-2:5-quinoné, 4:6-dibromo- (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1200.
- o*-Cymo-3:6-quinone, 4:5-dibromo- (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1201.
- Cymyl ethyl ether. See Ethoxycymene.
- o*-Cymyl methyl ketone (CLAUS), 1890, A., 770.
- p*-Cymyl methyl ketone (CLAUS), 1891, A., 199.
- p*-Cymyl ethyl and *p*-cymyl propyl ketones (CLAUS), 1891, A., 1223.
- Cymyl, iodo-, salts of (WILLGERODT and KORNBLUM), 1889, A., 697.
- p*-Cymyl-acetamide and -acetic acid (CLAUS), 1891, A., 199, 200.
- m*-isoCymyl-carbamide, -carbamine and -ethylthiocarbamide (KELBE and WARTH), 1884, A., 47.
- p*-Cymyl-glycollic and -glyoxylic acids (CLAUS), 1891, A., 199.
- Cymylic benzenesulphonate (GEORG-ESCU), 1891, A., 569.
- chloride (ERRERA), 1884, A., 300.
- p*-Cymylmethylcarbinol (CLAUS), 1891, A., 199.
- p*-Cymyl-propyl- and -ethyl-carbinols (CLAUS), 1891, A., 1223.
- m*-isoCymylurethane (KELBE and WARTH), 1884, A., 47.
- Cynene. See Cinene under Terpenes.
- Cynurenic (*kynurenic*) acid. See Hydroxyquinolinecarboxylic acid.
- Cynuric acid. See Kynuric acid.
- Hyperus esculentus*, fatty oil of (HELL and TWERDOMEDOFF), 1889, A., 1029.
- Cyprusite (DEBY), 1887, A., 644.
- Cyrtolite, so-called, of Ytterby (BLOMSTRAND), 1889, A., 220.
- Cyrtosperma*, hydrocyanic acid in the fruit of (GRESHOFF), 1891, A., 338.
- Cyst formed under the tongue, analysis of the contents of (GUINCHET), 1885, A., 285.
- liquid from (MACQUAIRE), 1886, A., 1055.
- Cysts, ferments in the contents of (V. JAKSCH), 1888, A., 180.
- hydatid, liquids from (ROESER), 1891, A., 97.
- ovarian, analyses of liquids from (PATEIN), 1891, A., 851.
- Cystein (BAUMANN), 1884, A., 1382; 1885, A., 514; (BRENZINGER), 1892, A., 1111.
- fate of, in the animal body (GOLDMANN), 1885, A., 922.
- Cystin (BAUMANN), 1884, A., 1382; 1885, A., 513; (KÜLZ), 1885, A., 140; (MAUTHNER), 1885, A., 822; (RADZIWIŁŁOWICZ), 1889, A., 430; (BRENZINGER), 1892, A., 1111.
- in the horse's liver (DRECHSEL), 1892, A., 516.
- in pancreatic digestion (KÜLZ), 1891, A., 235.
- in the urine (GOLDMANN and BAUMANN), 1888, A., 519; (DELLÉPINE), 1890, A., 1018.
- not present in normal human urine (STADTHAGEN), 1885, A., 830.
- action of water on (MAUTHNER), 1884, A., 1054.
- Cystinuria (MESTER), 1890, A., 189.
- diamines (*ptomaines*) in (V. UDRÁNSZKY and BAUMANN), 1889, A., 1024; 1891, A., 350.
- Cystisine, differences between ulexine and (GERRARD and SYMONS), 1891, A., 334.
- and its derivatives (PARTHEIL), 1891, A., 231, 750; (V. BUCHKA and MAGALHÃES), 1891, A., 587, 750; (VAN DE MOER), 1891, A., 946.
- detection of (VAN DE MOER), 1891, A., 947.
- Cytisus Laburnum*, nitrogen assimilation of (NOBBE, SCHMID, HILTNER and HOTTER), 1891, A., 1533.
- Cytoplantin (SCHWARTZ), 1888, A., 984.

## D.

- Dacite (HAGUE and IDDINGS), 1884, A., 29.
- Dahlia tubers, asparagine and tyrosine in (LEITGEB), 1889, A., 433.
- crystalline deposits in (LEITGEB), 1887, A., 1136.
- Dahlite, from Norway (BRÜGGER and BÄCKSTRÖM), 1890, A., 711.
- Dairy farm, experimental, at Kiel, annual report of (SCHRODT), 1884, A., 1396.
- Dairy products, analysis of (ANON.), 1888, A., 93.
- Dalton's law (GALITZIN), 1891, A., 378; (MARGULEN), 1891, A., 520.
- Damascenine (SCHNEIDER), 1890, A., 1317.
- Dambosc, identity of, with inosite (MAQUENNE), 1887, A., 909.
- Dammara resin (GRAF), 1889, A., 621.
- Damourite from Maine, analysis of (CLARKE and CHATARD), 1885, A., 491.
- Danaidin and danain (HECKEL and SCHLAGDENHAUFFEN), 1886, A., 173.

- Danitz fragrans*, root of (HECKEL and SCHLAGDENHAUFFEN), 1886, A., 173.
- Danburite** (WHITFIELD), 1888, A., 348.  
from the Scope, in Graubünden (LUDWIG), 1883, A., 427.  
from Switzerland (SCHRATF), 1883, A., 956.
- Daniel's cell**. See Cell, under Electrochemistry.
- Daphnetin**, synthesis of (v. PECHMANN), 1884, A., 1173.  
and its ethyl-derivatives (WILL and JUNG), 1884, A., 1042.  
diacetyl and dibenzoyl derivatives of (v. PECHMANN), 1884, A., 1174.  
methyl and ethyl derivatives of (JUNG), 1886, A., 558.
- Daphniphyllum Cubeba*, fruit of (BRAITHWAITE and FARR), 1886, A., 1064.
- Darapskite** (DIETZE), 1892, A., 124.
- Dari** as a source of alcohol (HOLZAPFEL), 1885, A., 102.
- Dari seeds**, analysis of (VOELCKER), 1884, A., 680.
- "**Darmena**" (ČEUB), 1885, A., 108.
- Data**, critical. See Critical data.
- Date-sugar** (ANON.), 1884, A., 1234.
- Datolite** (WHITFIELD), 1888, A., 348.  
artificial (DE GRAMONT), 1891, A., 1437.
- Datura Stramonium*, alkaloids of (SCHUTTE), 1892, A., 232.
- Daturic acid** (GÉRARD), 1890, A., 1396.  
salts of (GÉRARD), 1892, A., 582.  
bromo- (GÉRARD), 1892, A., 582.
- Daturine**, preparation of, from Stramonium seeds (HARTZ), 1885, A., 820.
- Daturone** (GLERARD), 1892, A., 582.
- Daubréelite**, artificial formation of (MEUNIER), 1891, A., 990.
- Daucus Carota*, essential oil of (LANDSBERG), 1889, A., 277.
- Dawsonite**, composition of (FRIEDEL), 1883, A., 430.
- Daylight**, action of, on water and oil colours used in dyeing and printing (DECAUX), 1884, A., 700.
- Dead space** in chemical reactions (LIEBREICH), 1888, A., 1242; 1890, A., 1207; 1891, A., 1150; (WATSON), 1889, A., 335.  
in the chloral-soda reaction (BUDDE), 1891, A., 975.
- Deca-acetyldiglucoheptose** (FISCHER), 1892, A., 1167.
- Decahydroanthracene** (LUCAS), 1890, A., 637.
- Decahydroquinoline**, and its derivatives (BAMBERGER and LENGFELD), 1890, A., 1319.
- Decahydroquinolyl lithiocarbamate** (BAMBERGER and LENGFELD), 1890, A., 1319.
- Decamethylenediamine**, and decamethyleneimine (PHOOKAN and KRAFFT), 1892, A., 1181.
- Decamethylenedicarboxylic acid** (NOERDLINGER), 1890, A., 1237.
- Decane** [b.p. 160°], and chloro-, from American petroleum (LEMOINE), 1884, A., 1107.  
See also Diisoamyl.
- n-Decane**. See Diamyl.
- Decay**, properties of the volatile products of (LE BON), 1884, A., 225.
- Decenylalcohol** (*dipropyldiallylcarbinol*), hydrocarbon prepared by the action of sulphuric acid on (REFORMATSKY), 1883, A., 1073; (NIKOLSKY and SATZKEFF), 1883, A., 1074.
- Decinyl alcohol** (*propyldiallylcarbinol*) (SCHESTAKOFF), 1885, A., 237.
- Decoic acid** (*capric acid*), preparation of from suint (A. and P. BUISINE), 1888, A., 44.
- Decoic chloride** (KRAFFT and KOENIG), 1890, A., 1252.
- Decylacetylene** (KRAFFT and REUTER), 1892, A., 1164.
- Decylene** (*diamylene*) [b.p. 156°] molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- Decylene** [b.p. 159°-174°] (LEMOINE), 1884, A., 1107.
- Decylene** (*hexylbutylene*) [b.p. 160°-161°] (FITTIG and RIECHELMANN), 1890, A., 594.
- Decylene** [b.p. 172°] and its derivatives (GROSJEAN), 1892, A., 691.
- Decylenic glycol** (GROSJEAN), 1892, A., 691.
- Decylenic acid**, and its salts (SCHNEEGANS), 1885, A., 650.
- Decylic acetate bromo-** (GROSJEAN), 1892, A., 691.  
alcohol (LEMOINE), 1884, A., 1107.  
normal primary, preparation of, and its derivatives (KRAFFT), 1883, A., 1075.  
benzoate, chloro- (GROSJEAN), 1892, A., 691.  
iodide (KRAFFT), 1886, A., 998.
- Decyllactone** (SCHNEEGANS), 1885, A., 650.
- α-Decyl-β-isopropylacrylic acid** (LANGER), 1889, A., 741.
- Dehydracetic acid** (PERKIN), 1885, A., 515; 1887, T., 484, P., 35; (FEIST), 1889, A., 957; 1892, A., 584.  
preparation of (v. PECHMANN), 1892, A., 296.

- Dehydracetic acid**, preparation and properties of (COLLIE), 1891, T., 618.  
 constitution of (PERKIN), 1885, T., 277; (COLLIE), 1890, P., 169; 1891, T., 179; (FEIST), 1892, A., 587.  
 actions of (COLLIE), 1891, T., 617.  
 action of hydroxylamine on (ODERNHEIMER), 1884, A., 1302.  
 action of sulphuric acid on (COLLIE), 1891, T., 609.  
 distillation of, with lime (TIVOLI), 1891, A., 1455.  
 derivatives of (PERKIN and BERNHART), 1884, A., 1121; (HARTINGER), 1885, A., 761.  
 oxime of (PERKIN), 1887, T., 493.  
 phenylhydrazine (PERKIN), 1887, T., 494.  
 bromo- (PERKIN and BERNHART), 1884, A., 1121; (PERKIN), 1887, T., 490; (FEIST), 1892, A., 584.  
*m*-Dehydracetic acid (HANTZSCH), 1883, A., 1083.  
*iso*-Dehydracetic acid (*carboacetoacetic ether*) (ANSCHUTZ, BENDIX and KERF), 1891, A., 172.  
**Dehydracetic chloride** (FEIST), 1892, A., 587.  
**Dehydracetonebenzil** (JAPP and MILLER), 1885, T., 22, 26, 28; (JAPP and BURTON), 1887, T., 420.  
 actions of (JAPP and MILLER), 1885, T., 29.  
**Dehydracetonedibenzil** (JAPP and MILLER), 1885, T., 26, 34.  
**Dehydracetonephenanthraquinone** (JAPP and MILLER), 1885, T., 17; (WADSWORTH), 1891, T., 105.  
**Dehydracetophenoneacetoacetic acid**, compounds of, with hydroxylamine and phenylhydrazine (PAAL), 1885, A., 250.  
**Dehydracetophenoneacetone** and its carboxylic acid (PAAL), 1885, A., 248, 249.  
**Dehydracetophenonebenzil**, and action of, with bromine (JAPP and MILLER), 1885, T., 34, 36.  
**Dehydracetophenylhydrazine** and dehydracetoxime (PERKIN and BERNHART), 1884, A., 1121.  
**Dehydracetylpaconol** (NAGAI), 1892, A., 846.  
**Dehydrobenzoylactic acid** (v. BAeyer and PERKIN), 1884, A., 839; (FEIST), 1891, A., 458.  
 preparation and properties of (PERKIN), 1885, T., 277.  
 constitution of (PERKIN), 1885, T., 294.  
**Dehydrobenzoylactic acid**, action of phosphorus pentachloride on (PERKIN), 1885, T., 292.  
 action of potassium hydroxide on (PERKIN), 1885, T., 284.  
 action of sulphuric acid on (v. BAeyer and PERKIN), 1884, A., 839.  
 reduction of (PERKIN), 1885, T., 287.  
 chloro-, preparation and properties of (PERKIN), 1885, T., 292.  
**Dehydrobenzylhydroxanthranol** (LEVI), 1885, A., 1240; (BACH), 1890, A., 1144.  
 bromide (BACH), 1890, A., 1144.  
 bromo- (BACH), 1890, A., 1145.  
*iso*-Dehydrocholal and dichloro- (LASSAR-COHN), 1892, A., 741.  
**Dehydrocholeic acid** (LATSCHINOFF), 1886, A., 270; (MYLIUS), 1886, A., 952; (LASSAR-COHN), 1892, A., 741.  
 phenylmercaptan and phenylmercaptan-phenylhydrazine of (MYLIUS), 1887, A., 982.  
 trialdoxime (MYLIUS), 1886, A., 952.  
 chloro- (LASSAR-COHN), 1892, A., 741.  
**Dehydrocinchenine** (COMSTOCK and KOENIGS), 1887, A., 282.  
 dibromide (COMSTOCK and KOENIGS), 1892, A., 1012.  
**Dehydrocinchonine** and its chloride (COMSTOCK and KOENIGS), 1887, A., 281, 282.  
 dibromide (COMSTOCK and KOENIGS), 1892, A., 1011.  
**Dehydrodiacetonephenanthraquinone** (JAPP and MILLER), 1885, T., 16.  
**Dehydrodiacetovanillone** (TIEMANN), 1892, A., 61.  
**Dehydrodiacetyllevulinic acid**, preparation of (MAGNANINI), 1890, A., 864.  
 action of ammonia on (MAGNANINI), 1890, A., 864; (MAGNANINI and SCHEIDT), 1892, A., 1429.  
 action of benzaldehyde on (MAGNANINI and SCHEIDT), 1892, A., 1429.  
 action of hydroxylamine and phenylhydrazine on (MAGNANINI and SCHEIDT), 1892, A., 1429.  
 hydrazine and oxime of (MAGNANINI and SCHEIDT), 1892, A., 1429.  
**Dehydrodiacetylpaconol** (NAGAI), 1892, A., 845; (TAHARA), 1892, A., 846.  
**Dehydrodiacetylresacetophenone** (TAHARA), 1892, A., 846.  
**Dehydrodiprotocatechuic acid** (TIEMANN), 1886, A., 239.  
**Dehydrodipyridine** (WEIDEL), 1883, A., 483.

- Dehydrodivanillin** (TIEMANN), 1886, A., 238.
- Dehydrodypnopinacolin** (DELAURE), 1892, A., 995.
- Dehydroerythritol** (GRIMAN and ULOEZ), 1890, A., 730.
- Dehydrofichtelite** (BAMBERGER and STRASSER), 1890, A., 385.
- Dehydrogenation** by means of benzoic peroxide (LIPPMANN), 1887, A., 151.
- Dehydromethylacetylacetonol** and its derivatives (NAGAI), 1892, A., 846.
- Dehydromucic acid** (ZENONI), 1891, A., 295.
- Dehydronicotinic** (PINNER and WOLF-FENSTEIN), 1892, A., 1010.
- di-bromo-** (PINNER), 1892, A., 1497.
- Dehydrophotosantonioic acid** (VILLAVECCHIA), 1886, A., 74.
- Dehydropiperidylmethyleurethane**, nitro- (SCHOTTEN), 1883, A., 814.
- Dehydropiperidylurethane**, nitro-, and its bromohydroxyl-derivative (SCHOTTEN), 1883, A., 814.
- Dehydroquinene** (COMSTOCK and KOENIGS), 1887, A., 1123.
- Dehydrothiitoluidine** (GREEN), 1889, T., 228.  
synthesis of (GATTERMANN and NEUBERG), 1892, A., 839.  
constitution of (GREEN), 1889, T., 232; (PETTINGER and GATTERMANN), 1889, A., 867.  
and its derivatives (JACOBSON), 1889, A., 493.
- Dehydrothiitoluidinesulphonic acid** (GREEN), 1889, T., 231.
- Dehydrotriacetoneamine** (RUEHMANN and CARNEGIE), 1888, T., 426.  
products of reduction of (CANZONERI and SPICA), 1885, A., 883.
- Dejections**, influence of the pancreatic juice on the colour of (WALKER), 1890, A., 397.
- Deliquescence and efflorescence** of salts, relation of, to the maximum vapour tensions of their saturated solutions (LESCOT), 1887, A., 208.
- Delokanic acid** (KAYNER), 1886, A., 255.
- Delphine**, reaction of (FERREIRA DA SILVA), 1891, A., 1562.
- Delphinine**, composition and properties of (CHARALAMPI), 1891, A., 843.
- Delphinium *Staphisagria***, alkaloids from the seeds of (CHARALAMPI), 1891, A., 842.
- Delphinoidine and delphisine** (CHARALAMPI), 1891, A., 843.
- Delta metal**, preparation of (ANON.), 1885, A., 461.
- Delvauxite**. See Dufrenite.
- Denitrification**. See Agricultural Chemistry.
- Densimeter**, application of, to cider must (LECHARTIER), 1885, A., 842.
- Densimetric estimation** of albumin in urine (ZÁHOŘ), 1888, A., 1227.  
of the phosphorus in iron (METZ), 1891, A., 961.  
of proteids (HUPPERT and ZÁHOŘ), 1888, A., 1226.
- Density** of certain oils (LONG), 1889, A., 85.  
of chloral, chloral hydrate and hydrated aldehyde (PERKIN), 1887, T., 808; P., 82.  
relative, of hydrogen and oxygen (RAYLEIGH), 1888, A., 643.  
of nitrous oxide, ethylene and carbonic anhydride (CAILLETET and MATHIAS), 1886, A., 758.  
of isomeric organic compounds, relation of the heats of combustion to the (MÜLLER-ERZBACH), 1883, A., 1044.  
molecular weight, diathermanous power and refractive index of a substance, relation between (AYMONNET), 1892, A., 1.  
of a gas, determination of the absolute (JOLY), 1891, A., 379.  
of gases, determination of the (LUX), 1886, A., 412; (COOKE), 1890, A., 321; (MOISSAN and GAUTIER), 1892, A., 1267.  
of explosive gaseous mixtures, influence of the, on the pressures which they develop (BERTHELOT and VIEILLE), 1884, A., 805.  
of liquefied gases and their saturated vapours (CAILLETET and MATHIAS), 1886, A., 758; (AMAGAT), 1892, A., 934, 1043.  
maximum, displacement of the point of, by pressure (AMAGAT), 1887, A., 695.  
and volume of liquids, alteration in, produced by the absorption of gases (ÅNGSTRÖM), 1888, A., 401.  
of aqueous vapour, influence of hygroscopic condensation in glass vessels on the determination of (MACALUSO and GRIMALDI), 1883, A., 507.  
the richness in sugar and the purity of the juice of the sugar beet, relations between (PAGNOUL), 1886, A., 915.
- Density and atomic volume** of oxygen and hydrogen (AMAGAT), 1885, A., 631.  
See also Specific gravity and Vapour density.

- Density**, relative, of the deposit on the photographic plate, measurement of (ABNEY and EDWARDS), 1890, A., 933.
- Density numbers** of Groshans (GERLACH), 1889, A., 813.  
law of (GROSHANS), 1886, A., 194, 411.  
extension of the law of, to a case in thermochemistry. (GROSHANS), 1886, A., 498.
- Deoxyamalic acid** (FISCHER and REESE), 1884, A., 467.
- Deoxybenzoin** (*phenyl benzyl ketone*) (ANSCHUTZ and BERNS), 1887, A., 829; (MEYER and OELKERS), 1888, A., 703; (WEGE), 1892, A., 338.  
preparation of (JUILLARD and TISSOT), 1891, A., 1492; (WACHTER), 1892, A., 1095.  
action of *p*-amidodimethylaniline on (VOGTHER), 1892, A., 855.  
action of ammonium formate on (LEUCKART and JANSSEN), 1889, A., 883.  
displacement of the methylene hydrogen atoms in (BUDDENBERG), 1890, A., 1142.  
derivatives of (BISCHOFF), 1889, A., 512; (EPHRAIM), 1890, A., 1143; 1891, A., 1492.  
sodium derivative of (BECKMANN and PAUL), 1892, A., 171.  
and its analogues, thio-derivatives of (MEYER), 1888, A., 484.  
thiocarbonyl-derivative of (BERGREEN), 1888, A., 446.
- Deoxybenzoin**, chloro- and diiodo- (CURTIUS and LANG), 1892, A., 451.  
*p*-nitro- (PETRENKO-KRITSCHENKO), 1892, A., 1227.
- Deoxybenzoinacetic acid** (*desylucetic acid*). See  $\beta$ -Benzoyl- $\beta$ -phenylpropionic acid.
- Deoxybenzoin-*o*-carboxylic acid**, amide of (GABRIEL), 1885, A., 1229.  
ethylamide of (GABRIEL), 1885, A., 903, 1229.
- $\alpha$ -Deoxybenzoin-*o*-carboxylic acids**, di- and tetra-chloro- (GABRIEL and HENDRESS), 1888, A., 145.
- $\beta$ -Deoxybenzoin-*o*-carboxylic acid** (GABRIEL), 1885, A., 1231.  
methylanide of (GABRIEL), 1888, A., 144.
- Deoxybenzoin-*p*-carboxylic acid**, di-bromo- (BUCHER), 1890, A., 168.
- Deoxybenzoin-*o*-dicarboxylic acid** and derivatives (EPHRAIM), 1890, A., 1143; 1891, A., 1492.
- Deoxybenzoin-*o*-dicarboxylic anhydride** (EPHRAIM), 1891, A., 1493.
- Deoxybenzoinhydrazide** (NEY), 1888, A., 1197.
- Deoxybenzoin-*o*-imidodicarboxylic acid** (EPHRAIM), 1890, A., 1143.
- Deoxybenzoinoxime**, intramolecular change of (GUNTHER), 1889, A., 1067.  
*p*-amido- and *p*-nitro- (NEY), 1888, A., 1197.
- Deoxycholic acid** (MYLIUS), 1886, A., 481; (LATSCHNOFF), 1887, A., 683.
- Deoxyfulminuric acid** (SEIDEL), 1892, A., 1417.
- Deoxyfuroin** (MACNAIR), 1890, A., 1245.
- Deoxypyranilpyroic acid** (REINSEIT), 1888, A., 697.  
bromo- (ANSCHUTZ and HENSEL), 1889, A., 258.
- Deoxypyranilpyroic dibromide** (ANSCHUTZ and HENSEL), 1889, A., 258.
- Deoxy-strychnine and -strychnic acid** (TAFFEL), 1892, A., 1013, 1014.
- Deoxytoluoin** (*deoxy-*p*-dimethylbenzoin*) (SIDERLIN), 1889, A., 513.
- Deposit** from a spring at Carmaux (MEUNIER), 1885, A., 644.  
from the spring at Chabetout (THABUT), 1886, A., 215.
- Derris elliptica***, poisonous principle of (GRESHOFF), 1891, A., 335.
- Desaurin** (WACHTER), 1892, A., 1095.  
formation of (WACHTER), 1892, A., 340.  
molecular weight of (MEYER), 1890, A., 1144.  
action of sulphuric acid and of aniline on (WACHTER), 1892, A., 1096.  
*p*-chloro- (PETRENKO-KRITSCHENKO), 1892, A., 1227.
- Desclowitz** from American localities (HILLBRAND), 1890, A., 341.  
from Mexico (PENFIELD), 1884, A., 24.  
from New Mexico (GENTH and VOM RATH), 1886, A., 26.
- Desiccation** of gases (VAN DER PLATS), 1888, A., 409.
- Desiccator** for substances sensitive to light (LIBBERMANN), 1888, A., 1155.  
vacuum, arranged for evaporation at any temperature (BRÜHL), 1891, A., 1152.
- Desiccators** (FLEISCHER), 1884, A., 491; (HEMPFEL), 1892, A., 521.
- "Desincrustant Marseillais"** (BELLMER), 1884, A., 1088.
- "Desincrustant Ragosine"** (BELLMER), 1884, A., 1088.
- Desmine**. See Stilbite.

- Desmotropy** (HANTZSCH and HERRMANN), 1888, A., 954.  
 in phenols (HERZIG and ZEISEL), 1888, A., 822; 1889, A., 247, 966; 1890, A., 243, 1404; 1891, A., 75.
- Destinezite** (CESARO), 1887, A., 709.
- Desylacetic acid**. See  $\beta$ -Benzoyl- $\beta$ -phenylpropionic acid.
- Desylacetophenone** (SMITH), 1890, T., 643; P., 105.  
 action of phenylhydrazine on (SMITH), 1890, T., 647.  
 oximes of (SMITH), 1890, T., 650.
- Desylamine** (NEUMANN), 1890, A., 890.
- p-Desylanisol** (JAPP and WADSWORTH), 1890, T., 969.
- p-Desylphenol** (JAPP and WADSWORTH), 1890, T., 965; P., 71.  
 fusion of, with potash (JAPP and WADSWORTH), 1890, T., 971.  
 reduction of, with hydriodic acid (JAPP and WADSWORTH), 1890, T., 971.
- Desyl-phthalamic acid and -phthalimide** (NEUMANN), 1890, A., 890.
- Desylpropionic acids,  $\alpha$ - and  $\beta$ -** (KNOEVENAGEL), 1888, A., 706.
- Detonation** in solid and liquid explosives, rate of propagation of (BERTHELOT), 1885, A., 478.
- Deuteroalbumose** (KÜHNE and CHITTENDEN), 1884, A., 1889; (NEUMEISTER), 1887, A., 285.
- Deuteroceaseose** (CHITTENDEN and PAINTER), 1888, A., 76.
- Deuteroelastose** (CHITTENDEN and HART), 1889, A., 423.
- Deuterogelatose** (CHITTENDEN and SOLLEY), 1891, A., 950.
- Deuterglobulose** (KÜHNE and CHITTENDEN), 1886, A., 819.
- Deuterglucose** (KLG), 1891, A., 233.
- Deuteromyosinose** (KÜHNE and CHITTENDEN), 1889, A., 423; (CHITTENDEN and GOODWIN), 1891, A., 950.
- Deutrovitallose** (NEUMEISTER), 1887, A., 286; (CHITTENDEN and HARTWELL), 1891, A., 343.
- Developers** for photographic plates, action of borax in (MERCIER), 1891, A., 139.  
 See also Photochemistry.
- Development** of frogs' spawn, influence of inorganic salts on (RINGER), 1890, A., 393.
- Deweylite**, analysis of (BRUNNER and SMITH), 1884, A., 663.
- Dextran**, animal (LIEBERMANN), 1888, A., 177.  
 formation of (BAUER), 1883, A., 105.  
 thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.
- Dextrin**. See Carbohydrates.
- Dextrinase** (WIJSMAN), 1890, A., 998.
- Dextrin syrup**, examination of molasses for (WOLFF), 1883, A., 624.
- Dextritol** (SCHIEBLER and MITTELMEIER), 1891, A., 34.
- Dextronic acids**. See Gluconic acids.
- Dextrose** (*d-glucose*, *grape sugar*). See Carbohydrates.
- Dextrose-anilide** (SOROKIN), 1886, A., 526; 1888, A., 808.
- Dextrosecarboxylic acid**, constitution of (KILIANI), 1886, A., 687.  
 phenylhydrazide (FISCHER and PASSMORE), 1890, A., 154.
- Dextrosexime** (JACOBI), 1891, A., 664; (WOHL), 1891, A., 813.
- Dextroso-cellulose** (SCHULZE), 1891, A., 1179; 1892, A., 907.
- Diabase** from Gräveneck, rich in apatite (STRENG), 1884, A., 275.  
 from Weilburg (WILL and ALBRECHT), 1883, A., 959.  
 products of the weathering of (BRAUNS), 1892, A., 1412.
- Diabase porphyrite** from Petrosawodsk (V. VOGDT), 1887, A., 454.
- Diabetes**, action and metamorphosis of some substances in the animal organism in relation to (ALBERTONI), 1885, A., 683.  
 artificial production of (LÉPINE and BARRAL), 1892, A., 364.  
 glycerol and (RANSOM), 1887, A., 935.  
 phloridzin (MORITZ and PRÄUSNITZ), 1890, A., 1336; (KÜTZ and WRIGHT), 1890, A., 1337.  
 variations of glycolytic and saccharific powers of blood in (LÉPINE and BARRAL), 1892, A., 517.
- Diabetes mellitus**, occurrence of hydroxybutyric acid in the urine in cases of (MINKOWSKI), 1885, A., 413.
- Diabetic coma** and acetoneuria (WEST), 1890, A., 399.
- Diabetic patient**, behaviour of milk sugar in a (VOIT), 1892, A., 903.  
 laevorotatory  $\beta$ -hydroxybutyric acid in the blood of (HUGOUNENQ), 1887, A., 986.
- $\alpha$ - $\beta$ -Diacetadipic acid**, salts of (PERKIN and OBREMSKY), 1886, A., 936.
- Diacetalamine** (WOLFF), 1888, A., 809.
- Diacetylthiocarbamide** (MARCKWALD), 1892, A., 1327.
- Diacetamide** (HENTSCHEL), 1890, A., 1239.  
 compound of sodium with (CURTIUS), 1891, A., 58.
- Diaceto-m-p-*di*amidobenzoic acid** (ZEHLRA), 1891, A., 304.

- Diacetamidochrysene** (ABEGG), 1891, A., 731.
- Diaceto $\alpha$ hexamidoditolyl** (BANKIEWICZ), 1888, A., 1185.
- Diacetamidoethenylamidocarvacrol** (MAZZARA and PLANCHER), 1892, A., 309.
- Diacetamidoethenylamidothymol** (MAZZARA), 1891, A., 188.
- Diacetamidophenylhydrazine** (BINCHLER and BRODSKY), 1890, A., 151.
- p*-Diacetodiamidoquinol, chloro-** (KEHRMANN and TIESLER), 1890, A., 243.
- 2:5-Diacetodiamido-4-quinone, 6-chloro-** (KEHRMANN and TIESLER), 1890, A., 243.
- Diaceto $\delta$ iamidoquinone** (NIETZKI and PREUSSER), 1886, A., 1024.
- Diacetodiamidotetrahydroxybenzene** (NIETZKI and SCHMIDT), 1888, A., 944.
- Diacetodiamidothymol** (MAZZARA), 1891, A., 188.
- Diaceto-3:4-diamidotoluene** (BISTRZYCKI and ULFFERS), 1890, A., 1115.
- nitro- and *d*-nitro- (BISTRZYCKI and ULFFERS), 1892, A., 1197.
- Diacetin**, preparation of (SEELIG), 1892, A., 239.
- Diacetobenzidine-*m*-sulphonic acid**, sodium salt of (ZEHRA), 1891, A., 313.
- m*-*d*-nitro- (ZEHRA), 1891, A., 313.
- Diacetobenzyl-*p*-phenylenediamine** (MELDOLA and COSTE), 1889, T., 592.
- p*-Diaceto-*o*-bromamidoacetylthymol** (MAZZARA), 1890, A., 602.
- Diaceto-1:2-bromonaphthalide** (CLAUS and PHILIPSON), 1891, A., 461.
- Diacetobromotolylenediamine** (HARTMANN), 1890, A., 975.
- Diaceto-*o*-diamines** (BISTRZYCKI and ULFFERS), 1890, A., 1115; 1892, A., 1197.
- Diacetodiphenylpropylamine** (FREUND and REMSE), 1890, A., 1423.
- Diacetodi-*p*-tolyl $\delta$ iamidomethylene-*o*-phenylenediamide** (MOORE), 1890, A., 246.
- Diacetoditolylythylenediamide**, *d*-chloro- (BINCHOFF and NASTVOGEL), 1890, A., 1161.
- Diaceto-*m*-ethoxy-*o*-phenylenediamide** (AUTENRIETH and HINSBERG), 1892, A., 161.
- Diacetoethylenediamide** (v. HOFMANN), 1888, A., 1050.
- Diacetoethylenediamine**, *d*-icyano- (GUARESCHI), 1892, A., 1071.
- Diacetoethylenediphenyldiamide** (BINCHOFF and NASTVOGEL), 1889, A., 1010.
- Diacetoformamide** (PINNER), 1883, A., 1099; 1884, A., 722.
- Diacetomethylenediamine** (PULVERMACHER), 1892, A., 579.
- Diacetonamine and derivatives** (FISCHER), 1884, A., 53; (WEIL), 1886, A., 528.
- compounds of, with aldehydes (ANTRICK), 1885, A., 502.
- platinothiocyanate (GUARESCHI), 1892, A., 287.
- $\alpha$ -Diacetonaphthalide**, *o*- and *p*-nitro- (LELLMANN and REMY), 1886, A., 624.
- 1:4-Diaceto- $\alpha$ -naphthylenediamine and 2-nitro-derivative** (KLEEMANN), 1886, A., 472.
- Diacetone phosphorus compounds** (MICHAELIS), 1885, A., 747.
- Diacetonediphenoldihydrazine** (KUNZE), 1889, A., 263.
- Diacetonephenanthraquinone** (JAPP), 1883, A., 597.
- action of acetic anhydride on (JAPP and MILLER), 1885, T., 15.
- Diacetonephenylphosphinic acid** (MICHAELIS), 1886, A., 609.
- Diacetonephosphinic acid** (MICHAELIS), 1884, A., 991.
- Diacetonephosphorous chloride** (MICHAELIS), 1884, A., 991.
- Diacetonetolyphosphinic acid** (MICHAELIS), 1886, A., 609.
- Diaceto $\delta$ initramidodiphenylamine** (NIETZKI and ERNST), 1890, A., 1114.
- Diaceto $\delta$ initrophenylenediamine** (NIETZKI and HAGENBACH), 1887, A., 477.
- Diaceto-6-nitro-1:3:4-xylidine** (AHRENS), 1892, A., 1437.
- Diacetopentamethylenediamine**, *d*-icyano- (GUARESCHI), 1892, A., 1071.
- Diacetophenonecarboxylic acid** (GABRIEL), 1885, A., 167.
- Diacetophenonethylenediphenyldiamine** (GARZINO), 1892, A., 633.
- Diaceto-*m*-phenylenediamine** (KELKE), 1883, A., 916.
- Diaceto-*o*-phenylenediamine** (BISTRZYCKI and ULFFERS), 1890, A., 1115.
- $\alpha\beta$ -Diacetophenylhydrazide** (MICHAELIS and SCHMIDT), 1887, A., 366; 1889, A., 1159.
- Diacetopropylenediamine** (STRACHE), 1888, A., 1172.
- Di- $\psi$ -acetopyrrolone*** (CIAMICIAN and DENNSTEDT), 1885, A., 378.
- Diacetotetrahydro-1:4-naphthylenediamine** (BAMBERGER and BAMMANN), 1889, A., 782; (BAMBERGER and SCHIEFFELIN), 1889, A., 893.

- Diacetotolylene diamine** (KELDER), 1883, A., 916.
- Diacetotrimethylenediamine** (STRACHE), 1888, A., 1174.
- Diacetoxydiphenyl sulphoxide** (SCHALL and UHL), 1892, A., 1077.
- Diaceto-*m*-xyldine** (WALLACH), 1890, A., 1315.
- Diacetyl**. See Dimethyl diketone.
- Diacetylacetone** (PERKIN), 1892, T., 825, 858.  
refractive and dispersive powers of (PERKIN), 1892, T., 860.  
chloro- (FEIST), 1892, A., 811.
- Diacetylamarine** (BAHRMANN), 1883, A., 799.
- Diacetylamidoalizarin** (ROEMER), 1885, A., 1069.
- Diacetyl-1:4-amidonaphthol** (GRANDMOURG and MICHEL), 1892, A., 862.
- Diacetylamido-naphthyl and -phenyl mercaptans** (JACOBSON), 1887, A., 962.
- Diacetyl-*p*-amidophenol**, 3-nitro- (HÄHLE), 1891, A., 430.
- Diacetyldiamidophenylazine** (NIETZKI and ERNST), 1890, A., 1115.
- Diacetyl-*o*-amidopiperonaloxime** (HABER), 1891, A., 706.
- Diacetylbenzylpyrrolone** (CIAMICIAN and SILBER), 1887, A., 843.
- Diacetylbrazilein, dibromo-** (SCHALL and DRALLE), 1890, A., 997.
- Diacetyl-*librom-o*-toluidide** (ABENIUS and WIDMAN), 1889, A., 135.
- ω*-Diacetylbutane** (MARSHALL and PERKIN), 1889, P., 143; 1890, T., 241.
- Diacetylcaproic acid**. See Diacetylhexoic acid.
- Diacetylcapronamide**. See Diacetylhexoic acid, amide of.
- Diacetylcarmylic acetate** (COMBES), 1891, A., 29.
- Diacetylchloralammonia**, trimolecular (SCHIFF), 1892, A., 134.
- Diacetylchloranilic acid** (NEF), 1890, A., 1271.
- Diacetylchloro-*tr*-bromoquinol** (LING), 1887, T., 784.
- Diacetyl-*m*-chlorobromoquinol and diacetyl-*p*-dichlorobromoquinol** (LING), 1892, T., 563, 565.
- Diacetyl-*m*-dichloro-*di*-bromoquinol** (LING), 1892, T., 580.
- Diacetyl-*p*-dichloro-*di*-bromoquinol** (LEVY), 1885, A., 1210.
- Diacetyl-*tr*-chlorobromoquinol** (LING and BAKER), 1892, T., 593.
- Diacetyl-*m*-dichlorobromoquinone** (LING), 1892, T., 567.
- Diacetyl-*m*-dichloroquinone** (LING), 1892, T., 560.
- Diacetylchrysianiline** (ANSCHÜTZ), 1884, A., 1034.
- Diacetylcupreine** (HENSE), 1886, A., 84.
- Diacetylcoumarin** (JACKSON and MENKE), 1885, A., 271.
- Diacetyl-*mono*- and -*di*-cyanhydrins, tetrachloro-** (LEVY, WITTE and CURCHOD), 1890, A., 233.
- Diacetyldaphnetin** (*diacetyldihydroxycoumarin*) (V. PRICHMANN), 1884, A., 1174.
- Diacetyl-*p*-desylphenol** (JAPP and WADSWORTH), 1890, T., 968.
- Diacetyldiacetoxystilbenediamine** (JAPP and HOOKER), 1884, T., 680, 683.
- Diacetyldiamylquinol** (KOENIGS and MAI), 1892, A., 1444.
- Diacetyldianil**. See Dimethyl diketone, diphenylimide of.
- Diacetyldicarboxylic acid** (FITTIG and DAIMLER), 1887, A., 362; (FITTIG, DAIMLER and KELLER), 1889, A., 490.
- ω*-Diacetyl-*ω*-diethylpentane** (KIPPING and PERKIN), 1890, T., 29, 32.
- ω*-Diacetyl-*ω*-diethylpentanedioxime** (KIPPING and PERKIN), 1890, T., 33.
- Diacetyldiisoeugenol** (TIEMANN), 1892, A., 46.
- Diacetyldihydrocollidine** (A. and C. COMBES), 1889, A., 1073.
- Diacetyldihydroxycoumarin**. See Diacetyldaphnetin.
- Diacetyldihydroxy-*p*-dimethylthio-benzene** (TASSINARI), 1889, A., 246.
- Diacetyldihydroxystilbenediamine** (JAPP and HOOKER), 1884, T., 681, 682.
- Diacetyldiketohexamethylenedicarboxylic acid** (FEIST), 1892, A., 586.
- Diacetyldimethoxyditolylquinol** (NÜLTING and WERNER), 1891, A., 209.
- Diacetyldiphenylglyoximes, *α*- and *β*-** (AUWERS and MEYER), 1888, A., 598.
- Diacetyldiphenylhydrazoxime** (BALTZER and V. PRICHMANN), 1891, A., 1115.
- Diacetylene, diiodo-** (V. BAEYER), 1885, A., 1199.
- Diacetylenecarboxylic acid** (V. BAEYER), 1885, A., 1199.
- Diacetylenedicarboxylic acid** (V. BAEYER), 1885, A., 759.  
preparation of (V. BAEYER), 1885, A., 1198.
- tert*-Diacetylethylpyrrolone** (ZANETTI), 1890, A., 1430.

- Diacetylisoauxanthone** (V. KOSTANECKI and NESSLER), 1892, A., 504.
- Diacetylflavol** (SCHÜLER), 1883, A., 74.
- Diacetylglycerol** (SEELIG), 1892, A., 288.
- αα*-Diacetylhexoic acid** (*diacetylcaproic acid*) (KIPPING and PERKIN), 1889, T., 334.
- amide of (*diacetylcapronamide*) (KIPPING and PERKIN), 1889, T., 342.
- Diacetylhydrastineoxime** (FREUND), 1889, A., 908.
- Diacetylhydrazoxime** (V. PECHMANN and WEHSARG), 1889, A., 47.
- Diacetylhydro-lapachone and -isolapachone** (PATERNO and MINUNNI), 1890, A., 1310.
- Diacetylhydroxamic acid** (HANTZSCH), 1892, A., 699.
- Diacetylhydroxyanthranol** (LIEBERMANN), 1888, A., 717.
- Diacetylic dicyanide**, method of preparing (KLEMMANN), 1885, A., 505.
- Diacetylin digotin** (LIEBERMANN and DICKHUTH), 1892, A., 480.
- Diacetylin drole** (ZATTI), 1889, A., 712.
- Diacetyl/hodoquinol** (METZELER), 1888, A., 1278.
- Diacetylupinine** (BAUMERT), 1884, A., 1387.
- Diacetylmalein fluorescein** (BURCKHARDT), 1886, A., 51.
- Diacetylmesoanthramine** (GOLDMANN), 1890, A., 1426.
- Diacetylmethylhydroxyanthranol** (LIEBERMANN), 1888, A., 717.
- Diacetylmethylphenylhydrazoxime** (BALTZER and V. PECHMANN), 1891, A., 1115.
- Diacetylmethylpyrrolidine** (CIAMICIAN and SILBER), 1887, A., 843.
- Diacetylmorphine**, and its derivatives (HESSE), 1884, A., 613.
- Diacetyl-*α*-nitralizarin** (BRANCH), 1891, A., 1077.
- Diacetyl/nitrotoluquinol** (KEHRMANN and BRANCH), 1889, A., 970.
- Diacetyloctylthiophen** (V. SCHWEINITZ), 1886, A., 535.
- Diacetylosazone**, preparation of (V. PECHMANN), 1888, A., 1287.
- Diacetylosotetrazone** (V. PECHMANN), 1888, A., 1288.
- Diacetyloxalenediamidoxime** (ZINKELSEN), 1890, A., 123.
- Diacetyl-*o*-oxybenzylidenephénylhydrazine** and its derivatives (RÖNSING), 1885, A., 389.
- Diacetyl-*p*-oxydiphenylamine** (PHILIP and CALM), 1885, A., 156.
- Di-*p*-acetyloxyisohydrobenzoin** (TILMANN), 1886, A., 460.
- Diacetylpentamethylpararosanine** (FISCHER and KÖRNER), 1884, A., 607.
- αα*-Diacetylpentane**, action of reducing agents on (KIPPING and PERKIN), 1891, T., 214; P., 24.
- αα*-Diacetylpentane** (KIPPING and PERKIN), 1889, T., 330, 335; P., 79.
- action of dehydrating agents on (KIPPING and PERKIN), 1889, P., 143; 1890, T., 13.
- action of reducing agents on (KIPPING and PERKIN), 1889, P., 145.
- condensation products of (KIPPING and PERKIN), 1890, T., 26.
- αα*-Diacetylpentanedioxime** (KIPPING and PERKIN), 1889, T., 337.
- Diacetylphenanthraquinonediaxime** (AUWERS and MEYER), 1889, A., 1202.
- Diacetylphenylamidophenol** (LIMPRICHT), 1890, A., 159.
- Diacetylphenylhydrazoacetoxime** (BALTZER and V. PECHMANN), 1891, A., 1115.
- Diacetylphenylmidophenol** (SEIFERT), 1890, A., 490.
- Diacetylphenyllactamidine** (PINNER), 1891, A., 63.
- Diacetylpiperazine** (SCHMIDT and WICHMANN), 1892, A., 211.
- Diacetyl-*m*-propenylcatechol** (CIAMICIAN and SILBER), 1892, A., 973.
- Diacetylpyromecazonic acid** (OST), 1883, A., 791.
- Di-*ψ*-acetylpyrrolidine**. See Dimethylpyrrolidine diketone.
- Diacetylquinol** (SCHEID), 1884, A., 430.
- chloro- (SCHEID), 1884, A., 430.
- thio- (LEUCKART), 1890, A., 604.
- Diacetylsorcinol** (TYPKE), 1883, A., 917.
- nitro- (ERRERA), 1886, A., 51.
- Diacetyl-*β*-resoreylonitrile** (MARCOV), 1892, A., 317.
- Diacetylrubbadin** (SCHALL and UHL), 1892, A., 1076.
- Diacetylsaccharic acid**, lactone of (MAQUENNE), 1888, A., 676.
- Diacetylsafranine hydrochloride** (NIETZKI), 1883, A., 732.
- Diacetylsalicenylamidoxime** (SPILKER), 1890, A., 143.
- Diacetylsuccinenediamidoxime** (SEM-BRITZKI), 1890, A., 125.
- Diacetylsuccinic acid** (KNORR), 1889, A., 386.

- Diacetyltartaric acid**, stereochemistry of (CULSON), 1892, A., 669, 758; (GUYE), 1892, A., 759.
- Diacetyltartaric derivatives**, rotatory power of (LE BEL), 1892, A., 669.
- Diacetyltetramethylenedicarboxylic acid** [1,2,1,2] (PERKIN), 1887, T., 26.
- Diacetyl-*p*-tolylsazone** (JAPP and KLINGEMANN), 1888, T., 543.
- Diacetyltriphenodioxazine** (SEIDEL), 1890, A., 491.
- Diadelphite** (*hemutolite*) (SJÖGREN), 1885, A., 960; (BERTRAND), 1886, A., 601.
- Diadochite** from Visé (CESARO), 1888, A., 233.  
from Vysočany, Bohemia (KOVÁŘ), 1890, A., 715.
- isoDialdane** (LOBRY DE BRUYN), 1885, A., 240.
- Dialdehydes**, action of hydroxylamine and phenylhydrazine on (MÜNCHMEYER), 1887, A., 482.  
action of methylhydrazine on (KOHLEBAUSCH), 1890, A., 24.
- Dialkylanilines**, nitroso-, periodides of (DAFERT), 1883, A., 979.
- $\alpha$ -Dialkylcarbamides** (VANDERZANDE), 1889, A., 962.
- Dialkyleyanothiocarbamides** (HECHT), 1890, A., 1103.
- Dialkyldisulphisethionic acids** (ENGELCKE), 1883, A., 972.
- Dialkyldisulphobenzozates** (STENGEL), 1883, A., 999.
- Dialkylphthalides**, synthesis of (KOTHE), 1889, A., 257.
- Dialkylsuccinic acids**, isomeric (BISCHOFF), 1888, A., 254.
- Diallage**, from Lower Silesia, analysis of (TRATBE), 1886, A., 212.  
chemical composition of (CATHREIN), 1883, A., 1068.
- Diallyl** (*hecinene*) (SABANÉEFF), 1885, A., 495.  
isomeric change in (FAWORSKY), 1891, A., 1331.  
first oxide of a tetrahydric alcohol from (REFORMATSKY), 1890, A., 354.  
hydrolysis of (BÉHAL), 1888, A., 241.  
oxidation of (WAGNER), 1889, A., 226.  
derivatives of (CIAMICIAN), 1890, A., 351.
- Diallyl tetrabromides** (CIAMICIAN and ANDERLINI), 1890, A., 20; (WAGNER), 1890, A., 223.
- dioxide** (PRZYBYTEK), 1885, A., 741.
- Diallylacetic acid** (*octinoic acid*), molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
magnetic rotation of (PERKIN), 1886, T., 212; P., 153.
- Diallylacetone** (VOLHARD), 1892, A., 435.
- Diallylacetonedicarboxylic acid** (VOLHARD), 1892, A., 435.
- Diallylamine**, action of sulphuric acid on (LIEBERMANN and HAGEN), 1883, A., 1086.
- Diallylcarbinol**, composition of a by-product obtained in the preparation of (SCHESTAKOFF), 1885, A., 237.  
first oxide of the pentahydric alcohol from (REFORMATSKY), 1890, A., 353.  
pentatomic alcohol and unsaturated glycerol from (DUBINEWITCH), 1890, A., 729.
- Diallylethylenedithiocarbamide** (LELLMANN and WURTHNER), 1885, A., 978.
- Diallylmalonic acid** (PERKIN), 1886, T., 209, 211.
- Diallyloxalic acid** and its derivatives (SCHATZKI), 1885, A., 511; 1887, A., 361.  
action of sulphuric acid on (BULITSCH), 1888, A., 450.  
oxidation of (BULITSCH), 1888, A., 449.
- Diallylthiocarbamide** (HECHT), 1890, A., 477.
- Diallylthiotetrahydrotriazole** (HECTOR), 1892, A., 292.
- Dialuric acid**, thio- (TRZCINŃKI), 1883, A., 914.
- isoDialuric acid** (BEHNEND and ROOSEN), 1883, A., 581.
- Dialysis**, chloroform-water and ether in (v. STRUVE), 1884, A., 375.  
electrical (WARREN), 1888, A., 1235.
- Diamarine silver nitrate** (CLAUS and KOHLSTOCK), 1885, A., 1132.
- Diameters** of molecules, relation of (SCHALL), 1885, A., 1182.
- Diamide** and diamidogen. See Hydrazine.
- Diaminechromium cadmiumthiocyanate** (CHRISTENSEN), 1892, A., 1002.  
hydrogen thiocyanate, compounds of, with nitrogenous bases (CHRISTENSEN), 1892, A., 1000.
- Diaminechromiumthiocyanate**, ammonium salt of (CHRISTENSEN), 1892, A., 793.
- Diamine-compounds**, metallic (JÜRGENSEN), 1889, A., 351; 1890, A., 953.

- Diamines** (*ptomaines*) in cystinuria (v. UDRÁNSZKY and BAUMANN), 1889, A., 1024; 1891, A., 350.  
 in diseases (ROUS), 1892, A., 518.  
 action of diketones on (COMBES), 1889, A., 851.  
 behaviour of, towards nitrous acid (LADENBURG), 1884, A., 738.  
 aromatic, general method for determining the constitution of (LELLMANN), 1885, A., 976; 1886, A., 625.  
 difference in chemical behaviour of (LELLMANN), 1884, A., 49.  
 action of cyanogen on (BLADIN), 1885, A., 256.  
 action of, on sugars (GRIESS and HARROW), 1888, A., 267.  
 action of thiocyanates on (LELLMANN), 1884, A., 49.  
 synthesis of mixed azo-dyes from (LANGE), 1886, A., 886.  
 cyanogen compounds of (BLADIN), 1885, A., 784.  
 fluorescent derivatives of (SCHIEF and VANNI), 1890, A., 138; (v. MILLER), 1891, A., 1103.  
 reagent for (HINSBERG), 1885, A., 934.  
 fatty and, chemical behaviour of (LELLMANN and WURTHNER), 1885, A., 977.  
 fatty, anhydro-bases from (v. HOFMANN), 1888, A., 1050.  
 benzoic chloride as a reagent for (v. UDRÁNSZKY and BAUMANN), 1888, A., 1296.  
 primary, action of ethyl chloracetate on (ZIMMERMANN and KNYRUM), 1887, A., 97.  
 secondary, containing an ethylene-group (COLSON), 1888, A., 684.  
*o*-Diamines (FISCHER), 1892, A., 1472.  
 action of acid chlorides on (BISTRZYCKI and CYBULSKI), 1891, A., 694.  
 action of aromatic carbodiimides on (KELLER), 1891, A., 1468.  
 action of carbonyl chloride on (HARTMANN), 1890, A., 975.  
 action of dioxiquinones on (NIETZKI and HASTERLIK), 1891, A., 944.  
 action of formaldehyde on (FISCHER and WRZESZINSKI), 1892, A., 1496.  
 action of quinones on (LEICESTER), 1890, A., 1445.  
 oxidation of (KEHRMANN), 1889, A., 1154.  
 oxidation products of (FISCHER and HEPP), 1890, A., 1444.
- o*-Diamines, constitution of the compounds obtained from  $\alpha$ -hydroxy-acids and (HINSBERG), 1892, A., 1359.  
 formation of azines from polyamines and (NIETZKI), 1890, A., 178.  
 Ladenburg's method of distinguishing (MAZZARA and LEONARDI), 1891, A., 1354.  
*p*-Diamines, oxidation of (MELDOLA and EVANS), 1889, P., 115.  
**Diamond**, occurrence of, in Borneo (POSEWITZ), 1886, A., 674.  
 presence of, in an Indian pegmatite (CHAPER), 1884, A., 563.  
 discovery of, in meteoric iron (FOOTE), 1892, A., 284.  
 from Russel Co., Kentucky (KUNZ), 1890, A., 337.  
 nature of (KLAUSE), 1890, A., 1210.  
 dispersion equivalent of (SCHRAUF), 1885, A., 14.  
 specific heat of (CARBONELLI), 1892, A., 761.  
 phosphorescence of (CROOKES), 1887, A., 1067.  
 artificial collosion of (LUZI), 1892, A., 1394.  
 carburization of iron by (OSMOND), 1891, A., 807.  
 combustion of (FRIEDEL), 1884, A., 1090.  
**Diamond-bearing rocks** of South Africa (ROSCOE), 1885, A., 131.  
**Diamond-fields** of South Africa, minerals and rocks of (KNOP), 1891, A., 25.  
**Diammonium salts**. See Hydrazine, salts of.  
**Diamyl** (*n*-decane) (LACHOWICZ), 1884, A., 166.  
**Disoamyl** (*decane*) (LACHOWICZ), 1884, A., 166.  
 complete chlorination of (HARTMANN), 1891, A., 811.  
**Disoamylacetal** (CLAUS and TRAINER), 1887, A., 231.  
**Diamylamine hydrochloride** (BERG), 1891, A., 169.  
**Diamylamine**, chloro- (BERG), 1890, A., 952.  
 action of sodium and potassium cyanide on (BERG), 1892, A., 804.  
**Diamylanilineazylene** (LEPPMANN and FLEISSNER), 1883, A., 55, 185.  
**Disoamylbenzene**, dispersion and molecular refraction of (COSTA), 1890, A., 1201.  
**Disoamylbismuthine bromide** (MARQUARDT), 1888, A., 1067.  
**Diamylecyanamide** (BERG), 1892, A., 804.

- Diamyldihexylphenanthroline (v. MILLER), 1891, A., 1104.
- 1,4-Diamyldioxybenzene (KOENIGS and MAI), 1892, A., 1444.
- Diamylene. See Decylene.
- Diamyldihydroxypropylenediamine, synthesis of (LOUISE), 1889, A., 118.
- Diamyloxamide (FREUND and LENZE), 1890, A., 1388; (BERG), 1891, A., 169.
- Diamylpyrocatechol (KOENIGS and MAI), 1892, A., 1445.
- Diamylpyrogallol (KOENIGS and MAI), 1892, A., 1445.
- Diamylquinol and diamylquinolphenylcarbamate (KOENIGS and MAI), 1892, A., 1443, 1444.
- Diamylquinone (KOENIGS and MAI), 1892, A., 1444.
- Diamylresorcinol (KOENIGS and MAI), 1892, A., 1444.  
dispersion and molecular refraction of (COSTA), 1890, A., 1201.
- Diamylselenocarbamide and *u*-diamylthiocarbamide (SPICA and CARARA), 1892, A., 216.
- Diamylsulphonamic acid (TRAUBE), 1891, A., 569.
- Diamylsulphone, action of chlorine on (SPRING and WINSSINGER), 1884, A., 1127.
- Diamylsulphonedimethylmethane (STUFFER), 1891, A., 180.
- Diamyldithioxamide (WALLACH and REINHARDT), 1891, A., 1008.
- Dianhydrolupinine (BAUMERT), 1888, A., 100.
- Dianildicyandiamide (PELLIZZARI and TIVOLI), 1892, A., 1323.
- Dianilglycerol. See Dianilidopropyl alcohol.
- p*-Dianilidobenzene, derivatives of (BRUNCK), 1892, A., 1450.
- Dianilido-*o*-diazothiole (HECTOR), 1889, A., 872; 1890, A., 526.  
cyanide (HECTOR), 1889, A., 872.
- Dianilidodicarboxylic acid (LOEWENHERZ), 1892, A., 1464.
- Dianilidodimethenylamidoresorcinol (JACOBSON and SCHENCKE), 1890, A., 248.
- 3:6-Dianilido-2-ethoxy-1:4-quinone, 5-chloro- (KEHRMANN), 1891, A., 903.
- Dianilidohydroxybenzene (MINUNNI), 1891, A., 191.
- Dianilidomethylbromacetoacetic acid (REISSERT), 1890, A., 642.
- Dianilidomethylchloroacetoacetic acid (REISSERT), 1890, A., 643.
- 2:2'-Dianilidonaphthalene (CLAUDIUS), 1890, A., 629.
- p*-Dianilidonaphthalene and dianilidonaphthaquinone (FISCHER and HEPP), 1890, A., 911.
- p*-Dianilido-*di-m*-nitrobenzophenone (SCHOFFE), 1892, A., 336.
- Dianilidophenylquinoneimide, chloro- (ANDRESEN), 1884, A., 431.
- Dianilido-*o*-phosphoric acid (MICHAELIS and v. SODEN), 1885, A., 1134.
- Dianilidophthalaldiamide (HORTE), 1887, A., 670.
- Dianilidopropyl alcohol (*dianilglycerol*) (FAUCONNIER), 1888, A., 586, 1281.
- Dianilidopyruvic acid, tribromo- (BORTINGER), 1891, A., 1054.
- 2:5-Dianilidoquinone (ZINCKE), 1883, A., 1117; (NIETZKE and SCHMIDT), 1889, A., 968.  
derivatives of (ZINCKE), 1883, A., 1117.
- Dianilidoquinoneanilide (ZINCKE), 1885, A., 787; (FISCHER and HEPP), 1891, A., 1046.  
synthesis of (v. BANDROWSKI), 1888, A., 1081.
- Dianilidosuccinamide, acetyl-derivatives of (POLIKIER), 1892, A., 55.
- Dianilidosuccinic acid (GORODETZKY and HELL), 1888, A., 952.
- Dianilidotoluquinone, and derivatives of (ZINCKE), 1883, A., 1118.
- Dianilido-*p*-xyloquinone (PFLUG), 1890, A., 606.
- Dianisidine (HIRSCH), 1889, A., 511.
- Dianisylamine (STEINHART), 1888, A., 51.
- Dianisylarsine chloride (MICHAELIS and WEITZ), 1887, A., 367.
- Dianisylidinitrosacyl (HOLLEMAN), 1892, A., 971.
- Dianisylguanidine (FOERSTER), 1888, A., 945.
- Dianisylhydroxyvaleric acid (FITTIG and POLITIS), 1890, A., 772.
- Dianisyl-pentalactone and -bromopentalactone (FITTIG and POLITIS), 1890, A., 772.
- Dianisylpentolic acid (FITTIG), 1890, A., 584; (FITTIG and POLITIS), 1890, A., 771.
- Dianisylpentyleneic acid (FITTIG and POLITIS), 1890, A., 771.
- Dianisyltetraylene (FITTIG), 1890, A., 584; (FITTIG and POLITIS), 1890, A., 772.
- Dianisylthiocarbamide (GOLDSCHMIDT and POLONOWSKA), 1887, A., 1041.
- Dianisylthiohydantoin (FOERSTER), 1888, A., 946.
- Dianthramine (BOLLENT), 1883, A., 1139.

- Dianthraminemethenylamidine** (BOLLENT), 1883, A., 1140.
- Dianthranyl** (*dianthryl*) (SCHULZE), 1886, A., 248.
- preparation of (LIEBERMANN and GIMBEL), 1887, A., 965.
- boiling point of (SCHWERTZER), 1891, A., 1240.
- action of chlorine and of bromine on (SACHSE), 1888, A., 718.
- derivatives (GIMBEL), 1887, A., 1049.
- tetrahydride (SACHSE), 1888, A., 1201; 1890, A., 638.
- Dianthranyl, dibromo-** (LIEBERMANN and GIMBEL), 1887, A., 965; (SACHSE), 1888, A., 1201; 1890, A., 638.
- octobromide* (SACHSE), 1890, A., 638.
- hexabromo-* (SACHSE), 1890, A., 638.
- dichloro-* (SACHSE), 1888, A., 1201; 1890, A., 638.
- octochloride* (SACHSE), 1890, A., 638.
- hexachloro-* (SACHSE), 1890, A., 638.
- Diantipyrin** (KNORR), 1884, A., 1379.
- Diaptonus*, colouring matter analogous to carotene from (BLANCHARD), 1890, A., 640.
- Diarabinantrigalactangeddic acid** (O'SULLIVAN), 1891, T., 1038.
- Diarrhœa**, sulphates and ethereal hydrogen sulphates in urine during (BARTOSCHEWITSCH), 1892, A., 1505.
- Diaspore** (*empholite*) (SCHUBERT), 1883, A., 35.
- from Colorado (CROSS), 1891, A., 1828.
- from Wermland (IGELSTROM), 1886, A., 31; (NORDENSKIÖLD), 1889, A., 220.
- from Newlin, Pa. (DANA), 1887, A., 343.
- from Sweden (IGELSTROM), 1885, A., 31.
- Diastase**. See Enzymes.
- Diastatic action** (LINTNER), 1886, A., 386; (DUGGAN), 1886, A., 433; (MORITZ), 1892, T., 689.
- of saliva (SCHLESINGER), 1891, A., 1522.
- Diastatic ferments**. See Ferments.
- Diathermanous power**, refractive index, density and molecular weight of a substance, relation between (AYMONNET), 1892, A., 1.
- Diautomethylamine** (RASCHIG), 1887, A., 112.
- p*-Diazine. See Pyrazine.
- Diazinedicarboxylic acid** (STOHR), 1892, A., 507.
- Diazinenaphthoic acid sulphide** (EKSTRAND), 1889, A., 153.
- m*-**Diazines** (*pyrimidines*, *cyanalkines*) (PINNER), 1885, A., 751; 1886, A., 45; 1887, A., 1053; 1889, A., 1004, 1006; 1890, A., 69; (V. MEYER), 1890, A., 68; (SCHWARZE), 1890, A., 1158.
- tetrachloro-* (CIAMICIAN and MAGNAGHI), 1886, A., 226.
- Diazo-compounds**. See under Azo-.
- Dibenzal-**. See Dibenzylidene-.
- Dibenzamide** (GUMPERT), 1885, A., 53; (KRAFFT), 1890, A., 1289.
- silver compound of (KRAFFT), 1890, A., 1289.
- sodium compound of (CURTIUS), 1891, A., 58.
- Dibenzamide, imido-** (KRAFFT and KARSTENS), 1892, A., 713.
- m*-nitro- (LOSSEN), 1892, A., 52.
- p*-nitro- (HAFNER), 1890, A., 486.
- Dibenzamidodiethyllic disulphide** (COBLENTZ and GABRIEL), 1891, A., 817.
- Dibenzamidodihydroxytetrène** (RUGHEIMER), 1889, A., 249, 391.
- Dibenzamidoethylpiperonylcarboxylic acid** (PERKIN), 1890, T., 1059.
- o*-**Dibenzamidotoluene**, nitro- (BISTRZYCKI and ULFFERN), 1892, A., 1197.
- Dibenzanilide** (COHEN), 1890, P., 162; 1891, T., 67.
- Dibenzamidylcarbamide** (PINNER), 1891, A., 60.
- Dibenzenesulphone-diphenetidine and *p*-phenylenediamine** (HINSBERG), 1892, A., 65.
- Dibenzenesulphone-*o*-tolylenediamine** (HINSBERG), 1892, A., 66.
- Dibenzenyldiazosulphime** (V. HOFMANN and GABRIEL), 1892, A., 1109.
- Dibenzenyldiazoximeoxalene** (WURM), 1890, A., 259.
- Dibenzenylenethylenesamidoxime** (FALCK), 1886, A., 797.
- Dibenzenylypiperidine** (RUGHEIMER), 1891, A., 1246.
- Dibenzhydroxamic acid** (MÜLLER), 1883, A., 1130.
- Dibenzimidine** (PINNER), 1885, A., 158; 1892, A., 1110.
- Dibenzimidinesulphonic acid** (PINNER), 1885, A., 158.
- Dibenzimido-oxide** (GUMPERT), 1885, A., 53.
- Dibenzobenzidine** (STERN), 1884, A., 1015.

- Dibenzobenzyl-*m*-phenylenediamine** (MELDOLA and COSTE), 1889, T., 598.
- Dibenzobenzyl-*p*-phenylenediamine** (MELDOLA and COSTE), 1889, T., 592.
- Dibenzobromotolylenediamine** (HARTMANN), 1890, A., 976.
- Dibenzocarbamide** (HOLLEMAN), 1891, A., 65, 446.
- as*-Dibenzocarbamide** (BUDDÉUS), 1890, A., 1253.
- Dibenzodicynnylediamine** (JAPP and WYNN), 1886, T., 469.
- Dibenzodihydroxystilbenediamine**, and its dibenzoyl derivative (JAPP and HOOKER), 1884, T., 681, 684.
- Dibenzodimethylamidobenzophenone** (NATHANSON and MÜLLER), 1889, A., 1188.
- Dibenzoethylenephenyldiamine** (NEWMAN), 1891, A., 1207.
- s*-Dibenzohydrazine** (CURTIUS), 1891, A., 56.
- Dibenzomethylenediamine** (*hipparaffin*) (KRAUT and SCHWARTZ), 1884, A., 838.
- Dibenzomethylene glycol** (DE NEUFVILLE and V. PECHMANN), 1891, A., 319.
- Dibenzomethylhydrazine** (V. BRÜNING), 1890, A., 23.
- Dibenzo- $\alpha$ -*s*-naphthylenediamine** (HINSBERG and V. UDRÁNSZKY), 1890, A., 370.
- Dibenzopentamethylenediamine** (V. UDRÁNSZKY and BAUMANN), 1888, A., 1297.
- Dibenzo-*o*-phenylenediamine** (HINSBERG and V. UDRÁNSZKY), 1890, A., 370.
- Dibenzo- $\psi$ -phenylhydrazidomandelic acid** (REISSERT and KAYSER), 1891, A., 438.
- Dibenzophenylhydrazines**, isomeric (MICHAELIS and SCHMILT), 1887, A., 365.
- Dibenzophenylmethylhydrazine** (TAFEL), 1885, A., 1060.
- Dibenzopropylenediamine** (STRACHE), 1888, A., 1173.
- Dibenzosalicylin** (FRITSCH), 1891, A., 708.
- Dibenzo-*o*-tolylenediamine** (HINSBERG and V. UDRÁNSZKY), 1890, A., 370.
- Dibenzotrimethylenediamine** (STRACHE), 1888, A., 1174.
- Dibenzotrimethylenephenyldiamine** (BALBIANO), 1890, A., 1244.
- Dibenzoyl**. See Benzil.
- Dibenzoyl ketone**. See Diphenyl triketone.
- Dibenzoylacetetic acid** (V. BAEYER and PERKIN), 1884, A., 64; (PERKIN), 1885, T., 246.
- action of hydroxylamine on (PERKIN and STENHOUSE), 1891, T., 1004; P., 42.
- reduction of (PERKIN and STENHOUSE), 1891, T., 1001.
- decomposition products of (PERKIN), 1885, T., 249.
- salts of (PERKIN), 1885, T., 246.
- Dibenzoylacetone** (FISCHER and BÜLOW), 1885, A., 1237.
- Dibenzoylacetoneitrile** (V. MEYER), 1890, A., 1251.
- Dibenzoylamylenenitrolamine** (WALLACH and WAHL), 1891, A., 1005.
- Dibenzoyl*libromo*amidophenyl**. See Bisbenzobromamidophenyl.
- Dibenzoylbromocarbinylic acetate** (DE NEUFVILLE and V. PECHMANN), 1891, A., 318.
- Dibenzoyl*libromo*methane** (DE NEUFVILLE and V. PECHMANN), 1891, A., 318.
- Dibenzoylcarbinylic acetate** (DE NEUFVILLE and V. PECHMANN), 1891, A., 318.
- Dibenzoylcinnamenimide** (JAPP and KLINGEMANN), 1890, T., 692.
- crystallography of (TUTTON), 1890, T., 718.
- di*bromide (JAPP and KLINGEMANN), 1890, T., 693.
- Dibenzoyl- $\psi$ -cumidide** (FRÜHLICH), 1884, A., 1319.
- Dibenzoyldaphnetin** (V. PECHMANN), 1884, A., 1174.
- Dibenzoyldiacetylene** (FISCHER and BÜLOW), 1885, A., 1237.
- Dibenzoyldiisoeugenol** (TIEMANN), 1892, A., 46.
- Dibenzoyldihydroxyanhydroecgonine**, derivatives of (EINHORN and RAN-SOW), 1892, A., 1016.
- Dibenzoyldi-*o*-hydroxystilbene** (HARRIES), 1892, A., 168.
- Dibenzoyldisulphydronaphthalene** (*benzoyldithimaphthol*) (GROSTEN), 1890, A., 1306.
- Dibenzoylethane** (CULMANN), 1890, A., 1269.
- Dibenzoylglutazine** (V. PECHMANN), 1888, A., 68.
- Dibenzoyl-*p*-hydroxybenzenylamidoxime** (KRONE), 1891, A., 700.
- Dibenzoylhydroxytolenylamidoxime** (*dibenzoylsalicylamidoxime*) (SPILKER), 1890, A., 143.

**Dibenzoyl-*o*-hydroxytolenylamidoxime** (*dibenzoyl-*o*-homosalicylenylamidoxime*) (PAOCHEN), 1892, A., 320.

**Dibenzoyl-*p*-hydroxytolenylamidoxime** (*dibenzoyl-*p*-homosalicylenylamidoxime*) (GOLDBERK), 1892, A., 319.

**Dibenzoylmesitylene** (LOUISE), 1884, A., 904.

**Dibenzoylmethane** (*diphenylmethylenediketone*) (v. BAEYER and PERKIN), 1884, A., 64.

preparation of (PERKIN), 1885, T., 246, 249.

nitroso- (v. PECHMANN), 1889, A., 712; (DE NEUFVILLE and v. PECHMANN), 1891, A., 318.

**Dibenzoylmethylenic bromide** (v. PECHMANN), 1889, A., 712.

**Dibenzoylmethyl bromide** (v. PECHMANN), 1889, A., 712; (DE NEUFVILLE and v. PECHMANN), 1891, A., 318.

**Dibenzoyl-*l*-nitro-*m*-hydroxyphenyl-*p*-tolylamine** (HATSCHEK and ZEGA), 1886, A., 456.

**Dibenzoyl-*p*-oxydiphenylamine** and its *l*-nitro- compound (PHILIP and CALM), 1885, A., 156.

***aa*-Dibenzoylpentane** (KIPPING and PERKIN), 1889, T., 330, 347, 348; P., 80.

action of dehydrating agents on (KIPPING and PERKIN), 1890, T., 27.

**Dibenzoylpentanedioxime** (KIPPING and PERKIN), 1889, T., 349.

**2,4-Dibenzoyl-1-phenyl-3,5-pyrazolidone** (MICHAELIS and BURMEISTER), 1892, A., 1005.

**2,4-Dibenzoyl-1-phenyl-3-methylpyrazolone** (NEF), 1892, A., 146.

**Dibenzoylphloroglucinols**, isomeric (SKRAUP), 1889, A., 1152.

**Dibenzoylpyridine** (RUGHEIMER), 1892, A., 1365.

**Dibenzoylquinhydrone** (KLINGER and STANDKE), 1891, A., 900.

**Dibenzoylresorcinols**, *mono*- and *tri*-nitro- (ERRERA), 1886, A., 50, 51.

**Dibenzoylstilbene**, action of alcoholic ammonia on (KLINGEMANN and LAYCOCK), 1891, T., 142.

action of methylamine on (KLINGEMANN and LAYCOCK), 1891, T., 146.

action of phenylhydrazine on (KLINGEMANN), 1892, A., 995.

**Dibenzoylstilbenimide** (KLINGEMANN and LAYCOCK), 1891, T., 144.

***αβ*-Dibenzoylstyrene** (*anhydrazetophenonebenzil*) (JAPP and BURTON), 1887, T., 429; P. 82; (JAPP and KLINGEMANN), 1889, P., 136, 139; 1890, T., 662.

***αβ*-Dibenzoylstyrene** (*anhydrazetophenonebenzil*), preparation of (JAPP and KLINGEMANN), 1890, T., 672.

crystallography of (TUTTON), 1890, T., 715.

action of heat on (JAPP and KLINGEMANN), 1890, T., 677.

distillation of (JAPP and KLINGEMANN), 1890, T., 685.

action of bromine on (JAPP and KLINGEMANN), 1890, T., 711.

action of hydroxylamine on (JAPP and KLINGEMANN), 1890, T., 710.

action of phenylhydrazine on (JAPP and HUNTLY), 1888, T., 184; (JAPP and KLINGEMANN), 1890, T., 708.

nitro- (JAPP and KLINGEMANN), 1890, T., 676.

***iso*Dibenzoylstyrene** (*isodibenzoylcinnaemene*) (JAPP and KLINGEMANN), 1889, P., 139; 1890, T., 707.

**Dibenzoylstyrenehydrazone** (JAPP and KLINGEMANN), 1889, P., 141.

**Dibenzoylsuccinic acid**, *mono*- and *di*-lactones of (v. BAEYER and PERKIN), 1884, A., 839.

**Dibenzyl**. See *s*-Diphenylethane.

**Dibenzyl-derivatives**, formation of (POPPE), 1890, A., 504.

**Dibenzyl dibenzyl ketone** (RATTNER), 1888, A., 704.

**Dibenzyl ketone** (YOUNG), 1891, T., 621; P., 119; (v. BOGDANOWSKA), 1892, A., 851.

vapour pressures of (YOUNG), 1891, T., 626; P., 119.

bromo-derivatives of (BOURCART), 1889, A., 884.

**Dibenzyl oxide** (LOWE), 1887, T., 700.

**Dibenzylacetamide** (SCHNEIDEWIND), 1888, A., 705.

**Dibenzylacetic acid** (MICHAEL and PALMER), 1885, A., 987; (BISCHOFF and v. KUHLEBERG), 1890, A., 1135.

**Dibenzylacetonitrile** (SCHNEIDEWIND), 1888, A., 705.

**Dibenzylacetoacetic acid** (FITTING and CHRIST), 1892, A., 963.

**Dibenzylacetone** and **dibenzylacetone-dicarboxylic acid** (DUNSCHMANN and v. PECHMANN), 1891, A., 674.

**Dibenzylacetoxime** (RATTNER), 1888, A., 704.

**Dibenzylalsorbite** (MEUNIER), 1890, A., 731.

**Dibenzylamarine** and its iodides (CLAUS), 1883, A., 203.

**Dibenzylamidoindamine** (MELDOLA and COSTE), 1889, T., 598.

**Dibenzylamidophenazine** (MELDOLA and COSTE), 1889, T., 599.

- Dibenzylamidodisulphonic acid** (SCHMIDT), 1892, A., 476.
- Dibenzylamine and its derivatives** (WALDER), 1886, A., 796; 1887, A., 246.  
 nitrate (SCHMIDT), 1892, A., 476.  
 thiocyanate (SALKOWSKI), 1891, A., 1474.
- Dibenzylamine** *o*-dichloro-*p*-dinitro- (WITT), 1892, A., 445.  
*o*-dicyano- (DAY and GABRIEL), 1890, A., 1251.  
 nitroso- (WALDER), 1887, A., 247.
- Dibenzylaniline and its derivatives** (MATZUDAIRA), 1887, A., 812.  
*o*-dichloro-*p*-dinitro- (WITT), 1892, A., 445.
- Dibenzylanthracene hydride and dibenzylanthrone** (HALLGARTEN), 1888, A., 1202.
- Dibenzylarsine trichloride** (MICHAELIS and PAETOW), 1885, A., 526.
- Dibenzylarsinic acid** (MICHAELIS and PAETOW), 1885, A., 527.
- as*-Dibenzylazine** (CURTIUS and THUN), 1891, A., 1357.
- Dibenzylbenzene, *m*-dinitro-** (BECKER), 1883, A., 203.  
*p*-dinitro- (BASLER), 1884, A., 310.
- Dibenzylbromobenzeneazocommonium chloride** (BEHREND and LEUCHS), 1889, A., 502.
- Dibenzylisobutylcarbamide** (HAMMERICH), 1892, A., 1083.
- Dibenzylcarbamic chloride** (HAMMERICH), 1892, A., 1083.
- Dibenzylcarbamide, *p*-dinitro-** (HAFNER), 1889, A., 982.
- Dibenzylcarbinol** (v. BOGDANOWSKA), 1892, A., 851; (NOYES), 1892, A., 1094.
- Dibenzylcarbinyllamine** (NOYES), 1892, A., 1093.
- Dibenzylcarbinyllaminatedibenzylcarbinaminethiocarbamate** (NOYES), 1892, A., 1094.
- Dibenzyl-*o*-carboxylic acid.** See Diphenylethane-*o*-carboxylic acid.
- Dibenzylcyanocarbamide argentocyanide** (HAMMERICH), 1892, A., 1084.
- Dibenzyl-di-*o*-carboxylic acid.** See Diphenylethaned-i-*o*-carboxylic acid.
- Dibenzyl-diethyl-di-*amido*triphenylmethane** (FRIEDLÄNDER), 1889, A., 606; (PHILIPS), 1889, A., 1158.
- Dibenzyl-diethylphosphonium chloride** (COLLIE), 1888, T., 724.
- Dibenzyl-dimethylthiocarbamides, *o*- and *p*-** (KRÖBER), 1890, A., 968.
- Dibenzyl-dimethylammonium chloride** (JACKSON and WING), 1887, A., 722.
- Dibenzyl-di-*iso*quinoline** (KRAUSS), 1891, A., 86.
- Dibenzyl-ditolylcarbamide** (HAMMERICH), 1892, A., 1083.
- Dibenzylethylamine** (WALDER), 1887, A., 813; (KRAFT), 1891, A., 51.
- Dibenzylethylphosphine** (COLLIE), 1888, T., 725.
- Dibenzylglycollic acid** (*oxytolyllic acid*), products of the reduction and oxidation of (SPIEGEL), 1884, A., 841.
- Dibenzylglycosine** (JAPP and CLEMINSHAW), 1887, T., 555.
- $\alpha$ -Dibenzylhomo-*o*-phthalbenzylimide** (PULVERMACHER), 1887, A., 1112.
- $\alpha$ -Dibenzylhomo-*o*-phthalic anhydride, and  $\alpha$ -*o*-phthalimide** (PULVERMACHER), 1887, A., 1111.
- Dibenzylhydrazine hydrochloride** (CURTIUS and JAY), 1889, A., 393.
- Dibenzylhydroxylamine** (SCHRAMM), 1884, A., 51; (BEHREND and LEUCHS), 1889, A., 704.  
 derivatives (WALDER), 1886, A., 796; 1887, A., 246, 813.
- Dibenzylhydroxylamine, nitro-, oxidation of** (BEHREND and KÖNIG), 1892, A., 1456.  
 nitroso- (WALDER), 1887, A., 246.
- Dibenzyllic sulphide, platinum compounds** (SÖNDAHL), 1889, A., 368.  
*disulphide, di-*o*-cyano-* (DAY and GABRIEL), 1890, A., 1251.  
*mono- and di-sulphides, o-nitro-* (JAHODA), 1890, A., 487, 488.
- Dibenzylideneacetone.** See Distyryl ketone.
- Dibenzylidene-di-*amido*diphenylamine** (MELDOLA and CUSTE), 1889, T., 594.
- Dibenzylidene-*p*-di-*amido*diphenylmethane** (GRAM), 1892, A., 618.
- Dibenzylidene-2:6-dimethylpyridine** (*dibenzylidene-2:6-lutidine*) (SCHUNTER), 1892, A., 1361.
- Dibenzylidenediphenylene** (REULAND), 1890, A., 166.
- $\beta\beta$ -Dibenzylidenelevulinic acid** (*dibenzylidenelevulinic acid*) (ERDMANN), 1890, A., 1129.
- Dibenzylidenenitrotolidine** (LOEWENHERZ), 1892, A., 852.
- Dibenzylidenepimelic acid** (*dibenzylpimelic acid*) (PERKIN and PRENTICE), 1891, T., 850.
- Dibenzylidenepropylenediamine** (STRACHE), 1888, A., 1173.
- Dibenzylidenestilbenediamine** (GROSSMANN), 1889, A., 1191.
- Dibenzylidenedithioamide and *d*-nitro-derivative of** (EPHRAIM), 1891, A., 831.

- Dibenzylidenethylenediamine** (MARON), 1887, A., 493.
- Dibenzylmalonic acid** (PERKIN), 1885, T., 821; (BISCHOFF and SIEBERT), 1887, A., 952; (BISCHOFF and V. KUHLMERG), 1890, A., 1134. preparation and nitration of (SIMON-THOMAS), 1888, A., 479.
- Dibenzylmethylaniline**, *m*-nitro- (DORMANN), 1886, A., 56.
- di-o*-nitro-** (GABRIEL and JANSEN), 1892, A., 218.
- Dibenzylmethylenediamine** (*methylene-dibenzylamine*) (KEMPF), 1890, A., 887.
- Dibenzylnitroquinol** (PELLIZZARI), 1884, A., 438.
- 1:4-Dibenzoyloxybenzene** (COLSON), 1889, A., 1152.
- Dibenzylpentanetetra-carboxylic acid** (PERKIN and PRENTICE), 1891, T., 844.
- Dibenzyl-*p*-phenylenediacetonitrile** (RATTNER), 1888, A., 704.
- Dibenzylphosphine** (LETTS and BLAKE), 1890, A., 767.
- Hofmann's, identity of, with tri-benzylphosphine oxide (LETTS and BLAKE), 1890, A., 492.
- Dibenzylphosphinic acid** (LETTS and BLAKE), 1890, A., 767.
- Dibenzylpicmalic acid** (PERKIN and PRENTICE), 1891, T., 846.
- $\omega\omega$ -Dibenzylpicmalic acid**, dissociation constant of (WALKER), 1892, T., 702.
- Dibenzylpyridine** (RUGHEIMER), 1892, A., 1864.
- Dibenzyl-pyrocatechol**, -quinol and -resorcinol (PELLIZZARI), 1884, A., 437, 438.
- Dibenzylsuccinamide** (WERNER), 1889, T., 631.
- Dibenzylsulphone-methane and -thio-benzylmethane** (LAVEN), 1892, A., 612.
- Dibenzylsulphonephenylmethane** (LAVEN), 1892, A., 613.
- Dibenzylthiocarbamide**, action of acetic anhydride on (WERNER), 1891, T., 406.
- action of alkyl iodides on (REIMARUS), 1887, A., 43.
- p*-*di*-nitro- (HAFNER), 1890, A., 487.
- Dibenzyl*dithio*xamide** (WALLACH and REINHARDT), 1891, A., 1008.
- Dibornylamine** (WALLACH and GRIE-PENKER), 1892, A., 1238.
- and its derivatives (LEUCKART and LAMPE), 1889, A., 1003.
- Dibornylthiocarbamide** (WALLACH and GRIE-PENKER), 1892, A., 1238.
- Dibrassidin** (REIMER and WIL), 1887, A., 238.
- heats of combustion and formation of (STOHMANN and LANGBEIN), 1891, A., 11.
- $\alpha$ -Dibromhydrin**, preparation of (ASCHAN), 1889, A., 31.
- constitution of (ASCHAN), 1890, A., 1083.
- Diisobutenyl**, isomeric change in (FAWORSKY), 1891, A., 1331.
- oxide (PRZYBYTEK), 1888, A., 244.
- Diisobutyl**, complete chlorination of (HARTMANN), 1891, A., 811.
- Diisobutyl *dichloroglycolate*** (ANSCHUTZ), 1890, A., 236.
- Dibutyl and diisobutyl ethers** (REBOUL), 1889, A., 477.
- Dibutyl ethers** (REBOUL), 1889, A., 366, 477.
- Diisobutylacetylene diisovalerate** (KLINGER and SCHMITZ), 1891, A., 891.
- Diisobutylallylamine** (PAAL and HEMPEL), 1892, A., 31.
- Diisobutylamine**, preparation of (MALBOT), 1887, A., 356.
- magnetic rotatory power of (PERKIN), 1889, T., 697, 730.
- separation of, from isobutylamine by means of ethylic oxalate (MALBOT), 1887, A., 357.
- Diisobutylamine salts** (MALBOT), 1887, A., 461.
- oxalate, action of amines on (COLSON), 1891, A., 377.
- chloro- (BERG), 1892, A., 1173.
- Dibutylanilineazylane** (LIPPMANN and FLEISSNER), 1883, A., 55, 185.
- tert*-Dibutylbenzene** (SENKOWSKI), 1890, A., 1297.
- Diisobutylbismuthine bromide and hydroxide** (MARQUARDT), 1888, A., 1067.
- Diisobutyleyanamide** (BERG), 1892, A., 1173.
- Diisobutylene**, heat of combustion of (MALBOT), 1890, A., 320.
- oxidation of (WAGNER), 1888, A., 666.
- dichloride*, chloro- (MALBOT and GENTIL), 1889, A., 843.
- Diisobutylglycollic acid** (KLINGER and SCHMITZ), 1891, A., 891.
- Diisobutylglyoxaline** (*oxaliso-butyliso-amyline*) (RADZISZEWSKI and SZUL), 1884, A., 986.
- Diisobutylhexinene diketone** (*diiso-butyrone*) (BRUGGEMANN), 1888, A., 1176.
- Diisobutylketone** (LANG), 1885, A., 963.

- Dibutyltoctohydrophenanthroline** (SCHIFF and VANNT), 1890, A., 138.
- Diisobutylloxamic acid**, calcium salt of (MALBOT), 1887, A., 357.
- Diisobutylloxamide** (MALBOT), 1887, A., 357.
- Diisobutylipmelic acid** (PERKIN and PRENTICE), 1891, T., 843.
- Diisobutylquinol**, and its chloro-, bromo-, and nitro-derivatives (SCHUBERT), 1883, A., 60.
- Diisobutylsulphone-dimethylmethane and -methane** (STUFFER), 1891, A., 180, 181.
- Dibutyramide**,  $\gamma$ -lithio- (GABRIEL), 1890, A., 1221.
- Dibutyric acid**,  $\alpha$ -thio- (LOVÉN), 1886, A., 333.  
 $\gamma$ -mono- and  $\gamma$ -di-thio- (GABRIEL), 1890, A., 1221.
- Diisobutyric acid**, thio- (LOVÉN), 1886, A., 333.
- Dibutyronitrile**,  $\gamma$ -thio- (GABRIEL), 1890, A., 1221.
- Dibutyryl**. See Dipropyl diketone.
- Di $\gamma$**  (BRAUNER), 1883, T., 281, 285.
- Dicalcium phosphate**. See diCalcium phosphate.
- Dicampholylcarbamide** (ERRERA), 1892, A., 1345.
- Dicapronamidinebiuret** (PINNER), 1891, A., 60.
- Dicaprylamine**. See Diisooctylamine.
- Dicarbanilido- $\alpha$ -,  $\beta$ - and  $\gamma$ -benzildioximes** (GOLDSCHEIMDT), 1890, A., 252, 253.
- Dicarbanilidohydrazobenzene** (GOLDSCHEIMDT and ROSELL), 1890, A., 614.
- Dicarbanilidosalicylaldoxime** (GOLDSCHEIMDT), 1890, A., 251.
- Dicarbocapro lactonic acid**. See Hydroxypentanetricarboxylic acid, lactone of.
- Dicarbodecahexanic acid** (BROWN and WALKER), 1891, A., 1193.
- n-Dicarbododecanic acid** (BROWN and WALKER), 1891, A., 1192.
- Dicarbodinicotinic acid**. See Pyridine-2:3:5:6-tetracarboxylic acid.
- Dicarbonyl-group**, condensations of compounds which contain, with aldehydes and ammonia (JAPP), 1883, T., 197.
- Dicarbonyltriimidobenzene** (JENTZSCH), 1889, A., 46.
- m-Dicarboxybenzyl oxide** (REINGLASS), 1891, A., 1345.
- Dicarboxyglutaconic acid** (RUHEMANN and MORRELL), 1892, T., 791; P., 143.
- Dicarboxyglutaric acid** (*propametricarboxylic acid*) (PERKIN), 1886, A., 691; (KLEBER), 1886, A., 1067.
- Dicarboxylic acids**, new synthesis of, from monocarboxylic acids (SEIFERT), 1885, A., 983.
- $\delta$ -Dicarboxy- $\gamma$ -valerolactone** (RACIN), 1886, A., 1012.
- Dicarvacrylamine** (LLOYD), 1887, A., 721.
- Dicetyl**,  $C_{22}H_{46}$  (*doltricontane*) (LEDF-DEFF), 1885, A., 736.  
from cetyl iodide (SORABJI), 1885, T., 39.
- Dichloral phosphine** and its derivatives (DE GIRARD), 1886, A., 684.
- Dichlorhydrin**, action of sodium on (TORNOE), 1891, A., 1442.  
aluminium chloride (CLAUS and MERCKLIN), 1886, A., 143.  
benzoate (FRITSCH), 1891, A., 708. ~  
salicylate (GÜTTIG), 1891, A., 707.
- $\beta$ -Dichlorhydrin m-hydroxybenzoate** (GÜTTIG), 1891, A., 1482.
- iso- $\beta$ -Dichlorhydrin m-hydroxybenzoate** (GÜTTIG), 1892, A., 471.
- Dichloroformberberine** (GAZE), 1891, A., 332.
- Dichroins** (BRUNNER and CHUIT), 1888, A., 363, 1182.
- Dichroite**. See Cordierite.
- Dichromates**. See Chromates.
- Dichrysyl- carbamide and -thiocarbamide** (ABEGG), 1891, A., 730, 731.
- Dicinchonine** (HESSE), 1885, A., 675.
- Dicpocinchonine** (JUNGFLEISCH and LÉGER), 1892, A., 1253.
- Dicinene** (HELL and STURCKE), 1884, A., 1363.
- Dicinnamic acid**,  $\alpha$ -thio- (BONDZYŃSKI), 1887, A., 1109.
- Dicinnamoylphenylazimide**, imide of (RUHEMANN), 1892, T., 283.
- Di- $\psi$ -cinnamoylpyrrole** (CIAMIGIAN and DENNSTEDT), 1885, A., 379.
- Dicinnamoyltolylediamine** (BISTRZYCKI and ULFFERS), 1890, A., 1115.
- Dickinsonite** from Branchville (BRUSH and DANA), 1890, A., 1072.
- Dicodethine** (*ethylenedimorphine*) (GRIMAUX), 1883, A., 359.
- Dicoumarin** (FITTIG), 1886, A., 47; 1890, A., 584.  
preparation of (DYSON), 1887, T., 62.
- Dieresol** (HELLE), 1892, A., 1467.  
*diamido*, action of nascent nitrous acid on (DENINGER), 1890, A., 38.  
nitro- (LOEWENHERZ), 1892, A., 852.  
*dinitro*- (DENINGER), 1888, A., 838.
- o-Dieresol** (GERBER), 1888, A., 484.  
and its derivatives (HOBBS), 1888, A., 708.

- Dicresoldicarboxylic acid** (DENINGER), 1888, A., 838.
- Dicresoldisulphonic acid** (HILLE), 1892, A., 1467.
- Diisocrotyl** (*octinene*), and its derivatives (PRZYBYTEK), 1889, A., 362.
- Di- $\psi$ -cumenol** (*hexamethyldiphenol*) dibromo- (AUWERS), 1885, A., 381; 1886, A., 144.
- Dicumenylcarbamide** (GOLDSCHMIDT and GESSNER), 1889, A., 774.
- Dicumenyloxamide** (GOLDSCHMIDT and GESSNER), 1889, A., 773.
- Di- $\psi$ -amidine** and its derivatives (AUWERS), 1886, A., 144.
- Dicuminalacetone**. See Dipropyl distyryl ketone.
- Di- $\psi$ -cumyl ethylene diketone** (CLAUS and SCHLARB), 1887, A., 827.
- Di- $\psi$ -cumylcarbamate** (FRENTZEL), 1889, A., 241.
- Di- $\psi$ -cumylcarbamide** (ENGEL), 1885, A., 1216; (CONRAD and LIMPACH), 1888, A., 504.
- Di- $\psi$ -cumylcarbamide** (GATTERMANN and CANTZLER), 1892, A., 832.
- Di- $\psi$ -cumyldimethylmethane** (KRAEMER and SPILKER), 1891, A., 1463.
- Di- $\psi$ -cumylmethenylamidine** (SENIER), 1885, T., 768.
- Di- $\psi$ -cumyltetrazine** (RUHEMANN), 1890, T., 56.
- Di- $\psi$ -cumylthiocarbamide** (ENGEL), 1885, A., 1216.
- Dicyandiamide** (BAMBERGER), 1883, A., 907, 1090; (DUVILLIER), 1884, A., 613; (BAMBERGER and SEEBERGER), 1891, A., 838.
- constitution of (WUNDERLICH), 1886, A., 217.
- Dicyandiamidine**, preparation of (SMOLKA and FRIEDREICH), 1889, A., 951.
- thio- (BAMBERGER), 1883, A., 1090.
- Dicyanic acid**, amido- (WUNDERLICH), 1886, A., 435.
- Di-*m*-iso-cumylcarbamide** and **dicumylthiocarbamide** (KELBE and WARTH), 1884, A., 47.
- Didehydrotrichlorodihydroxypiperazine** (BÉHAL and CHOAY), 1890, A., 231.
- Di-*p*-dimethylbenzoin** (STIERLIN), 1889, A., 513.
- Di-*p*-diphenylmethanethiocarbamide** (MANNS), 1889, A., 261.
- Didymium**, distribution of (COSSA), 1884, A., 262.
- atomic weight of (BRAUNER), 1883, T., 278; (CLEVE), 1883, A., 852.
- extraction of, from cerite (ARCHE), 1884, A., 557.
- Didymium**, an element accompanying (CLEVE), 1893, A., 18.
- complex nature of (BRAUNER), 1883, T., 281.
- valency of (COSSA), 1884, A., 821.
- spectra (DEMARÇAY), 1886, A., 837; 1887, A., 1008; (BECQUEREL), 1887, A., 537, 873; (SCHOTTJÄNDER), 1892, A., 886.
- compounds (CLEVE), 1885, A., 1039.
- Didymium salts**, molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.
- variations in the absorption spectra of (BECQUEREL), 1887, A., 873.
- Didymium molybdates** (COSSA), 1884, A., 821; 1886, A., 981.
- phosphates (OUVRARD), 1888, A., 1037.
- sulphate (BAILEY), 1887, T., 682.
- tungstates (COSSA), 1886, A., 981.
- Didymium**, estimation of (SMITH), 1884, A., 111.
- examination of different constituents of (BRAUNER), 1883, T., 285.
- separation of, into its elements (AUER VON WELSBACH), 1885, A., 1113.
- Didymium and erbium earths**, separation of (KRÜSS), 1891, A., 1425.
- Didymium-group** (KRÜSS), 1891, A., 1421.
- absorption spectra of the elements of (CROOKES), 1889, T., 259.
- Dielectric**. See Electrochemistry.
- Dierucin** (REIMER and WILL), 1887, A., 233.
- heats of combustion and formation of (STOHMANN and LANGBEIN), 1891, A., 11.
- Diet**, amount of acid in the stomach in an amylaceous (ROSENHEIM), 1888, A., 617.
- influence of, on the elimination and absorption of carbon (HANNIOT and RICHET), 1888, A., 615.
- influence of, on respiratory changes (HANNIOT and RICHET), 1888, A., 615.
- influence of, on the secretion of amidic substances (SCHULZE), 1890, A., 278.
- Diethenyl $\delta$ amidodiphenol** (KUNZE), 1889, A., 262.
- Diethenyltetramidobenzenes** (NIETZKI and HAGENBACH), 1887, A., 476, 477; (NIETZKI and SCHMIDT), 1889, A., 974.
- Diethenyltetramidoditolyl**, *d*-nitro- (BANKIEWICZ), 1888, A., 1184.
- Diethoxyacetone** (GRIMAUZ and LAFEVRE), 1889, A., 235.

- m*-Diethoxyacetophenone (GATTERMANN, EHRHARDT and MAISCH), 1890, A., 964.
- Diethoxydiamidodiphenylamine (NIETZKI and KAUFMANN), 1892, A., 314.
- 1:2-Diethoxyanthraquinone (*diethyl alizarin ether*) (HABERMANN), 1884, A., 1187.
- 1:4-Diethoxyanthraquinone (*diethyl quinizarin ether*) (LIEBERMANN and JELLINEK), 1888, A., 716.
- 1:2-Diethoxybenzene (*pyrocatechol diethyl ether*) (HERZIG and ZEISEL), 1889, A., 967.
- 1:3-Diethoxybenzene (*resorcinol diethyl ether*), preparation of (HERZIG and ZEISEL), 1890, A., 1404.  
action of nitrous acid on (KRATZ), 1892, A., 44.
- 1:3-Diethoxybenzene, amido- (WILL and PUKALL), 1887, A., 661.  
*o*-amido-hydrochloride (PUKALL), 1887, A., 662.  
 $\alpha$ - and  $\beta$ -bromo- (HERZIG and ZEISEL), 1890, A., 1404.  
nitroso- (KRATZ), 1892, A., 44.
- 1:4-Diethoxybenzene (*quinol diethyl ether*), diamido-. See Diethoxyphenylenediamine  
*mono*-, *di*- and *tri*-nitro- (NIETZKI), 1883, A., 466.  
*trinitro*-, actions of (NIETZKI and KAUFMANN), 1892, A., 314.
- 1:3-Diethoxybenzene *o*- and *p*-azo-1:3-dihydroxybenzenes (PUKALL), 1887, A., 662.
- Diethoxychloromethylpurin (FISCHER), 1884, A., 996.
- Diethoxydichloroquinols,  $\alpha$ - and  $\beta$ - (KEHRMANN), 1890, A., 137.
- p*-Diethoxydichloroquinone (KEHRMANN), 1889, A., 707; 1890, A., 136.
- Diethoxycollidine. See Diethoxytrimethylpyridine.
- Diethoxycoumarilic acid (WILL), 1884, A., 69.
- Diethoxydihydroxybenzene (*tetrahydroxybenzene diethyl ether*) (NIETZKI and RECHBERG), 1890, A., 968.
- Diethoxydimethyldiamidophenazine (NIETZKI and KAUFMANN), 1892, A., 315.
- Diethoxydimethyldiphenylquinone (NÖLTING and WERNER), 1891, A., 209.
- Diethoxydinaphthyls,  $\alpha$ - and  $\beta$ - (*dinaphthyl diethyl ethers*) (OSTERMAYER and ROSENHEK), 1885, A., 171.
- Diethoxydiphenylcarbamide (GATTERMANN and CANTZLER), 1892, A., 838.
- Diethoxydiphenyldiketopiperazine (BISCHOFF and NASTVOGEL), 1890, A., 1161.
- p*-Diethoxydiphenyl-*az*-diketopiperazine (BISCHOFF and NASTVOGEL), 1889, A., 1012.
- p*-Diethoxydiphenylenedinitrosacyl (HOLLEMAN), 1892, A., 972.
- p*-Diethoxydiphenylethylenediamine (BISCHOFF and TRAPESONZJANZ), 1890, A., 1332.
- p*-Diethoxydiphenylpiperazine (BISCHOFF), 1889, A., 1011.  
nitroso- (BISCHOFF and TRAPESONZJANZ), 1890, A., 1332.
- Diethoxyditolylquinone (NÖLTING and WERNER), 1891, A., 209.
- Diethoxyethylidene oxide (LAATSCHE), 1883, A., 788.
- 1:3:5-Diethoxyhydroxybenzene (*phloroglucinol diethyl ether*) (WILL and ALBRECHT), 1884, A., 1336.
- Diethoxyhydroxycaffeine (FISCHER), 1883, A., 355; (FISCHER and REESE), 1884, A., 466.
- Diethoxyhydroxyethyltheobromine (FISCHER), 1883, A., 357.
- Diethoxymethane (HENRY), 1886, A., 43.  
preparation of (GREENE), 1885, A., 38.
- Diethoxymethylene (PRATESI), 1884, A., 171.
- Diethoxydinitrodiphenylamine (NIETZKI), 1883, A., 466.
- Diethoxyoxymethylpurin (FISCHER), 1884, A., 997.
- Diethoxyphenylenediamine (*quinol diethyl ether*, *diamido*-) (NIETZKI and RECHBERG), 1890, A., 967.
- Diethoxypyridine and its salts (WEIDEL and BLAU), 1886, A., 76.  
dichloro-3-amido- (STOKES and v. PECHMANN), 1887, A., 157.
- Diethoxyquinone (NIETZKI and RECHBERG), 1890, A., 967.
- Diethoxysuberic acid (HELL and REMPEL), 1885, A., 756; (HEMPER), 1885, A., 757.
- p*-Diethoxysulphophenylhydrazide (ALTSCHUL), 1892, A., 1082.
- 3:5-Diethoxytoluene (*orcinol diethyl ether*) preparation of (HERZIG and ZEISEL), 1890, A., 1405.  
*di*bromo- (HERZIG and ZEISEL), 1890, A., 1405.
- 2:3' or 4'-Diethoxy-3-toluquinoline, chloro- (RÜGHEIMER and HOFFMANN), 1886, A., 160.
- 3:5-Diethoxy-2:4:6-trimethylpyridine (*diethoxycollidine*) (PFEIFFER), 1887, A., 845.

- m*-Diethoxyxylene (KIPPING), 1888, T., 45.
- Diethyl alizarin ether. See 1:2-Diethoxyanthraquinone.
- Diethyl ketone (*propione*) (HAMONET), 1889, A., 235.  
preparation of, by Perkin's method (PERKIN), 1886, T., 323.  
combination of, with hydrogen sodium sulphite (SCHRAMM), 1883, A., 1080.  
nitroso- (CLAISEN and MANASSE), 1889, A., 585.
- Diethyl thioketone (BERGREEN), 1888, A., 445.
- Diethylacetamide and -acetanilide (FREUND and HERRMANN), 1890, A., 473.
- Diethylacetic acid (*hexoic acid*), solubility of salts of (KEPPICH), 1889, A., 122.
- Diethylacetic anhydride and chloride (FREUND and HERMANN), 1890, A., 473.
- $\alpha\alpha$ -Diethylacetonedicarboxylic acid (DUNSCHMANN and V. PECHMANN), 1891, A., 674.
- Diethylacetoneitrile (FREUND and HERRMANN), 1890, A., 474.
- Diethylacetophenone (PERKIN), 1884, T., 185; (V. BAEYER and PERKIN), 1884, A., 63.
- Diethylacetothienone and its oxime (MUELEIT), 1886, A., 535.
- $\beta$ -Diethylacrylic acid (*heptenoic acid*) (REFORMATSKY), 1891, A., 170.
- Diethylasculetin (WILL), 1884, A., 67.  
bromo- (WILL), 1884, A., 69.
- Diethylallylamine, and its platino- and platini-chlorides (LIEBERMANN and PAAL), 1883, A., 909.
- Diethylallylcarbinol, glycerol from (REFORMATSKY), 1890, A., 121.  
the hydrocarbon,  $C_8H_{14}$ , prepared from (REFORMATSKY), 1885, A., 232.
- Diethylallylthiocarbamide (GEBHARDT), 1885, A., 383; (NOAH), 1890, A., 1241.
- p*-Diethylamidobenzaldehyde (BOESNECK), 1886, A., 458.
- Diethyl- $\alpha$ -amidobutyric acid (DUVILLIER), 1885, A., 750.
- Diethylamidocinnamic acid (FISCHER and KUZEL), 1884, A., 440.
- Diethylamido-*n*-hexoic acid (DUVILLIER), 1892, A., 294.
- Diethylamidohydroxyphenyltrichloroethane hydrochloride (BOESNECK), 1886, A., 458.
- Diethylamidophenylarsine oxide (MICHAELIS and RABINELSON), 1892, A., 1321.
- Diethylamidophenylphosphoryl chloride (MICHAELIS and SCHENK), 1891, A., 436.
- Diethyl- $\alpha$ -amidopropionic acid (DUVILLIER), 1889, A., 1139.
- Diethyl- $\alpha$ -amidoquinoxazone (MÜHLAU), 1892, A., 888.
- Diethylamidosulphonic chloride (BEHREND), 1884, A., 286.
- Diethylamine, properties of (V. HOFMANN), 1889, A., 688.  
magnetic rotatory power of (PERKIN), 1889, T., 691, 729.  
molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- Diethylamine, hydrobromide, compound of thiocarbamide with (REYNOLDS), 1891, T., 389.  
hydrochloride, magnetic rotatory power of (PERKIN), 1889, T., 713.  
hydrosulphide, vapour-tension of (ISAMBERT), 1883, A., 727.  
platinothiocyanate (GUARESCHI), 1892, A., 286.  
chloro- (GATTERMANN), 1886, A., 796.
- Diethylisoamylphosphine (COLLIE), 1888, T., 722.
- Diethylamylthiocarbamide (NOAH), 1890, A., 1241.
- Diethylaniline, preparation of (REINHARDT and STAEDEL), 1883, A., 578.  
action of benzotrichloride on (DOEBNER), 1883, A., 861.  
action of silicon tetrachloride on (REYNOLDS), 1892, T., 457.
- Diethylaniline cyanhydrin; nitroso- (LIPPMANN and FLEISSNER), 1885, A., 1213.  
methiodide (CLAUS and HOWITZ), 1884, A., 1006.  
platinochloride (REINHARDT and STAEDEL), 1883, A., 578.
- Diethylaniline, *p*-amido-. See Diethyl-*p*-phenylenediamine.
- Diethylaniline, *m*-nitro- (GROLL), 1886, A., 347.  
*p*-nitro- (LIPPMANN and FLEISSNER), 1883, A., 868, 1100.  
*d*-nitro- (LIPPMANN and FLEISSNER), 1884, A., 179.  
thio- (HOLZMANN), 1888, A., 1080; (MICHAELIS and GODCHAUX), 1890, A., 611.  
*d*-thio- (HOLZMANN), 1887, A., 723.
- Diethylanilinealloxan (PELLIZZARI), 1888, A., 682.

- Diethylanilineazylene (LIPPMANN and FLEISNER), 1883, A., 55, 185.  
action of methylic iodide on (LIPPMANN and FLEISNER), 1884, A., 178.
- Diethylanilinesulphonic acid,  $\beta$ -amido- (BERNTHSEN), 1889, A., 776.
- Diethylanthrone (GOLDMANN), 1888, A., 715.
- Diethylbenzamide, nitro- (VAN ROMBERGH), 1886, A., 546.
- m*-Diethylbenzene and its derivatives (VOSWINKEL), 1889, A., 88.  
oxidation of (ALLEN and UNDERWOOD), 1884, A., 587.
- o*-Diethylbenzene (VOSWINKEL), 1889, A., 338.
- p*-Diethylbenzene and its derivatives (ASCHENBRANDT), 1883, A., 318; (VOSWINKEL), 1889, A., 493.
- Diethylbenzenes, chlorinated (ISTRATI), 1886, A., 231, 343.
- p*-Diethylbenzenesulphonamide (VOSWINKEL), 1889, A., 493.
- o*-Diethylbenzenesulphonic acid, derivatives of (VOSWINKEL), 1889, A., 388.
- p*-Diethylbenzenesulphonic acid and its salts (ASCHENBRANDT), 1883, A., 318.  
cadmium salt of (VOSWINKEL), 1889, A., 493.
- Diethylbenzidinephthalic acid (SCHIFF and VANNI), 1890, A., 1293.
- Diethylbenzoic acid (v. BAAYER and PERKIN), 1884, A., 63.
- Diethylbenzoylacetic acid (PERKIN), 1884, T., 182.
- Diethylbenzoylacetate ether and its decomposition products (PERKIN), 1884, T., 183, 184.
- Diethylbenzylphosphine (COLLIE), 1888, T., 723.
- Diethylbenzylthiocarbamide hydrochloride (NOAH), 1890, A., 1241.
- Diethylbismuthine bromide (MARQUARDT), 1887, A., 803.
- Diethylbromaniline (CLAUS and HOWITZ), 1884, A., 1006.
- Diethyl-bromo-dinitroresorcinol and -tribromonitroresorcinol (JACKSON and WARREN), 1891, A., 1025, 1026.
- Diethylbromotoluene (DAFERT), 1883, A., 1094.
- Diethylisobutylidenedisulphone (FROMM), 1890, A., 56.
- Diethylisamphor (BRÜHL), 1892, A., 200.
- u*-Diethylcarbamide (VAN DER ZANDE), 1889, A., 962.
- Diethyl- and isodiethyl-carbobenzonic acids (ANSCHUTZ and BERNs), 1891, A., 913.
- Diethyltrichloracetamide (CLOËZ), 1887, A., 1098.
- Diethyleurecumin dihydride (JACKSON and MENKE), 1883, A., 481.
- Diethylcyanine iodide (HOOGWERFF and VAN DORP), 1885, A., 674.
- Diethyleyanpropine (WACHE), 1889, A., 684.
- Diethyleyanuric acid and its salts (PONOMAREFF), 1886, A., 216.
- Diethyldaphnetilic acid (WILL and JUNG), 1884, A., 1042; (JUNG), 1886, A., 558.
- Diethyldaphnetone (JUNG), 1886, A., 558.
- Diethyldibenzoylpropane (BEHAL and ATGER), 1890, A., 493.
- Diethyldiguanide (EMICH), 1891, A., 1180.
- Diethyldimethylenetrissulphone (BAUMANN), 1890, A., 1093.
- Diethyldiphenyl (ADAM), 1888, A., 959.
- Diethyldisulphisethionic acid, sodium salt of (ENGELCKE), 1883, A., 972.
- Diethyldisulphobenzoic acid, salts of (STENGEL), 1883, A., 999.
- Diethyldisulphoneacetone (ORTO and TRÜGER), 1891, A., 665.
- Diethylene series of hydrocarbons (BEHAL), 1889, A., 839.
- Diethylene sulphide methyl-sulphine salts (MASSON), 1886, T., 237.  
methyl-sulphine hydroxide (MASSON), 1886, T., 247.  
disulphide, preparation of (MASSON), 1886, T., 235.  
constitution of (MASSON), 1886, T., 234.  
compounds of (MANFELD), 1886, A., 525; 1887, A., 122.
- tetrasulphide (FASBENDER), 1887, A., 462; 1888, A., 805; (OTTO and ROUSING), 1887, A., 954.
- nitroso- (GIBBS and REINHERT), 1891, A., 1393.
- Diethylenediamine (LADENBURG and AREL), 1888, A., 1268; (SIEBER), 1890, A., 476; (v. HOFMANN), 1891, A., 169, 414, 415; (MAJERT and SCHMIDT), 1891, A., 415; (LADENBURG), 1891, A., 416, 1333.  
See also Piperazine.
- Diethylenediamine cobalt chloride, chloro- (JORGENSEN), 1889, A., 352.
- $\beta$ -Diethylethylamine (FREUND and HERMANN), 1890, A., 474.

- Diethylethylenedisulphone (OTTO and CASANOVA), 1888, A., 255.
- Diethylethylene- $\psi$ -thiocarbamide (NOAH), 1890, A., 1242.
- Diethylformamide, platinochloride of (PINNER), 1883, A., 1089.
- n*-Diethylformamidine (*formimido-diethylamide*), hydrochloride (PINNER), 1884, A., 724.
- Diethylglutaramidine platinochloride (PINNER), 1891, A., 62.
- Diethylglutaric acid (GUTHZEIT and DRESEL), 1890, A., 878.
- Diethylglycerolphosphoric acids, two isomeric (HUNDESHAGEN), 1884, A., 283.
- p*-Diethylglyoxaline (*oxalethylpropyl-ine*), synthesis of (RADZISZEWSKI), 1883, A., 729.
- Diethylguanidine (NOAH), 1890, A., 1241.
- Diethylhexadecylamine (KRAFFT and MOYR), 1889, A., 689.
- $\alpha$ -Diethylhomo-*o*-phthalic acid and anhydride (PULVERMACHER), 1887, A., 1111.
- $\alpha$ -Diethylhomo-*o*-phthalimide (PULVERMACHER), 1887, A., 1111.
- Diethylhydroanthracene (GOLDMANN), 1888, A., 715.
- Diethylhydroxypropylamine platinochloride (LIEBERMANN and PAAL), 1883, A., 910.
- Diethylic allophanyltartrate (TRAUBE), 1889, A., 394.
- amarinedicarboxylate (BAHRMANN), 1883, A., 799.
- barium phosphate (LOSSEN and KOHLER), 1891, A., 1014.
- camphorate (FRIEDEL), 1892, A., 500; (BRUHL), 1892, A., 1102.
- isocamphorate (FRIEDEL), 1892, A., 501.
- carbopyrotartrate (KNORR), 1885, A., 247; (KNORR and CAVALLO), 1889, A., 384.
- p*-dichloro- $\alpha$ -dimethylbenzo-*p*-difurfuran- $\beta$ -dicarboxylate (IKUTA), 1892, A., 609.
- dichloroglycollate (ANSCHÜTZ), 1886, A., 1011.
- $\beta$ -dichloromuconate (RUHEMANN and ELLIOTT), 1890, T., 934.
- diethylethylenedibenzamate (SCHIFF and PARENTI), 1885, A., 266.
- dimethoxydimethylmalonate (KLEBER), 1888, A., 1057.
- dimethylfurfurandicarboxylate (KNORR), 1885, A., 248.
- dimethylsuccinate (BARNSTEIN), 1888, A., 135.
- Diethylic diphenylazimethylenedicarboxylate (CURTIUS and LANG), 1892, A., 453.
- diphenylenedicarbamate (SNARE), 1886, T., 256.
- ethanetetracarboxylate (GUTHZEIT), 1883, A., 46.
- furfuralmalonate (MARCKWALD), 1888, A., 678.
- furfurinedicarboxylate (BAHRMANN), 1883, A., 800.
- furfuryl-2:4-dimethylpyridinedicarboxylate and its salts (HEIBER), 1892, A., 1362.
- hydrofurfuryl-2:4-dimethylpyridinedicarboxylate (SCHIFF and PULITI), 1883, A., 1151; (HEIBER), 1892, A., 1362.
- hydrogen carboxybenzylmalonate (WISLICIENUS), 1888, A., 150.
- hydrogen cyanurate (PONOMAREFF), 1886, A., 217.
- hydrophenyldimethylpyridinedicarboxylate (SCHIFF and PULITI), 1883, A., 1151.
- hydrotrimethylpyridinedicarboxylate (HANTZSCH), 1883, A., 82.
- malonate, action of methylenic iodide on (TANATAR), 1892, A., 1304.
- methronate (V. EYNERN), 1889, A., 592.
- methylic propanetricarboxylate (BISCHOFF), 1883, A., 45.
- methylmethronate (DIETZEL), 1889, A., 594.
- nitrosuccinate (PULITI), 1891, A., 175.
- oxalamidopropionate (SCHIFF), 1885, A., 760.
- phenyl-2:4-dimethylpyridinedicarboxylate (SCHIFF and PULITI), 1883, A., 1151.
- phenylthronate (SCHLOESSER), 1889, A., 595.
- quinone-*p*-difurfuran- $\alpha$ -dimethyl- $\beta$ -dicarboxylate hydrochloride (IKUTA), 1892, A., 610.
- quinonehydricarboxylate and formula of (WEDEL), 1884, A., 834.
- quinonetetrahydridedicarboxylate (HERRMANN), 1883, A., 1084.
- silver phosphate (LOSSEN and KÖHLER), 1891, A., 1015.
- succinosuccinate, formula of (WEDEL), 1884, A., 835.
- sulphacetate (MAUZELIUS), 1888, A., 821; (FRANCHIMONT), 1888, A., 1175.
- $\alpha$ -sulphaminephthalate (MOULTON), 1891, A., 1063.

- Diethylic sulphoxide, diamido-, picrate of (CROSS and BEVAN), 1892, A., 130.  
 telluride (MARQUARDT and MICHAELIS), 1888, A., 1066.  
 thiodiacetate (v. BUCHKA), 1885, A., 1200.  
 Diethylidene-cinchonine and -cinchoxine (CLAUS), 1892, A., 1252.  
 Diethylidenic tetrasulphide (FASBENDER), 1887, A., 463.  
 Diethylindigo (v. BAAYER), 1884, A., 76; (HELMANN), 1891, A., 837.  
 Diethylodamine (RASCHIG), 1886, A., 45.  
 Diethylketoxime (SCHOLL), 1888, A., 443.  
 Diethylmaleic acid. See Xeronic acid.  
 Diethylmalonic acid, potassium and sodium salts of (SCHUKOWSKI), 1889, A., 959.  
 Diethylmethyl. See Methyl-diethyl.  
 Diethylmuscarinepyridine (LOCHERT), 1891, A., 82.  
 Diethyl-*m*-nitraniline (NOLTING and STRICKER), 1886, A., 544.  
 Diethyloxetone and diethyloxetone-carboxylic acid (FITTING and DUBOIS), 1890, A., 869.  
 Diethylpentanetetra-carboxylic acid. See Nonanetetra-carboxylic acid.  
*m*-Diethylphenol (VOSWINKEL), 1889, A., 39.  
*p*-Diethylphenol (VOSWINKEL), 1889, A., 493.  
 Diethyl-*m*-phenylenediamine (GROLL), 1886, A., 347.  
 Diethyl-*p*-phenylenediamine (LIPPMANN and FLEISNER), 1883, A., 869, 1100.  
 disulphide (BERNHSEN), 1889, A., 777.  
 Diethylphosphorous acid (THORPE and NORTH), 1890, T., 634; P., 75.  
 Diethylphthalide (KOTHE), 1889, A., 257.  
 Diethylpicmic acid (PERKIN and PRENTICE), 1891, T., 835.  
*ωω*-Diethylpicmic acid, dissociation constant of (WALKER), 1892, T., 701.  
 Diethylpiperazine (SCHMIDT and WICHMANN), 1892, A., 212.  
 Diethylpiperidine (PRAUSNITZ), 1892, A., 1358.  
 Diethylpropargylamine hydriodide (PAAL and HEUPEL), 1892, A., 30.  
 Diethylisopropylidene disulphide (BAUMANN), 1887, A., 126.  
 Diethylpropylcarbinol (SOKOLOFF), 1888, A., 1170.  
 Diethylpropylphosphine (COLLIE), 1888, T., 721.  
 Diethylpropylthiocarbamide picrate (NOAH), 1890, A., 1241.  
*αγ*-Diethylpyridine (LADENBURG), 1886, A., 159; 1887, A., 60.  
 1-Diethylpyrrole (CLAMICIAN and ZANETTI), 1889, A., 728; (ZANETTI), 1890, A., 908.  
 Diethylquinol. See 1:4-Diethoxybenzene.  
 Diethylquinoline (REHER), 1888, A., 66.  
 Diethylresorcinol. See 1:3-Diethoxybenzene.  
 Diethylsafranines (NIETZKI), 1883, A., 732; (ANON.), 1884, A., 539.  
*αs*-Diethylsuccinic acid (BISCHOFF and MINTZ), 1890, A., 744.  
*s*-Diethylsuccinic acids (HJELT), 1888, A., 254; (BISCHOFF and HJELT), 1888, A., 1057; (HELL), 1889, A., 377; (BITSCHICHIN and ZELINSKY), 1890, A., 740; (BISCHOFF and MINTZ), 1890, A., 743.  
 synthesis of (BROWN and WALKER), 1891, A., 1193.  
 Diethylsulphamic acid and its barium salt (BEILSTEIN and WIEGAND), 1883, A., 971.  
 Diethylsulphone, diamido- (GABRIEL), 1892, A., 131.  
 Diethylsulphonechlorodimethylmethane (AUTENRIETH), 1891, A., 568.  
 Diethylsulphonedimethylmethane (BAUMANN and KAST), 1889, A., 1233; (FROMM), 1890, A., 56.  
 Diethylsulphonedimethylmethane (*isopropylidenediethylsulphone*; *sulphonal*) (BAUMANN), 1887, A., 123; (FROMM), 1890, A., 56; (STUFFER), 1891, A., 180.  
 See also Sulphonal.  
 Diethylsulphonediodomethane (FROMM), 1890, A., 56.  
 Diethylsulphonemethane (BAUMANN), 1887, A., 124; (FROMM), 1890, A., 56.  
*di*bromo- (BAUMANN), 1887, A., 124.  
 Diethylsulphonemethylethylmethane (BAUMANN and KAST), 1889, A., 1233.  
 Diethylsulphonemethylpropylmethane (BAUMANN), 1887, A., 123.  
 Diethylsulphonophenylsulphonemethane and its chloro- and bromo-derivatives (LAVES), 1892, A., 613.  
 Diethylsulphonophenylsulphonemethylmethane (LAVES), 1892, A., 613.  
 Diethylsulphonethiophenylmethane (FROMM), 1890, A., 57.  
 Diethylsulphonethiophenylmethylmethane (LAVES), 1892, A., 613.  
 Diethylsulphonethymethylmethane (FROMM), 1890, A., 56.

- Diethyltaurine**, preparation of (JAMES), 1885, T., 371.
- Diethyltetrahydroxyditolyl** (NÖLTING and WERNER), 1891, A., 209.
- n*-Diethylthiocarbamide** (SPICA and CARRARA), 1892, A., 216.
- s*-Diethylthiocarbamide**, action of acetic anhydride on (WERNER), 1891, T., 409.
- Diethylthiocarbamide**, derivatives of (NOAH), 1890, A., 1241.
- Diethylthionine** (BERNTSEN and GOSKE), 1887, A., 667.
- Diethylthiophen** (MUEHLERT), 1886, A., 535.
- n*-Diethylthiophenol** (VOSWINKEL), 1889, A., 493.
- Diethyl*l*ithiophosphinic acid** (v. HOFMANN and MAHLA), 1892, A., 1422.
- Diethyl-*ψ*-thiosinamine** (AVENARIUS), 1891, A., 549.
- Diethyl*l*ithioxamide** (WALLACH and REINHARDT), 1891, A., 1008.
- Diethyltoluene** and its derivatives (DAFERT), 1883, A., 1093.
- Diethyl-*o*-toluidine** (CHASE), 1886, A., 57.
- and its platinochloride, preparation of (REINHARDT and STAEDEL), 1883, A., 578.
- amido-. See Methylene-phenylenediamine.
- Diethyltoluquinol** (NÖLTING and WERNER), 1891, A., 209.
- Diethyltolylenediamine** (HINSBERG), 1892, A., 66.
- Diethyl-2:4-tolylenediamine** (WEINBERG), 1892, A., 1078.
- Diethyltrimethylene-*ψ*-thiocarbamide** (NOAH), 1890, A., 1242.
- Diethylumbellie acids**, *α*- and *β*- (WILL and BECK), 1886, A., 881.
- Dietrichite** (ARZRUINI), 1883, A., 433.
- Disceugenol** and its derivatives (TIE-MANN), 1892, A., 45.
- Difenchyl-oxamide and -thiocarbamide** (WALLACH and GRIEFENKERL), 1892, A., 1239.
- Diferroheptacarbonyl** (MOND and LANGER), 1891, T., 1092, P., 149.
- DIFFUSION**—
- Diaphragms**, relative permeability of (ZOTT), 1886, A., 414.
- precipitated, osmose through (TAMMANN), 1888, A., 898.
- Diffusion**, extracting by (ZWERGEL), 1884, A., 539.
- evaporation and dissolution considered as processes of (STEFAN), 1891, A., 384.
- experiments, simple (BEYERINCK), 1889, A., 565.

**DIFFUSION**—

- Diffusion**, theory of electrolysis and (PLANCK), 1892, A., 935.
- of gases and vapours** (WINKELMANN), 1885, A., 10.
- of vapours, influence of temperature on (WINKELMANN), 1889, A., 461.
- gaseous, lecture experiment on (WINKELMANN), 1886, A., 591.
- of ammonia through the atmosphere (BERTHELOT and ANDRÉ), 1887, A., 11.
- of liquids**, law of (VERNON), 1891, A., 383.
- influence of, on their solvent action (v. KLOBUKOFF), 1890, A., 555.
- liquid (COLEMAN), 1887, A., 440.
- through water and through alcohol (MULLER), 1891, A., 1147.
- in agar jelly (VOIGTLÄNDER), 1889, A., 817.
- of acids and bases into one another (STEFAN), 1889, A., 1046.
- of aqueous solutions (SCHEFFER), 1888, A., 1144; (ARMENIUS), 1892, A., 1265.
- of fresh water into sea water (THOULET), 1891, A., 970.
- of homologous ethereal salts (WINKELMANN), 1885, A., 10.
- of some organic and inorganic compounds, experiments on (SCHEFFER), 1883, A., 1047.
- of salt solutions (WIEDEBURG), 1891, A., 383.
- Osmose** of salts (ENKLAAR), 1883, A., 420.
- through precipitated diaphragms (TAMMANN), 1888, A., 898.
- Osmosis**, absorption without (REID), 1892, A., 646.
- with living and dead membranes (REID), 1890, A., 277, 1176.
- Osmotic equilibrium** (GOUY and CHAPERON), 1887, A., 1013.
- Osmotic experiment** (NERNST), 1890, A., 1865.
- Osmotic experiments** with living bacteria (WLADIMIROFF), 1891, A., 1181.
- with living membranes (DE VRIES), 1888, A., 1153.
- Osmotic pressure** (DUHEM), 1888, A., 1022; (PLANCK), 1891, A., 14.
- in the analogy between solutions and gases (VAN'T HOFF), 1888, A., 778.

## DIFFUSION—

- Osmotic pressure, nature of** (BREDIG), 1890, A. 105; (MEYER), 1890, A., 441; (VAN'T HOFF), 1890, A., 555; (PICKERING), 1890, A., 846; (NASINI), 1891, A., 522.  
 theory of (PICKERING), 1890, A., 846; (DIETERICH), 1892, A., 676, 765; (PLANCK), 1892, A., 1143.  
 measurement of (TAMMANN), 1892, A., 556.  
 of salts in solution (ADIE), 1891, T., 344; P., 25.  
 molecular weight determinations from (LADENBURG), 1889, A., 820.  
 reduction of the freezing point and electrical conductivity, relations between (VAN'T HOFF and REICHER), 1889, A., 668.  
 the kinetic theory of gases and (BOLTZMANN), 1891, A., 889, 638.  
**Diffusion photometer** (CROVA), 1885, A., 320.  
**Diffusion-residues** (MARCKER), 1887, A., 521.  
 drying of (MARCKER), 1885, A., 79.  
 from beet-sugar manufacture, preservation of (ANON.), 1883, A., 695.  
 as cattle food (MARCKER), 1884, A., 921.  
 feeding value of fresh and dried (MORGEN), 1883, A., 630.  
**Diffusoscope and diffusometer** (V. THAN), 1883, A., 630, 629.  
**p-Difluoryl** (HODGKINSON), 1885, P., 36.  
**Diformyl-*o*-amidophenazine** (FISCHER and HEPP), 1890, A., 500.  
**Diformylbenzidine** (STERN), 1884, A., 1015.  
**Diformyl-*p*-dianilidobenzene** (BRUNCK), 1892, A., 1451.  
**Diformyl-*m*-phenylenediamine** (TOBIAS), 1883, A., 326.  
**Difuranylquinoxaline-*m*-carboxylic acid** (ZEHR), 1891, A., 303.  
**Difurfuralacetone** (CLAISEN and PONDER), 1884, A., 1167.  
**Difurfuraldiphenylene** (REULAND), 1890, A., 166.  
**Difurfuramidodihydroxytartaric acid** (MAQUENNE), 1891, A., 331.  
**Difurfuran** (HANTZSCH), 1887, A., 262.  
**Difurfurodiacetylene, dibromo-** (GIBSON and KAHNWEILER), 1890, A., 960.  
**s-Difurfurylcarbamide** (MARCKWALD), 1891, A., 182; (DEUTZMANN), 1892, A., 43.  
**Difurfuryldimethylenetolidine** (SCHIFF and VANNI), 1890, A., 1299.

- Difurfurylthiocarbamide** (DEUTZMANN), 1892, A., 43.  
**Difurfurylmethyleyanidine** (PINNER), 1892, A., 1006.  
**Difurfuryl-quinoxaline, -naphthaquinoxaline and -toluquinoxaline** (FISCHER), 1892, A., 1475.  
**2''-3''-Difurfuryl-1''-tolylidihydro-naphthaquinoxaline** (FISCHER), 1892, A., 1476.  
**Digalactangeddic acid** (O'SULLIVAN), 1891, T., 1057.  
**Digallic acid** (BÜTTINGER), 1884, A., 1178.  
**Digesters** (*autoclaves*), high pressure, for chemical laboratories (MÜNCKE), 1886, A., 112.  
**Digestibility of boiled milk** (RAUDNITZ), 1889, A., 1225; 1890, A., 650.  
 of fodder, influence of heat on (STUTZER), 1891, A., 752.  
 of meadow hay, beans, barley, swedes and rice meal (LEHMANN and VOGEL), 1891, A., 595.  
 of meat, raw and boiled (STUTZER), 1892, A., 1367.  
 of proteid, influence of oil or fat on (STUTZER), 1891, A., 752.  
 of the proteids of various grasses (EMMERLING and LOGES), 1890, A., 657.  
 of rice-straw (KELLNER), 1890, A., 546.  
 of sowing rye (FREAR), 1889, A., 735.  
**Digestion, absorption of proteids in, seat of the** (NEUMEISTER), 1891, A., 233.  
 changes of carbohydrates in the alimentary canal (SEEGEN), 1888, A., 171.  
 changes effected on fibrinogen and fibrin by (WOOLDRIDGE), 1888, A., 618.  
 chemical theory of (CHANDELON), 1884, A., 1390; 1885, A., 1252.  
 comparative absorption of fish and flesh in the alimentary canal (ATWATER), 1887, A., 1130.  
 experiments on (OGATA), 1884, A., 912; (ARMSBY), 1886, A., 380.  
 influence of calomel on (WASSILIEFF), 1883, A., 743.  
 influence of "saccharin" on (STIFF), 1889, A., 1022.  
 influence of salt on (STUTZER), 1891, A., 752.  
 physiology of (EWALD and BOAS), 1886, A., 727.

**Digestion**, relation of carbohydrates in food to digestive ferments (STUTZER and I-BERT), 1888, A., 170.  
 respiration during (HANRIOT and RICHT), 1888, A., 615.  
**Digestion**, amylolytic and proteolytic, influence of certain therapeutic agents on (CHITTENDEN and STEWART), 1889, A., 533.  
 artificial (STUTZER), 1887, A., 388.  
 of agricultural feeding stuffs (NIEBLING), 1890, A., 1451.  
 of glue, products of (KLUG), 1891, A., 232.  
 of proteids (STUTZER), 1890, A., 275.  
*versus* animal (LADD), 1887, A., 513; 1889, A., 734.  
 natural and (PFEIFFER), 1887, A., 167; (LEA), 1890, A., 536.  
 of nitrogenous matter, natural and (PFEIFFER), 1883, A., 227.  
 gastric, during deprivation of chlorine (CAHN), 1886, A., 1052.  
 a first product of (HANE BROEK), 1887, A., 609.  
 formation of peptone in (CHITTENDEN and HARTWELL), 1891, A., 953.  
 in the horse (GOLDSCHMIDT), 1886, A., 952.  
 influence of amido-acids on (SALKOWSKI), 1892, A., 742.  
 pancreatic (HIRSCHLER), 1886, A., 729.  
 action of bile on (DASTRE), 1888, A., 618; (MARTIN and WILLIAMS), 1888, A., 618; 1891, A., 96.  
 cystin in (KULZ), 1891, A., 235.  
 of fibrin, formation of ammonia in (STADELMANN), 1888, A., 512.  
 papain (MARTIN), 1886, A., 641.  
 peptic, influence of salts on (STADELMANN), 1889, A., 431.  
 influence of wine on (HUGOUNENQ), 1892, A., 87.  
 proteolytic, micro-organisms and (HARRIS and TOOTH), 1889, A., 64.  
 salivary, action of organic acids on (JOHN), 1891, A., 592.  
 in the horse, experiments on (ELLENBERGER and HOFMEISTER), 1885, A., 178.  
 intestinal (GOLDSCHMIDT), 1887, A., 610.  
 of albumin (WENZ), 1886, A., 376.  
 in Hydra (GREENWOOD), 1889, A., 287.  
 in mules (SANSON), 1889, A., 533.

**Digestion** in the pig (ELLENBERGER and HOFMEISTER), 1887, A., 512, 684; 1890, A., 183.  
 in rhizopods (GREENWOOD), 1886, A., 1053; 1888, A., 79.  
 in the stomach, researches on (KIETZ), 1883, A., 815.  
 of albumin (BOAS), 1888, A., 733.  
 in foddors, influence of sodium chloride on (SIEWERT), 1888, A., 859.  
 of beans in the human alimentary canal (PRAUSNITZ), 1889, A., 1226.  
 of beef and fish, influence of cooking on (POPOFF), 1890, A., 1450.  
 of carbohydrates (HANRIOT and GAUTIER), 1892, A., 742.  
 of elastic fibres and allied structures (EWALD), 1889, A., 912.  
 of fats, influence of bile on (DASTRE), 1888, A., 618.  
 of fibrin by trypsin (HEERMANN), 1887, A., 1130.  
 of flesh in normal stomachs (CAHN and v. MERING), 1888, A., 859.  
 of various foods in the human intestines (MALFATTI), 1886, A., 379.  
 of foods free from nitrogen, influence of proteid on (ROSENHEIM), 1891, A., 344.  
 of gelatin (CHITTENDEN and SOLLEY), 1891, A., 949.  
 of meat and milk, time required for (JESSEN), 1884, A., 470.  
 of myosin (CHITTENDEN and GOODWIN), 1891, A., 950.  
 of pentose carbohydrates (STONE), 1892, A., 645.  
 of proteids, effect of certain organic acids on (STUTZER), 1891, A., 751.  
 effect of "saccharin" on (STUTZER), 1890, A., 1450.  
 of starch by dogs (ELLENBERGER and HOFMEISTER), 1892, A., 516.  
 and absorption of fat oils by plants (SCHMIDT), 1892, A., 1118.  
 and digestive secretions in the horse (ELLENBERGER and HOFMEISTER), 1887, A., 744.  
**Digestion-products** of gluten-casein (CHITTENDEN and SMITH), 1891, A., 342.  
**Digestive ferments.** See Enzymes, Ferments.  
**Digestive juices**, nitrogenous contents of (ELLENBERGER and HOFMEISTER), 1887, A., 1129.  
**Digestive organs**, action of the ferments in oats on (ELLENBERGER and HOFMEISTER), 1888, A., 867.

- Digestive processes**, certain, influence of salts on (PFLIFFER), 1885, A., 827.
- Digestive tract** of certain animals, search for a cellulose-dissolving enzyme in (BROWN), 1892, T., 352; P., 30.
- Digitalein** (HOUDAS), 1892, A., 222; (KILLIANI), 1892, A., 501, 1482.
- estimation and separation of, from digitalin and digitin (PALM), 1884, A., 507.
- Digitaligenin** (KILLIANI), 1892, A., 1482.
- Digitalin** (ARNAUD), 1890, A., 171; (KILLIANI), 1892, A., 1482.
- crystallised (ARNAUD), 1890, A., 65.
- reaction for (LAFON), 1885, A., 1014; (FERREIRA DA SILVA), 1891, A., 1562.
- estimation and separation of, from digitalein and digitin (PALM), 1884, A., 507.
- Digitalonic acid** (KILLIANI), 1892, A., 1241.
- lactone of (KILLIANI), 1892, A., 1242, 1482.
- Digitalose** (KILLIANI), 1892, A., 1482.
- Digitic acid** (KILLIANI), 1891, A., 577.
- Digitin**, estimation and separation of, from digitalin and digitalein (PALM), 1884, A., 507.
- Digitogenic acid** (KILLIANI), 1891, A., 577.
- Digitogenin** (KILLIANI), 1890, A., 996; 1891, A., 576.
- preparation of (KILLIANI), 1892, A., 1483.
- Digitonin** (KILLIANI), 1892, A., 501.
- preparation of (KILLIANI), 1891, A., 576.
- composition of (KILLIANI), 1890, A., 996.
- Digluco-*o*-phenylenediamine** (GRIESS and HARROW), 1887, A., 930.
- Diglycerylmethylal** (HÜLAND), 1887, A., 905.
- Diglycidylpyrocatechol** (LINDEMANN), 1891, A., 1199.
- Diglycol compounds**, thio- (MEYER), 1887, A., 228.
- Diglycollanic acid** (ANSCHÜTZ), 1891, A., 177.
- Diglycollic acid**, thio- (LOVÉN), 1885, A., 241.
- Diglycollic anhydride** (ANSCHÜTZ), 1891, A., 177.
- Diglycolylmaleic acid** (PUM), 1888, A., 1059.
- Diguanide** (EMICH), 1883, A., 973; 1891, A., 1180.
- Diguanide**, preparation of (SMOLKA and FRIEDREICH), 1888, A., 830.
- preparation of, from guanidine (BAMBERGER and DIECKMANN), 1892, A., 737.
- constitution of (EMICH), 1883, A., 973.
- derivatives of (SMOLKA and FRIEDREICH), 1889, A., 951.
- Diheptadecylcarbamide** (TURPIN), 1888, A., 1175.
- Diheptinene**, a (TILDEN), 1884, T., 419.
- Diheptyl**. See Tetradecane.
- Dihexamethylenamine methyleniodide** (WOHL), 1886, A., 863.
- Dihexinene** (RENARD), 1887, A., 566.
- "**Dihexolactone**" and "**dihexonic acid**" (FITTIG and DUBOIS), 1890, A., 868.
- Dihexyl ketone** (KIPPING), 1890, T., 533.
- hydrazone and oxine of (KIPPING), 1890, T., 535.
- Dihexylcarbinol** (KIPPING), 1890, T., 536.
- ψ-Dihexyloxamide** (FREUND and HERRMANN), 1890, A., 474.
- Dihexylthiocarbamide** (FRENTZEL), 1883, A., 1075.
- o*-Dihomobenzenylazoxime** (STIEGLITZ), 1890, A., 256.
- p*-Dihomobenzenylazoxime** (SCHUBART), 1890, A., 48.
- Dihydrazidodiphenyldisulphonic acid** (LIMPRIOT), 1891, A., 930.
- Dihydrazidoditolylidysulphonic acid** (HELLE), 1892, A., 1467.
- Dihydrazidopimelic anhydride** (VOLHARD), 1892, A., 435.
- Dihydrazonopyruvic acid hydrazide** (MESSINGER and ENGELS), 1889, A., 36.
- Dihydrazophenine** (FISCHER and HEPP), 1887, A., 1106.
- Dihydrazopimelic anhydride** (VOLHARD), 1892, A., 435.
- Dihydriodocinchonine** (PUM), 1892, A., 514; (LIPPMANN and FLEISSNER), 1892, A., 639.
- Dihydriodo-quinidine and -apoquinidine** (SCHUBERT and SKRAUP), 1892, A., 640.
- Dihydroacenaphthene dibromide** (BAMBERGER and LODTER), 1888, A., 604.
- Dihydroanthracene**, behaviour of, with carbonyl chloride (BEHLA), 1887, A., 594.
- Dihydroanthracenecarboxylic acid** (BORNSTEIN), 1884, A., 330.
- α*-Dihydroanthracenecarboxylic acid** (GRAEBE and JUILLARD), 1888, A., 156.

- Dihydromesoanthramine** (GOLDMANN), 1890, A., 1426.
- Dihydroapiole** (CIAMIGIAN and SILBER), 1890, A., 1294.
- Dihydro-arecaidine** and **-arecoline** (JAHNS), 1892, A., 739.
- Dihydrobenzaldehyde** and **phenylhydrazone** of (EICHENGRÜN and EINHORN), 1891, A., 67.
- Dihydrobenzamide** (HUTCHINSON), 1891, A., 561.
- Dihydrobenzene**, synthesis of (v. BAAYER), 1892, A., 1074.
- hexabromo-** (THEURER), 1888, A., 1085.
- Dihydrobenzoic acid** (EICHENGRÜN and EINHORN), 1891, A., 68; (HUTCHINSON), 1891, A., 562; (ASCHAN), 1891, A., 1482.
- Dihydrobenzoxime** (EICHENGRÜN and EINHORN), 1891, A., 67.
- $\Delta^{3,5}$ -**Dihydrobenzylidimethylamine** (MERLING), 1892, A., 358.
- Dihydrocamphene**, derivatives of (TANRET), 1887, A., 676.
- Dihydrocarveol** and **dihydrocarvylamine** (WALLACE), 1892, A., 499.
- Dihydrocinchonine** (COMSTOCK and KOENIGS), 1884, A., 1384.
- Dihydrocinene** (HELL and RITTER), 1885, A., 172.
- Dihydrocollidine**. See Trimethyldihydropyridine.
- $\beta$ -Dihydrocollidine**. See 4-Methyl-8-ethyl-dihydropyridine.
- Dihydrocoumaroxime** (TIEMANN), 1886, A., 880.
- Dihydrodiphenyl** (BAMBERGER and LODTER), 1888, A., 604.
- di**bromide and its bromo-derivative (BAMBERGER and LODTER), 1888, A., 604.
- bromo-** (BAMBERGER and LODTER), 1888, A., 604.
- "**Dihydrodiphenyldihydroxyantetrazine**" (PINNER), 1890, A., 70.
- Dihydrodipyridyl**. See Dipyridine.
- Dihydrofurfuran** (HENNINGER), 1884, A., 897.
- Dihydroapoharmine** (FISCHER), 1889, A., 731.
- Dihydroindoxyl**, amido-, derivatives of (BURMEISTER and MICHAELIS), 1891, A., 1068.
- Dihydrolutidine**. See Dimethyldihydropyridine.
- Dihydromeconic acid**, chloro- (HILSEBEIN), 1885, A., 1208.
- Dihydromethylfurfuran** (LIPP), 1889, A., 843.
- Dihydromethylquinoxaline**, derivatives of (LEUCKART and HERMANN), 1887, A., 383.
- Dihydromethylstilbazole** (BACHMÄR), 1889, A., 162.
- Dihydronaphthalene** (BAMBERGER and LODTER), 1887, A., 719.
- bromo-** (AGRESTINI), 1883, A., 346.
- Dihydronaphthalenedicarboxylic acid** (ANSELM), 1889, A., 717.
- Dihydronaphthoic acid**, synthesis of (v. PECHMANN), 1883, A., 808.
- Dihydro- $\alpha$ - and - $\beta$ -naphthoic acids** (v. SOWINSKI), 1891, A., 1380, 1381.
- Dihydro- $\alpha$ -naphthoic acid**, labile  $\Delta^2$ - and stable  $\Delta^1$ - (v. BAAYER, SCHÖDER and BESEMFFELDER), 1892, A., 192.
- Dihydro- $\beta$ -naphthoic acid**, labile  $\Delta^2$ - and stable  $\Delta^2$ - (v. BAAYER, SCHÖDER and BESEMFFELDER), 1892, A., 193.
- Dihydrophenanthridine** and its derivatives (PICTET and ANKERSMIT), 1892, A., 197, 838.
- Dihydrophthalic acid** (v. BAAYER), 1890, A., 1278.
- trans- $\Delta^{3,5}$ -Dihydrophthalic acid** (v. BAAYER), 1892, A., 1214.
- Dihydrophthalic acid di**bromide and **dihydrobromide** (v. BAAYER), 1890, A., 1278.
- Dihydrophthalic acids**,  $\Delta^{1,4}$ - and  $\Delta^{2,1}$ - (v. BAAYER), 1892, A., 1216.
- Dihydrophthalic acids**,  $\Delta^{4,6}$ - and *cis*  $\Delta^{3,5}$ - (v. BAAYER), 1892, A., 1215.
- "**Dihydropyranilpyroic acid**" and "lactone" of (REISSERT), 1888, A., 696.
- Dihydropyrrole** and derivatives of (CIAMIGIAN and DENNSTEDT), 1883, A., 1142; (ANDERLINI), 1890, A., 65, 1430.
- Dihydroquinazolines** (PAAL and KRECKE), 1890, A., 1443; (GABRIEL and JANSEN), 1892, A., 219.
- Dihydro-santinic** (*dimethyldihydronaphthylpropionic*) and *-isosantinic acids* (GUCCI and GRASSI-CRISTALDI), 1892, A., 871.
- Dihydroshikimic acid** (EIJKMAN), 1891, A., 919.
- Dihydrosparteine** and its derivatives (ÄHRENS), 1887, A., 1056.
- Dihydro- $\alpha$ -stilbazole** (BAURATH), 1888, A., 608.
- Dihydrostrychnine** (LOEBTICH and SCHOOP), 1886, A., 815.
- Dihydroterephthalic acid** (v. BAAYER), 1887, A., 371; 1888, A., 1072.
- di**bromide and **dihydrobromide** (v. BAAYER), 1888, A., 1072, 1073.

- $\Delta^{1,5}$ -Dihydroterephthalic acid *di*bromide (v. BAYER and HERB), 1890, A., 1131.
- Dihydroterephthalic acid, nitrile of (v. BLEYER), 1892, A., 534.
- p*-dichloro- (LEVY and ANDREOU), 1888, A., 840, 1091.
- p*-dichloronitro- (LEVY and ANDREOU), 1888, A., 1091.
- Dihydroterephthalic acids, isomeric, (v. BAEYER), 1889, A., 1176.
- Dihydroterephthalic acids,  $\Delta^{1,4}$  and  $\Delta^{1,5}$ , thermochemistry of (STOHMANN and KLEBER), 1891, A., 376.
- Dihydrothenardite (MARKOWNIKOFF), 1888, A., 794.
- non-existence of (MARKOWNIKOFF), 1891, A., 156.
- o*-Dihydrotoluic acid, and its amide (HUTCHINSON), 1891, A., 562.
- Dihydroximidopropionic acids, primary and secondary (SÜDERBAUM), 1892, A., 815, 816.
- Dihydroxindole (BINCHOFF), 1883, A., 919.
- 4:2:1-Dihydroxyacetophenone (*resacetophenone*) (v. PECHMANN and DRISBERG), 1884, A., 66; (MICHAEL and PALMER), 1886, A., 239.
- Dihydroxyacridine (ELIASBERG and FRIEDLANDER), 1892, A., 1108.
- Dihydroxyaldehydes, aromatic, nitrogenous derivatives of (MARCUS), 1892, A., 317.
- Dihydroxyalizarin-blue (SCHMIDT and GATTERMANN), 1891, A., 1382.
- Dihydroxyamidooanthraquinonesulphonic acid (LIFSCHUTZ), 1884, A., 1189.
- Dihydroxyisocamylamine (RADZISZEWSKI and SCHRAMM), 1884, A., 1190.
- Dihydroxyisocamylphosphinic acid (VILE), 1889, A., 1135.
- Dihydroxyamylpiperidine aurochloride (MARINO-ZUCCO), 1892, A., 86.
- Dihydroxyanhydroeconine (EINHORN and RASSOW), 1892, A., 1015.
- Dihydroxyanisole, *dinitro*- (NIETZKI and KURTENACKER), 1892, A., 596.
- Dihydroxyanthracene (*fluval*), from  $\alpha$ -anthraquinonedisulphonic acid (SCHÜLER), 1883, A., 74.
- o*-Dihydroxyanthracumarin (v. KOSTANECKI), 1888, A., 292.
- 1:2-Dihydroxyanthraquinone. See Alizarin.
- m*-Dihydroxyanthraquinone (*xanthopurpurin*), synthesis of (NOAH), 1886, A., 475.
- 1:4-Dihydroxyanthraquinone (*quinizarin*) (LIEBERMANN), 1888, A., 716.
- 1:4'-Dihydroxyanthraquinone (*anthraquin*) (ROEMER), 1883, A., 737.
- 2:3-Dihydroxyanthraquinone (*hystazarin*) and its compounds (SCHOELLER), 1888, A., 1203; 1889, A., 719.
- Dihydroxyaurindicarboxylic acid (CARO), 1892, A., 1469.
- Dihydroxybenenic acid (HAZURA and GRÜSSNER), 1889, A., 375; (URWANZOFF), 1889, A., 1146.
- heats of combustion and formation of (STOHMANN and LANGBEIN), 1891, A., 11.
- iso*Dihydroxybenenic acid (GRÜSSNER and HAZURA), 1889, A., 956.
- 2:4-Dihydroxybenzaldoxime ( $\beta$ -resorcylaldoxime) (MARCUS), 1892, A., 317.
- Dihydroxybenzamidopyrrolone (RÜGHEIMER), 1889, A., 1211.
- 2:4-Dihydroxybenzaldoxime ( $\beta$ -resorcylaldoxime) (MARCUS), 1892, A., 317.
- 1:2-Dihydroxybenzene. See Pyrocatechol.
- 1:3(?)-Dihydroxybenzene, *tetranitro*- (HENRIQUES), 1883, A., 327, 329.
- 1:3-Dihydroxybenzene. See Resorcinol.
- 1:4-Dihydroxybenzene. See Quinol.
- Dihydroxybenzenes, action of dichloro-ether on (WISLICENUS and SIEGFRIED), 1888, A., 374.
- benzylc ethers of (PELLIZZARI), 1884, A., 437.
- 2:4-Dihydroxybenzenylamidoxime ( $\beta$ -resorcenylamidoxime) (MARCUS), 1892, A., 317.
- Dihydroxybenzodiphenyldipyrzalone (BONIGER), 1889, A., 879.
- 3:5-Dihydroxybenzoic acid, action of chlorine on (ZINCKE and FUCHS), A., 1461.
- 2:4-Dihydroxybenzoic acid ( $\beta$ -resorcyllic acid), thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.
- Dihydroxybenzoic acid, *di*- and *tri*-chloro- (ZINCKE and FUCHS), 1892, A., 1461.
- Dihydroxybenzophenone (DALE and SCHORLEMMER) 1883, T., 187.
- o*-Dihydroxybenzophenone and its derivatives (GRAEBE and FEER), 1887, A., 152.
- o*-*p*-Dihydroxybenzophenone (*salicylphenol*), and its derivatives (MICHAEL), 1884, A., 311.
- p*-Dihydroxybenzophenone (KLINGER and STANDKE), 1891, A., 900.
- oxime of (SPIEGLER), 1884, A., 1182.

- Dihydroxybenzophenones,  $\alpha$ - and  $\beta$ -, and their compounds (STAEDEL), 1883, A., 991.
- Dihydroxybenzophenonesulphonic acid (*dihydroxybenzoylbenzenesulphonic acid*), ammonium salt of (REMSEN and LINN), 1889, A., 710.
- Di-*p*-hydroxybenzoyl-*p*-hydroxybenzoic acid (KLEPL), 1884, A., 447.
- Dihydroxybenzoylphosphinic acid (VILLE), 1890, A., 619.
- Dihydroxybenzylenephosphinic acid (VILLE), 1889, A., 141.
- o*-Dihydroxybenzylidenediphenylene (REULAND), 1890, A., 166.
- Di-*o*-hydroxybenzylidenethylenediamine (MASON), 1887, A., 493.
- Dihydroxybutane, *mono*- and *di*-chloro- (ZIKES), 1885, A., 1046.
- Dihydroxybutanedisulphonic acid (PRZYBYTEK), 1888, A., 245.
- $\alpha\beta$ -Dihydroxybutyric acid (*propylene-glycolcarboxylic acid*) (KOLBE), 1883, A., 574; (MELIKOFF), 1884, A., 1301.
- $\beta\gamma$ -Dihydroxybutyric acid (FITTIG), 1892, A., 957.
- iso*-Dihydroxybutyric acid (?  $\beta\gamma$ -*dihydroxybutyric acid*) (FITTIG and KOCHS), 1892, A., 958.
- 3':1'-Dihydroxycarbostyryl (v. BAEYER and HOMOLKA), 1884, A., 79.
- Dihydroxy-*o*-carboxyphenylpropionic acid, lactone of (ZINCKE), 1892, A., 720.
- Dihydroxychloralophosphine (DE GIRARD), 1884, A., 1119.
- Dihydroxyperchloromethylecyanidine (TSCHERVEN-IWANOFF), 1892, A., 1291.
- Dihydroxycinchonic acid (*dihydroxyquinoline-4-carboxylic acid*) (GOLD-SCHMIEDT), 1888, A., 302.
- Dihydroxycinnamic acid. See Caffeic acid.
- o*-Dihydroxy-compounds, reagent for (STAHL), 1892, A., 1133.
- Dihydroxycoumarin (TEMANN and WILL), 1883, A., 200.
- cis*-Dihydroxy- $\psi$ -cumene (HJELT and GAUD), 1886, A., 615.
- Dihydroxydibenzylacetic acid (PERKIN and STENHOUSE), 1891, T., 1002; P. 43.
- o*-Dihydroxydibenzylamine (EMMERICH), 1888, A., 50.
- Dihydroxydiethylmethylaniline (KNORR), 1889, A., 1218.
- Dihydroxydiethoxybenzene (NIETZKI and RECHBERG), 1890, A., 968.
- 2':4'-Dihydroxy-3':4'-dihydroquinoline (*hydroxyhydrocarbostyryl*) (EINHORN), 1884, A., 1838.
- 2':4'-Dihydroxy-3':4'-dihydroquinoline (*hydroxyhydrocarbostyryl*), 3-chloro- (EICHENGRUN and EINHORN), 1890, A., 1128; 1891, A., 1100.
- Dihydroxydihydroquinolinelactone (LIEBERMANN and KLEEMANN), 1887, A., 48.
- Dihydroxydiketo-pentamethylene and -pentamethylenecarboxylic acid (HANTZSCH), 1888, A., 132.
- Dihydroxydiketotetrahydronaphthalene (ZINCKE), 1892, A., 859.
- Dihydroxydimethoxybenzene (WILL), 1888, A., 458.
- Dihydroxydimethylanthraquinones, isomeric (v. KOSTANECKI and NIEMENTOWSKI), 1885, A., 1240.
- Dihydroxydimethylbenzophenone (SCHROETER), 1890, A., 899.
- Dihydroxydimethylcinnamic acids (*dimethylumbellac acids*) (WILL), 1884, A., 68; (WILL and BECK), 1886, A., 880.
- Dihydroxydimethyldiphenylmethane (DIANIN), 1889, A., 1187.
- Dihydroxydimethyldiquinoxaline (NIETZKI and MULLER), 1889, A., 605.
- Dihydroxydimethylglutaric acid (AUWERS and JACKSON), 1890, A., 1099; (ZELINSKY), 1892, A., 437.
- lactone and dilactone of (ZELINSKY), 1892, A., 436, 437.
- Dihydroxydimethylglutaric acids, stereoisomerism of (ZELINSKY), 1892, A., 436.
- Dihydroxydimethylheptamethylene (KIPPING and PERKIN), 1889, P., 145; 1891, T., 217.
- synthesis of (KIPPING and PERKIN), 1891, T., 214; P., 24.
- constitution of (KIPPING and PERKIN), 1891, T., 221.
- action of hydroxylamine and of phenylhydrazine on (KIPPING and PERKIN), 1891, T., 221.
- condensation product of (KIPPING and PERKIN), 1891, T., 228.
- sodium derivative of (KIPPING and PERKIN), 1891, T., 220.
- Dihydroxydimethylpurin (FISCHER), 1884, A., 997.
- Dihydroxydimethyltriphenylmethane (SCHROETER), 1890, A., 898.
- Dihydroxydinaphthylidene disulphide (LANGE), 1888, A., 375.
- Dihydroxydinaphthylphenylmethane (DOEBNER), 1890, A., 902.
- Dihydroxydiphenylamine (SEYEWITZ), 1890, A., 369.

- Dihydroxydiphenylamine**, *di*bromo- (MÖHLAU), 1884, A., 594.
- o*:*p*-**Dihydroxydiphenylcarbinol** (MICHAEL), 1884, A., 311.
- p*-**Dihydroxydiphenyltrichlorethane**, *di*- and *tetra*-nitro- (ELBS and HOERMANN), 1889, A., 998.
- Dihydroxydiphenyldibenzylmethane** (V. BOGDANOWSKA), 1892, A., 851.
- Dihydroxydiphenyldimethyldiazobenzophenylmethane** (MAZZARA), 1885, A., 904.
- Dihydroxydiphenylic mono- and di-sulphides**. See Hydroxyphenylic *mono*- and *di*-sulphides.
- Dihydroxydiphenylic sulphoxide** (SCHALL and UHL), 1892, A., 1077.
- Dihydroxydiphenylpentane** (DIANIN), 1889, A., 1187.
- Dihydroxydipropyldiphenylcarbamidedicarboxylic acid** (WIDMAN), 1884, A., 1023.
- $\beta$ -Dihydroxydiquinoline** (ROSER), 1884, A., 1372; (WEIDEL and GLÄSER), 1886, A., 950.
- Dihydroxydiquinoyl**. See Rhodizonic acid.
- Dihydroxydurylic acid** (NEF), 1886, A., 241; 1887, A., 255; 1888, T., 435.
- "**Dihydroxyethenylphenylenediamine**" (ASCHAN), 1886, A., 147.
- 3-Dihydroxy-2-ethoxyanthraquinone** from anthragallol (LIEBERMANN and JELLINEK), 1888, A., 716.
- p*-**Dihydroxyethoxyquinone**, chloro- (KEHRMANN), 1891, A., 904.
- m*-**Dihydroxyethoxyquinoxaline** (AUTENRIETH and HINSBERG), 1892, A., 160.
- p*-**Dihydroxyethoxyquinoxaline** (AUTENRIETH and HINSBERG), 1892, A., 734.
- Dihydroxyethylaniline** (KNORR), 1889, A., 1219.
- 3:4-Dihydroxy-1-ethylbenzene** (SEMPOTOWSKI), 1890, A., 55.
- Dihydroxyethylbenzene** (*styrolene alcohol*), hydrocarbon ( $C_{10}H_{12}$ ) from (ZINCKE and BREUER), 1885, A., 269; (ZINCKE), 1887, A., 959.
- Dihydroxyethylpyridinecarboxylic acid** (*ethylcomenamic acid*) (MENNEL), 1885, A., 1203.
- Dihydroxy-3'-ethylquinoline** (MEYER and HOFFMANN), 1888, A., 970.
- Dihydroxy-3'-ethylquinoline**,  $\alpha$ - and  $\beta$ - (MEYER and HOFFMANN), 1888, A., 970.
- cis**trans*-*p*-**Dihydroxyhexamethylene** (V. BAERER), 1892, A., 833.
- Dihydroxyhexane** (*hexylenic  $\delta$ -glycol*) (LIPP), 1886, A., 219; (PERKIN), 1887, T., 722.
- Dihydroxyhexoic acid** [m.p. 152°] (LIEBEN and ZEISER), 1883, A., 571.
- Dihydroxyhexoic acid lactone and salts** of (FITTIG and HILLERT), 1892, A., 959.
- iso*-**Dihydroxyhexoic acid lactone and salts** of (FITTIG and HILLERT), 1892, A., 959.
- o*-**Dihydroxyhydrobenzoin and diiso-anhydride** of (TIEMANN), 1892, A., 168, 167.
- p*-**Dihydroxyisohydrobenzoin** (TIEMANN), 1886, A., 460.
- o*-**Dihydroxyhydrobenzoins**, isomeric (TIEMANN), 1892, A., 167.
- Dihydroxyhydrolapachic acid** (HOOKER), 1891, A., 1239.
- Dihydroxyhydrolapachol** (HOOKER), 1892, T., 647.
- Dihydroxylamine barium and cadmium chlorides** (CRISMER), 1890, A., 559.
- zinc chloride** (CRISMER), 1890, A., 558.
- m*-**Dihydro-xylene** (WALLACH), 1890, A., 1314.
- Dihydro-p-xylene**, synthesis of (V. BAERER), 1892, A., 1182.
- Dihydroxymaleic acid**, the so-called (HENDRIXSON), 1890, A., 958.
- Dihydroxymesitylene** (*mesitylenic glycol*) (ROBINET and COLSON), 1883, A., 1095.
- 2':4'-Dihydroxy-p-methoxy-3':4'-dihydroquinoline** (EICHENGÜN and EINHORN), 1891, A., 1098.
- Dihydroxymethylantraquinone** (*chrysophanic acid*) (GRANDIS), 1892, A., 1854.
- reactions for distinguishing, from the santonicin colouring matter in urine (HOPPE-SEYLER), 1887, A., 406.
- $\beta$ -Dihydroxymethyl- $\psi$ -carbostyryl** (FRIEDLÄNDER and MÜLLER), 1887, A., 978.
- m*- **$\alpha$ -Dihydroxymethylcoumarilic acid** (LANG), 1887, A., 263.
- Dihydroxymethylcoumarin** (V. PECHMANN and DUNBERG), 1884, A., 67.
- 4:6-Dihydroxy- $\beta$ -methylcoumarin** (V. PECHMANN and COHEN), 1885, A., 57.
- Dihydroxymethylidihydroquinolinecarboxylic acid** (KROLIKOWSKI and NENCKI), 1883, A., 865.
- 2':4'-Dihydroxymethyl-3'-ethylquinoline** (RUGHEIMER and SCHRAMM), 1887, A., 738; 1888, A., 502.

- 2':4'-Dihydroxy-1-methylquinoline, 3'-chloro- (*chlorohydroxy-o-tolucarbostyryl*) (RUGHEIMER and HOFFMANN), 1886, A., 160.
- Dihydroxy-2'-methylquinoline-derivatives, synthesis of (CONRAD and LIM-PACH), 1888, A., 853.
- $\beta$ -o-Dihydroxy- $\alpha$ -naphthaldehyde (BRADLEY and DAINS), 1892, A., 1459.
- 1:4'-Dihydroxynaphthalene (ARMSTRONG and WYNNE), 1887, P., 43.
- 1:1'(?)-Dihydroxynaphthalene (MELDOLA and HUGHES), 1890, T., 633.
- 1:3'-Dihydroxynaphthalene (CLAUS), 1889, A., 714.
- 2:2'-Dihydroxynaphthalene (CLAUSIUS), 1890, A., 627.
- 1:1'-dichloro- and 1:3:3':1'-tetrachloro- (CLAUSIUS), 1890, A., 629.
- Dihydroxynaphthalene, action of, on blood (LÉPINE), 1888, A., 184.
- Dihydroxynaphthalenedicarboxylic acid (CLAUS and MEIXNER), 1888, A., 612.
- Dihydroxynaphthalenedisulphonic acid, sodium ammonium salt of (WITT), 1889, A., 273.
- Dihydroxynaphthalenes, isomeric (ERDMANN), 1889, A., 157.
- Dihydroxynaphthalenes, 1:2'- and 2:3'- (EMMERT), 1888, A., 57.
- Dihydroxy- $\alpha$ -naphthaquinone (*hydroxyjuglone*) and its derivatives (MYLIUS), 1885, A., 803.
- 3:4-Dihydroxy-1:2-naphthaquinone (BAMBERGER and KITSCHOLT), 1889, A., 494; (ZINCKE), 1892, A., 720.
- 2':3'-Dihydroxynaphthaquinoxaline (KÜHLING), 1892, A., 70.
- Dihydroxynaphthoxanthenes (BENER), 1892, A., 1100.
- 2':2:1-Dihydroxynaphthylamine (CLAUSIUS), 1890, A., 628.
- $\alpha\beta$ -Dihydroxynaphthylamine, hydrochloride of (KORN), 1884, A., 1186.
- Dihydroxyisonicotinamide (RUHEMANN), 1888, A., 728.
- Dihydroxy-*l*-nitroberberine (MARFORI), 1889, A., 628.
- 1:3-Dihydroxy-*l*-nitrodiphenylamine (NIETZKI and SCHÜNDELEN), 1892, A., 310.
- p*-Dihydroxy-*l*-nitrodiphenyltrichloroethane (ELBS and HOERMANN), 1889, A., 998.
- Dihydroxycenanthylphosphinic acid (VILLE), 1889, A., 1135.
- Dihydroxypentane [b.p. 260°] (*pentyl-enic glycol*) (GUSTAVSON and DEMJANOFF), 1889, A., 950; (DEMJANOFF), 1892, A., 1292.
- Dihydroxypentane [b.p. 260°] (*pentyl-enic glycol*), oxides of (DEMJANOFF), 1892, A., 1292.
- Dihydroxypentane [b.p. 220°]. See  $\gamma$ -Amylene glycol.
- Dihydroxypentenecarboxylic acid, dichloro- (HANTZSCH), 1888, A., 131; 1889, A., 853.
- trichloro- (HANTZSCH), 1888, A., 130; 1889, A., 853; (HOFFMANN), 1889, A., 856.
- Dihydroxyphenazine (FISCHER and HEPP), 1890, A., 801.
- Dihydroxyphenoquinone, tetrachlorodibromo- (BENEDIKT), 1883, A., 984.
- Dihydroxyphenoxypropane (*phenylglycerol*) (LINDEMANN), 1891, A., 1198.
- 3:5-Dihydroxyphenylacetic acid (CORNELIUS and V. PECHMANN), 1886, A., 802.
- Dihydroxyphenylacrylic acid. See Caffeic acid.
- $\alpha\gamma$ -Dihydroxy- $\gamma$ -phenylbutyric acid, lactone of (BIEDERMANN), 1892, A., 472.
- $\beta\gamma$ -Dihydroxy- $\gamma$ -phenylbutyric acid (FITTIG), 1888, A., 595; (FITTIG and OBERMÜLLER), 1892, A., 986.
- Dihydroxyphenylbutyrolactone, bromo- (FISCHER and STEWART), 1892, A., 1447.
- $\alpha\beta$ -Dihydroxyphenylpropionic acid. See  $\beta$ -Phenylglyceric acid.
- Dihydroxyphenylquinoline [m.p. 114°] (WEIDEL), 1887, A., 847.
- p*-Dihydroxyphenylthiocarbamide (KALCKHOFF), 1883, A., 1110.
- Dihydroxyphenylvaleric acid (FITTIG and MAYER), 1892, A., 986.
- Dihydroxyphosphinic acids (VILLE), 1889, A., 1134; 1890, A., 618.
- $\alpha'\gamma$ -Dihydroxy- $\alpha$ -picoline (COLLIE and MYERS), 1892, T., 722.
- $\alpha'\beta'$ -Dihydroxy- $\alpha$ -picoline, di- and trichloro- (HOFFMANN), 1889, A., 856.
- Dihydroxypicoline dibromide (COLLIE and MYERS), 1892, T., 724.
- Dihydroxypiperohydronic acids,  $\alpha\beta$ - and  $\beta\gamma$ - (V. REGEL), 1887, A., 488.
- Dihydroxypropanetricarboxylic acid, and its salts (KILIANI), 1885, A., 744.
- $\alpha\beta$ -Dihydroxypropionic acid. See Glyceric acid.
- Dihydroxypyridine (KOENIGS and GEIGY), 1884, A., 1369; (WEIDEL and BLAU), 1886, A., 76.
- salts of (KOENIGS and GEIGY), 1884, A., 1369.

- 2:6-Dihydroxypyridine, 4-amido-. See Glutazine.
- Dihydroxypyridinecarboxylic acid (*orimidocmanic acid*) (OST), 1884, A., 1802.
- Dihydroxypyridinecarboxylic acid (*comenamic acid*) (OSF), 1883, A., 792.
- 2:4-Dihydroxypyridine-5- or 6 (?) -carboxylic acid, 3-nitro- (BISCHOFF), 1889, A., 519.
- 2:6-Dihydroxypyridine-3-carboxylic acid. See Citrazinic acid.
- Dihydroxypyromellitic acid (*quinol-tetracarboxylic acid*) (NEF), 1888, T., 453.
- pyrazolone derivative of (NEF), 1890, A., 984.
- anhydride of (NEF), 1890, A., 984.
- Dihydroxyquinoline (LELLMANN), 1887, A., 973.
- $\alpha$ -Dihydroxyquinoline [m.p. 130°—136°] (LA COSTE and VALEUR), 1886, A., 629.
- $\beta$ -Dihydroxyquinoline [m.p. 68°] (LA COSTE and VALEUR), 1886, A., 629; 1888, A., 297.
- 1:2'-Dihydroxyquinoline (*hydroxycarbo-styryl*) (V. BAAYER and BLOEM), 1883, A., 197; (FRIEDLANDER and WEINBERG), 1883, A., 351.
- 1:4-Dihydroxyquinoline (CLAUS and POSSELT), 1890, A., 523.
- 1:1'-Dihydroxyquinoline, 2:4-dichloro- (HEDEBRAND), 1889, A., 61.
- Dihydroxyisoquinoline, chloro- (RÜGHEIMER), 1886, A., 702.
- Dihydroxyquinolines, 2':3'- and 2':4'- (FRIEDLANDER and WEINBERG), 1883, A., 351.
- 2':4'-Dihydroxyquinoline-3'-carboxylic acid (BISCHOFF), 1889, A., 519.
- 2':4'-Dihydroxyquinoline-3'-oxime (*quinisotocine*) (V. BAAYER and HOMOLKA), 1884, A., 1029.
- 2':4'-Dihydroxyquinolinesulphonic acid (V. BAAYER and BLOEM), 1883, A., 197.
- Dihydroxyquinone, dichloro-. See Chloranilic acid.
- nitramido-, potassium salt of (NIETZKI and BENCKISER), 1885, A., 779.
- 2:5-Dihydroxyquinone (NIETZKI and SCHMIDT), 1888, A., 1181.
- derivatives of (NIETZKI and SCHMIDT), 1889, A., 968.
- 2:5-Dihydroxyquinone, 3:6- diamido- (NIETZKI and SCHMIDT), 1888 A., 943.
- 3-chloro- (KEHRMANN and TIESLER), 1890, A., 242.
- 2:5-Dihydroxyquinone, 3-chloro-, action of aniline on (KEHRMANN), 1890, A., 756.
- 6-chloro-3-iodo- (KEHRMANN and TIENLEU), 1890, A., 242.
- $\beta$ -imido- (NIETZKI), 1884, A., 58.
- nitro- (NIETZKI and SCHMIDT), 1889, A., 968.
- 3:6-Dihydroxyquinone (LOEWY), 1886, A., 1028.
- 2:5-dinitro-. See Nitranilic acid.
- Dihydroxyquinones, action of, on *o*-diamines (NIETZKI and HASTERLIK), 1891, A., 944.
- action of hydroxylamine hydrochloride on (KEHRMANN and TIESLER), 1890, A., 493.
- Dihydroxyquinonephenazine (NIETZKI and SCHMIDT), 1888, A., 690.
- Dihydroxyquinoxaline (BLADIN), 1885 A., 257, 786.
- Dihydroxysebacic acid (CLAUS and STEINKAULER), 1888, A., 184.
- Dihydroxyshikimic acid (ENKMAN), 1891, A., 920.
- Dihydroxystearic acid (SAYTZEFF), 1886, A., 140; (SPIRIDONOFF), 1889, A., 123; (GRÖGER), 1889, A., 690.
- Dihydroxystearic acids (M., C., and A. SAYTZEFF), 1888, A., 816.
- o*-Dihydroxystilbene (HARRIES), 1892, A., 168.
- p*-Dihydroxystilbene (ELBS and HOERMANN), 1889, A., 997.
- Dihydroxystilbenediamine (JAPP and HOOKER), 1884, T., 680.
- action of acetic and benzoic anhydrides on (JAPP and HOOKER), 1884, T., 683.
- Dihydroxysuccinic acid. See Tartaric acid.
- Dihydroxytartaric acid (*carbonyltartaric acid*) (KEKULÉ), 1884, A., 41; (MILLER), 1889, A., 1149.
- action of carbamide and thiocarbamide on (ANSCHÜTZ and GELDERMANN), 1891, A., 725.
- action of hydroxylamine on (MÜLLER), 1884, A., 584.
- behaviour of, with sodium hydrogen sulphite (HINSBERG), 1892, A., 145.
- condensation of, with secondary hydrazines (ZIEGLER and LOCHER), 1887, A., 579.
- diphenylhydrazine, reduction of (TAFEL), 1887, A., 467.
- Dihydroxyterephthaldihydroxamic acid (JEANRENAUD), 1889, A., 871.

- 3:6-Dihydroxyterephthalic acid (*quinollicarboxylic acid*; *quinonehydrodicarboxylic acid*) (WEDEL), 1884, A., 884.  
 constitution of (GEUTHER), 1888, A., 579.  
 derivatives of (WEDEL), 1884, A., 884.
- 3:6-Dihydroxyterephthalic acid, di-bromo- (BÜNINGER), 1888, A., 954.  
*p*-dichloro- (HANTZSCH and ZEUCKENDORF), 1888, A., 278.  
*dimido*- (BÜNINGER), 1888, A., 955.
- Dihydroxytetrahydroterephthalic acid [m.p. 191°] (JEANRENAUD), 1889, A., 872.
- Dihydroxythiobenzene, properties of (TASSINARI), 1891, A., 186.
- Dihydroxythiobenzenes (TASSINARI), 1889, A., 245; 1892, A., 1316.
- Dihydroxydithiobenzoic acid (LIPPMANN), 1890, A., 163.
- Dihydroxythymoquinone (KOWALSKI), 1892, A., 1098.  
 constitution of (MAZZARA), 1890, A., 884.
- 2:3-Dihydroxytoluene, synthesis of (LIMPACH), 1892, A., 447.
- 2:4-Dihydroxytoluene (*resorcinol*) from tolylenediamine (WALLACH), 1883, A., 329.  
 identity of, with *isorecinol* (NÜLTING and WEINGÄRTNER), 1886, A., 346.  
*dinitro*- and *dinitroso*- (V. KOSTANECKI), 1888, A., 264, 263.
- 2:6-Dihydroxytoluene (ULLMANN), 1884, A., 1317.
- 3:5-Dihydroxytoluene. See *Orcinol*.
- 2:4-Dihydroxy-1:3- or -1:5-toluic acid (*resorcinolcarboxylic acid*) (V. KOSTANECKI), 1886, A., 242.
- 5:3-Dihydroxy-*o*-toluic acid (*resorsellinic acid*), and its salts (JACOBSEN and WIERNIS), 1883, A., 1121.
- 5:3-Dihydroxy-*p*-toluic acid (WEINREICH), 1887, A., 669.
- Dihydroxytoluic aldehyde (*oreylaldehyde*) (V. PECHMANN and WELSH), 1884, A., 1346.
- Dihydroxytoluquinone (ZINCKE), 1883, A., 1118.  
 constitution of (KEHRMANN), 1890, A., 756.
- 3:6-Dihydroxytoluquinone, 5-nitro- (*tolunitranilic acid*) (KEHRMANN), 1883, A., 940; (KEHRMANN and BRÄUCH), 1889, A., 969.
- Dihydroxytoluinoxaline (BLADIN), 1885, A., 785; (HINSBERG), 1886, A., 82.
- Dihydroxytolylcarbamide (SÜDERBAUM and WIDMAN), 1889, A., 972.
- p*-Dihydroxytriphenylmethane, and its derivatives (RUSSANOFF), 1889, A., 1188; 1891, A., 1234.  
*m*-nitro- (DE VARDA and ZENONI), 1891, A., 1346.  
*dinitro*- (RUSSANOFF), 1891, A., 1235.
- Dihydroxyundecylic acid (HAZURA and GRÜSNER), 1889, A., 375.
- Dihydroxyvaleric acid ( *$\alpha$* -*dimethylglyceric acid*) (MELIKOFF), 1886, A., 1009; 1887, A., 30; (MELIKOFF and PETRENKO-KRITSCHENKO), 1892, A., 297.  
 salts of (FITTIG and URBAN), 1892, A., 959.
- 3:4-Dihydroxyxanthone (GRAEBE and EICHENGRUN), 1891, A., 707.  
 bromo-, derivatives of (GRAEBE and EICHENGRUN), 1892, A., 1226.
- Di- $\omega$ -hydroxy-*m*-xylene (*m-xylene glycol*) (COLSON), 1884, A., 1313.
- Di- $\omega$ -hydroxy-*o*-xylene (*o-xylene glycol*) (COLSON), 1884, A., 1000.
- 2:4-Dihydroxy-*m*-xylene (*dimethylresorcinol*) (WISCHIN), 1891, A., 74.  
 bromo- and chloro- (WISCHIN), 1891, A., 74.
- 4:6-Dihydroxy-*m*-xylene. See *Xylorcinol*.
- 3:5-Dihydroxy-*p*-xylene (V. KOSTANECKI), 1887, A., 39.
- Dihydroxyxylenes (*xylene glycols*), saponification of the haloid derivatives of, by neutral substances (COLSON), 1885, A., 146.
- Diimide, attempts to prepare (THIELE), 1892, A., 1430.
- Diketodihydropentene, *tetrachloro*- (ZINCKE and RABINOWITSCH), 1891, A., 691.
- 2':4'-Diketodihydroquinazoline (ABT), 1889, A., 609.
- Diketoheptane. See *Methyl isobutyl diketone*.
- m*-Diketoexamethylene, *heptachloro*- (ZINCKE and RABINOWITSCH), 1891, A., 690.
- Diketoexamethylene-dioxime and *diphenylhydrazone* (V. BAeyer and NOYES), 1889, A., 1147, 1148.
- Diketoheptanes. See *Methyl propyl diketones*.
- a*-Diketoheptene, *hexachloro*- (ZINCKE), 1890, A., 964.
- m*-Diketoheptene, *hexachloro*- (ZINCKE and FUCHS), 1892, A., 1461.

- o*-Diketohexene, *hexachloro*-, action of phosphoric chloride on, and behaviour of, on heating (ZINCKE and KUSTER), 1891, A., 819.
- p*-Diketohexene, *hexachloro*-, (ZINCKE and FUCHS), 1892, A., 447.
- pentachloroamido*-, (ZINCKE and FUCHS), 1892, A., 450.
- $\alpha\beta$ -Diketohexylene (OTTE and V. PECHMANN), 1889, A., 1139.
- $\alpha$ -Diketohydrindene (WISLIGENUS), 1888, A., 1194; (WISLIGENUS and KOTZLE), 1889, A., 1067.
- dichloro*-, (ZINCKE), 1888, A., 489.
- Diketohydrindene, dioxime of (WISLIGENUS and KOTZLE), 1889, A., 1067.
- chlorinated and brominated (ZINCKE and GERLAND), 1888, A., 1199.
- Diketohydronaphthalene, *tetrachloro*-, (ZINCKE), 1888, A., 489.
- and its decomposition products (ZINCKE and COOKSEY), 1890, A., 784.
- o*-Diketohydronaphthalene, *tetrachloro*-, its hydrates and alcohols (ZINCKE and ARNST), 1892, A., 858.
- 2':2-Diketohydronaphthalene, *deca*-chloro-, (CLATNITS), 1890, A., 629.
- Diketohydronaphthalene hydrate, *tri*-chloro-, (ZINCKE), 1888, A., 158.
- $\alpha\beta$ -Diketohydronaphthalene hydrate, *dichloronitro*-, (ZINCKE and SCHARFENBERG), 1892, A., 1232.
- $\alpha_{1\alpha_2}$ -Diketo- $\gamma$ -methylulole (REISERT), 1892, A., 496.
- Diketones (BEHAL and ATGER), 1890, A., 388.
- action of bleaching powder and of hypochlorous acid on (ZINCKE), 1892, A., 720.
- action of diamines on (COMBES), 1889, A., 851.
- action of hydroxylamine on (GOLDSCHMIDT), 1884, A., 62; (MÜNCHMEYER), 1886, A., 350, 877; 1887, A., 373.
- action of methylhydrazine on (KOHLE-RAUSCH), 1890, A., 24.
- additive and condensation compounds of, with ketones (JAPP and MILLER), 1885, T., 11.
- o*-Diketones, colour reaction exhibited by (BAMBERGER), 1885, A., 307.
- fatty, preparation of (V. PECHMANN), 1892, A., 425.
- Diketones, hydrocyanides of, preparation and hydrolysis of (JAPP and MILLER), 1886, P., 249; 1887, T., 29.
- saponification of (JAPP and MILLER), 1884, A., 329.
- $\alpha$ -Diketones (V. PECHMANN), 1888, A., 811.
- action of aldehydes and ammonia on (WADSWORTH), 1890, T., 8.
- condensation of, with ethylic acetoacetate (JAPP and KLINGEMANN), 1888, P., 114.
- reduction of (JAPP and KLINGEMANN), 1890, P., 31.
- transformation of, in alkaline solution (HOOGWERFF and VAN DORP), 1891, A., 835.
- hydrazides of (JAPP and KLINGEMANN), 1888, P., 11.
- mixed (MULLER and V. PECHMANN), 1889, A., 1170.
- $\beta$ -Diketones, action of hydroxylamine on (HANTZSCH), 1891, A., 739.
- $\gamma$ -Diketones, action of phenylhydrazine on (JAPP and HUNTLY), 1888, T., 184; P., 11.
- Diketonic acids (KUES and PAAL), 1887, A., 261.
- $\alpha\beta$ -Diketo-octane, secondary (OTTE and V. PECHMANN), 1889, A., 1138.
- Diketopentamethylene derivatives, action of amines on (INCE), 1890, A., 1090.
- bromo- and chloro-derivatives of (HANTZSCH), 1889, A., 855.
- chloro-, (HANTZSCH), 1888, A., 132.
- Diketopentamethylenecarboxylic acid, chloro-, (HANTZSCH), 1888, A., 132.
- $\alpha\delta$ -Diketopentane-carboxylic acids, *mono*- and *ε*-*dichloro*-, (HANTZSCH), 1889, A., 854.
- $\alpha\beta$ -Diketopiperazines (BISCHOFF and NASTVOGEL), 1889, A., 1015.
- $\alpha\gamma$ -Diketopiperazines (BISCHOFF and NASTVOGEL), 1889, A., 1011.
- Diketotetrahydrobenzene, *hexachloro*-, (ZINCKE and KUSTER), 1888, A., 1277.
- Dilactylic acid (TANATAR and TSCHELERBEFF), 1891, A., 177.
- Dilactylic acids,  $\alpha$ - and  $\beta$ -*mono*- and *-di*-thio-, (LOVÉN), 1884, A., 1298, 1299.
- Dilatometer, differential, and its application in an investigation on the formation of alums (SPRING), 1884, A., 887.
- Dilauryl-carbinol and -carbinyl acetate (KIPPING), 1890, T., 933, 934.
- Dilituric acid (CERENOLE), 1883, A., 913.
- Diluents, influence of, on the illuminating power of gases (FRANKLAND), 1884, T., 227.
- Dilution, influence of, on the rate of chemical reactions (DE LA CROIX), 1884, A., 1090.

- Dilution constants**, electromotive (MIENLER), 1837, A., 1072; 1888, A., 13.
- Dimalonylmalic acid** (PUM), 1888, A., 1059.
- Dimethamido-**. See Dimethylamido-.
- Dimethoxyanthranilcarboxylic acid** (LIEBERMANN), 1886, A., 468.
- 1:3-Dimethoxybenzene** (*resorcinyl dimethyl ether*), 4-amido-, and its derivatives (BECHHOLD), 1889, A., 1155.
- dinitro-** (JACKSON and WARREN), 1891, A., 1025.
- Dimethoxybenzoic acid**, *di*bromo- (v. BOYEN), 1888, A., 680.
- Di-o-methoxybenzylidene-ethylenediamine** (MASON), 1887, A., 493.
- Dimethoxydichloroquinol** (KEHRMANN), 1889, A., 707.
- Dimethoxydichloroquinols**,  $\alpha$ - and  $\beta$ - (KEHRMANN), 1890, A., 137.
- Dimethoxydichloroquinone** (KEHRMANN), 1889, A., 707.
- p-Dimethoxydichloroquinone** (KEHRMANN), 1890, A., 136.
- Dimethoxycinchonic acid** (GOLDSCHMIEDT), 1886, A., 479; 1888, A., 302.
- m-o-Dimethoxycinnamic acid** (SCHNELL), 1884, A., 1166; 1887, A., 140.
- Dimethoxyconiferin** (*syriagin*) (KÜRNER), 1889, A., 159.
- Dimethoxyconiine** (v. HOFMANN), 1885, A., 563.
- Dimethoxydibenzyl** (*anisyl*) *mercaptan* and *disulphide* (BAUMANN and FROMM), 1891, A., 1051.
- Dimethoxydiethylacetone** (JAMES), 1886, T., 57.
- Dimethoxydihydrochloroquinolinelactone** (LIEBERMANN and KLEEMANN), 1887, A., 48.
- Dimethoxydihydroxybenzene** (*dimethylapionole*) from *apiole* (CIAMICIAN and SILBER), 1889, A., 407; 1890, A., 85.
- Dimethoxydimethylbenzidine** (Me.NIL:OMe=2:4:5) (BRANCH and FREYSS), 1891, A., 1231.
- Dimethoxydimethylmalonic acid** (KLEBER), 1888, A., 1057.
- Dimethoxydinaphthalenes**,  $\alpha$ - and  $\beta$ - (OSTERMAYER and ROSENHEK), 1885, A., 171.
- Dimethoxydinaphthylenemethane** (DIANIN), 1889, A., 1188.
- p-Dimethoxydiphenylpiperazine** (BISCHOFF), 1889, A., 1011.
- action of nitrous acid on (BISCHOFF and TRAPESONZJANZ), 1890, A., 1332.
- Dimethoxyditolylquinone** (NIETZKI), 1883, A., 467.
- Dimethoxygentisein** (v. KOSTANECKI and SCHMIDT), 1891, A., 1886.
- Dimethoxyhydrocarboxystyryllactone** (LIEBERMANN and KLEEMANN), 1887, A., 48.
- Dimethoxyindigo** (RIECHE), 1889, A., 1169.
- p- $\gamma$ -Dimethoxy-2'-methylquinoline** (CONRAD and LIMPACH), 1888, A., 853.
- Dimethoxyphenylcrotonic acid** (*dimethyl-B-methylumbellie acid*) (v. PECHMANN and COHEN), 1884, A., 1331.
- Dimethoxyphenylglyoxylic acid** (CIAMICIAN and SILBER), 1890, A., 967.
- Dimethoxyphenylglyoxylic phenylhydrazine** (GARELLI), 1891, A., 711.
- Dimethoxyphenylpropionic acid** (WILL), 1884, A., 68.
- Dimethoxy-o-phthalic acid**. See Hemipinic acid.
- Dimethoxyquinazoline** (ABT), 1889, A., 610.
- Dimethoxyquinoline** (LA COSTE and VALEUR), 1887, A., 973; (GOLDSCHMIEDT), 1887, A., 1119; 1888, A., 303.
- Dimethoxyquinone** (WILL), 1888, A., 458.
- from trimethylpyrogallol, constitution of (WILL), 1888, A., 1090.
- Dimethoxystilbenes**, *o*- and *p*- (KOPP), 1892, A., 719.
- Dimethoxyterephthalic acid** (NEF), 1890, A., 986.
- o-Dimethoxy-m-tolidine** (BRANCH and FREYSS), 1891, A., 1232.
- Dimethoxytolylenephthalimidone** (BISCHOFF), 1891, A., 746.
- Dimethoxyumbellie acid** (TIEMANN and WILL), 1883, A., 200.
- Dimethyl diketone** (*diacetyl*) (v. PECHMANN), 1888, A., 248; (FITTIG), 1888, A., 252; (v. PECHMANN and OTTE), 1888, A., 1052.
- preparation of (FITTIG, DAIMLER and KELLER), 1889, A., 491; (v. PECHMANN), 1892, A., 425.
- action of benzaldehyde and ammonia on (WADSWORTH), 1890, T., 8.
- action of cinnamaldehyde and ammonia on (WADSWORTH), 1890, T., 11.
- action of salicylaldehyde and ammonia on (WADSWORTH), 1890, T., 10.
- reduction of (v. PECHMANN), 1889, A., 1137.

- Dimethyl diketone** (*diacetyl*), derivatives of (V. PECHMANN), 1888, A., 811.  
 diphenylimide of (*diacetylani*) (V. PECHMANN), 1888, A., 812.  
 phenyl hydrazide and diphenyldihydrazide (JAPP and KLINGEMANN), 1888, P., 11.  
 homologues of (V. PECHMANN), 1888, A., 248; (V. PECHMANN and OTTE), 1888, A., 1052; 1889, A., 1137.
- Dimethyl diketone**, *dibromo-* (FITTIG, DAIMLER and KELLER), 1889, A., 491.  
*s-tet rabromo-* (KELLER), 1890, A., 359.  
*tetrachloro-* (LEVY and JEDLIKA), 1888, A., 443.  
 action of ammonia and ethylenediamine on (LEVY), 1890, A., 475.  
 derivatives of (LEVY, WITTE and CURCHOD), 1890, A., 282.  
*trichloramido-* (LEVY, WITTE and CURCHOD), 1890, A., 233.
- Dimethyl diketonecarboxylic acid** (*ketipic acid*) (FITTIG and DAIMLER), 1887, A., 362; (FITTIG, DAIMLER and KELLER), 1889, A., 490.
- Dimethyl ketone**. See Acetone.
- Dimethylacetal**, *trichloro-* (MAGNANIMI), 1887, A., 28.
- Dimethylacetacetic acid** (CERESOLE), 1883, A., 41.
- Dimethylacetone**. See Methyl isopropyl ketone.
- Dimethylacetylbutylamine** (LIPP), 1892, A., 1244.
- Dimethylacetylene** and its *tetrabromides* (FAWORSKY), 1890, A., 1220.  
 See also Butinene.
- Dimethylacetylenedicarbamide** (FRANCHIMONT and KLOBBE), 1889, A., 126.
- $\alpha\alpha'$ -Dimethylacetylhexoic acid** (KIPPING and MACKENZIE), 1891, T., 570, 584.
- $\alpha\omega$ -Dimethyl- $\omega$ -acetylhexoic acid** (KIPPING and MACKENZIE), 1890, P., 117.
- Di- $\alpha$ -methyl- $\beta$ -acetylpropionic acid** (*mesitonic acid*) (ANSCHUTZ and GILLET), 1888, A., 1272.
- $\alpha\beta$ -Dimethylacraldehyde** (LIEBEN and ZEISEL), 1886, A., 783; (HAYMANN), 1889, A., 487.
- Dimethylacridine** (BONNA), 1887, A., 928.
- Dimethylacridinium hydroxide** (BERNTSEN), 1884, A., 1856.
- Dimethylacrylic acid** (*pentenoic acid*) (HORBOFF and KESSLER), 1888, A., 814.
- Dimethylacrylic acid** (*pentenoic acid*) from *isovaleric acid* (DUVILLIER), 1891, A., 1011.  
 polymeric (HELL and MAYER), 1889, A., 374.
- $\beta$ -Dimethylacrylic acid**, and its salts (UNTINOFF), 1886, A., 140; 1887, A., 359.
- $s$ -Dimethyladipic acid** (ZELINSKY; AUWERS and MEYER), 1890, A., 132.
- Dimethyladipic acids**, stereoisomeric (ZELINSKY), 1892, A., 430.
- Dimethylæsculetin** (TEMANN and WILL), 1888, A., 199.
- Dimethylalloxanphenylhydrazone** (KÜHLING), 1892, A., 442.
- Dimethylalloxazine** (KÜHLING), 1891, A., 1342.
- Dimethylallylcarbinol**, bye-product of the preparation of (DIEFF), 1883, A., 1076.  
 crude, an alcohol in (POUTOKIN), 1884, A., 1283.  
 glycerol from (REFORMATSKY), 1890, A., 121.
- Dimethyl- $\beta$ -allylcarbinol** (*dimethylisopropenylcarbinol*) (CHUPOTSKY and MARIUTZA), 1890, A., 727.  
 action of acids on (MARIUTZA), 1890, A., 728.
- Dimethylallylene** (*pentinene*), action of hydrogen chloride on (KONDAKOFF), 1889, A., 1127.  
 conversion of, into *isopropylacetylene* (FAWORSKY), 1888, A., 1169.  
 properties and transformations of (ALBITZKY), 1888, A., 797.
- $\alpha\beta$ -Dimethylallylic alcohol** (LIEBEN and ZEISEL), 1886, A., 784.
- Dimethylamarine**, formula of (CLAY), 1883, A., 204.
- $s$ -Dimethylamides** (HENRY), 1885, A., 887.
- Dimethylamidoazo-**. See under Azo-.
- $p$ -Dimethylamidobenzaldoxime** (KÖHLER and BOESNECK), 1888, A., 267.
- Dimethylamidobenzamide** (KNAPP), 1891, A., 910.
- Dimethylamidobenzeneazo-**. See under Azo-.
- Dimethyl- *mono-* and *di-*amidobenzhydrols** and their derivatives (ALBRECHT), 1889, A., 263, 264.
- $p$ -Dimethylamidobenzoic acid**, nitroso-, and its derivatives (BISCHOFF), 1889, A., 511.
- Dimethylamidobenzophenone**, nitroso- (BISCHOFF), 1889, A., 511.
- Dimethyldiamidobenzophenone**, *tetra-*nitro- (VAN ROMBURGH), 1888, A., 1079, 1197.

- p*-Dimethylamidobenzylidenephénylhydrazine (KNOFLER and BOESSNECK), 1888, A., 267.
- $\beta$ -Dimethylamidocrotonanilide (KNORR), 1892, A., 708.
- Dimethylamidocyanuric acid and chloride (V. HOFMANN), 1886, A., 40.
- Dimethylamidodicarbimidoamidobenzoic acid (GRIESS), 1885, A., 1225.
- Dimethylamidodiphenylamine (FISCHER and WACKER), 1888, A., 1286.
- d*-nitro- (LELLMANN and MACK), 1890, A., 1410.
- Dimethyl-*tri*-amidodiphenylamine (KEHRMANN and MESSINGER), 1892, A., 1109.
- Dimethyl-*di*-amidodiphenylmethane (ALBRECHT), 1889, A., 264.
- Dimethyl-*tri*-amidodiphenyltolylmethane (NOLTING), 1891, A., 727; 1892, A., 189.
- Dimethylamidohexylene (TAFEL and NEUGEBAUER), 1890, A., 1001.
- Dimethylamidohydroquinoline hydrochloride (OSTERMAYER), 1885, A., 814.
- Dimethylamidomethylhydroquinoline methiodide (ZIEGLER), 1888, A., 610.
- Dimethylamidomethylphenazine (BERNTSEN and SCHWEITZER), 1887, A., 139.
- Dimethylamidomethylthiazole (HANTZSCH and WEBER), 1888, A., 257.
- $\alpha$ -Dimethylamido- $\alpha$ -naphtha-phenazine and -tolazine (EICKER), 1891, A., 471.
- Dimethyl-*m*-amidophenetol (VOM BAUR and STAEDL), 1883, A., 579.
- Dimethylamidophenol, *d*-nitro-, and its derivatives (LIPPMANN and FLEISSNER), 1886, A., 235.
- Dimethyl-*m*-amidophenol, nitroso- (MÜHLAU), 1892, A., 887.
- Dimethylamidophenyl hexyl ketone (AUGER), 1887, A., 815.
- Dimethylamidophenylarsine oxide and sulphide (MICHAELIS and RABINERSON), 1892, A., 1921.
- Dimethylamidophenyl-*tri*-chloromethylcarbinol (BOESSNECK), 1885, A., 976.
- Dimethylamidophenylethane (HEUMANN and WIENNIK), 1887, A., 1039.
- Dimethyl-*p*-amidophenyl ethylxanthate (LEUCKART), 1890, A., 605.
- Dimethylamidophenyl-phosphinous and -phosphonic acids (SCHENK and MICHAELIS), 1888, A., 834.
- Dimethylamidophenylphosphorous chloride (SCHENK and MICHAELIS), 1888, A., 834.
- Dimethylamidophenylquinoneimide (*phenol-blue*) (MÜHLAU), 1884, A., 594; 1886, A., 146; (FOGH), 1888, A., 592.
- trichloro-* (MÜHLAU), 1884, A., 595.
- Dimethylamidopropionic acid (DUVILLIER), 1892, A., 1802.
- Dimethylamidoquinoline (LA COSTE), 1883, A., 811.
- Dimethyl-*di*-amidoquinoxaline (NIETZKI and MÜLLER), 1889, A., 604.
- Dimethyl-*mono-* and -*di*-quinoxazones (MÜHLAU), 1892, A., 888.
- Dimethylamidosulphonic chloride and its derivatives (BEHREND), 1884, A., 285.
- Dimethylamine, properties of (V. HOFMANN), 1889, A., 688.
- heat of formation of (MÜLLER), 1889, A., 811.
- action of bromine on (RANCHIG), 1885, A., 1195.
- Dimethylamine chlororhodate (VINCENT), 1886, A., 311.
- hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1000.
- platinothiocyanate (GUARESCHI), 1892, A., 286.
- vanadates (BAILEY), 1884, T., 693, 694.
- nitro-, reduction of (FRANCHIMONT), 1885, A., 963.
- Dimethylanhydracetonebenzil (JAPP and BURTON), 1887, T., 432; P., 32.
- Dimethylaniline (V. HOFMANN), 1884, A., 1320.
- manufacture of (SCHROOP), 1887, A., 474; (MÜHLHAUSER), 1887, A., 576.
- preparation of (REINHARDT and STAEDL), 1888, A., 578.
- refractive power of, at different temperatures (PERKIN), 1892, T., 302.
- action of aluminium chloride on (GIRAUD), 1890, A., 137.
- action of benzoic chloride on (HESS), 1885, A., 783.
- action of carbon disulphide on, in presence of nascent hydrogen (WIENNIK), 1889, A., 130.
- action of chloral hydrate on (BOESSNECK), 1885, A., 976.
- action of, on ethylene bromide (HÜNNER, TÖLLE and ATHENSTÄDT), 1884, A., 1317.
- action of cinnamaldehyde and heptylic chloride on, in presence of zinc chloride (AUGER), 1887, A., 814.
- action of sulphur on (MÜHLAU and KROHN), 1888, A., 361.

- Dimethylaniline**, nitration of (NÖLTING and COLLIN), 1884, A., 1013; (NÖLTING), 1886, A., 543.  
 derivatives of (LAUTH), 1891, A., 457.
- Dimethylaniline cyanhydrin**, nitroso- (LIPPMANN and FLEISSNER), 1885, A., 1213.  
 hydrochloride, action of *m*-nitro-diazobenzene chloride on (MELDOLA), 1884, T., 120.  
 oxyalkyl derivatives of, reaction of (GRIMAUZ), 1891, A., 693.  
 platinumchloride, preparation of (REINHARDT and STAEDEL), 1888, A., 578.  
 disilicofluoride, *tr*-nitroso- (COMERY and SMITH), 1888, A., 1283.  
 sulphate (VIGON), 1888, A., 1282.  
 disulphide, *di*imido- (BERNTSEN), 1889, A., 776.
- Dimethylaniline**, amido-. See Dimethylphenylenediamine.  
*o*- and *p*-chloro-, and their derivatives (HEIDLEBERG), 1887, A., 474.  
*m*-nitro- (GROLL), 1886, A., 347; (STAEDEL and BÄTER), 1886, A., 941.  
*p*-nitro- (LIPPMANN and FLEISSNER), 1883, A., 1100; (NÖLTING and COLLIN), 1884, A., 1013.  
*di*- and *tri*-nitro- (VAN ROMBURGH), 1888, A., 1080.  
*isol*nitro- (VAN ROMBURGH), 1887, A., 245.  
*pent*anitro-, non-existence of (VAN ROMBURGH), 1885, A., 660.  
 nitroso-, action of hydrochloric acid on (MOHLAT), 1886, A., 941.  
 action of phenylhydrazine on (FISCHER and WACKER), 1888, A., 1286.  
 phenylmethylhydrazone of (FISCHER and WACKER), 1889, A., 702.  
 thio- (HOLZMANN), 1887, A., 723; (MICHAELIS and GODCHAUX), 1890, A., 610.  
 dithio- (MERZ and WEITH), 1886, A., 792.
- Dimethylanilinealloxan** (PELLIZZARI), 1888, A., 682.
- Dimethylanilineazobenzylpiperidine** (LELLMANN and PEKUN), 1891, A., 89.
- Dimethylanilineazyline** (LIPPMANN and FLEISSNER), 1883, A., 55, 185.
- Dimethylanilinefurfural hydrochloride** (SCHIFF), 1886, A., 612.
- Dimethylanilinequinonimide**. See Phenol-blue.
- Dimethylanilinesulphonic acid** (MICHAELIS and GODCHAUX), 1890, A., 610.
- Dimethylanilinisatin** (v. BAeyer and LAZARUS), 1886, A., 155.
- Dimethyl-*o*-anisidine**, action of nitric acid on (VAN ROMBURGH), 1892, A., 159.  
 actions of (GRIMAUZ), 1891, A., 694.  
*mono*- and *tri*-nitro- (GRIMAUZ and LEFEVRE), 1891, A., 1031.
- Dimethylanthracene** [m.p. 216°] (ELBS and WITTICH), 1885, A., 518.
- 2:3-Dimethylanthracene** (ELBS and EURICH), 1887, A., 841.
- 1:3-Dimethylanthracene**, *di*bromo- (ELBS), 1890, A., 511.
- Dimethylanthrachrysone** (CAHN), 1886, A., 556.
- "*m*-Dimethylanthracylene"** (ELBS), 1890, A., 511.
- Dimethylanthraflavic acid** (*dihydroxy-dimethylanthraquinone*) and its acetyl- and benzoyl-derivatives (v. KOSTANECKI and NIEMENTOWSKI), 1885, A., 1240.
- Dimethylanthragallo** (*trihydroxydimethylanthraquinone*) (BIRKOFF), 1887, A., 592.
- Dimethylanthramine** (BOLLERT), 1883, A., 1139.
- 1:3-Dimethylanthranol** (ELBS), 1890, A., 511.
- Dimethylanthraquinone** [m.p. 236°] (ANSCHÜTZ and ROMIG), 1885, A., 768.
- $\alpha$ -*m*- $\beta$ -Dimethylanthraquinone** (ELBS), 1886, A., 557.
- 1:4-Dimethylanthraquinone** (ELBS), 1890, A., 512.
- Dimethylanthraquinones**, 1:3- and 2:3- (ELBS and GUNTHER; ELBS and EURICH), 1887, A., 841.
- Dimethylanthraquinonecarboxylic acid** (GRESLY), 1886, A., 1029.
- Dimethylanthrarufin** (*s-dihydroxydimethylanthraquinone*) (v. KOSTANECKI and NIEMENTOWSKI), 1885, A., 531.  
 distillation of, with zinc-dust (v. KOSTANECKI and NIEMENTOWSKI), 1885, A., 1240.
- Dimethylanthrone** (HALLGARTEN), 1888, A., 1202.
- Dimethylapionole** (*dimethoxydihydroxybenzene*) (CIAMICIAN and SILBER), 1889, A., 407; 1890, A., 35.
- Dimethylapionylcarboxylic acid** (BARTOLOTTI), 1892, A., 1315.
- Dimethylarsinic acid** (*cacodylic acid*), action of, in the animal economy (MARSHALL and GREFF), 1886, A., 730.

- Dimethylasparagine (KÖRNER and MENOZZI), 1890, A., 870.
- Dimethylazethane (CURTIUS and THUN), 1891, A., 1356.
- Dimethylazobenzene, tetranitro- (MERTENS), 1886, A., 1022.
- Dimethylbarbituric acid (*dimethylmalonylurea*) (CONRAD and GUTHZEIT), 1883, A., 315.
- Dimethylbenzaldehyde (HINRICHSSEN), 1889, A., 131, 391.
- Dimethylbenzamide, nitro- (VAN ROMBURGH), 1886, A., 546.
- Dimethylbenzidine, tetranitro- (VAN ROMBURGH), 1887, A., 245.
- 2:2'-Dimethylbenzimidazole (BAMBERGER and BERLÉ), 1892, A., 632.
- Dimethylbenzodihydroxyanthraquinone and its acetyl derivative (v. KOSTANECKI and NIEMENTOWSKI), 1885, A., 1240.
- 2:3-Dimethylbenzoic acid (*hemimellithylic acid*) (JACOBSEN), 1887, A., 36.
- 2:4-Dimethylbenzoic acid (*xylic acid*), bromo- (GUNTER), 1884, A., 1847.
- nitro- (AHRENS), 1892, A., 1437.
- 3-nitro- (CLAUS), 1890, A., 980.
- 3:5-dinitro- (CLAUS), 1890, A., 981.
- 2:5-Dimethylbenzoic acid (*p-xylic acid*), bromo-, and its salts (GUNTER), 1884, A., 1847.
- 3:5-Dimethylbenzoic acid (*mesitylenic acid*), thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.
- bromo-, preparation of, from bromomesitylene (SÜSSENGUTH), 1883, A., 469.
- di-bromo-, and its salts (SÜSSENGUTH), 1883, A., 470.
- o-m*-Dimethylbenzoyl acetic acid (CLAUS and FICKERT), 1887, A., 253.
- " $\alpha$ -Dimethylbenzoyl necarbamide" (ABT), 1889, A., 610.
- o-p*-Dimethylbenzoyl- $\beta$ -propionic acid (CLAUS and WERNER), 1887, A., 827.
- Dimethylbenzoyl- $\psi$ -cumidine methiodide (FRÖHLICH), 1885, A., 154.
- Dimethylbenzyl salts (HINRICHSSEN), 1889, A., 391.
- Dimethylbismuthine bromide and chloride (MARQUARDT), 1887, A., 802.
- hydroxide (MARQUARDT), 1887, A., 803.
- Dimethylbromobenzeneazammonium compounds (ZINCKE and ARZBERGER), 1889, A., 502.
- Dimethyl-di-bromoheptamethylene (KIPPING and PERKIN), 1891, T., 223.
- Dimethylbromodinitroresorcinol (JACKSON and WARREN), 1891, A., 1025.
- Dimethyltri-bromonitroresorcinol (JACKSON and WARREN), 1891, A., 1026.
- "Dimethylbutylallylcarbinamine" (MERLING), 1891, A., 1506.
- Dimethylisobutylallylcarbinol (SCHATZKI), 1885, A., 237.
- 2:6-Dimethyl-4-isobutylpyridine (*isobutylutidine*) (ENGELMANN), 1886, A., 260.
- 2:6-Dimethyl-4-isobutylpyridine-3:5-dicarboxylic acid (ENGELMANN), 1886, A., 260.
- as*-Dimethylcarbamide (VAN DER ZANDE), 1889, A., 962.
- Dimethylcarbazole (TAUBER and LOEWENHERZ), 1891, A., 835, 1491.
- di-amido- (TAUBER and LOEWENHERZ), 1891, A., 834.
- Dimethylcarbostyryl (KNORR), 1888, A., 1111.
- o*-, *m*- and *p*- (KNORR), 1888, A., 1112.
- 1':4'-Dimethyl- $\psi$ -carbostyryl (KNORR), 1887, A., 159; (KNORR and KLOTZ), 1887, A., 278; (REINBERT), 1892, A., 498.
- Dimethylcarbostyrylsulphonic acid (KNORR), 1888, A., 1111.
- Dimethyltrichloracetamide (CLOËZ), 1887, A., 1098.
- Dimethyl-*m*-chloraniline and its salts (VOM BAUR and STAEDEL), 1883, A., 579.
- Dimethylchloro-diamidoethoxyquinone (KEHRMANN), 1891, A., 904.
- Dimethyltrichlorobromobenzeneazammonium iodide (ZINCKE and ARZBERGER), 1889, A., 502.
- p-a*-Dimethyleinchonic acid (PFITZINGER), 1889, A., 413.
- Dimethyleinchonine (FREUND and ROSENSTEIN), 1892, A., 892.
- Dimethylcolchicine acid (ZEISEL), 1888, A., 614.
- Dimethylcoumarilic acids (HANTZSCH and LANG), 1886, A., 706.
- $\beta$ -5-Dimethylcoumarin (v. PECHMANN and COHEN), 1885, A., 56.
- Dimethylcoumarone (HANTZSCH and LANG), 1886, A., 706.
- Dimethyl- $\psi$ -cumidine (v. HOFMANN), 1883, A., 324.
- Dimethyleyanidine, amido- (TSCHERVEN-IWANOFF), 1892, A., 1291.
- Dimethyleyanine iodide (HOOGWERFF and VAN DORP), 1885, A., 673.
- Dimethyl-*n*- and -*iso*-cyanuric acids (v. HOFMANN), 1886, A., 929, 930.

- Dimethyldehydrothiitoluidine** (GREEN), 1889, T., 230.
- aa'*-Dimethyl-*aa'*-diacetylpentane** (KIPPING and MACKENZIE), 1890, P., 116; 1891, T., 570, 587.  
dioxime of (KIPPING and MACKENZIE), 1891, T., 588.
- Dimethyldiazine** (STOEHR), 1892, A., 507; (DENNSTEDT), 1892, A., 633.
- 2:6-Dimethyl-*m*-diazine, 4-amido-**. See Cyanmethine.
- Dimethyl-dicoumaric acid and -dicoumarin** (HANTZSCH and ZÜRCHER), 1887, A., 830.
- Dimethyldiethylammonium chloride and hydroxide, action of heat on** (COLLIE and SCHRYVER), 1890, T., 780.
- Dimethyldiethylindamine thiosulphonate** (BERNTHSEN), 1889, A., 778.
- Dimethyldiethyl-*p*-phenylenediamine** (LIPPMANN and FLEISSNER), 1884, A., 179.
- di*Iodomethylate** (LIPPMANN and FLEISSNER), 1884, A., 178.
- Dimethyldiethylphosphonium chloride, action of heat on** (COLLIE), 1888, T., 720.
- Dimethyldiethylsulphonamide** (BEHREND), 1884, A., 286.
- Dimethyldihydrazimethylene** (CURTIUS and THUN), 1891, A., 1356.
- s*-Dimethyldihydroanthracene** (ANSCHÜTZ and ROMIG), 1885, A., 768.  
synthesis of, from benzene and ethylenic chloride (ANGELIS and ANSCHÜTZ), 1884, A., 753.
- as*-Dimethyldihydroanthracene** (HALLGARTEN), 1888, A., 1202.
- Dimethyldihydronaphthol** (CANNIZZARO), 1884, A., 327.
- Dimethyldihydronaphthylpropionic acids (*dihydrosantalic acids*)** (GUAY and GRASSI-CRISTALDI), 1892, A., 871.
- Dimethyldihdropentene methyl ketone** (PERKIN and STENHOUSE), 1892, T., 77.  
oxime of (PERKIN and STENHOUSE), 1892, T., 79.
- Dimethyldihdropentenedicarboxylic acid** (PERKIN and STENHOUSE), 1892, T., 81.
- Dimethyldihdropyridine** [b.p. 199°] (GAUTIER and MOURGUES), 1888, A., 1315.
- βγ*-Dimethyldihydroquinazoline** (GABRIEL and JANSEN), 1892, A., 218.
- Dimethyldiketohexamethylene** (v. BABYER), 1892, A., 1183.
- Dimethyldiketohydrindene** (WISLICENUS and KOTZLE), 1889, A., 1068.
- Dimethyldimethylenetrisulphone** (BAUMANN), 1890, A., 1093.
- Dimethyldipiperidyl** [b.p. 265°], and its derivatives (LADENBURG), 1892, A., 1487.
- Dimethyldipiperidyl** [b.p. 230°—232°] and its derivatives (LIEBRECHT), 1887, A., 162.
- iso*Dimethyldipropyl-*ι*thioxamide** (WALLACH and REINHARDT), 1891, A., 1008.
- aa'*-Dimethyldipyridyl** (HEUSER and STOEHR), 1891, A., 80.
- ββ'*-Dimethyldipyridyl** (STOEHR and WAGNER), 1892, A., 629.
- "Dimethyldiquinizinyhydrobenzene"** (KNORR and BÜLOW), 1884, A., 1381.
- Di-2'-methyldiquinolyl** (HINZ), 1888, A., 39.
- Dimethyldiquinolyl** [m.p. 162°] (v. MILLER), 1888, A., 966.
- Dimethyldiquinolyl** [m.p. 104°—105°] (ELIASBERG and FRIEDLÄNDER), 1892, A., 1107.
- p*-Dimethyldisalicylaldehyde** (BRADLEY and DAINS), 1892, A., 1459.
- Dimethyldisulphisethionic acid, sodium salt of** (ENGELCKE), 1883, A., 972.
- Dimethyldisulphobenzoic acid, salts of** (STENGEL), 1883, A., 1000.
- Dimethylenedisulphone, derivatives of** (AUTENRIETH), 1887, A., 463.
- Dimethylenedi-*p*-toluidine** (GRÜNHAGEN), 1890, A., 888.
- Dimethylenemethane** (GUSTAVSON and DEMJANOFF), 1889, A., 30.
- Dimethylenethane, preparation and oxidation of** (ARMSTRONG and MILLER), 1886, T., 81.
- Dimethylenethylenedisulphone** (FASBENDER), 1888, A., 805.
- 1:4-Dimethyl-6-ethylaniline** (HODGKINSON and LIMPACH), 1892, T., 420; P., 56.
- Dimethylethylazimethylene** (CURTIUS and THUN), 1891, A., 1355.
- 1:3-Dimethyl-5-ethylbenzene** (ANSCHÜTZ and ROMIG), 1885, A., 769; (JACOBSEN), 1887, A., 37; (TÖHL and GEYGER), 1892, A., 969.
- 1:2-Dimethyl-4-ethylbenzene**. See Laurene.
- Dimethylethylcarbinol**. See *tert*-Amylic alcohol.
- 2':3'-Dimethyl-1'-ethyl-1':2'-dihydroquinoline** (FISCHER and STECHE), 1887, A., 976.
- Dimethylethylenediamine** (ANGELI), 1890, A., 954.

- Dimethylethylenedisulphone** (OTTO and CASANOVA), 1888, A., 255.
- Dimethylethylene-o-phenylenediamine** and its derivatives (RIS), 1888, A., 468.
- s-Dimethylethylenic oxide** (*ψ-butylenic oxide*) (ELTEKOFF), 1883, A., 567.
- 2':3'-Dimethyl-1'-ethylindole** (WOLFF), 1889, A., 259.
- Dimethylethyl-naphthalene** (GUCCI and GRASSI-CRISTALDI), 1892, A., 872.
- Dimethylethylphosphine** (COLLIE), 1888, T., 720.
- Dimethylethylpiperidine** (JAECKLE), 1888, A., 1104.
- Dimethylethylpyridine** (*parvoline*) (DURKOFF and SCHLAUGK), 1888, A., 607.  
preparation of (HESEKIEL), 1886, A., 257.
- 2:6-Dimethyl-4-ethylpyridine** and salts of (ENGELMANN), 1886, A., 259.  
oxidation of (ALTAR), 1887, A., 379.
- 2:6-Dimethyl-4-ethylpyridine-3:5-dicarboxylic acid** (ENGELMANN), 1886, A., 259.
- 3:3'-Dimethyl-2'-ethylquinoline** and its derivatives (HARZ), 1886, A., 261.
- 3:3'-Dimethyl-2'-ethylquinoline-1-carboxylic acid** (v. MILLER), 1890, A., 1327.
- Dimethylethylsuccinic acid** (BISCHOFF and MINTZ), 1890, A., 743; 1891, A., 290; (BISCHOFF), 1891, A., 829.
- Dimethylethylsulphine**, preparation of (CARRARA), 1892, A., 1422.  
and its derivatives (KLINGER and MAASSEN), 1888, A., 357.
- Dimethylethylthymoquinol** (REYCHLER), 1892, A., 1312.
- Dimethylformamide**, platinumchloride of (PINNER), 1883, A., 1089.
- Dimethylformamidine**, and its hydrochloride (PINNER), 1883, A., 731.
- isoDimethylformamidine hydrochloride** (PINNER), 1883, A., 1090.
- Dimethylfraxetin** (KORNER and BIGNELLI), 1892, A., 628.
- Dimethylfurfurancarboxylic acid**. See Pyrottritic acid.
- Dimethylfurfurandicarboxylic acid**. See Carbopyrottritic acid.
- Dimethylgentisic acid** (SCHNELL), 1887, A., 140.
- Dimethylgentisic aldehyde** (SCHNELL), 1884, A., 1166.
- Dimethylglutaric acid**, relative properties of trimethylsuccinic acid and (ZELINSKY and BESREDKA), 1891, A., 669.
- αα-Dimethylglutaric acid** (AUWERS and JACKSON), 1890, A., 1099.
- s-Dimethylglutaric acid** (BISCHOFF), 1890, A., 1099; (AUWERS and KÖBNER), 1891, A., 1015.
- Dimethylglutaric acids** (GUTHZEIT and DRESSER), 1890, A., 873; (AUWERS and KÖBNER), 1891, A., 1016.
- s-Dimethylglutaric acids**, isomeric (ZELINSKY), 1890, A., 132.
- αα-Dimethylglutaric anhydride** (AUWERS and JACKSON), 1890, A., 1099.  
*αα-dibromo-* (AUWERS and JACKSON), 1890, A., 1099.
- αβ-Dimethylglyceric acid**. See Dihydroxyvaleric acid.
- αβ-Dimethylglycidic acid** (MELIKOFF), 1886, A., 1009; 1888, A., 1177.
- Dimethylglycoluril** (FRANCHIMONT and KLOBBE), 1888, A., 1180; 1889, A., 126.
- Dimethylglyoxaline** (*oxa-methylethylene*), synthesis of (RADZISZEWSKI), 1883, A., 728.
- Dimethylglyoxime peroxide** (SCHOLL), 1891, A., 316.
- Dimethylheptamethylene** (KIPPING and PERKIN), 1891, T., 227.
- o-Dimethylheptamethylene** (KIPPING and PERKIN), 1889, P., 145.  
*dibromo-* (KIPPING and PERKIN), 1889, P., 145.
- Dimethylheptamethylenic diacetate** (KIPPING and PERKIN), 1891, T., 225.  
glycol (KIPPING and PERKIN), 1891, T., 217.
- α-Dimethylheptylethylene** (*nonylene*) (FREUND and SCHÖNFELD), 1892, A., 133.
- Dimethylhexadecylbenzene** (KRAFFT and GÖTTIG), 1889, A., 130.
- 2:6-Dimethylhexahydropyridine** (*hypetidine*) (LADENBURG), 1887, A., 64.  
and allied substances, relation between the physiological action and chemical constitution of (GÜRBER), 1891, A., 854.
- Dimethylhexylazimethylene** (CURTIUS and THUN), 1891, A., 1355.
- Dimethylhexylarbinol** (*nonylic alcohol*) (FREUND and SCHÖNFELD), 1892, A., 133.
- Dimethylhexyl-hexahydropyridine and -pyridine** (JAECKLE), 1888, A., 1104.
- Dimethylhomogentisic acid** (WOLKOW and BAUMANN), 1891, A., 1129.
- Dimethylhomo-o-phthalimide** (GABRIEL), 1887, A., 51, 726.

- Dimethylhomopyrocatechol** (GOLD-SCHMIEDT), 1884, A., 186.
- 2:4-Dimethylhydropyridine** (LADENBURG and ROTH), 1885, A., 816.
- Dimethyl acetylenedicarboxylate** (v. BANDROWSKI), 1883, A., 313.
- amidocyanurate** (v. HOFMANN), 1886, A., 930.
- barium phosphate** (LOSSEN and KÜHLER), 1891, A., 1015.
- berberilate** (PERKIN), 1890, T., 1050.
- camphorate** (WALKER), 1892, T., 1092; (BRUHL), 1892, A., 1102.
- carboxytritarate** (KNORR and CAVALLLO), 1889, A., 385.
- carboxycarbamate** (FRANCHIMONT and KLOBBIE), 1889, A., 1144.
- dichloroglycollate** (ANSCHUTZ), 1890, A., 236.
- diacetylacemate**, molecular weight of (ANSCHÜTZ), 1888, A., 1273.
- diethyl oxalate** (ANSCHÜTZ), 1890, A., 236.
- $\Delta_{1,4}$ -dihydroterephthalate**, heats of combustion and formation of (STOHMANN and KLEBER), 1891, A., 376.
- dipropyl glycol** (MARSHALL and PERKIN), 1890, P., 138; 1891, T., 875.
- fumaroid-hexahydroterephthalate**, heats of combustion and formation of (STOHMANN and KLEBER), 1891, A., 376.
- succinosuccinate** (EBERT), 1885, A., 1122.
- $\alpha$ -sulphaminephthalate** (MOULTON), 1891, A., 1063.
- terephthalate** and  **$\Delta_1$ -tetrahydroterephthalate**, heats of combustion and formation of (STOHMANN and KLEBER), 1891, A., 376.
- Dimethylimidomethylthiazoline** (TRACMANN), 1889, A., 415.
- Dimethylimidothiazoline** (NÄF), 1891, A., 1516.
- Dimethylindamine thiosulphonate** (BERNTSEN), 1889, A., 778.
- 2':3'-Dimethylindazole** (*dimethylindazine*) (FISCHER and TAFEL), 1885, A., 542.
- 1':3'-Dimethylisindazole** (FISCHER and TAFEL), 1885, A., 543.
- $\beta\gamma$ -Dimethylindene**, *m*-amido- (v. MILLER and ROHDE), 1890, A., 1138.
- Dimethylindigo** (FLIMM), 1890, A., 383.
- synthesis of** (ECKENROTH), 1891, A., 722.
- 2:2'-Dimethylindole** (RASCHEN), 1887, A., 956.
- 2:3'-Dimethylindole** (FISCHER), 1886, A., 805; 1887, A., 149; (WOLFF), 1888, A., 371.
- 4:1'-Dimethylindole** (HEGEL), 1886, A., 552.
- Dimethylindoles** (FISCHER), 1887, A., 148.
- Dimethylindoles, 1':2'- and 1':3'-** (DEGEN), 1887, A., 149.
- Dimethylindoleacetic acid** (FISCHER), 1886, A., 806.
- 1':2'-Dimethylindole-1'-carboxylic acid** (FISCHER), 1886, A., 806; (DEGEN), 1887, A., 149.
- 2:1'-Dimethylindole-2-carboxylic acid** (HEGEL), 1886, A., 552.
- 4:1'-Dimethylindole-2'-carboxylic acid** (HEGEL), 1886, A., 552.
- Dimethyliodamine** (RASCHIG), 1886, A., 44.
- Dimethylketol** (v. PECHMANN), 1889, A., 1137; (v. PECHMANN and DAHL), 1890, A., 1234.
- Dimethylketopentene** (DIETZEL), 1889, A., 594.
- Dimethylactamidine hydrochloride** (PINNER), 1891, A., 63.
- Dimethyllevulinic acid** (ZELINSKY), 1887, A., 921.
- $\alpha$ -Dimethyllevulinic acid** (*mesitonic acid*) (ANSCHUTZ and GILLET), 1888, A., 1272.
- s*-Dimethylmaleic acid** (*pyrocinchonic acid*) (ROSER), 1883, A., 98.
- from  $\alpha$ -dichloropropionic acid** (OTTO and BECKURTS), 1885, A., 753.
- relation of, to the dimethylsuccinic acids** (BISCHOFF and VOIT), 1890, A., 743.
- anhydride of** (RACH), 1886, A., 1012.
- preparation of** (MICHAEL and TISSOT), 1891, A., 1456; (FITZIG and PARKER), 1892, A., 814.
- action of phenylhydrazine on** (OTTO and HOLST), 1890, A., 1327.
- s*-Dimethylmaleic  $\alpha$ - and  $\beta$ -phenylhydrazines** (OTTO and HOLST), 1890, A., 1327.
- Dimethylmaleinifluorescein** (BURCKHARDT), 1886, A., 51.
- Dimethylmalonamide** (FREUND), 1884, A., 728.
- di*bromo-** (FREUND), 1884, A., 1124.
- di*nitro-** (FRANCHIMONT), 1886, A., 449.
- Dimethylmalonic acid** (*isopyrotartaric acid*) (CARETTE), 1886, A., 335, 611; (GORBOFF), 1888, A., 1179.
- specific heat of** (HESS), 1889, A., 93, 94.
- thermochemistry of** (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097.

- o-p*-Dimethylmandelic acid (CLAUS), 1890, A., 979.
- Dimethylmethylenethylene disulphide (FASBENDER), 1888, A., 805.
- Dimethylmethylenhydrazine (CURTIUS and PFLUG), 1892, A., 457.
- Dimethylmethylenimidosulphonic acid (KRAFFT and BOURGEOIS), 1892, A., 701.
- Dimethylmethylenesulphone (BAUMANN and KAST), 1889, A., 1232.
- Dimethylmethylenethioglycollic acid (BONGARTZ), 1888, A., 479.
- Dimethyl- $\beta$ -methylumbelllic acid (*dimethoxyphenylcrotonic acid*) (V. PECHMANN and COHEN), 1884, A., 1331.
- Dimethylnaphthaeurhodine (WITT), 1888, A., 491; (EICKER), 1891, A., 471.
- Dimethylnaphthalene [b.p. 265°] (CANNIZZARO and CARNELUTTI), 1888, A., 79; (CANNIZZARO), 1884, A., 328.
- Dimethylnaphthaloxazine (KÜHLING), 1892, A., 70.
- Dimethyl- $\alpha$ -naphthaquinoline (REED), 1887, A., 681; (COMBEN), 1888, A., 968.
- Dimethyl- $\beta$ -naphthaquinoline (COMBEN), 1888, A., 968.
- 2', 4'-Dimethyl- $\beta$ -naphthaquinoline (REED), 1886, A., 370; 1887, A., 681.
- Dimethyl- $\beta$ -naphthaquinolinesulphonie acid (REED), 1887, A., 681.
- 2''-3''-Dimethyl- $\alpha$ -naphthindole (WOLFF), 1889, A., 259.
- 2''-3''-Dimethyl- $\beta$ -naphthindole (STECHE), 1888, A., 235; (WOLFF), 1889, A., 259.
- Dimethylnaphthol (CANNIZZARO and CARNELUTTI), 1883, A., 79.
- 2:6-Dimethylnicotinic acid (*dimethylpyridinecarboxylic acid*) (WEISS), 1886, A., 720.
- Dimethyl- $\beta$ -nitrodiamidobenzophenone, tetranitro- (VAN ROMBURGH), 1888, A., 1079, 1196.
- Dimethylnitropyrrylene diketone (CIAMICIAN and SILBER), 1886, A., 74, 718.
- Dimethylnitrosamine (VAN ROMBURGH), 1887, A., 230.
- Dimethylorcinol dimethyl ether (KRAUS), 1891, A., 1347.
- Dimethylorcinols (KRAUS), 1891, A., 1347.
- Dimethyloxamide (MALY and ANDREASCH), 1888, A., 1018.
- dinitro- (FRANCHIMONT), 1886, A., 448.
- $\alpha\gamma$ -Dimethylisoxazole, reduction of (CLAISEN), 1892, A., 507.
- Dimethyloxetone (FITTIG and RASCH), 1890, A., 868.
- Dimethyloxetonecarboxylic acid (FITTIG and RASCH), 1890, A., 868.
- Dimethyloximidohexoic acid (KIPPING and MACKENZIE), 1891, T., 586.
- Dimethyloxindole (WISPEK), 1883, A., 1096.
- Dimethyloxydihydrotoluinoxaline (HINSBERG), 1889, A., 280.
- Dimethyloxyquinizine. See Phenyl-dimethylpyrazolone.
- 3:5-Dimethylpentamethylenemethylcarbinol (PERKIN and STENHOUSE), 1892, T., 79.
- Dimethylpentametetracarboxylic acid (PERKIN and PRENTICE), 1891, T., 830.
- dissociation-constant of (WALKER), 1892, T., 704.
- Dimethylphenanthroline (V. MILLER), 1891, A., 1105.
- Dimethylphenylacetic acid,  $\alpha$ -nitro-, and its salts (WISPEK), 1883, A., 1096.
- Dimethylphenylenediamine (*amidodimethylaniline*), action of aldehydes on (CALM), 1885, A., 387.
- Dimethyl-*m*-phenylenediamine (GROLL), 1886, A., 347; (STAEDEL and BAUER), 1886, A., 941.
- (?) 2:4:6-trinitro- (VAN ROMBURGH), 1888, A., 1185.
- Dimethyl-*o*-phenylenediamine, 4-nitro- (HEIM), 1888, A., 1097.
- Dimethyl-*p*-phenylenediamine (MELDOLA), 1884, T., 108; (NÖLTING and BAUMANN), 1885, A., 385.
- action of, on aldehydes (NUTH), 1885, A., 784.
- action of, on ketones (VOGTHERR), 1892, A., 854.
- Dimethylphenylenediamine mercaptan (BERNTSEN), 1889, A., 775.
- Dimethylphenylenediaminethiosulphonic acid (BERNTSEN), 1889, A., 776.
- Dimethylphenylene-green and -safranine (ANON.), 1884, A., 539.
- p*-Dimethyl-*o*-phthalic acid (GUCCI and GRASSI-CRISTALDI), 1892, A., 872.
- Dimethylphthalide (KOTHE), 1889, A., 257.
- Dimethyl-*o*-phthalyl-di-*d*-eogonine (DECKERS and EINHORN), 1891, A., 476.
- 2:4-Dimethylpicolinic acid (*dimethylpyridinecarboxylic acid*) (ALTAR), 1887, A., 378.
- $\alpha\alpha'$ -Dimethylpimelic acid (KIPPING and MACKENZIE), 1890, P., 117; 1891, T., 570, 577, 587; (PERKIN and PRENTICE), 1891, T., 832.
- $\omega\omega'$ -Dimethylpimelic acid, dissociation constant of (WALKER), 1892, T., 701.

- Dimethylpimelic acids**, stereoisomeric (ZELINSKY), 1892, A., 430.
- Dimethyl- $\alpha$ -pipecolylammonium iodide** (MERLING), 1891, A., 1508.
- Dimethylpiperazine** [b.p. 153°—158°] (SCHMIDT and WICHMANN), 1892, A., 212.
- $\gamma$ -Dimethylpiperazine** (LADENBURG), 1891, A., 1333.
- 1:2-Dimethylpiperidine** (*methyl- $\alpha$ -pipecoline*) (LADENBURG), 1888, A., 1154.  
behaviour of, towards hydrogen chloride (MERLING), 1891, A., 1506.
- Dimethylpiperidine**, action of bromine on (MERLING), 1887, A., 164.  
derivatives of (LADENBURG), 1885, A., 565.  
bromo-derivatives of (MERLING), 1884, A., 1885.
- Dimethylpiperidines**,  $\alpha\alpha'$ - and  $\alpha\gamma$ - (LADENBURG), 1887, A., 64, 65.
- Dimethylisopropenylcarbinol**. See Dimethyl- $\beta$ -allylcarbinol.
- Dimethylisopropylallylcarbinol** and its derivatives (DIÉFF), 1883, A., 1076; (KONONOWITSCH), 1885, A., 497.
- 2:6-Dimethyl-4-propylhexahydropyridine** (*propylpyridine*) (JAECKLE), 1888, A., 1104.
- 2:6-Dimethyl-4-propylpyridine** (*propyl-lutidine*) (JAECKLE), 1888, A., 1104.
- Dimethylpropylpyridinedicarboxylic acid** (*propyl-lutidinedicarboxylic acid*) (JAECKLE), 1888, A., 1104.
- Dimethylpropylsuccinic acid** (DISCHOFF), 1891, A., 829.
- Dimethylpyridine** (*lutidine*) (LADENBURG and ROTH), 1885, A., 994.  
isolation of (LADENBURG and ROTH), 1885, A., 815.  
thio- (GUTHZEIT and EPSTEIN), 1887, A., 920.
- 2:4-Dimethylpyridine** (HANTZSCH), 1883, A., 85; 1885, A., 397; (LADENBURG and ROTH), 1885, A., 557, 816; (LADENBURG), 1887, A., 59; (LUNGE and ROSENBERG), 1887, A., 499.
- $\alpha$ -Bromo-** (PFEIFFER), 1887, A., 845.
- 2:5-Dimethylpyridine** (LUNGE and ROSENBERG), 1887, A., 499.
- 2:6-Dimethylpyridine** (LADENBURG and ROTH), 1885, A., 557; (EPSTEIN), 1885, A., 815; 1886, A., 253; (ROTH and LANGE), 1886, A., 558; (LADENBURG), 1887, A., 59; (COLLIE), 1891, T., 177.  
action of benzaldehyde on (SCHUSTER), 1892, A., 1360.
- 2:6-Dimethylpyridine**, oxidation of (COLLIE), 1891, T., 178.  
platinochloride (LEIVEN), 1887, A., 378.  
4-chloro-, and its derivatives (CONRAD and EPSTEIN), 1887, A., 501.
- 3:5-Dimethylpyridine** (DÜRKOPF and GÜTTSCH), 1890, A., 1002.
- Dimethylpyridinecarboxylic acid** (DÜRKOPF and GÜTTSCH), 1890, A., 795.
- 2:4-Dimethylpyridine-3-carboxylic acid** (*2:4-lutidino-3-carboxylic acid*) (MICHAEL), 1885, A., 1244.
- 2:4-Dimethylpyridine-6-carboxylic acid** (*dimethylpicolinic acid*) (ALTAR), 1887, A., 378.
- 2:6-Dimethylpyridine-5-carboxylic acid** (*2:6-dimethylnicotinic acid*) (WEISS), 1886, A., 720.
- 2:4-Dimethylpyridine-3:5-dicarboxylic acid** (DÜRKOPF and GÜTTSCH), 1890, A., 1002.
- 2:4-Dimethylpyridine-3:6- or -5:6-dicarboxylic acid** and its salts (MICHAEL), 1885, A., 62.
- 2:6-Dimethylpyridine-3:5-dicarboxylic acid** (ENGELMANN), 1886, A., 259.  
chloro- (CONRAD and EPSTEIN), 1887, A., 501.
- Dimethylpyridines**, isomeric separation of (OECHSNER DE CONINCK), 1883, A., 740.
- 2:4-Dimethylpyridinetricarboxylic acid** and its salts (HANTZSCH), 1883, A., 85.
- 2:6-Dimethylpyridone** (*lutidone*) (CONRAD and GUTHZEIT), 1887, A., 508; (COLLIE), 1891, T., 177.  
methiodide (CONRAD and ECKHARDT), 1889, A., 520.
- 2:6-Dimethylpyridone-3-carboxylic acid** (COLLIE), 1891, T., 176.
- 2:6-Dimethylpyridone-3:5-dicarboxylic acid** (CONRAD and GUTHZEIT), 1887, A., 500.
- 2:4-Dimethylpyridone**. See  $\psi$ -Lutido-styryl.
- Dimethylpyridylquinoline** (*lutidyl-quinoline*) (LEPETIT), 1887, A., 1053.
- 2:6-Dimethylpyridinetricarboxylic acid** (EPSTEIN), 1886, A., 258.
- 2:4-Dimethylpyrocoll** (MAGNANINI), 1889, A., 58.
- Dimethylpyrroline** (FEIST), 1889, A., 957.
- Dimethylpyrrolidine** (CIAMICIAN and MAGNAGHI), 1885, A., 1243; (TAFEL), 1889, A., 977; (TAFEL and NEUGEBAUER), 1890, A., 1000.  
derivatives of (TAFEL), 1889, A., 977.

- Dimethylpyrrolidine methiodide** (CIAMICIAN and MAGNAGHI), 1885, A., 1243; (TAFEL and NEUGEBAUER), 1889, A., 1016.  
 nitroso- (TAFEL and NEUGEBAUER), 1890, A., 1001.
- Dimethylpyrrolidone** (TAFEL and NEUGEBAUER), 1889, A., 1016.
- 2:5-Dimethylpyrrolidyl dimethylammonium chloride** (MERLING), 1891, A., 1508.
- 2:5-Dimethylpyrroline** (KNORR), 1884, A., 1368; 1885, A., 995; (DENNSTEDT), 1889, A., 1209.
- $\alpha\beta$ -Dimethylpyrroline**, molecular weight of (MAGNANINI), 1890, A., 906.
- m-Dimethylpyrroline**, derivatives of (MAGNANINI), 1889, A., 408.
- $\alpha\beta$ -Dimethylpyrroline**, derivatives of (MAGNANINI), 1889, A., 57.
- Dimethylpyrrolines** (DENNSTEDT), 1889, A., 1209.
- Dimethylpyrrolineacetic acid** (KNORR), 1887, A., 276.
- 2:4-Dimethylpyrroline-3-carboxylanilide** (KNORR), 1887, A., 277.
- Dimethylpyrrolinecarboxylic acid** [m.p. 197°] (KNORR), 1884, A., 1368.
- 2:4-Dimethylpyrroline-5-carboxylic acid** (MAGNANINI), 1889, A., 409.
- 2:5-Dimethylpyrroline-4-carboxylic acid and its salts** (KNORR), 1885, A., 994.
- 2:4-Dimethylpyrroline-3:5-dicarboxy-acetic acid** (KNORR), 1887, A., 276.
- 2:4-Dimethylpyrroline-3:5-dicarboxylic acid**, *mono*- and *di*-anilides of (KNORR), 1887, A., 277.
- imineanhydride of** (MAGNANINI), 1889, A., 58.
- 2:5-Dimethylpyrroline-3:4-dicarboxylic acid and its salts** (KNORR), 1885, A., 994.
- Dimethylpyrrol styryl ketone** [m.p. 166°] (DENNSTEDT), 1889, A., 1210.
- 2:4-Dimethylpyrrol styryl ketone** (DENNSTEDT), 1889, A., 1209.
- 2:5-Dimethylpyrrol-m-benzoic acid** (PAAL and SCHNEIDER), 1886, A., 559.
- Dimethylpyrrolene diketone** (*di- $\psi$ -acetylpyrroline*) (CIAMICIAN and DENNSTEDT), 1885, A., 378; (CIAMICIAN and SILBER), 1885, A., 308, 993; 1886, A., 74.
- action of nitric acid on** (CIAMICIAN and SILBER), 1885, A., 993.
- nitro-** (CIAMICIAN and SILBER), 1886, A., 718.
- 2:5-Dimethylpyrrol-o-phenol** (PAAL and SCHNEIDER), 1886, A., 559.
- Dimethylquercetin**. See Rhamnetin.
- Dimethylquinitol** (V. BALTER), 1892, A., 1183.
- Dimethylquinogen and its derivatives** (V. PEHRMANN), 1888, A., 813.
- Dimethylquinol**. See Xyloquinol.
- 1:2'-Dimethylquinoline** (*o-toluquinoldine*), oxidation of (V. MILLER), 1891, A., 1095.
- ethiodide and methiodide** (MÜLLER), 1888, A., 298.
- hydrochloride** (V. MILLER), 1890, A., 1325.
- 1:3-Dimethylquinoline** (*xyloquinoline*), 4-amido- (NÖLTING and TRAUTMANN), 1891, A., 325; 1892, A., 729.
- 4-nitro-** (NÖLTING and TRAUTMANN), 1891, A., 325; 1892, A., 729.
- 1:4-Dimethylquinoline** (LEHMANN and ALT), 1887, A., 592.
- from p-xylylene sulphate** (MEYER), 1886, A., 161; (BEREND), 1886, A., 260.
- 3-amido-** (MARKWALD), 1890, A., 1004.
- 2:2'-Dimethylquinoline** (*methylquinoldine*) (RISF), 1891, A., 329.
- 2:3'-Dimethylquinoline** (ROHDE), 1887, A., 974; 1889, A., 523; (ELIASBERG and FRIEDLÄNDER), 1892, A., 1107.
- 2:4-Dimethylquinoline** (BEREND), 1885, A., 274.
- 2:4'-Dimethylquinoline** (BEYER), 1885, A., 1246; 1886, A., 629; (COMBES), 1888, A., 505.
- oxidation of** (V. MILLER), 1891, A., 1096.
- derivatives of** (BEYER), 1886, A., 629.
- 3:4- or 2:3-Dimethylquinoline, and its derivatives** (BEREND), 1884, A., 1197.
- 3:4'-Dimethylquinoline** (*4'-methyl- $\beta$ -toluquinoline*) (V. MILLER), 1890, A., 1325.
- Dimethylquinolines and their derivatives** (DOEBNER and V. MILLER), 1884, A., 184.
- Dimethylquinolines**, 3':4'-, 4':1- and 2:4'- (KNORR), 1888, A., 1112.
- 1:2'-Dimethylquinoline-3-carboxylic acid** (PANAJOTOW), 1887, A., 332.
- o-p-Dimethylquinoline- $\alpha$ -carboxylic aldehyde** (PANAJOTOW), 1890, A., 1158.
- 1:3-Dimethylquinolinesulphonic acid** (PANAJOTOW), 1887, A., 332.
- 1:4-Dimethylquinolinesulphonic acids** (*1:4-xyloquinolinesulphonic acids*) (NÖLTING and FRÜHLING), 1889, A., 164.

- 1':2'-Dimethyl-4'-quinolone (*dimethyl- $\psi$ -quinorol*). See 4'-Hydroxy-1':2'-dimethylquinoline.
- 1':4'-Dimethylquinolone (*methylleptilone*) (KNORR), 1887, A., 159.  
dyes obtained from (REISSERT), 1892, A., 498.  
reduction of (KNORR and KLOTZ), 1887, A., 278.  
bromo- (KNORR), 1887, A., 160.
- Dimethylquinolthiocarbamide (BATS-SLER), 1884, A., 1330.
- Dimethylquinoltrimethylammonium iodide (BAESSLER), 1884, A., 1329; 1887, A., 364.
- 1:3-Dimethylquinolyl- $\alpha$ -acrylic acid (PANAJOTOW), 1887, A., 382.
- Dimethylquinophenol (BEREND), 1884, A., 1197.
- Dimethylquinoxaline (*methyltoluinquinoxaline*) (HINSBERG), 1886, A., 561.
- 3':4'-Dimethylquinoxaline, tetrachloro- (LEVY, WITTE and CUREHOD), 1890, A., 232.
- 3':4'-Dimethylquinoxaline-*m*-carboxylic acid (ZEHRA), 1891, A., 303.
- Dimethyl- $\psi$ -quinoxalines,  $\alpha\beta$ - and  $\beta\gamma$ - (WEDDIGE), 1887, A., 1044.
- Dimethylracemic acid (FITZIG, DAIMLER and KELLER), 1889, A., 491; (BOTTINGER), 1892, A., 698.
- Dimethylresorcinol (2:4-*dihydroxy-m-sylene*) (WISCHIN), 1891, A., 74.  
bromo- and chloro- (WISCHIN), 1891, A., 74.
- Dimethylresoreyl pentadecyl ketone (KRAFFT), 1888, A., 1087.
- Dimethyl- $\alpha$ -resoreylic acid, amido- and nitro- (MEYER), 1888, A., 148.
- Dimethyl- $\beta$ -resoreylic acid (V. PECHMANN and DUISBERG), 1884, A., 67; (V. PECHMANN and COHEN), 1884, A., 1331.
- Dimethylrubbadin (SCHALL and UHL), 1892, A., 1077.
- Dimethylsafranine hydrochloride (MENTON), 1891, A., 1205.
- p*-Dimethylstilbene (ANSCHÜTZ and WIRTZ), 1885, T., 801; A., 1064.
- Dimethylstilbene sulphide, *dianido*- (ANSCHÜTZ and SCHULTZ), 1889, A., 602.
- Dimethylstrychnine (TAFEL), 1890, A., 1448.
- isoDimethylstrychnine (TAFEL), 1891, A., 1264.
- 3-Dimethylsuccinamic acid,  $\alpha$ -dichloro- (OTTO and HOLST), 1890, A., 958.
- Dimethylisosuccinamide (FRANCHI-MONT), 1886, A., 449.
- Dimethylsuccinic acid (BISCHOFF and JÄHNICKER), 1891, A., 290.
- as*-Dimethylsuccinic acid (LEVY and ENGLÄNDER), 1888, A., 133; (BARNSTEIN), 1888, A., 135; (BISCHOFF and V. KÜHLBERG), 1890, A., 742.  
an oxidation product of copaiba balsam (LEVY and ENGLÄNDER), 1886, A., 250.  
formation of (HELL and ROTHBERG), 1889, A., 959.
- p-s*-Dimethylsuccinic acid (*hydropyrocinchonic acid*) (BISCHOFF and RAU), 1885, A., 885; 1886, A., 1012; (OTTO and RÜSSING), 1888, A., 45.
- s*-Dimethylsuccinic acid,  $\alpha$ -dichloro-substitution products of (OTTO and HOLST), 1890, A., 957.
- Dimethylsuccinic acids, action of bromine on (HELL and ROTHBERG), 1889, A., 371.  
substituted (BISCHOFF), 1891, A., 829.  
*anti*- and *p-s*- (BISCHOFF and VOIT), 1889, A., 490.  
synthesis of (BROWN and WALKER), 1891, A., 1193.
- as*- and *s*- (LEUCKART), 1885, A., 1200.  
thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097.
- s*-Dimethylsuccinic acids (OTTO and BECKURTS), 1885, A., 754; (BISCHOFF and RAU), 1885, A., 885; 1886, A., 1012; (BISCHOFF and VOIT), 1889, A., 490; 1890, A., 743.  
preparation of the isomeric (ZELINSKY), 1889, A., 122.  
relation of, to pyrocinchonic acid (BISCHOFF and VOIT), 1890, A., 743.  
bromination of (AUWERN and IMHÄUSER), 1891, A., 1191.  
derivatives of (ZELINSKY and KRAPFVIN), 1889, A., 692.
- as*-Dimethylsuccinic anhydride (BARNSTEIN), 1888, A., 135.
- s*-Dimethylsuccinic anhydride,  $\alpha$ -dichloro- (OTTO and HOLST), 1890, A., 957.  
action of phenylhydrazine on (OTTO and HOLST), 1890, A., 1327.
- Dimethylsuccinimidine hydrochloride (PINNER), 1883, A., 1089.
- Dimethylsuccinonitrile (HELL and ROTHBERG), 1889, A., 959.
- s*-Dimethylsulphonamide (FRANCHI-MONT), 1885, A., 969.

- s*-Dimethylsulphonamide, *d*-nitro- (FRANCHIMONT), 1885, A., 969.
- Dimethylsulphonamides, action of nitric acid on (FRANCHIMONT), 1885, A., 969.
- Dimethylsulphonedicarboxylic acid. See Sulphonediacetic acid.
- Dimethylsulphone-diethyl- and -dimethyl-methanes (BAUMANN and KAST), 1889, A., 1233.
- Dimethylsulphonemethylethylmethane (BAUMANN and KAST), 1889, A., 1233.
- Dimethyl-tartaramide and -tartarimide, *tetrachloro*- (LEVY, WHITE and CURRHOD), 1890, A., 233.
- Dimethyltaurine, preparation of (JAMES), 1885, T., 370.
- $\beta$ -Dimethyltaurine and dimethyltaurocarbamic acid (GABRIEL), 1890, A., 128.
- Dimethyltaurocyamine, formation of (JAMES), 1885, T., 374.
- 2:5-Dimethylterephthalic acid (CLAUS), 1890, A., 982.
- 2:6-Dimethylterephthalic acid (CLAUS), 1890, A., 981.
- Dimethyl- $\alpha$ -tetrahydronaphthylamine (BAMBERGER and HELWIG), 1889, A., 892.
- Dimethyl- $\beta$ -tetrahydronaphthylamines, aromatic and alicyclic (BAMBERGER and MÜLLER), 1889, A., 890, 891.
- 1:2-Dimethyl- $\Delta^2$ -tetrahydropyridine (LIPP), 1892, A., 1243.
- Dimethyltetrahydroquinoline (FISCHER and STECHE), 1887, A., 976; (ZATTI and FERRATINI), 1892, A., 614.
- 1:2'-Dimethyltetrahydroquinoline (DOEBNER and V. MILLER), 1884, A., 183; (MÜLLER), 1888, A., 297.
- 1:3-Dimethyltetrahydroquinoline (BAMBERGER and WULZ), 1891, A., 1255.
- 1:3'-Dimethyltetrahydroquinoline (FISCHER and STECHE), 1887, A., 976.
- 1:4-Dimethyltetrahydroquinoline (BEREND), 1886, A., 261.
- 1:4'-Dimethyltetrahydroquinoline (KNORR and KLOTZ), 1887, A., 279.
- Dimethyltetrahydroquinolinium hydroxide (FEER and KOENIGS), 1885, A., 1245.
- $\alpha\beta$ '-Dimethyltetramethylenediamine (CIAMICIAN and ZANETTI), 1890, A., 1155; 1891, A., 1503.
- as*-Dimethyltetraphenylethane (WILLGERODT and SCHIFF), 1890, A., 959.
- Dimethylthalline iodide, quaternary (SKRAUP), 1886, A., 80.
- Dimethylthetin-*mono*- and -*di*-carboxylic acids (DELLALE), 1892, A., 1433.
- $\alpha\alpha$ '-Dimethylthiazole (HANTZSCH), 1888, A., 574.
- $\alpha\mu$ -Dimethylthiazole (HANTZSCH), 1889, A., 723.
- $\beta\mu$ -Dimethylthiazole (HUTSCHER), 1891, A., 222.
- $\alpha\mu$ -Dimethylthiazole- $\beta$ -carboxylic acid (RUBLEFF), 1891, A., 224.
- Dimethylthiocarbamide (HECHT), 1890, A., 477.
- as*-Dimethylthiocarbamide (SPICA and CARRARA), 1892, A., 216.
- Dimethylthioformaladinium iodide (WOHL), 1887, A., 28.
- Dimethylthiohydantoin (MARCKWALD, NEUMARK and SIELZNER), 1892, A., 151.
- Dimethylthiohydantoins,  $\alpha$ - and  $\beta$ - (ANDREASCH), 1888, A., 47.
- Dimethylthionine (BERNTSEN and GOSKE), 1887, A., 667.
- Dimethylthionoline (*methylene-violet*) (BERNTSEN), 1886, A., 54.
- Dimethylthiophen (*thioceen*, *thiorylene*), method of obtaining (SCHULZE), 1885, A., 251.
- Dimethylthiophen [b.p. 139°] (DEMUTH), 1886, A., 871.
- 2:3-Dimethylthiophen (PAAL), 1887, A., 1101; (GRUNEWALL), 1888, A., 48.
- 2:4-Dimethylthiophen and its derivatives (ZELINSKY), 1887, A., 921.
- 2:5-Dimethylthiophen, synthesis of (PAAL), 1885, A., 1205.
- from coal-tar, derivatives of (MENSINGER), 1885, A., 767, 1052, 1205.
- di*- and *tri*-bromo- (PAAL), 1865, A., 1206.
- 3:4-Dimethylthiophen (ZELINSKY), 1888, A., 939.
- 2:4-Dimethylthiophen-5-carboxylic acid (GATTERMANN), 1888, A., 575.
- Dimethylthiorescinol (OBERMEYER), 1888, A., 124.
- Dimethyl*d*thiotetrahydrotriazole (HECTOR), 1892, A., 293.
- Dimethyl*d*thioxamide (WALLACH and REINHARDT), 1891, A., 1008.
- Dimethyltolenylamidine salts (GLOCK), 1888, A., 1290.
- Dimethyl-*o*-toluidine, action of formaldehyde on (ALEXANDER), 1892, A., 1320.
- Dimethyl-*p*-toluidine, action of, on ethylenic bromide (HÜBNER, TÖLLE and ATHENSTÄDT), 1884, A., 1317.

- Dimethyl-*o*- and -*p*-toluidines**, preparation of (REINHARDT and STAEDL), 1883, A., 578.  
 platinoclorides of (REINHARDT and STAEDL), 1883, A., 578.
- Dimethyltoluindamine thiosulphonate** (BERNTSEN), 1889, A., 778.
- Dimethyltoluquinoline**. See Trimethylquinoline.
- Dimethyltoluinoxaline**. See Trimethylquinoxaline.
- Dimethyltrimethylenedisulphone-sulphide** (CAMPS), 1892, A., 593.
- Dimethyltrimethylenetrisulphone** (CAMPS), 1892, A., 591, 593.
- Dimethyltropine**, decomposition of, by heat (LADENBURG), 1883, A., 672.
- Dimethylumbellie acids**,  $\alpha$ - and  $\beta$ - (*dihydroxydimethylcinnamic acids*) (WILL), 1884, A., 68; (WILL and BECK), 1886, A., 830.
- $\alpha\beta$ -Dimethylumbelliferone** (V. PECHMANN and DUISBERG), 1884, A., 67.
- $\beta$ -6-Dimethylumbelliferone** (V. PECHMANN and COHEN), 1885, A., 56.
- $\alpha\beta$ -Dimethylumbelliferonecarboxylic acid** (V. PECHMANN), 1892, A., 432.
- Dimethyluracil** (BEHREND; HOFFMANN), 1890, A., 31.  
 imido- (JAEGER), 1891, A., 1007.
- Dimethyluric acids** (FISCHER), 1884, A., 1308.
- $\alpha$ -Dimethylvalerolactone** (ANSCHUTZ and GILLET), 1888, A., 1272.
- $\beta$ -Dimethylvalerolactone** (*isohexylolactone*) (FITZIG and ZANNER), 1890, A., 590.
- Dimethylxanthone** (WEBER), 1892, A., 1093.
- Dimethyl-*o*-xylylidine** (MENION), 1891, A., 1205.
- Dimethylxylylidines** (VOM BARR and STAEDL), 1883, A., 579.
- Dimethylxyloquinols**, *o*-, *m*- and *p*- (NOLTING and WERNER), 1891, A., 210.
- Dimethylxylylphosphine** (CZIMATT), 1883, A., 58.
- $\alpha$ -Dinaphthadiquinone** (EL-SBAHI), 1883, A., 70.
- $\beta$ -Dinaphthalene oxide** (WALDER), 1883, A., 209.
- $\beta$ -Dinaphthenylimidine** (PINNER), 1892, A., 1110.
- $\alpha$ -Dinaphthylbenzil** (BANDROWSKI), 1889, A., 147.
- $\alpha$ -Dinaphthol** (JULIUS), 1883, A., 161.
- $\beta$ -Dinaphthol** (WALDER), 1883, A., 208; (JULIUS), 1888, A., 161.  
 picrate (WALDER), 1883, A., 209.
- Dinaphthols**, isomeric, derivatives of (OSTERMAYER and ROSENHER), 1885, A., 171.
- $\alpha$ -Dinaphtholbenzylidenesulphonic acid**, barium salt of (KAFKA), 1891, A., 721.
- $\beta$ -Dinaphtholdisulphonic acid**, barium salt of (JULIUS), 1888, A., 161.  
*d*-nitro- (JULIUS), 1888, A., 161.
- $\beta$ -Dinaphtholtetrasulphonic acid**, barium salt of (JULIUS), 1888, A., 161.
- Dinaphthoxanthone** (V. KOSFANECKI), 1892, A., 1099.
- $\beta\beta$ -Dinaphthoylcarbamide** (EKSTRAND), 1887, A., 840.
- Dinaphthoylhydroxamic acids**,  $\alpha\alpha$ -,  $\beta\beta$ -, and  $\alpha\beta$ - (EKSTRAND), 1887, A., 840.
- $\alpha\alpha$ -Dinaphthyl** (WALDER), 1883, A., 209; (WEGSCHEIDER), 1884, A., 1185.
- $\alpha\beta$ -Dinaphthyl** (WEGSCHEIDER), 1884, A., 1185.
- Dinaphthyl derivatives** (JULIUS), 1888, A., 161.
- Dinaphthyl**, *d*amido-, and its derivatives (NIETZKI and GOLL), 1886, A., 245; (JULIUS), 1887, A., 56.  
*mono*- and *di*-nitro- (JULIUS), 1887, A., 56.
- $\beta\beta$ -Dinaphthyl** (*isodinaphthyl*) (WEGSCHEIDER), 1884, A., 1185.  
 formation of, from amylic chloride and naphthalene (ROUX), 1884, A., 1358.  
 derivatives of (STAUB and SMITH), 1885, T., 104.  
*t*raninitro-, and *t*etramido- (STAUB and SMITH), 1885, T., 105, 106.
- Dinaphthyl diethyl ether**. See Diethoxydinaphthyl.
- $\beta$ -Dinaphthyl ketone**, boiling point of (SCHWEITZER), 1891, A., 1240.
- $\beta$ -Dinaphthyl ketone oxide** (CLAUS and RUPPEL), 1890, A., 510.  
*di*bromo-, and *d*nitro- (CLAUS and RUPPEL), 1890, A., 510.
- Dinaphthylamidinecarbamide** (PINNER), 1892, A., 1008.
- Di- $\alpha$ -naphthylamidocyanuric chloride** (FRILS), 1886, T., 315, 740.
- Dinaphthyl*d*amido-*o*-diazothioles**,  $\alpha$ - and  $\beta$ - (HECTOR), 1890, A., 526, 527.  
 cyanides of (HECTOR), 1890, A., 527.
- $\alpha\beta$ -Dinaphthylamine**, behaviour of, when combining with diazobenzene (MATTHES), 1890, A., 385.
- Di- $\beta$ -naphthylamine** (KLOPSCH), 1885, A., 990; (RIS), 1886, A., 947; 1888, A., 57.

- Di- $\beta$ -naphthylamine**, boiling point of (SCHWEIZER), 1891, A., 1240.
- Di- $\beta$ -naphthylamine**, *tetrabromo-* (RIS), 1888, A., 57.
- tetra- and octo-bromo-* (RIS), 1888, A., 57, 58.
- di- and tetra-nitro-* (RIS and WEBER), 1884, A., 752; (RIS), 1888, A., 58.
- hexanitro-* (RIS), 1888, A., 58.
- nitroso-* (RIS), 1888, A., 58.
- thio-* (RIS), 1886, A., 1036; (KYM), 1889, A., 51.
- Dinaphthylamines**,  $\alpha\alpha$ ,  $\beta\beta$ , and  $\alpha\beta$ - (BENZ), 1883, A., 594.
- dithio-* two isomeric (KYM), 1889, A., 51.
- $\beta$ -Dinaphthylcarbamic chloride** (KYM), 1890, A., 633, 993; (KUCH and LANDAU), 1890, A., 634, 1311.
- thio-* (PASCHKOWETZKY), 1892, A., 165.
- u*-Di- $\beta$ -naphthylcarbamide**, *thio-* (PASCHKOWETZKY), 1892, A., 166.
- Dinaphthylcarbamides**,  $\alpha$ - and  $\beta$ -*tetra-nitro-* (PERKIN), 1892, T., 467.
- Dinaphthylcarbazole** (NIETZKI and GOLL), 1886, A., 246.
- $\beta$ -Dinaphthylcarbazole** (RIS), 1886, A., 1036.
- $\alpha$ -Dinaphthyl diketodihydro-*p*-diazine** (ABENIUS), 1890, A., 269.
- $\alpha$ -Dinaphthyl- $\alpha\gamma$ -diketopiperazine** (BISCHOFF and NASTVOGEL), 1889, A., 1015; (BISCHOFF and HAUSDORFER), 1890, A., 1309.
- $\beta$ -Dinaphthyl- $\alpha\gamma$ -diketopiperazine** (BISCHOFF and HAUSDORFER), 1890, A., 1309; 1892, A., 1342.
- $\beta$ -Dinaphthyl- $\alpha\gamma$ -dimethyl- $\beta\delta$ -diketopiperazine** (BISCHOFF and HAUSDORFER), 1892, A., 1337.
- as*-Di- $\beta$ -naphthyl diphenylcarbamide**, *thio-* (PASCHKOWETZKY), 1892, A., 165.
- Di- $\beta$ -naphthyl diphenylcarbamides**,  $s$ - and  $as$ - (PASCHKOWETZKY), 1892, A., 166, 167.
- Dinaphthylidiquinone**, derivatives and constitution of (KORN), 1885, A., 392.
- Dinaphthyl di-*p*-tolylamine** (WITT), 1888, A., 492.
- Dinaphthylamine**, and its derivatives (WALDER), 1883, A., 209.
- Dinaphthylene ether** (CLAU and VOLZ), 1886, A., 247.
- Dinaphthylene oxidetetrasulphonic acid**, constitution of (HODGKINSON and LIMPACH), 1891, T., 1099; P., 135.
- Dinaphthylene phenylamine** (WALDER), 1883, A., 209.
- $\beta$ -Dinaphthylene oxide**, new method of preparation of (HODGKINSON and LIMPACH), 1891, T., 1096; P., 135.
- tetrabromo-* (HODGKINSON and LIMPACH), 1891, T., 1100.
- mono- and tetra-nitro-* (HODGKINSON and LIMPACH), 1891, T., 1100.
- Dinaphthylethanes**,  $\alpha$ - and  $\beta$ - (BAMBERGER and LODIER), 1888, A., 376.
- Di- $\beta$ -naphthylethylamine** (RIS), 1888, A., 57.
- Di- $\alpha$ -naphthylethylenediamine**, action of chloroacetic and oxalic acids on (BISCHOFF and NASTVOGEL), 1890, A., 1162.
- Di- $\beta$ -naphthylethylenediamine** (HAUSDORFER), 1890, A., 1333.
- Di- $\alpha$ -naphthylformamidine** (COMSTOCK and WHEELER), 1892, A., 706.
- s*-Dinaphthylhydrazine** (*hydrazo-naphthalene*) (NIETZKI and GOLL), 1886, A., 245.
- Dinaphthyl hydrochloride diimido-** (JULIUS), 1887, A., 56.
- picrates* (WEGSCHEIDEL), 1891, A., 216.
- $\alpha\beta$ -Dinaphthyl sulphide** (KRAFFT), 1890, A., 1312.
- disulphide*, *diamido-* ( $\text{NH}_2\text{S}=1:3'$ ) (EKBM), 1891, A., 573.
- disulphide*, *diamido-* ( $\text{NH}_2\text{S}=1:4'$ ) (EKBM), 1890, A., 994.
- $\alpha\alpha$ -Dinaphthyl sulphoxide** (EKSTRAND), 1885, A., 171; (KRAFFT), 1890, A., 1311.
- Dinaphthylene** (NIETZKI and GOLL), 1886, A., 245.
- Di- $\beta$ -naphthyl ketone oxidesulphonic acid**, barium salt of (CLAUS and RUPPEL), 1890, A., 510.
- Dinaphthylmethane** (CLAU and RUPPEL), 1890, A., 511.
- $\beta$ -Dinaphthylmethylamine** (RIS), 1888, A., 57.
- thio-* (KYM), 1890, A., 1306.
- Dinaphthylmethylcyanidine** (PINNER), 1892, A., 1110.
- Dinaphthyl naphthalene** (ROUX), 1888, A., 1305.
- $\alpha$ -Dinaphthylparabanic acid** (EVLERS), 1888, A., 602.
- $\beta$ -Dinaphthylphenylcarbamide** (GERHARDT), 1885, A., 364; (KUCH and LANDAU), 1890, A., 634.
- thio-* (PASCHKOWETZKY), 1892, A., 166.
- $\alpha$ -Dinaphthylphenylcarbinol** (ELBS and STEINIK), 1886, A., 947; (ELBS), 1887, A., 943.

- β*-Dinaphthyl-*p*-phenylenediamine** and its derivatives (RUEFF), 1889, A., 894.
- Dinaphthylphenylmethane** (ELBS), 1887, A., 943.
- iso*-Dinaphthylquinone** (SPAUB and SMITH), 1885, T., 104.
- α*-Dinaphthylpiperazine** (BIMHOFF), 1889, A., 1011.
- β*-Dinaphthylpiperazine** (BIMHOFF and HUNDORFER), 1890, A., 1333.
- Dinaphthylsulphone** (V. HOFMANN), 1881, A., 1362.
- ββ*-Dinaphthylsulphone** (KRAFFT), 1890, A., 1311.
- Dinaphthylsulphones, *αα*- and *αβ*-** (KRAFFT), 1890, A., 1312.
- Dinaphthylthiocarbamide**, bases from (EVERS), 1888, A., 600.
- β*-Dinaphthylthio-carbazide and -carbazone** (FREUND), 1892, A., 513.
- Dinaphthylthiohydantoins, *α*- and *β*-** (EVERS), 1888, A., 602.
- Dinicotinic acid (*pyridine-3:5-dicarboxylic acid*)** (HANTZSCH and WEIN), 1886, A., 478.
- 2:5-dichloro-** (GUTHZET and DRENSSEL), 1891, A., 940.
- n*-Dinitriles** (HENRY), 1886, A., 860.
- Dinitrosacyls** (HOLLEMAN), 1892, A., 971.
- Dioctoic acid (*heptadeconic acid*)** (CANZONERI), 1884, A., 462.
- Dioctyl (*n*-heptadecane)** (LACHOWICZ), 1884, A., 166; (KRAFFT), 1886, A., 998.
- Dioctylamine (*heptadecylamine*) and diisooctylamine** (MERZ and GASTROWSKI), 1884, A., 984, 985.
- conversion of palmitonitrile into (KRAFFT and MOYE), 1889, A., 665.
- Diol alcohol and diolic acid** (SHIMOMAMA), 1888, A., 1206.
- Diopside** from Nordmaiken (FLINK), 1886, A., 777.
- from Zeinmatt (SIRENG), 1885, A., 1118.
- Diopase** from the Cordilleras of Chili (BAUER), 1883, A., 446.
- from the French Congo (JANNETTAZ), 1891, A., 647.
- Diorite**, analysis of (DOLLER), 1883, A., 720.
- Diorites of Montreal** (HARRINGTON), 1883, A., 561.
- Diorite dyke** in Orange Co., New York (KEMP), 1888, A., 1045.
- Dioritic rocks** of Klausen in the Tyrol (TELLER and JOHN), 1883, A., 1069.
- Diosmin** (SPICA), 1888, A., 1310.
- Diosphenol** (SHIMOMAMA), 1888, A., 1205.
- Diospyros virginiana***, crystalline principle from the bark of (SCHLIEF), 1891, A., 324.
- Dioxaethylene** (WALLACH), 1883, A., 50.
- Dioxal-*p*-toluidide** and **dioxanilide** (ABENITS), 1890, A., 525.
- Dioximes**, action of phenylhydrazine on (POLONOWSKY), 1888, A., 366.
- Di-m-oxybenzoid*** (SCHIEFF), 1883, A., 335.
- Dioxyberberine** (PERKIN), 1890, T., 1003, 1084.
- constitution of (PERKIN), 1890, T., 1003.
- action of alkalis on (PERKIN), 1890, T., 1089.
- Dioxydehydronicotine, *di*bromo-** (PINNER), 1892, A., 1497.
- Dioxy-*m*-diazine**. See Uracil.
- Dioxydibenzylidene-dithioamide** (EPHRAIM), 1891, A., 831.
- Dioxydiethylaniline** (HOLZMANN), 1887, A., 723.
- Dioxydimethylaniline** (MERZ and WEITH), 1886, A., 792.
- Dioxydimethylantraquinone (*dimethylantrapharic acid*)** and its acetyl-derivative (V. KOSTANECKI and NIEMENOWSKI), 1885, A., 1240.
- Dioxydiphenylene, perchloro-** (HUGOUNENQ), 1889, A., 1150.
- Dioxymethyl-*n*-diazine**. See Methyluracil.
- Dioxymethylene-2'-methylquinoline** (HABER), 1891, A., 705.
- Dioxymethylenephénylglyoxylic acid** (CIAMICIAN and SILBER), 1890, A., 966.
- hydrazone of (GARELLI), 1891, A., 711.
- Dioxymethylenephényloximidoacetic acid** (GARELLI), 1892, A., 327.
- Dioxyphenazine** (NIEZKI and HASTENLIK), 1891, A., 944.
- Dioxyphenylmethylpyrazoleoxime (*isomethylnitrosophenylpyrazine*)** (KNORR), 1884, A., 1379.
- Dioxyretistene** (BAMBERGER), 1884, A., 1040; (EKSTRAND), 1884, A., 1011.
- action of barium hydroxide, and of acetic anhydride on (EKSTRAND), 1884, A., 1041.
- Dioxystyryl-*m*-pyrazole**. See Styrylhydantoin.
- Dioxytetrazotic acids** (LOESEN), 1891, A., 1038.
- Dioxythiodiphenylimide** (BERNTSEN), 1886, A., 55.
- "Dioxythiophenetoil"** (TASSINARI), 1892, A., 1316.
- Dioxytrimethylpyrrole** (WELL), 1886, A., 528.

- Dipalmitylearbinylicacetate** (KIPPING), 1890, T., 987.
- Dipentadecyl ketone.** See Palmitone.
- Dipentamethylbenzenethiocarbamide** (V. HOFMANN), 1885, A., 1129.
- Dipentene** and its derivatives. See Terpenes.
- Dipentenylbenzene** (DAFERT), 1883, A., 1094.
- Diphellandrene** (PESCI), 1886, A., 1038.
- Diphenacyl** (*diphenylethylene diketone; succinophenone*) (CLAUS and WERNER), 1887, A., 527; (AUGER), 1888, A., 952; (KAPF and PAAL), 1889, A., 147.
- Diphenacylacetic acid** (KUEB and PAAL), 1887, A., 261.
- Diphenacyldiphenyldihydrazone** (KAPF and PAAL), 1889, A., 147.
- Diphenacylmalonic acid** (KUEB and PAAL), 1887, A., 261.
- Diphenacyl-*p*-toluidine** (LELLMANN and DONNER), 1890, A., 525.
- Diphenamic acid** and **diphenamide** (WEGERHOFF), 1888, A., 1201; (GRAEBE and AUBIN), 1889, A., 145.
- Diphenanthryleneazotide** (JAPP and BURTON), 1887, T., 101.  
conversion of ditolaneazotide into (JAPP and BURTON), 1886, T., 843.
- "Diphenesuccindone"** and its derivatives (ROSER), 1888, A., 1301.
- 3:3'-Diphenic acid** (GRIESS), 1888, A., 589.  
formula of (GRAEBE), 1887, A., 589.  
condensation of (GRAEBE and AUBIN), 1887, A., 589.  
brominated derivatives of (CLAUS and ERLER), 1887, A., 268.  
bromo- (CARNELLEY and THOMSON), 1885, T., 591; P., 88.  
*p*-nitro- (STRANBURGER), 1884, A., 329.
- Diphenic anhydride** (GRAEBE and AUBIN), 1889, A., 145.  
molecular weight of (PATERNO and NASINI), 1890, A., 725.
- Diphenic chloride** (GRAEBE and AUBIN), 1889, A., 145.
- Diphenimide** (WEGERHOFF), 1888, A., 1200; (GRAEBE and AUBIN), 1889, A., 145.
- o*-Diphenol** (HODGKINSON and MATTHEWS), 1883, T., 169; (LIMPRICHT), 1891, A., 930.
- p*-Diphenol**, derivatives of (SCHULTZ), 1889, A., 402.  
3:3'-*diamido*- and *tetramido*- (KUNZE), 1889, A., 262.  
3:3'-*dinitro*- (KUNZE), 1889, A., 262.
- Diphenoltetrachlorethane** (ELLS and HOERMANN), 1889, A., 997.
- p*-Diphenoldicarboxylic acid** (SCHMIDT and KRETSCHMAR), 1888, A., 56.
- Diphenoldihydrazine hydrochloride** (KUNZE), 1889, A., 262.
- Diphenoldisulphonic acid** (LIMPRICHT), 1891, A., 930.
- $\gamma$ -Diphenoxypropylamine** (LOHMANN), 1891, A., 1167.
- Diphenyl**, occurrence of, in coal-tar oil (SCHULTZ), 1884, A., 1030.  
conversion of aniline into (GATTERMANN, HUSKNEHT, CANZIER and EHRLHARDT), 1890, A., 972.  
heats of combustion and formation of (STORMANN, KLEBER and LANGBEIN), 1889, A., 1012.  
action of nitrous anhydride on (FRIEDBURG and MANDEL), 1890, A., 1401.  
action of organic chlorides on, in presence of aluminium chloride (ADAM), 1886, A., 1033.  
oxidation of, in the animal organism (KLINGENBERG), 1891, A., 1529.  
derivatives of (LELLMANN), 1883, A., 313; (ADAM), 1887, A., 539; 1888, A., 950; (TAUBER), 1890, A., 782; (KAISER), 1890, A., 897.  
derivatives of, from alkylquinols (NÖLTING and WERNER), 1891, A., 209.  
derivatives, dehydration of amides in contact with (BIZZARRI), 1892, A., 617.
- Diphenyl, *o*-amido**, preparation of (HIRSCH), 1892, A., 1198.  
***diamido-o*-** [m.p. 31°] (TAUBER), 1891, A., 570.  
***diamido*-** [m.p. 125°] (BERNTHSEN), 1886, A., 471.  
***m,m*-*diamido*-** [m.p. 257°] (BRUNNER and WITTE), 1887, A., 673.  
***o,p*-*diamido*-** [m.p. 45°]. See *iso*-Benzidine.  
***p,p*-*diamido*-** [m.p. 122°]. See Benzidine.  
***tetramido*-**. See Benzidine, *diamido*-.  
brominated derivatives of (CARNELLEY and THOMSON), 1885, T., 586; P., 88.  
***di*bromo*diamido*-**, and its azoimido-compound (SCHULTZ), 1884, A., 903.  
***di*bromo-*mono*- and *tri*-nitro-** (LELLMANN), 1883, A., 313.  
***perchloro*-** (MERZ and WEIHN), 1884, A., 589.  
***chloro**diamido*-** (MENSHA and HERMANN), 1887, A., 217.  
***dichloro**diamido*-** (SCHULTZ), 1884, A., 903.

- Diphenyl, difluoro-** (WALLACH and HEU-  
LER, 1888, A., 362.  
1:2-dinitro- (TÄUBER), 1891, A.,  
570.  
1:3-dinitro- (BRUNNER and WITF),  
1887, A., 673.  
*m*-dinitro-*o*-diamido- (TÄUBER), 1892,  
A., 481.
- Diphenyl bases** (NÜLTING and  
WERNER), 1891, A., 211.
- Diphenyl benzyl and dibenzyl ketones**  
(PÄPCKE), 1888, A., 701.
- Diphenyl dimethyl dithioether** (LEUCK-  
ART), 1890, A., 635.
- Diphenyl diphenyl ketone and diphenyl  
methyl ketones** (ADAM), 1887, A., 589.
- Diphenyl ketone.** See Benzophenone.
- Diphenyl ketones, alkylated, and their  
conversion into alkylated anthracenes**  
(CLAUS and ELBS), 1885, A., 1065.
- Diphenyl ketoxime** (JANNY), 1883, A.,  
580.  
and some of its derivatives (SPIEGLER),  
1884, A., 1155.
- Diphenyl tetraketone** (ABENIUS and  
SODERBAUM), 1892, A., 69.
- Diphenyl triketone (dibenzoyl ketone)**  
(V. PECHMANN), 1889, A., 712; (DE  
NEUFVILLE and V. PECHMANN),  
1891, A., 318.  
*mono-* and *di-*anilides of (DE NEUF-  
VILLE and V. PECHMANN), 1891,  
A., 319.
- "**Diphenyl triketone hydrate**" (DE  
NEUFVILLE and V. PECHMANN), 1891,  
A., 319.
- Diphenylacediamine, action of carbonyl  
chloride on** (LOEB), 1885, A., 1213.
- Diphenylacetaldehyde, derivatives of**  
(WEISE), 1889, A., 253.
- Diphenylacetaldehydediphenylhydrazone**  
(RIMMOLD), 1889, A., 251.
- Diphenylacetaldoxime** (AUWERS), 1891,  
A., 1070.
- Diphenylacetic acid, derivatives of**  
(BICKEL), 1889, A., 999.
- Diphenylacetic chloride** (BICKEL), 1889,  
A., 999.
- Diphenylacetoneitrile** (ANSCHUTZ and  
ROMIG), 1886, A., 1034; (ZINSSER),  
1892, A., 344; (MICHAEL and JEAN-  
PRESTRE), 1892, A., 1094.
- isoDiphenylacetoneitrile** (ANSCHUTZ and  
ROMIG), 1886, A., 1034.
- Diphenylacetoxime.** See Benzophenone-  
oxime.
- Diphenylacetyl** (ADAM), 1887, A., 589.
- Diphenylacetylene (tolane), hydration**  
of (BÉHAL), 1888, A., 959.  
chlorine compounds of (EILGART),  
1890, A., 899.
- Diphenylacetylene (tolane), p-dinitro-**  
(ELBS and BAUER), 1887, A., 152.
- Diphenylacetylenediureine and its de-  
rivatives** (ANGELI), 1890, A., 1290.
- Diphenylacetylenic alcohol** (JAPP and  
OWENS), 1885, T., 90.
- Diphenylacetylenic dibenzoate** (KLIN-  
GER and STANDKE), 1891, A.,  
931.  
*dichlorides* (WISLICENUS and BLANK),  
1889, A., 262; (REDZKO), 1890,  
A., 783.  
*tetrachloride* (GATTERMANN), 1885,  
A., 167.  
sulphide (BAUMANN and KLETT),  
1892, A., 185.
- Diphenylaldine platinochloride**  
(SCHMIDT), 1890, A., 373.
- Diphenylamidine** (V. HOFMANN), 1887,  
A., 1040.
- Diphenyl/amido-** See Dianilido.
- Diphenyl-1:3:4-triamidobenzene, con-  
densation of, with benzoïn** (FISCHER),  
1891, A., 748.
- Diphenyl/diamidomethylene-*o*-phenyl-  
enediamine** (MOORE), 1889, A., 983.
- Diphenyl/diamidomethylenephenyl-*o*-  
phenyleneguanidine** (KELLER), 1891,  
A., 1469.
- Diphenylamidophenylene** (LIMPRICHT  
and V. RECHENBERG), 1890, A., 158.
- $\alpha\beta$ -Diphenyl- $\mu$ -amidothiazole** (HU-  
BACHER), 1891, A., 222.
- Diphenyl-*m*-amido-*p*-tolylcarbamide**  
(LELLMANN and BONHOFFER), 1887,  
A., 936.
- $\alpha\beta$ -Diphenyl- $\mu$ -amidoazole** (ANSCHÜTZ  
and GELDERMANN), 1891, A., 725.
- Diphenylamine, formation of, from  
aniline and phenol** (BUCH), 1885, A.,  
147.  
formation of, from *o*-bromobenzoic  
acid (HEIDENREICH and MEYER),  
1892, A., 1188.  
preparation of, from phenol (MERZ  
and MÜLLER), 1887, A., 243.  
as a reagent for free chlorine (HAGER),  
1886, A., 96.  
as a reagent for nitrates and nitrites  
(HAGER), 1886, A., 99.  
use of, in qualitative analysis (LAAR),  
1883, A., 239.  
and its homologues, boiling points of  
(GRAEBE), 1887, A., 812.  
action of cinnamic acid on, in pre-  
sence of zinc chloride (BERNTHSEN),  
1887, A., 814.  
action of diazo-*p*-nitrobenzene on  
(MELDOLA), 1883, T., 440.  
action of *m*-nitrodiazobenzene chloride  
on (MELDOLA), 1884, T., 118.

- Diphenylamine**, action of nitrous anhydride on (FRIEDBURG and MANDEL), 1890, A., 1401.  
 action of picric chloride on (TURPIN), 1891, T., 717.  
 action of silicon *tetrachloride* on (REYNOLDS), 1892, T., 454.  
 oxidation of (v. BANDROWSKI), 1886, A., 1023.  
 oxidation of, in the organism (KLINGENBERG), 1891, A., 1529.  
 derivatives of (SCHÖPFF), 1889, A., 772.
- Diphenylamine** arsenious bromide (LANDAU), 1889, A., 211.  
 diphenylphthalamate (PIUTTI), 1884, A., 451.  
 hydrochloride, action of, on fatty amines (ECKENROTH and RÜCKEL), 1888, A., 942.  
 phenylethylphthalamate (PIUTTI), 1884, A., 452.  
 sulphate (VIGNON), 1888, A., 1253.  
 sulphoxide, nitro- (BERNTHSEN), 1885, A., 259.  
 sulphoxides, *d*-nitro- (BERNTHSEN), 1884, A., 1156.
- Diphenylamine**, amido-. See Phenylphenylenediamine.  
 2:4-*d*-amido- (KEHRMANN and MESSENGER), 1892, A., 1109.  
 triamido- (NIETZKI and ERNST), 1890, A., 1114.  
 mono- and *di*-amidothio- (BERNTHSEN), 1885, A., 259; 1886, A., 53.  
*p*-chloro- (IKUTA), 1888, A., 467.  
 5-chloro-2-amido- (ERNST), 1891, A., 299.  
 chloro-*p*-nitroso- (IKUTA), 1888, A., 468.  
*o*-nitro- (SCHÖPFF), 1889, A., 773; 1890, A., 1113.  
*tri*-nitro- (NORTON and ALLEN), 1885, A., 1214.  
 1:1:2:2-*tet*-amino- (HAGER), 1885, A., 150.  
*d*-nitramido- (NIETZKI and ERNST), 1890, A., 1114.  
*p*-nitroso- (FISCHER and HEPP), 1887, A., 244; (IKUTA), 1888, A., 467.  
 thio- (BERNTHSEN), 1884, A., 595, 1156; 1885, A., 259; (HOLZMANN), 1888, A., 1080.  
 synthesis of (BERNTHSEN), 1887, A., 245.  
 derivatives of (BERNTHSEN), 1884, A., 595, 1156; 1885, A., 259; (FRAENKEL), 1885, A., 1130.  
*dithio*- (HOLZMANN), 1888, A., 1080.
- Diphenylaminesaloxan** (PELLIZZARI), 1888, A., 682.
- Diphenylamine-*o*-carboxylic acid**, *di*-nitro-, and its derivatives (JOURDAN), 1885, A., 988.
- Diphenylamine-*p*-carboxylic acid**, *m*-nitro- (SCHÖPFF), 1890, A., 374.
- Diphenylamine-*o*-*p*-disulphonic acid** (FISCHER), 1892, A., 333.
- Diphenylaminofumaride** (PIUTTI), 1886, A., 621.
- Diphenylaminophthalein** and its derivatives (PIUTTI), 1884, A., 451; 1885, A., 783.
- "**Diphenyl- $\psi$ -amphiphenacylnitrile**" and its nitroso- and nitro-derivatives (MOHLER), 1885, A., 360.
- Diphenylisomylsemithiocarbazide** (PHILIPS), 1889, A., 1159.
- Diphenylanthracene dibromide** and dihydride (LINEBARGER), 1892, A., 720.
- Diphenylarsine trichloride** (MICHAELIS and SCHULTE), 1883, A., 187.
- Diphenylasparagine** (PIUTTI), 1886, A., 621.
- Diphenylazo-**. See under Azo-.
- Diphenylbenzylamidine** (NOLTING and WEINGARTNER; KÜHN), 1885, A., 979.
- $\alpha$ -Diphenyl- $\beta$ -benzoylpropionic acid** (JAPP and KLINGEMANN), 1890, T., 681.  
 action of heat on (JAPP and KLINGEMANN), 1890, T., 685.  
 action of hydroxylamine on (JAPP and KLINGEMANN), 1890, T., 683.  
 action of phenylhydrazine on (JAPP and KLINGEMANN), 1890, T., 682.  
 reduction of (JAPP and KLINGEMANN), 1890, T., 681.
- Diphenylbenzoylpropionic acid**, ethylamide and methylamide of (JAPP and KLINGEMANN), 1890, T., 706, 703.
- Diphenylbenzylacetic acid**, and nitrile of (NEURE), 1889, A., 597.
- Diphenylbenzylidenemaleide** and its derivatives (GABRIEL and COHN), 1892, A., 179; (COHN), 1892, A., 483.
- Diphenylisobenzylidenemaleide** (COHN), 1892, A., 486.
- Diphenylbenzylidenemaleimidine** (COHN), 1892, A., 484.  
 nitro- (COHN), 1892, A., 487.
- Diphenylisobenzylidenemaleimidine** (COHN), 1892, A., 486.
- Diphenylbenzylidenemaleinethylinide** (COHN), 1892, A., 484.
- 1:3-Diphenylbenzylidene-5-pyrazolone** (KNORR and KLOTZ), 1887, A., 1121.

- Diphenylbenzylmaleide and its derivatives (COHN), 1892, A., 484.
- Diphenylbenzyl-maleimidine and -maleinethylinidene (COHN), 1892, A., 484, 485.
- Diphenylbenzylphosphine chloride (DORKE), 1888, A., 832.
- oxide and dichloride (MICHAELIS and LA COSTE), 1885, A., 1215.
- oxide, *trinitro*- (DORKE), 1888, A., 833.
- Diphenylbenzylsemithiocarbazide (PHILIPS), 1889, A., 1159.
- Diphenylbenzylthiourea (WERNER), 1892, P., 97.
- Diphenylbismuthine bromide (MICHAELIS and MARQUARDT), 1889, A., 1061.
- Diphenylbromobenzylidenemaleide (COHN), 1892, A., 483.
- Diphenylbromodinitroresorcinol (JACKSON and WARREN), 1891, A., 1026.
- Diphenylbromotoluinoxaline (HAETMANN), 1890, A., 976.
- Diphenyl-*butane* and -*butylene* (FREUND and IMMERWAHR), 1890, A., 1409, 1408.
- Diphenylbutylenediamine (COLSON), 1888, A., 139.
- Diphenylisobutylglyoxaline (JAPP and WYNN), 1886, T., 467.
- Diphenylisobutylsemithiocarbazide (PHILIPS), 1889, A., 1159.
- Diphenylbutyric acid (JANSEN), 1889, A., 596.
- Diphenylbutyrolactone (AUGER), 1888, A., 952.
- Diphenylbutyronitrile (JANSEN), 1889, A., 596.
- Diphenylcarbamie acid, thio-, derivatives of (FRAENKEL), 1885, A., 1130.
- Diphenylcarbamie chloride, thio- (PASCHKOWETZKY), 1892, A., 161.
- s*-Diphenylcarbamide (*carbanilide*) (HENSCHEL), 1883, A., 1107.
- action of sulphuric acid on (HENSCHHEL), 1884, A., 1016.
- s*-Diphenylcarbamide, *m*-amido- (LEUCKART), 1890, A., 760.
- bromo- (GATTERMANN and CANZLER), 1892, A., 833.
- m*-nitro- (LEUCKART), 1890, A., 760.
- p*-nitro- (GOLDSCHMIDT and MOLINARI), 1888, A., 1285; (LEUCKART), 1890, A., 760.
- m*-dinitro- (LOSANITSCH), 1883, A., 583.
- Diphenylcarbamide, *p*-bromo- (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.
- Diphenylcarbamide, *m*- and *p*-chloro- (GOLDSCHMIDT and BARDACH), 1892, A., 979.
- as*-Diphenylcarbamide, thio- (PASCHKOWETZKY), 1892, A., 164.
- Diphenylcarbamidedicarboxylic acid (TRAUBE), 1883, A., 194.
- Diphenylcarbazide (SKINNER and RUEHMANN), 1888, T., 551; A., 274.
- properties of (FISCHER), 1889, A., 1164.
- Diphenylcarbazone (HELLER), 1891, A., 1212.
- Diphenylcarbinol. See Benzhydrol.
- p*-Diphenylcarboxyanilide (LEUCKART), 1890, A., 759.
- o*-Diphenylcarboxylic acid, condensation of (GRAEBE and AUBIN), 1887, A., 589.
- Diphenylcarboxylic acid, *di*bromo- [m.p. 212°] (HOLM), 1883, A., 922.
- Diphenylcarboxylic acids, *m*- and *p*- and salts of (BARTH and SCHREDER), 1883, A., 468.
- Diphenylcarboxylic acids, *di*bromo- [m.p. 204° and 232°] (CARNELLEY and THOMSON), 1885, T., 589; P., 88.
- Diphenyltrichlorethane and its homologues (ELBS and FORSTER), 1889, A., 713.
- Diphenyldichlorodiketo-*p*-diazine (ABENTUS), 1890, A., 526.
- Diphenylchloroformamide, compounds from (LELLMANN and BENZ), 1891, A., 1214.
- Diphenylchloromethyl dimethylcarbinol (WILLGERODT and GENIESER), 1888, A., 811.
- $\alpha\beta$ -Diphenylcinchonic acid (PFIRZINGER), 1889, A., 413.
- Diphenylcrotonolactone (KLINGEMANN), 1892, A., 1002.
- Diphenylcyanamide (WERNER), 1892, P., 96.
- Diphenylcyanethyldiene (CHAUTARD), 1888, A., 810.
- Diphenylcyanine chloride (KLASON; v. MEYER), 1887, A., 363.
- Diphenyltricyanocarboxylic acid (KRAFFT and KOENIG), 1890, A., 1252.
- Diphenylcyanotriazole (BLADIN), 1889, A., 702.
- Diphenyl-*o*-isocyanuric acid (v. HOFMANN), 1886, A., 234.
- Diphenyldiaceto-*o*-tolylenediamine (BISPRZYCKI and CYBULSKI), 1891, A., 694.
- Diphenyldiacetylene (HOLLEMAN), 1888, A., 261.

- Diphenyldiisomyltetrazone (PHILIP-), 1889, A., 1159.
- 2,6-Diphenyl-*m*-diazine, 4-amilo- formation of (SCHWARZE), 1890, A., 1159.
- s*-Diphenyldibenzylsuccinonitrile (CHALANEY and KNOEVENAGLE), 1892, A., 619.
- Diphenyldibutynyl ketone, *p*-nitro- (EINHORN and GILRENBERG), 1890, A., 162.
- Diphenyldisubutyltetrazone (PHILIP-), 1889, A., 1159.
- Diphenyldisobutylglyoxime (AUWERS and MEYER), 1888, A., 595.
- Diphenyl-*o*:*p*-dicarboxylic acid (RLILAND), 1890, A., 167.
- Diphenyl-*m*-dicarboxylic acid (*de* Hloio- (STOLLE), 1888, A., 700.
- Diphenyl- $\alpha$ : $\gamma$ -diethyl- $\beta$ -diketopiperazines (NASTVOGEL, 1889, A., 1013; 1890, A., 1160.
- Diphenyldiethylene (REBUFFAI), 1885, A., 1137, and its derivatives REBUFFAI, 1891, A., 76.
- Diphenyldiethyl-oxamide and -thiocarbamide (NEUBER), 1886, A., 874, 873.
- s*-Di-*p*-phenyldiethylthiocarbamide (MAINZER), 1883, A., 1106.
- p*-Diphenyldiguanide (EMICH), 1891, A., 1180.
- Diphenyldihydrazomethylene (CURTIUS and THUN), 1891, A., 1357.
- Diphenyldihydrazine (ARHEIDT), 1887, A., 958.
- 2:3-Diphenyl-5:6-dihydropyrazine (MASON), 1887, A., 493; 1889, T., 98.
- $\alpha\alpha$ -Diphenyldihydropyridine- $\gamma$ -carboxylic acid (PAAL and SIRASFER), 1888, A., 62.
- 3':4'-Diphenyldihydroquinoxaline (FISCHER), 1891, A., 747.
- Diphenyldihydroxylamine (FISCHER and HEPP), 1887, A., 1115.
- Diphenyldiisindole, and its salts (MOHLAU), 1883, A., 342, identity of, with 3'-phenylindole (MOHLAU), 1888, A., 483, azo-colouring substances from (MOHLAU), 1883, A., 342.
- Diphenyldiisindoleazo-. See under Azo-.
- Diphenyldiisindolesulphanilic acid (MOHLAU), 1883, A., 343.
- Diphenyldiketodihydropyrazine (ABENIUS), 1890, A., 268.
- Diphenyldiketopiperazine and its derivatives (BISCHOFF), 1888, A., 726; (ABENIUS), 1888, A., 854.
- Diphenyl- $\alpha\beta$ -diketopiperazine (BISCHOFF and NASTVOGEL), 1889, A., 1015; 1890, A., 1161.
- Diphenyl- $\alpha\gamma$ -diketopiperazine (HATSDORFER, 1889, A., 1013; (BISCHOFF and HATSDORFER, 1890, A., 1332, homologues of (NASTVOGEL, 1889, A., 1012.
- Diphenyl- $\alpha\delta$ -diketopiperazine (HATSDORFER), 1889, A., 1014; (BISCHOFF and HATSDORFER), 1890, A., 1333.
- Diphenyl- $\alpha\gamma$ -diketopiperazine- $\delta\delta$ -homocarboxylic acid BISCHOFF and NASTVOGEL, 1890, A., 1162.
- Diphenyldiketopyrazine (ABENIUS), 1890, A., 526.
- Diphenyldimethyl (ADAMS), 1888, A., 959.
- Diphenyldimethylaldine (SCHMIDT), 1890, A., 373.
- Diphenyldimethyl/ $\gamma$ -amidomethylene-*n*-phenylenediamine (MOORE, 1890, A., 246.
- Diphenyldimethylazimethylene (CURTIUS and RAUERBERG), 1891, A., 1359.
- Diphenyl- $\alpha\gamma$ -dimethyl- $\beta\delta$ -diketopiperazine (NASTVOGEL), 1889, A., 1012.
- Diphenyl- $\alpha\gamma$ -dimethyl- $\beta\delta$ -diketopiperazines, isomerism of (NASTVOGEL), 1890, A., 1160.
- Diphenyldimethylenediamine (PRAETSI), 1885, A., 782.
- Diphenyldimethylindole (ARHEIDT), 1887, A., 958.
- Diphenyldimethylmalonamide (FREUND), 1884, A., 729.
- Diphenyldimethylphosphonium iodide (DORKE), 1888, A., 833.
- Diphenyldimethylpyrazoloneacetic acid (PELLIZZARI), 1890, A., 645.
- s*-Diphenyldimethylsuccinonitrile (CHALANEY and KNOEVENAGLE), 1892, A., 619.
- 2:3-Diphenyl-1:4-dimethyltetrahydropyrazine (MASON), 1889, T., 104.
- Diphenyldimethylthiocarbamide (STAEHEL), 1890, A., 1260.
- Diphenyldinitrosacyl (HOLLIMAN), 1889, A., 50.
- Diphenyldiphenylenedicarbamide (KÜHN), 1885, A., 979.
- 3-Diphenyl-4:5-diphenyl-1-methylpyrrolone (KLINGMANN), 1891, A., 736.
- Diphenyldipropylguanidine (FRANKEN), 1884, A., 1008.
- Diphenyldiisopropyltetrazone (PHILIP-), 1889, A., 1159.
- Diphenyldipyridazine (CIAMICIAN and ZANETTI), 1891, A., 1502.

- Diphenyldisulphine**, *m* - *d*initro - (EKDOM), 1891, A., 567.
- Diphenyldisulphonic acid** and its derivatives (LIMPRICHT), 1891, A., 930.
- amido- (LIMPRICHT), 1891, A., 930.
- bromamido- (LIMPRICHT), 1891, A., 929.
- iso*Diphenylene, new reaction of (JULIUS), 1884, A., 1181.
- Diphenylene ketone** (CARNELLEY and DUNN), 1888, P., 53; A., 1095.
- bromo- (CLAUS and ERLER), 1887, A., 269.
- di*bromo- (HODGKINSON and MATTHEWS), 1883, T., 165; (HOLM), 1883, A., 921; (CLAUS and ERLER), 1887, A., 269.
- Diphenylene ketone oxide**. See Xanthone.
- Diphenylene ketoxime** (SPIEGLER), 1884, A., 1182; (WEGERHOFF), 1889, A., 1067.
- Diphenyleneazone** (TÄUBER), 1892, A., 184, 482.
- mono*- and *di*-oxides of (TÄUBER), 1892, A., 183.
- di*amido- (TÄUBER), 1892, A., 184.
- Diphenylenebisazo-dimethylaniline**, - $\beta$ -naphthol and -resorcinol (REULAND), 1890, A., 167.
- Diphenylenediacetonehydrazine** (ARHEIDT), 1887, A., 958.
- p*-**Diphenylenediamine** (TÄUBER), 1892, A., 481.
- Diphenylenediethylidene**, synthesis of, from benzene and ethylenic chloride (ANGELIS and ANSCHUTZ), 1884, A., 753.
- Diphenylenedihydrazepyruvic acid** (ARHEIDT), 1887, A., 958.
- Diphenylenedimethylic *disulphide*** (OBERMEYER), 1888, A., 125.
- Diphenylenedisemicarbazide** (ARHEIDT), 1887, A., 958.
- Diphenylenediurethane** (SNAPE), 1886, T., 256; P., 158.
- Diphenylenehydrazone** (TÄUBER), 1892, A., 184.
- Diphenylenehydroxydihydroanthraquinone** (LIEBERMANN and BERGAMI), 1890, A., 515.
- Diphenyleneketonecarboxylamide** (WEGERHOFF), 1888, A., 1201.
- Diphenyleneketonecarboxylic acid** (BAMBERGER and HOOKER), 1885, A., 906, 1070; (GRAEBE and AUBIN), 1887, A., 589.
- o*-**Diphenyleneketonecarboxylic acid** (GRAEBE and AUBIN), 1889, A., 145.
- Diphenyleneketonecarboxylic acid** (BAMBERGER and HOOKER), 1885, A., 906.
- Diphenyleneketoximecarboxylic acid** (BAMBERGER and HOOKER), 1885, A., 906.
- Diphenylenemethane sulphide and sulphone** (GRAEBE and SCHULTZ), 1891, A., 1059.
- Diphenylenenaphthaquinoxalinesulphonic acid**, sodium salt of (WITT), 1886, A., 889.
- Diphenylene-*m*-phenylenediamine**, amido- (FISCHER and HEPP), 1890, A., 614.
- p*-**Diphenylene- $\alpha$ -tetramethyldipyrrole** (PAAL and SCHNEIDER), 1887, A., 273.
- Diphenylenetoluinoxaline** (HINBERG), 1884, A., 1053.
- Diphenylenic *diisocyanate*** (SNAPE), 1886, T., 255.
- oxide (GALEWSKY), 1891, A., 1234.
- synthesis of (TÄUBER and HALBERSTADT), 1892, A., 1470.
- di*amido- (GALEWSKY), 1891, A., 1234.
- s*-**Diphenylethane (*dibenzyl*)** (ANSCHUTZ), 1883, A., 507.
- formation of, from benzylic bromide (GLADSTONE and TRIBE), 1885, T., 453.
- formation of, from ethylenic *dichloride* and benzene in presence of aluminium chloride (GREENE), 1885, A., 58.
- molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 591.
- derivatives of (HEYMANN and WIERNIK), 1887, A., 673.
- Diphenylethane, *di-o*-chlorodinitrosyl** (BEHREND and NISSEN), 1892, A., 1200.
- p*-*d*initro-, preparation of (ROSER), 1887, A., 836.
- o*-*d*initrocyano- (BAMBERGER), 1887, A., 131.
- di-p*-nitro/*d*initrosyl- (BEHREND and KÖNIG), 1891, A., 1032.
- as*-**Diphenylethane**, synthesis of, from benzene and ethylenic chloride (ANGELIS and ANSCHUTZ), 1884, A., 753; (DA SILVA), 1884, A., 1356.
- action of nitric acid on (ANSCHUTZ and ROMIG), 1886, A., 1033.
- nitration-products of (ANSCHUTZ and ROMIG), 1885, A., 800.
- mono*- and *di*-nitro- (ANSCHUTZ and ROMIG), 1885, A., 768.
- s*-**Diphenylethane-*o*-carboxylic acid** (GABRIEL), 1885, A., 1230.

- s*-Diphenylethane-*o*-dicarboxylic acid (WISLIENTS), 1885, A., 58; (DOBREFF), 1887, A., 958; (EPHRAIM), 1890, A., 1143.
- Diphenylethynylsulphone phenylic sulphide (LAVEN), 1890, A., 988.
- Diphenylethylenureide (PINNER), 1891, A., 60.
- 2':4'-Diphenyletho- $\alpha\beta$ -dihydronaphthoquinoxaline (FISCHER and BUSCH), 1891, A., 1514.
- 1':3'-Diphenylethynaphthazonium bromide, hydroxide and nitrate (FISCHER and BUSCH), 1891, A., 1110.
- Diphenylethyl *o*-xylil ketone (WEGE), 1892, A., 338.
- $\beta$ -Diphenylethylamine (FREUND and IMMEERWAHR), 1890, A., 1407.
- s*-Diphenylethylamine (LEUCKART and JANSSEN), 1889, A., 883.
- Diphenylethylamine, action of diazo-*p*-nitrobenzene on (MELDOLA), 1884, T., 111.
- Diphenylethylcarbamide (GEBHARDT), 1884, A., 1321.
- s*-Diphenylethylene. See Stilbene.
- Diphenylethylene diketone (*diphenacyl*; *succinophenone*) (CLATS and WERNER), 1887, A., 827; (AUGER), 1888, A., 952; (KAPF and PAAL), 1889, A., 147.
- Diphenylethyleneallylidenediamine (MASON), 1887, A., 493.
- Diphenylethylenediamine, action of carbonyl chloride on (HANSEN), 1887, A., 577.
- action of succinic acid and anhydride on (BISCHOFF and NASTVOGEL), 1890, A., 1164.
- $\alpha$ -Diphenylethylenedihydrazine (BURCHARD and MICHAELIS), 1889, A., 138; (BURCHARD), 1890, A., 250.
- Diphenylethylenedihydrazine, *di*-thionyl- (MICHAELIS and RUHL), 1892, A., 1324.
- Diphenylethylenedihydrazinedisuccinic acid (BURCHARD), 1890, A., 250.
- Diphenylethylenepropylidenedihydrazine (BURCHARD), 1890, A., 251.
- Diphenylethynylsulphone (OTTO and DAMKOHLER), 1885, A., 261.
- action of potash and of ammonia on (OTTO and DAMKOHLER), 1885, A., 537.
- Diphenylethylenedithiocarbamide (LELLMANN and WÜRTNER), 1885, A., 978.
- Diphenylethylenic glycol mononitrite (ANSCHUTZ and ROMIG), 1886, A., 1034.
- Diphenylethyl cyanide (MEYER), 1888, A., 693.
- Diphenylethyl cyanide (KRAFFT and V. HANSEN), 1889, A., 697.
- hydrogen phosphate (LÖNNEN and KOHLER), 1891, A., 1015.
- Diphenylethylidene ether (BINELLI), 1891, A., 296.
- Diphenylethylidenediamine, cyano- (CHAUTARD), 1888, A., 810.
- Diphenylethylidenedisulphone (ESCALES and BARMANN), 1887, A., 123.
- Diphenylethylidenehydrazine (v. MILLER and FLOCHL), 1892, A., 1196.
- Diphenylethylsemithiocarbamide (PHILIPS), 1889, A., 1158.
- Diphenylethylthiocarbamide (GEBHARDT), 1884, A., 1321.
- action of aniline on (GEBHARDT), 1885, A., 393.
- Diphenylethyltriazole (BLADIN), 1890, A., 271.
- Diphenylethylurazine (PINNER), 1888, A., 1084.
- Diphenylformamidine (WALLACH), 1883, A., 49; (PINNER), 1883, A., 731.
- m*-nitro- (COMSTOCK and WHEELER), 1892, A., 707.
- m*-dinitro- (COMSTOCK and WHEELER), 1892, A., 706.
- Diphenylfumaramic acid (PITTI), 1886, A., 792.
- Diphenylfuran (DODGE), 1891, A., 1237.
- 2:5-Diphenylfurfuran (KAPF and PAAL), 1888, A., 839; 1889, A., 148; (PERKIN and SCHLOESSER), 1889, P., 162; 1890, T., 944, 953.
- reduction of (PERKIN and SCHLOESSER), 1890, T., 955.
- tetrabromo- (PERKIN and SCHLOESSER), 1890, T., 954.
- 2:5-Diphenylfurfuran-3-carboxylic acid (KAPF and PAAL), 1888, A., 839; (PERKIN and SCHLOESSER), 1890, T., 951.
- action of bromine on (PERKIN and SCHLOESSER), 1890, T., 953.
- 2:5-Diphenylfurfuran-3:4-dicarboxylic acid (PERKIN and CALMAN), 1886, T., 168; (PERKIN and SCHLOESSER), 1890, T., 951.
- preparation of (PERKIN), 1885, T., 271.
- s*-Diphenylglutaric acid (ZELINSKY), 1890, A., 132; (ZELINSKY and FELDMANN), 1890, A., 334.
- s*-Diphenylglyceryl ether (RÜSSING), 1886, A., 345.
- Diphenylglycollic acid. See Benzilic acid.
- Diphenylglyoxaline (JAPP), 1887, T., 557; P., 34.

- $\alpha$ -Diphenylglyoxime** (GOLDSCHMIDT and MEYER), 1883, A., 1120.
- $\beta$ -Diphenylglyoxime** (GOLDSCHMIDT), 1884, A., 62.
- Diphenylglyoxime peroxide** (SCHOLL), 1891, A., 316.
- Diphenylguanidine** (SCHÖNE), 1886, A., 338.  
*dicyanide, bromo- and nitro-* (HIRSCH), 1888, A., 947.
- Diphenylhexylmethane and its derivatives** (KRAFFT), 1887, A., 253.
- Diphenylhomofluorindine** (FISCHER and HEPP), 1890, A., 1444.
- Diphenylhydantoin** (BISCHOFF and HAUSDORFER), 1892, A., 1334.
- as*-Diphenylhydrazine, derivatives of** (STAHEL), 1890, A., 1239.  
*cyanuric chloride* (FRIES), 1886, T., 742.
- s*-Diphenylhydrazine** (*hydrazobenzene*), action of benzaldehyde on (CLÈVE), 1886, A., 545.  
 action of dibasic organic acids on (V. BANDROWSKI), 1884, A., 1015.  
 action of ethyldichloramine on (PIERSON and HEUMANN), 1883, A., 915.  
 action of ethylic acetoacetate on (V. PERGER), 1886, A., 898; (MÜLLER), 1886, A., 899.  
 intramolecular change in (JACOBSON and FISCHER), 1892, A., 840.  
 derivatives of (STERN; V. BANDROWSKI), 1884, A., 1015.  
 halogen derivatives of (JANOVSKY and ERB), 1887, A., 478.
- s*-Diphenylhydrazine, diamido-** (*hydrazoniline*), preparation of (GRAEFF), 1885, A., 1127.  
*bromo-* [m.p. 63°] (JANOVSKY and ERB), 1886, A., 1024.  
*p-bromo-* [m.p. 115°] (JANOVSKY and ERB), 1887, A., 479.  
*di*bromo- (JANOVSKY and ERB), 1887, A., 479.  
*p-chloro-* (HEFMANN and MENTHA), 1886, A., 875.  
*m-chloro-o-nitro-* (WILLGERODT and FERKO), 1888, A., 830.  
*p-iodo-* (NÖLTING and WERNER), 1891, A., 211.  
 *$\alpha$ -dinitro-* (WILLGERODT and FERKO), 1888, A., 829; (WILLGERODT and HERMANN), 1889, A., 1160; 1890, A., 1259.  
*trinitro-* (FISCHER), 1890, A., 40.  
 conversion of, into nitrosodinitrazobenzene (FREUND), 1889, A., 977.
- Diphenylhydrazineacetonylacetone** (PAAL), 1885, A., 505.
- s*-Diphenylhydrazine-*o*-carboxylic acid** (PAAL), 1892, A., 67.  
*p-bromo-*, and *p-chloro-* (PAAL), 1892, A., 68.
- s*-Diphenylhydrazinedi-*m*-carboxylic acid** (*m-hydrazobenzonic acid*), acids obtained by heating, with stannous chloride (KUSSEROW), 1890, A., 778.
- s*-Diphenylhydrazinedi-*o*-carboxylic acid** (*o-hydrazobenzonic acid*) (HOMOLKA), 1884, A., 1342.
- s*-Diphenylhydrazinedisulphonamide** (LIMPRICHT and MEYER), 1892, A., 973.
- s*-Diphenylhydrazinedisulphonic acid** (RODATZ), 1883, A., 479; (LIMPRICHT), 1889, A., 399; 1890, A., 987.
- s*-Diphenylhydrazinedisulphonic acid, action of nitrous acid on** (LIMPRICHT), 1885, A., 1216.
- Diphenylhydrazinepyruvic acid, synthesis of** (FISCHER and HESS), 1884, A., 1181.
- s*-Diphenylhydrazine*di*thiodisulphonic acid and its barium salt** (BAUER), 1885, A., 1139.
- s*-Diphenylhydrazine*di*thiodisulphonic acids** (LIMPRICHT), 1885, A., 985.
- p*-Diphenylhydrazohexamethylene** (V. BAEYER and NOYES), 1889, A., 1148.
- Diphenylhydrazobenzylidenesulphonic acid, sodium salt of** (KAFKA), 1891, A., 720.
- Diphenylhydrazonenitro-*o*-picnic acid** (BISTRZYCKI), 1888, A., 1209.
- Diphenylhydrazonenopicnic acid** (BISTRZYCKI), 1888, A., 1209; (TUST), 1892, A., 1210.
- Diphenylhydrazonophthalaldehydic acid** (ALLENDOFF), 1891, A., 1370.
- Diphenylic carbonate, action of aniline, *o*- and *p*-toluidines, naphthylamine, and of diphenylcarbamide on** (ECKENROTH), 1885, A., 786.  
 conversion of, into salicylic acid (HENTSCHEL), 1883, A., 589.
- dodecenchloride** (SCHÜPPHAUS), 1885, A., 52.
- dicyanide** (PINNER), 1891, A., 60.
- o-p*-dicyanide** (KUTLAND), 1890, A., 167.
- $\Delta^{1,2}$ -dihydroterephthalate** (V. BAEYER and HERB), 1890, A., 1132.
- $\Delta^{2,3}$ -*cis*-trans dihydroterephthalate** (V. BAEYER and HERB), 1890, A., 1131.
- diphenylenedicarbamate** (SNAPE), 1886, T., 256.
- hydrogen cyanide** (KRAFFT and KOENIG), 1890, A., 1252.

- Diphenylic lead oxide** (POLIS), 1888, A., 283.  
 lead salts (POLIS, 1887, A., 573; 1888, A., 253.  
 sebacamide (GEHRING, 1887, A., 22.  
 disulphide (CLIVE), 1885, A., 69.  
**Diphenylimide**, imidothio-, and its salts (BERNTSEN), 1885, A., 259.  
**Diphenylimidomethylthiazoline** (TRUMANN), 1889, A., 415.  
**"Diphenylimidonaphthol"** ( *$\beta$ -naphthaquinonediamidol*) (MELDOLA), 1884, T., 157.  
**Diphenylimidophenylene** (SEIFERT), 1890, A., 490.  
**Diphenylimidothiazoline** (FISCHER and BUSCH), 1891, A., 1517.  
**Diphenylindole** (FISCHER), 1886, A., 806; (PFULE), 1887, A., 956.  
**Diphenylene**. See *iso*-Benzidine.  
**Diphenylizindihydroxytartaric acid** (ZIEGLER and LOCHER), 1887, A., 578.  
*m*-nitro- (BISCHLER and BRODSKY), 1890, A., 151.  
**Diphenylketazine** (CURTIUS and RAUFERBERG), 1891, A., 1359.  
**Diphenylketopiperazine** (BISCHOFF and NASTVOGL), 1889, A., 1009; 1890, A., 1160.  
 **$\beta$ -Diphenyllactic acid and anhydride** (WIESE), 1889, A., 253.  
**Diphenylmaleanil** (ANSCHUTZ and BENDIX), 1891, A., 71.  
**Diphenylmaleic acid**, action of soda on (DELISLE), 1892, A., 297.  
**Diphenylmaleic anhydride** (ANSCHUTZ and BENDIX), 1891, A., 71; (GABRIEL and COHN), 1892, A., 178.  
**Diphenylmaleonitrile** (CHALANEY and KNOEVENAGEL), 1892, A., 618.  
**Diphenylmethane** (HODGKINSON and MATTHEWS), 1883, T., 164.  
 oxidation of, in the organism (KLINGENBERG), 1891, A., 1529.  
 derivatives of (STAEDEL and HAASE), 1890, A., 1422.  
**Diphenylmethane, *m*-amido-** (BECKER), 1883, A., 203.  
*p*-amido- (BASLER), 1884, A., 310.  
 derivatives of (MANN), 1889, A., 261.  
*p*-diamido-, and its nitro-derivatives (GRAM), 1892, A., 618.  
*tetramido*-, and its compounds (STAEDEL), 1883, A., 991.  
 bromo-, preparation of (HENDERSON), 1891, T., 731.  
*m*-nitro- (BECKER), 1883, A., 202.  
*o*-nitro-, preparation of (GEIGY and KOENIGS), 1885, A., 1237.  
**Diphenylmethane, *p*-nitro-** (BASLER), 1884, A., 310; MANN, 1889, A., 261.  
*dimitro*- (BASLER, 1884, A., 310.  
*tetranitro*- (V. RICHTER), 1888, A., 1190.  
 preparation of (STAEDEL), 1883, A., 990.  
*p*-Diphenylmethanecarbamide (MANN, 1889, A., 261.  
**Diphenylmethanedicarboxylic acid** (GRAEBL and JULIARD), 1888, A., 156; (JULLIARD, 1888, A., 708.  
**Diphenylmethanehydrazine** (MANN), 1889, A., 261.  
**Diphenylmethanetricarboxylic acid** (GRAEBE and JULIARD), 1888, A., 154; (JULLIARD), 1888, A., 707.  
**Diphenylmethenylamidine** (SEIFER), 1885, A., 767.  
**Diphenylmethenylazidine** (PINNER), 1884, A., 1323.  
**Diphenylmethenyldiamine** (TODIAS), 1883, A., 326.  
**Diphenylmethylamine**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 296.  
**Diphenylmethylamine, *di*amidothio-**, and its derivatives (BERNTSEN), 1885, A., 259.  
*p*-nitroso- (FISCHER and HEPP), 1890, A., 614.  
 thio- (HULZMANN), 1888, A., 1080.  
**Diphenylmethylamineazylane** (LIPPMANN and FLEISSNER), 1884, A., 180.  
**Diphenylmethylaminesulphone** (BERNTSEN), 1884, A., 596.  
**Diphenylmethylcarbamide** (GEHARDT), 1884, A., 1321.  
**Diphenylmethylcarbinol** (ADAM), 1888, A., 959.  
 nitro- (ANSCHUTZ and ROMIG), 1885, A., 768.  
**Diphenyl-*o*-, -*m*- and -*p*-methylcarbinylamines** (GOLDSCHMIDT and STOCKER), 1891, A., 1480, 1479.  
**Diphenyl-*m*-methylcarbinylcarbamide** (*homobenzhydrylcarbamide*) (GOLDSCHMIDT and STOCKER), 1891, A., 1480.  
**Diphenyl-*p*-methylcarbinyl-phenylcarbamide and -thiocarbamide** (GOLDSCHMIDT and STOCKER), 1891, A., 1480.  
**Diphenylmethylcinnamaldazimethylenes** (CURTIUS and RAUFERBERG), 1891, A., 1360.  
**2-6-Diphenyl-5-methyl-*m*-diazine, 4-amido-** (V. MEYER), 1889, A., 578; (SCHWARZE), 1890, A., 1159.  
**Diphenylmethylidihydropyrazine** (KNORR and BLANK), 1885, A., 556.

- 4':5'-Diphenyl-3'-methyl-dihydroquin-oxaline (FISCHER and BUSCH), 1891, A., 1515.
- Diphenylmethylene diketone. See Dibenzoylmethane.
- Diphenylmethylenedianiline (v. MILLER and PLÜCHL), 1892, A., 1195.
- Diphenylmethylene-benzaldazine and -cinnamaldazine (CURTIUS and RAUTERBERG), 1891, A., 1359.
- Diphenylmethylene-hydrazine and -tetrazone (CURTIUS and RAUTERBERG), 1891, A., 1358, 1359.
- Diphenylmethylenedithioglycollic acid (BONGARTZ), 1888, A., 479.
- Diphenylmethylenethiylene disulphide (FASBENDER), 1888, A., 805.
- Diphenylmethylethophenazonium hydroxide (KEHRMANN and MÜLSINGER), 1892, A., 1108.
- Diphenylmethylglyoxaline (JAPP and WYNNE), 1886, T., 465; P., 201; (JAPP), 1887, T., 557; P., 34.
- Diphenylmethyl *tricyanide* (KRAFFT and v. HANSEN), 1889, A., 696. formation of (EITNER and KRAFFT), 1892, A., 1184. preparation of (KRAFFT and KOENIG), 1890, A., 1252.
- sulphide (OBERMEYER), 1888, A., 124.
- Diphenylmethylphthalide (v. HEMI-LIAN), 1884, A., 321.
- Diphenylmethylpyrazole and its deriva-tives (KNORR and BLANK), 1885, A., 556; (FISCHER and BULOW), 1885, A., 1237.
- o*- and *p*-nitro- (KNORR and JÜDICKE), 1885, A., 1247, 1248.
- 1:3-Diphenyl-5-methylpyrazole, *tri*-nitro- (KNORR and LAUBMANN), 1889, A., 409.
- 1:5-Diphenyl-3-methylpyrazole (KNORR), 1887, A., 678.
- Diphenylmethylisopyrazole and its salts (KNORR and BLANK), 1885, A., 810.
- Diphenylmethylpyrazolecarboxylic acid (KNORR and BLANK), 1885, A., 556.
- p*-amido- (KNORR and JÜDICKE), 1885, A., 1248.
- o*- and *p*-nitro- (KNORR and JÜDICKE), 1885, A., 1247, 1248.
- Diphenylmethylisopyrazolecarboxylic acid and its salts (KNORR and BLANK), 1885, A., 810.
- Diphenylmethylpyrazolecarboxylic anhydride, *o*-amido- (KNORR and JÜDICKE), 1885, A., 1248.
- 1:5-Diphenyl-3-methylpyrazoline (KNORR), 1887, A., 678.
- 1:3-Diphenyl-2-methylpyrazolone (KNORR and KLOTZ), 1887, A., 1121.
- 1:5-Diphenyl-2-methylpyrrole (LE-DERER and PAAL), 1886, A., 75.
- 1:5-Diphenyl-2-methylpyrrole-3-carb-oxylic acid and its ethyl salt (LE-DERER and PAAL), 1886, A., 75.
- 3':4'-Diphenylmethylquinoxaline (HINSBERG), 1884, A., 1053.
- Diphenylmethylsulphonophenyl sul-phide (LAVES), 1890, A., 988.
- $\alpha\beta$ -Diphenyl- $\mu$ -methylthiazole (HU-BACHER), 1891, A., 222.
- Diphenylmethylthiocarbamide (GEB-HARDT), 1884, A., 1320. action of ammonia and of *o*-toluidine on (GEBHARDT), 1885, A., 383.
- Diphenylmethyltriazole (BLADIN), 1889, A., 138.
- Diphenylnaphthaleneazamonium hydroxide and its salts (ZINCKE and LAWSON), 1887, A., 731.
- Diphenylnaphthaquinoxaline (LAW-SON), 1885, A., 1239.
- Diphenyl- $\alpha\beta$ -naphthatriazine (MEL-DOLA), 1890, T., 331. and its derivatives (MELDOLA and FORSTER), 1891, T., 681.
- Diphenylnaphthylenecarbamide (BAM-BERGER and SCHIEFFELIN), 1889, A., 892.
- Diphenylnaphthylenediamine [m.p. 168°] (ANNAHEIM), 1887, A., 839.
- Diphenylnaphthylene-*p*-diamine (FISCHER and HEPP), 1890, A., 911.
- Diphenyl-*o*-nitrobenzylcarbamide (PAAL and BODEWIG), 1891, A., 944.
- Diphenyl-*l*-nitroethane (GABRIEL), 1885, A., 1229.
- Diphenyl-*l*-nitromethane (SCHOLL), 1891, A., 315.
- Diphenyl-*m*- and -*p*-nitrophenylcarb-amides (LELLMANN and BONHOFFER), 1887, A., 936.
- Diphenylnitrosamine, *o*-nitro- (FIS-CHER), 1892, A., 332.
- Diphenyl-*l*-nitrosohydrazine (AR-HEIDT), 1887, A., 958.
- Diphenylnitrosoketopiperazine (BIN-CHOFF and NASTOGEL), 1890, A., 1161.
- Diphenyl-*r*-nitrosoisopropane (DE NEUF-VILLE and v. PECHMANN), 1891, A., 319.
- Diphenyl-*m*-nitro-*p*-tolylcarbamide (LELLMANN and BONHOFFER), 1887, A., 936.
- Diphenyloxalylguanidine, nitro- (HIRSCH), 1888, A., 947.
- Diphenyloxamide. See Oxanilide.

- Diphenyloxycyanidine** (PINNER), 1891, A., 59.
- Diphenylparabanic acid** (V. STOJENTIN), 1885, A., 1195, 1196.  
nitro- (HINSCH), 1888, A., 947.  
*di*nitro- (V. STOJENTIN), 1885, A., 1195.
- Diphenyl-*p*-phenylene diketone** (NÖLTING and KOHN), 1885, A., 389; 1886, A., 349.
- Diphenyl-*m*- and -*p*-phenylenediamines and their derivatives** (CALM), 1884, A., 591, 592.
- Diphenyl-*m*-phenylenediamine, *p*-nitroso-** (FISCHER and HEPP), 1890, A., 613.
- Diphenylphenylenedicarbamide** (KÜHN), 1885, A., 979.
- m*-Diphenylphenylenedisulphone**, action of potash on (OTTO and ROSSING), 1887, A., 372.
- Diphenylphenylpropionic acid** (LIEBERMANN and HARTMANN), 1892, A., 1228.
- Diphenylphenylene-*l*ithiocarbamides, *o*- and -*m*-** (LELLMANN and WURTHNER), 1885, A., 977.
- Diphenylphosphinic acid, *di*amido-** (DÖRKEN), 1888, A., 834.  
*di*nitro- (DÖRKEN), 1888, A., 833.
- Diphenylphosphonium salts** (DÖRKEN), 1888, A., 833.
- Diphenylphosphoric acid, *di*nitro-** (RAPF), 1884, A., 1337.
- Diphenylphosphorous acid** (NOACK), 1883, A., 737.
- Diphenylphosphoryl chloride** (NOACK), 1883, A., 735; (ANSCHUTZ and EMERY), 1890, A., 34.  
*tri*chloride and *thio*chloride (ANSCHUTZ and EMERY), 1890, A., 35.
- Diphenylphthalamic acid, and its salts** (PIUCCI), 1884, A., 451.
- Diphenylphthalidicarboxylic acid** (V. HEMILIAN), 1887, A., 267.
- Diphenylphthaloylic acid** (KAISER), 1890, A., 897.
- Diphenylphthalylasparagine** (PIUCCI), 1886, A., 621.
- Diphenylpiperazine** (BISCHOFF and TRAPENSONZIANZ), 1890, A., 1332.  
preparation of (LELLMANN and SCHLEICH), 1889, A., 904.  
and its homologues, preparation of (BISCHOFF), 1889, A., 1010.
- Diphenylpiperazine, *p*-*di*amido-**, formation of colouring matters from (LELLMANN and SCHLEICH), 1889, A., 904.  
*p*-*di*nitro- (SCHMIDT and WICHMANN), 1892, A., 210.
- 2:3-Diphenylpiperazines,  $\alpha$ - and  $\beta$ -**, and their derivatives (MASON), 1889, T., 102, 105.
- $\alpha\alpha$ -Diphenylpiperidine and  $\alpha\alpha$ -diphenylpiperidine- $\gamma$ -carboxylic acid** (PAAL and STRASSER), 1888, A., 63.
- $\alpha\beta$ -Diphenylpropane** (WISPEK and ZUBER), 1883, A., 977; (KRAEMER, SPIJKER and EEBERHARDT), 1891, A., 207.
- Diphenylpropionic acid and its derivatives** (BÖTTCHER), 1884, A., 55.
- $\beta$ -Diphenylpropionic acid**, preparation of (HENDERSON), 1891, T., 731; P., 123; (LIEBERMANN and HARTMANN), 1892, A., 819, 1228.
- Diphenylpropylamine** (FREUND and REMSEL), 1890, A., 1122.
- Diphenylpropyl-carbamide, -oxamide and -phenylthiocarbamide** (FREUND and REMSEL), 1890, A., 1122.
- Diphenylpropylic alcohol** (FREUND and REMSEL), 1890, A., 1123; PERKIN and STEINHOSE, 1891, T., 1009.
- Diphenylpropylpropionitrile** (ROSSO-LYMOE), 1889, A., 862.
- Diphenylisopropylsemithiocarbazide** (PHILIPS), 1889, A., 1159.
- 2:3-Diphenylpyrazine** (MASON), 1889, T., 99.  
*di*nitro- (MASON), 1889, T., 101.
- 3:6-Diphenylpyrazine** (*isobutylol*, *amphiphenacylnitrile*) (FRIEDLANDER and MÄHL), 1883, A., 918; (MOHLER), 1885, A., 560.  
molecular weight of (TERRADWELL and MEYER), 1883, A., 665.
- 1:3-Diphenylpyrazole** (KNORR and LAUBMANN), 1889, A., 410.
- Diphenylpyrazolecarboxylic acid** (BEYER and CLAUSEN), 1887, A., 944.
- Diphenylpyrazoledicarboxylic acid** (KNORR and LAUBMANN), 1889, A., 409.
- 1:5-Diphenylpyrazoline** (LAUBMANN), 1888, A., 726.
- 1:3-Diphenylpyrazolone and its derivatives** (KNORR and KLOTZ), 1887, A., 1121.
- Diphenylpyrazoloneazobenzene** (KNORR and KLOTZ), 1887, A., 1121.
- 2:6-Diphenylpyridine** (PAAL and STRASSER), 1888, A., 63; (DOEBNER and KUNTZE), 1889, A., 1212.
- 2:6-Diphenylpyridine-4-carboxylic acid** (PAAL and STRASSER), 1888, A., 62.
- $\alpha\alpha$ -Diphenylpyridinetriacarboxylic acid** (DOEBNER and KUNTZE), 1889, A., 112.
- 2:6-Diphenylpyridone and 2:6 diphenylpyridone-3-carboxylic acid** (FEIST), 1891, A., 458.

- 2:6-Diphenylpyrone and 2:6 diphenylpyronecarboxylic acid (FEIST), 1891, A., 458.
- 2:5-Diphenylpyrrole (BAUMANN), 1887, A., 736; (KAPF and PAAL), 1889, A., 149.
- 2:5-Diphenylpyrrole-3-carboxylic acid (KAPF and PAAL), 1888, A., 840; 1889, A., 149.
- Diphenyl-pyrrolidone and -pyrrolone (KLINGEMANN), 1892, A., 1003.
- Diphenylpyrrolylrotolactone (ANGELI), 1890, A., 1000.
- $\alpha$ -Diphenyl- $\beta$ -pyrrolylpropionic acid (ANGELI), 1890, A., 1000.
- $\mu$ -Diphenylquinol (MÜLLER and V. PECHMANN), 1889, A., 1171.
- Diphenylquinol, *di*-, *tri*- and *tetra*-nitro- (NIETZKI and SCHUNDELEN), 1892, A., 310.
- 2:1-Diphenylquinoline (BEYER), 1887, A., 549.
- $\alpha\beta$ -Diphenylquinoline (BUDDEBERG), 1890, A., 1142.
- Diphenylquinolylmethane and its derivatives (FISCHER and FRÄNKEL), 1886, A., 561; 1888, A., 56.
- p*-Diphenylquinone (MÜLLER and V. PECHMANN), 1889, A., 1171.
- Diphenylquinoxaline, *diamido*- (NIETZKI and MÜLLER), 1889, A., 605.
- Diphenylquinoxaline-*m*-carboxylic acid (ZEHR), 1891, A., 303.
- Diphenylresorcinol, *tetra*-, *para*- and *hexa*-nitro- (NIETZKI and SCHUNDELEN), 1892, A., 310.
- Diphenylrosamine (HEUMANN and REY), 1890, A., 158.
- $\alpha\mu$ -Diphenylselenazole (HOFMANN), 1889, A., 727.
- Diphenylselenocarbamide (STOLTE), 1887, A., 43.
- Diphenylselenone (CHABRIÉ), 1890, A., 34.
- Diphenylsemicarbazide (KÜHN), 1885, A., 261.
- Diphenylsemithiocarbazide, *p*-bromo-*o*-nitro-, and *m*-nitro- (BISCHLER and BRODSKY), 1890, A., 152, 151.
- Diphenylsemithiocarbazidecarboxylic acid (RODER), 1887, A., 150.
- Diphenylsilicon dichloride (POLIS), 1886, A., 619.
- Diphenyl-stibic acid and -stibine chloride (MICHAELIS and REESE), 1886, A., 885.
- Diphenylsuccinamic acid, and its salts (PIUTTI), 1885, A., 783.
- Diphenyl-succinanil and -succinanilic acid (ANSCHÜTZ and BENDIX), 1891, A., 72.
- Diphenylsuccinic acid, action of strong sulphuric acid on (ROSEN), 1888, A., 1301.
- ciano- (POPPE), 1890, A., 504.
- Diphenylsuccinic acid, preparation of (HENDERSON), 1891, T., 732; P., 123.
- Diphenylsuccinic acid (ANSCHÜTZ and BENDIX), 1891, A., 71.
- Diphenylsuccinic anhydrides (TILLMANN), 1890, A., 1135; (ANSCHÜTZ and BENDIX), 1891, A., 72.
- Diphenylsuccinimidine (BLOCHMANN), 1887, A., 931.
- Diphenylsuccinonitriles, stereoisomeric (CHALANEY and KNOEVENAGEL), 1892, A., 619.
- Diphenylsulphamic acid, amido- (SPIEGEL), 1885, A., 987.
- Diphenylsulphide-*o*-carboxylic acid (ZIEGLER), 1890, A., 1292; (GRAEBE and SCHULTESS), 1891, A., 1058.
- Diphenylsulphonamic acid, ammonium salt of (TRAUBE), 1891, A., 569.
- Diphenylsulphone (*benzenesulphone*; *sulphobenzide*) (OTTO), 1885, A., 535.
- decomposition of (OTTO), 1886, A., 1031.
- Diphenylsulphone, *diamido*- and its derivatives (LAUTH), 1892, A., 1093.
- o*-*N*-chloro- (FRIEDEL and CRAFTS), 1887, A., 1101.
- Diphenylsulphone mercaptan (R. and W. OTTO), 1888, A., 282.
- s*-Diphenylsulphoneacetone, synthesis of (OTTO), 1889, A., 1186.
- Diphenylsulphonebromopropane (STUFFER), 1890, A., 988.
- Diphenylsulphone-*o*-carboxylic acid (GRAEBE and SCHULTESS), 1891, A., 1058.
- Diphenylsulphonedimethylacetone (OTTO), 1886, A., 801.
- Diphenylsulphonedisulphonic acid and its derivatives (OTTO and ROSSING), 1887, A., 263.
- Diphenylsulphonemethane (FROMM), 1890, A., 56.
- Diphenylsulphonephenyl ether (OTTO and ROSSING), 1887, A., 372.
- s*-Diphenylsulphoneisopropyl alcohol (OTTO and ROSSING), 1890, A., 780.
- Diphenylsulphone-*m*-sulphonic acid (OTTO), 1886, A., 1031.
- $\alpha\beta$ -Diphenylsulphone- $\beta$ -thiophenylpropane (AUTENRIETH), 1891, A., 1068.
- Diphenylsulphonethylamine (OTTO), 1890, A., 380.

- Diphenylsulphonethylic oxide (OTTO and DAMKOHLER), 1885, A., 263.  
sulphide (OTTO and DAMKOHLER), 1885, A., 538.
- Diphenylsulphonethylmethyamine (OTTO and DAMKOHLER), 1885, A., 538.
- Diphenylsulphonic acid, *p*-amido- (CARNELLEY and SCHLESSELMANN), 1886, T., 380; P., 184.
- Diphenylsulphoxide (COLBY and Mc LOUGHLIN), 1887, A., 371.  
*d*-nitro- (COLBY and Mc LOUGHLIN), 1887, A., 372.
- Diphenyltartaric acid, and the hydrobromide of the amide of (BURTON), 1884, A., 62.
- Diphenyltaurocarbamic anhydride (ANDREASCH), 1883, A., 661.
- Diphenyltetrahydrofurfuran (KAPF and PAUL), 1889, A., 148.
- Diphenyltetrahydrophenanthroline (SCHIFF and VANNI), 1890, A., 139.
- Diphenyltetrazine and methiodide of (RUHEMANN), 1889, T., 244, 245.  
bromo-derivatives of (RUHEMANN), 1889, T., 246.  
nitro- (RUHEMANN), 1890, T., 51.
- am*-Diphenylthiazole (HUBACHER), 1891, A., 221.
- Diphenylthiazolecarboxylthiamide (BLADIN), 1892, A., 638.
- Diphenylthienylmethane (LEVI), 1886, A., 787.
- s*-Diphenylthiocarbamide (*thiocarbamid*) (SCHIFF and VANNI), 1892, A., 600.  
constitution of (GOLDSCHMIDT and MEISLER), 1890, A., 500.  
melting point and crystalline form of (LOSANTSCH), 1886, A., 876.  
action of acetic acid on (CAIN and COHEN), 1891, T., 329.  
action of acetic anhydride on (WERNER), 1891, T., 396.  
action of allylic bromide on (WERNER), 1890, T., 303; P., 33.  
action of benzylic chloride on (WERNER), 1890, T., 297; P., 33.  
action of chloroacetone on (PAWLEWSKI), 1888, A., 473.  
action of ethoxalyl chloride on (V. STOJENTIN), 1884, A., 1159.  
action of silicon tetrabromide on (REYNOLDS), 1888, T., 857.  
action of water on (CAIN and COHEN), 1891, T., 328.  
compounds of, with metallic salts (RATHEKE), 1884, A., 1018.
- s*-Diphenylthiocarbamide, *m*- and *p*-amido- (LELLMANN and WURTHNER), 1885, A., 977.  
*mono*- and *di*-nitro-, action of iodine on (LOSANTSCH), 1883, A., 582.
- as*-Diphenylthiocarbamide (WERNER), 1892, P., 96; (PASCHKOWEIZKY), 1892, A., 164.
- Diphenylthiocarbazinic acid (STAEHEL), 1890, A., 1260.
- Diphenylthiocarbimide, *m*-*mono*- and *di*-nitro- (STEDEMANN), 1883, A., 801.
- Diphenylthiohydantoin (KOSSEL), 1892, A., 468.
- 2:5-Diphenylthiophen (KAPF and PAUL), 1889, A., 148.
- Diphenyltolenylamidine (GLOCK), 1888, A., 1290.
- Diphenyl-*p*-toluylamide (LELLMANN and BUNHOFFER), 1887, A., 935.
- Diphenyl-*p*-tolylbiuret (PAWLEWSKI), 1888, A., 474.
- Diphenyltolylcarbinol, *tri*amido-. See Rosaniline.
- Diphenyltolylcarbinol-*m*-carboxylic acid (V. HEMILIAN), 1884, A., 323.
- Diphenyl-*m*-tolylenediamine and its derivatives (ZEGA and BUCH), 1886, A., 873.
- Diphenyltolylenedicarbamide (KUHN), 1885, A., 979; (LEUCKART), 1890, A., 760.
- Diphenyl-*m*-tolylenethiocarbamide (BILLETER and STEINER), 1886, A., 234.
- Diphenyl-*p*-tolylene*lithio*carbamide (LELLMANN and WURTHNER), 1885, A., 977.
- Diphenyltolylene*dicarbamate* (SNAPE), 1886, T., 258.
- Diphenyl-*p*-tolylguanidine (HUHN), 1886, A., 1036.
- Diphenyl-*m*-tolylmethane (V. HEMILIAN), 1884, A., 322.
- Diphenyltolylmethane, *tri*amido-. See Leucaniline.
- Diphenyl-*p*-tolylmethanecarboxylic acid [m.p. 217°] (V. HEMILIAN), 1884, A., 322.
- Diphenyl-*p*-tolylmethanecarboxylic acid [m.p. 155°] (GRESLEY), 1886, A., 1035.
- 3':4'-Diphenyl-1'-tolylmethyldihydroquinoxaline (FISCHER), 1891, A., 748.
- 2'':3'':Diphenyl-4'':-tolylmaphthadihydroquinoxaline (FISCHER), 1892, A., 1474.
- 2'':3'':Diphenyl-4'':-tolylmaphthahydronaphthazonium hydroxide (FISCHER), 1892, A., 1474.

- p*-Diphenyltolylphosphine and its derivatives (DORKIN), 1888, A., 833.
- 2:5-Diphenyl-*o*-tolylpyrrole (PAAL and BRAIKOFF), 1890, A., 263.
- 2:5-Diphenyl-*p*-tolylpyrrole (BAUMANN), 1887, A., 736.
- Diphenyl-*o*- and -*p*-tolylpyrrolecarboxylic acids (PAAL and BRAIKOFF), 1890, A., 263.
- Diphenyltriazenylamidoxime (BLADIN), 1889, A., 978.
- Diphenyltriazenyl-benzenyl- and -ethenyl-azoximes (BLADIN), 1889, A., 978.
- Diphenyl-triazole and -triazolecarboxylic acid (BLADIN), 1889, A., 703.
- Diphenyltricarboxylic acid (BAMBERGER and HOOKER), 1885, A., 906, 1070.
- Diphenyltrimethylene/*l*-thiocarbamide (LEHMANN and WUTHNER), 1885, A., 978.
- aa*-Diphenyltrimethylenic cyanide (ZELINSKY and FELDMANN), 1890, A., 384.
- Diphenylurazine (PINNER), 1888, A., 1084.
- Diphenylurethane, and its derivatives (HAGER), 1886, A., 59.
- Diphenylvinyl nitrite (ANSCHUTZ and ROMIG), 1886, A., 1034.
- Diphenyl-*o*-xylylenediamine (LESER), 1884, A., 1313.
- Diphenyl-*o*- and -*m*-xylylmethanes (v. HEMILIAN), 1887, A., 267, 266.
- Diphenyl-*p*-xylylmethane and its products of oxidation (v. HEMILIAN), 1884, A., 321.
- Diphenyl-*m*-xylylpyrrole (PAAL and BRAIKOFF), 1890, A., 263.
- Diphloroglucinolcarboxylic acid (SCHIFF), 1888, A., 810.
- Diphosphoric acid, *mono*- and *d*-imido- (MENTE), 1889, A., 210.
- Diphosphoromonamic acid, *d*-imido- (MENTE), 1889, A., 210.
- Dipthalide ether (RACINE), 1887, A., 951.
- Dipthalyl (GRAEBE and GUYE), 1885, A., 267.
- and its derivatives (WILLIGENT), 1885, A., 57; (ROSER), 1885, A., 267; (GRAEBE and SCHMALZIGAU), 1885, A., 797; (GRAEBE and GUYE), 1886, A., 882.
- bromide, crystalline form of (SORET), 1886, A., 619.
- Dipthalyl, *tetrachloro*-, and *nitro*- (GRAEBE and GUYE), 1886, A., 882.
- Dipthalylamidoethyl sulphide (GABRIEL), 1891, A., 815.
- Dipthalyl-di-*p*-benzidine (v. BANCROFT), 1884, A., 1015.
- Dipthalyl-diethylenephényltri-amine (GABRIEL), 1889, A., 1166.
- Dipthalyl-dimethylenetri-amine (GOLDENRING), 1890, A., 976.
- Dipthalylethane (*thio*-dipthalyl) (ROSER), 1885, A., 165.
- mono*- and *di*-nitro- (GABRIEL), 1886, A., 620.
- iso*-Dipthalylethane (ROSER), 1885, A., 267.
- Dipthalylethane anhydride (ROSER), 1885, A., 165.
- Dipthalyllic acid (GRAEBE and JULLIARD), 1888, A., 154; (JULLIARD), 1888, A., 707.
- Dipthalylimide (GRAEBE and GUYE), 1886, A., 883.
- Dipthalylimidoethylic sulphide (GABRIEL), 1892, A., 130.
- disulphide* (COLENTZ and GABRIEL), 1891, A., 817.
- sulphoxide (GABRIEL), 1891, A., 816; 1892, A., 130.
- Dipthalylimidoethylsulphone (GABRIEL), 1892, A., 131.
- $\beta$ -Dipthalylimidopropyllic *disulphide* (SEITZ), 1891, A., 1473.
- Dipthalyl-lactonic acid (GRAEBE and SCHMALZIGAU), 1885, A., 798.
- Dipthalylpropane (*propyl*-dipthalyl) (ROSER), 1885, A., 268.
- Dipthalyl-succinamide and -succinide (ROSER), 1886, A., 244.
- Diphtheria, chemical pathology of (MARTIN), 1892, A., 741.
- Dipicolinic acid. See Pyridine-2:6-dicarboxylic acid.
- Dipicolyl (AHRENS), 1889, A., 59.
- Dipicolylmethane (LADENBURG), 1889, A., 161.
- Dipicrylhydroxylamine (MICHAEL and BROWNE), 1887, A., 663.
- Dipiccolinemethane (LADENBURG), 1889, A., 161.
- Dipiperidine (LEHMANN and SCHWABERER), 1889, A., 901.
- Dipiperidyl [h.p. 251°] and its derivatives (LIEBRECHT), 1886, A., 161; 1887, A., 161.
- 2:2-Dipiperidyl (BLAU), 1889, A., 1213.
- 2:3-Dipiperidyl (BLAU), 1891, A., 583; 1892, A., 1365.
- 4:4-Dipiperidyl and its derivatives (AHRENS), 1889, A., 59; 1891, A., 1094.
- Dipiperidylcarbamide (WALLACH and LEHMANN), 1887, A., 385.
- Dipiperidylisatin (SCHOTTEN), 1891, A., 928.

- Dipiperidylisatin**, bromo- (SCHOTTEN), 1891, A., 1491.
- Dipiperidyl-methane** and **-phenyl-methane** (EHRENBERG), 1887, A., 1027.
- Dipiperonylideneacetone** (*dipiperonyl-acetyl ketone*) (HABER), 1891, A., 704.
- dibromo-** (OELKER), 1891, A., 1475.
- dinitro-** (HABER), 1891, A., 705.
- Dipiperylquinone** (LACHOWICZ), 1898, A., 1314.
- Dipiperylsesmitiocarbazide** (KNORR), 1884, A., 468.
- Dipropargyl** (*hucaneur*), constitution of (BRÜHL), 1892, A., 1137.
- isomeric change in (FAWORSKY), 1891, A., 1332.
- molecular refraction of (BRÜHL), 1892, A., 1437.
- benzene and (BRÜHL), 1892, A., 1436.
- Diisopropenyl** (MARITZA), 1890, A., 728.
- Dipropionamide** (OTO and TROGER), 1890, A., 726.
- Dipropionyl-o-tolamidotoluene** (BISTRZYCKI and ULFFERS), 1890, A., 1115.
- Dipropionyldiphenylglyoxime** (AUVERS and MEYER), 1888, A., 598.
- Dipropionylic dicyanide** (LOBBY DE BRUYN), 1885, A., 963.
- Dipropionylmorphine** (HESSE), 1884, A., 613.
- Dipropionyl-naphthylenediamine** (BISTRZYCKI and ULFFERS), 1890, A., 1115.
- Dipropionylpyrrole** (DENNERT and ZIMMERMANN), 1887, A., 844.
- Dipropyl**. See *n*-Hexane.
- Dipropyl acetoxime** (MEYER and WARRINGTON), 1887, T., 689.
- action of acetic chloride on (MEYER and WARRINGTON), 1887, T., 689.
- Diisopropyl acetoxime** and its behaviour with acetic chloride (MEYER and WARRINGTON), 1887, T., 684, 685.
- Dipropyl diketone** (*dibutyryl*) (KLINGER and SCHMITZ), 1891, A., 890.
- Dipropyl diketoxime** (*dibutyryloxime*) (MUNCHMEYER), 1886, A., 350, 877.
- Dipropyl distyryl ketone** (*dicumylacetone*) (CLAISEN and PONDER), 1884, A., 1167.
- Dipropyl ketone** (*butyryne*) (HAMONET), 1889, A., 235.
- preparation of, by Perkin's method (PERKIN), 1886, T., 322.
- action of zinc ethyl and zinc iodethide on (MENSCHIKOFF), 1888, A., 248.
- Diisopropyl ketone** (POLETÉEFF), 1889, A., 477.
- Diisopropyl ketoxime** (MEYER and WARRINGTON), 1886, A., 783.
- Dipropylacetic acid** (*octic acid*), preparation of, from ethylic malonate (FURTH), 1888, A., 1053.
- Dipropylacetylenic dibutyrate** (KLINGER and SCHMITZ), 1891, A., 891.
- $\beta$ -Dipropylacrylic acid**, and its salts (ALBITZKY), 1885, A., 242.
- Dipropylallylamine** and its platinum-chloride (LIEBERMANN and PAUL), 1883, A., 909.
- Dipropylallylcarbinol**. See Decynylic alcohol.
- Dipropylamido- $\gamma$ -disulphide hydrochloride** (GABRIEL and LAUER), 1890, A., 472; LAUER, 1890, A., 1090.
- Dipropylamine** (VINCENT), 1886, A., 1005.
- magnetic rotatory power of (PERKIN), 1889, T., 693, 730.
- molecular refraction and dispersion of (GIANTONI), 1891, T., 296.
- action of, in aqueous solution on metallic salts (VINCENT), 1886, A., 1005.
- Dipropylamine arsenious bromide** (LANDAU), 1889, A., 211.
- nitroso- (VINCENT), 1886, A., 1005.
- Diisopropylamine** (VAN DER ZANDE), 1889, A., 953.
- Dipropylaniline** (LIPPMANN and FLEISSNER), 1883, A., 185.
- cyanhydrin, nitroso- (MANDL), 1886, A., 793.
- dinitro- (VAN ROMBUGH), 1889, A., 971.
- Dipropylanilineazylane** (LIPPMANN and FLEISSNER), 1883, A., 55, 185.
- Dipropylanthracene dihydride** (HALLGARTEN), 1889, A., 895.
- Dipropylanthrone** (HALLGARTEN), 1889, A., 894.
- p-Dipropylbenzene** (KÖRNER), 1883, A., 321; (FILETI), 1891, A., 1022.
- dibromo- (KÖRNER), 1883, A., 322.
- dibromodinitro- (FILETI), 1891, A., 1022.
- dinitro- (KÖRNER), 1883, A., 321.
- Diisopropylbenzene** (DA SILVA), 1885, A., 1054.
- and its derivatives (UHLHORN), 1891, A., 184.
- Dipropylbenzenes**, synthesis of (HEISE), 1891, A., 685.
- p-Dipropylbenzenesulphonamide** (REMSEN and KEISER), 1891, A., 457.
- m-Dipropylbenzenesulphonic acid** (HEISE), 1891, A., 685.

- α-p*-Dipropylbenzenesulphonic acid and its salts (KORNER), 1883, A., 321; (REMSEN and KEISER), 1884, A., 457; (FILETI), 1891, A., 1022.
- β-p*-Dipropylbenzenesulphonic acid (FILETI), 1891, A., 1022.
- α*-Dipropylcarbamide (HECHT), 1890, A., 476.
- αβ*-Dipropylcarbamide (VAN DER ZANDE), 1889, A., 963; (CHANCEL), 1892, A., 1421.
- αβ*-Diisopropylcarbamide (VAN DER ZANDE), 1889, A., 963.
- Dipropylcarbinol (*sec-heptylic alcohol*) [b.p. 150°] (UNTINOFF and SATZTZEFF), 1887, A., 353.
- Diisopropylcarbinol (*sec-heptylic alcohol*) [b.p. 131°] (POLETÉEFF), 1889, A., 477.
- properties of (POLETÉEFF), 1891, A., 889.
- Diisopropylcarbinyllic acetate, properties of (POLETÉEFF), 1891, A., 889.
- Dipropyl-*m*-cresol (MAZZARA), 1883, A., 463.
- Diisopropyl-*m*-cresol and its derivatives (MAZZARA), 1883, A., 463.
- Dipropyldiphenyldiketodihydro-*p*-diazinecarboxylic acid (ABENIUS), 1890, A., 270.
- Diisopropyldipyrrole (DENNSTEDT), 1889, A., 401.
- Dipropyldisulphide-*γ*-diphthalamic acid (GABRIEL and LAUER), 1890, A., 472.
- Dipropyldisulphobenzoic acid, barium salt of (STENGEL), 1883, A., 1000.
- β*-Dipropylene (*heptylene*) (COUTURIER), 1891, A., 282.
- Dipropylethylenedisulphone (OTTO and CASANOVA), 1888, A., 255.
- Dipropylglutaric acid (GUTHZET and DRESSSEL), 1890, A., 879.
- Dipropylglycollic acid (KLINGER and SCHMITZ), 1891, A., 891.
- Dipropylglyoxaline (*acetylpropylbutyline*) (RIEGER), 1889, A., 119.
- Dipropylhomo-*α*-phthalic acid and anhydride (LE BLANC), 1889, A., 256.
- Dipropylhomo-*α*-phthalimide (LE BLANC), 1889, A., 256.
- Dipropylhydroxypropylamine and its platinumchloride (LIEBERMANN and PAAL), 1883, A., 910.
- Dipropyllic dichloroglycolate (ANSCHUTZ and SCHONFELD), 1886, A., 786.
- Diisopropyllic ammonium nitrite (VAN DER ZANDE), 1889, A., 954.
- glycol (FOSSEK), 1884, A., 37.
- 3:3'-Diisopropylindole (DENNSTEDT), 1889, A., 401.
- Dipropylmethane. See Heptane.
- Dipropyl- and diisopropyl- nitramines (SIMON-THOMAS), 1891, A., 168.
- Diisopropyl nitrosamine (VAN DER ZANDE), 1889, A., 954.
- Dipropyl- and diisopropyl-pimelic acids (PERKIN and PRENTICE), 1891, T., 838, 840.
- ωω'*-Dipropyl- and *ωω'*-diisopropyl-pimelic acids, dissociation constants of (WALKNER), 1892, T., 701, 702.
- Dipropylpropylidenic oxide (SCHUDEL), 1884, A., 1283.
- Diisopropylsuccinic acid (HELL and MAYER), 1889, A., 373.
- Dipropyl-*α*-sulphaminophthalate (MOULTON), 1891, A., 1063.
- p*-Dipropylsulphonamide, oxidation of (REMSEN and KEISER), 1884, A., 457.
- Dipropylsulphone (SPRING and WINSSINGER), 1883, A., 659.
- Di-*o*-propylsulphone (WINSSINGER), 1888, A., 243.
- Diisopropylsulphonediethylmethane (STUFFER), 1891, A., 180.
- Dipropylthiocarbamide (HECHT), 1890, A., 476.
- Dipropylthiocarbanilide (BILLETTER and STROHL), 1888, A., 364.
- Dipropyltrimethylenetrisulphone (CAMPS), 1892, A., 592.
- Diprotocatechuic acid (SCHIFF), 1883, A., 335.
- Dipyre from Connecticut (ARZRUZI), 1887, A., 903.
- Dipyridine (*dihydrodipyridyl*) (WEIDEL and RUSSO), 1883, A., 483.
- description and measurement of the spectrum of (HARTLEY), 1885, T., 717.
- Dipyridine carbonyl bromo- and chloroplatinosis (FOERSTER), 1892, A., 353, 352.
- copper sulphate (JØRGENSEN), 1886, A., 857.
- silicotetrafluoride (COMBY and SMITH), 1888, A., 1283.
- Dipyridines, actions of (OEHMSNER de CONINCK), 1886, A., 898.
- Dipyridyl (SKRAUP and VORTMANN), 1883, A., 88; (ROTH), 1886, A., 477.
- derivatives (SKRAUP and VORTMANN), 1883, A., 85.
- αα*-Dipyridyl (BLAC), 1888, A., 728; 1889, A., 1212.
- β*-Dipyridyl (LEONE and OLIVERI), 1886, A., 78.
- γ*-Dipyridyl (AHRENS), 1891, A., 1093; and its derivatives (WEIDEL and RUSSO), 1883, A., 483.

- $\alpha\beta$ -Dipyridyl- $\beta$ -carboxylic acid** and its salts (SKRAUP and VORTMANN), 1883, A., 87.
- $\alpha\beta$ -Dipyridyl- $\beta\gamma$ -dicarboxylic acid** and salts of (SKRAUP and VORTMANN), 1883, A., 87; (SKRAUP and COBENZL), 1883, A., 1010.
- Dipyridyl- $\alpha\alpha$ -dicarboxylic acid** (HEUSER and STOEHR), 1892, A., 75.
- Dipyrogallocarboxylic acid** (SCHIFF), 1888, A., 840.
- Dipyrogallopropionic acid**, and its derivatives (BÖRINGER), 1884, A., 318; 1890, A., 982.
- Dipyromeconic acid**, nitroso- (O'S), 1883, A., 793.
- Dipropentylene** (ETARD and LAMBERT), 1891, A., 1035.
- Dipyrryl ketone** (CAMBIAN and MAGNAGHT), 1885, A., 809.
- Dipyrrolylanilidediphenylhydrazide** (MESSINGER and ENGELS), 1889, A., 36.
- Diquinaldyl** (*diquinaldin*). See Dimethyltiquinolyl.
- Diquinhydrone** (BARTH and SCHREDER), 1885, A., 521.
- Diquinidine** and its platinochloride (HESSE), 1883, A., 601.
- Diquinazine-blue** (KNORR), 1884, A., 1379.
- Diquinazinehydrobenzene**, action of nitrous acid on (KNORR and BULOW), 1884, A., 1381.
- Diquinol** (*tetrahydroquinolphenyl*) (BARTH and SCHREDER), 1885, A., 521.
- Diquinolyl** (*diquinolone*) (JELLINEK), 1886, A., 1045.
- preparation of (TREIDDER), 1884, A., 84.
- Diquinolyl** [m.p. 114°], and its derivatives (WEIDEL), 1887, A., 848.
- 2:2'-Diquinolyl**, derivatives of (WEIDEL and GLASER), 1886, A., 949.
- oxidation products of (WEIDEL and WILHELM), 1887, A., 979.
- 2:3'-Diquinolyl** (CARLIER and EINHORN), 1891, A., 83.
- $\alpha$ -Diquinolyl**, synthesis of, and its derivatives (OSTERMAYER and HENRICHSEN), 1885, A., 173.
- from azobenzene, and the action of nitric acid on (CLAUS and STEGELITZ), 1885, A., 173.
- constitution of (WEIDEL and STRACHE), 1886, A., 950.
- methochloride (OSTERMAYER), 1885, A., 672.
- chloriodide (OSTERMAYER), 1885, A., 814.
- $\beta$ -Diquinolyl**, formation of, by acid of heat (ZIMMERMANN and MÜLLER), 1884, A., 1372.
- peculiar method of formation of, in derivatives of FISCHER and VAN LOO, 1884, A., 1372; 1887, A., 63.
- ethiodide (FISCHER and VAN LOO), 1887, A., 64.
- $\gamma$ -Diquinolyl** from benzidine and its derivatives (ROSER), 1884, A., 1371; 1885, A., 275.
- a base derived from (COLSON), 1889, A., 416.
- diethyl ether of (COLSON), 1889, A., 729.
- $\delta$ -Diquinolyl** and its derivatives (FISCHER), 1885, A., 1247.
- Diquinolyls** (OSTERMAYER), 1885, A., 560; (FISCHER), 1885, A., 399, 1246.
- Diquinolyls**,  $\alpha$ -4' and  $\beta$ -4' (KOENIGS and NEF), 1887, A., 600.
- $\alpha$ - $m$ -Diquinolyls** and their salts (V. MILLER and KINKELING), 1885, A., 1144.
- $\beta$ -Diquinolyldisulphonic acid** (WEIDEL and GLASER), 1886, A., 950; FISCHER and VAN LOO, 1887, A., 64.
- $\gamma$ -Diquinolyldisulphonic acid** and its salts (ROSER), 1884, A., 1371.
- $\alpha$ -Diquinolyl- $\alpha$ - and  $\beta$ -disulphonic acids** (WEIDEL and GLASER), 1886, A., 949.
- Diquinolylethane** (COMLY), 1890, A., 1007.
- Diquinolylethylene** (BULACH), 1889, A., 528.
- Diquinolylimide** (NITZKI and SCHMIDT), 1888, A., 914.
- Diquinone** (BARTH and SCHREDER), 1885, A., 521.
- Diquinoylphenazine** (NITZKI and SCHMIDT), 1888, A., 690.
- Diquinoyltetroxime** (KEHRMANN and MÜSSINGER), 1890, A., 1403.
- anhydride of (GOLDSCHMIDT and STRAUSS), 1887, A., 809.
- Diquinoyltolazine** (NITZKI and KEHRMANN), 1887, A., 473.
- Diquinyl ketone** (NOLLING and SCHWARZ), 1891, A., 1106.
- Diresorcinol** (*tetrahydroquinolphenyl*), detection of, in synthetically prepared phloroglucinol (HERZIG and ZITTEL), 1891, A., 125.
- and its derivatives (BENEDIKT and JULIUS), 1884, A., 1139.
- dichlorodibromo-** (BENEDIKT), 1883, A., 935.
- dinitro-** (HAZURA), 1883, A., 1114.
- Diresorcinoldicarboxylic acid**, and its salts (WILL and ALBRECHT), 1884, A., 1336.

- Diresorcinolphthalein**, and its derivatives (BENEDIKT and JULIUS), 1884, A., 1140.  
 insoluble (BENEDIKT and JULIUS), 1884, A., 1140.
- Diresorcinyol tetraethyl ether** (HERZIG and ZITTEL), 1891, A., 76.
- Diresorcinylic tetrabenzoate** (SKRAFT), 1890, A., 136.
- Disalicylaldehyde** (GATTERMAN), 1888, A., 575; (BRADLEY), 1889, A., 873.
- Disalicylbenzoin** (FRISCH), 1891, A., 708.
- Disease**, blood changes in (LATHAM), 1888, A., 1924.
- Diseases**, diamines in (ROOS), 1892, A., 518.  
 formation of alkaloids in (VILLIERS), 1885, A., 926.  
 infectious, ptomaines of (GRIFFITH), 1892, A., 1258.  
 phosphates in urine in (VANNI and PONS), 1888, A., 621.  
 of animals (ROLOFF), 1884, A., 95, 914; (PASTEUR), 1884, A., 623.  
 of cattle (ANON.), 1884, A., 95; (KOCH), 1884, A., 96; (MULLER), 1884, A., 473; (METZDORF), 1884, A., 1398; (EGELING; PASTEUR), 1885, A., 73.
- Diseleno-**. See Seleno-.
- Diseptidecylthiocarbamide** (TURNER), 1888, A., 1175.
- Disinfectant powders**, carbolic, examination of (WILLIAMS), 1890, A., 300.
- Disinfectants** (KOCH), 1883, A., 249.  
 studies of, by new methods (BLYTH), 1886, A., 573.  
 value of, in chicken-cholera (COLIN), 1885, A., 140.
- Disinfection**, chemical products of putrefaction in their relation to (BURDON SANDERSON), 1886, A., 112.  
 with chlorine and bromine (FISCHER and PROSKAUER), 1885, A., 846.
- Dispersive power and dispersion**. See Photochemistry.
- Dissociating gases**, laws of (SWART), 1891, A., 780.
- Dissociation** (SAMBERT), 1884, A., 549; (ROOZEBOOM), 1888, A., 1148.  
 contact actions in (KONOWALOFF), 1886, A., 9.  
 continued (RIEKE), 1891, A., 381.  
 electrolytic. See Electrochemistry.  
 evaporation and (RAMSAY and YOUNG), 1886, P., 225; 1887, T., 755; 1888, A., 18.  
 hypothesis, contributions to (DETMER), 1883, A., 489.  
 of Arrhenius (TRAUBE), 1891, A., 255, 638.
- Dissociation**, hypothesis, strong solutions and (PICKERING), 1892, A., 109.  
 influence of pressure on (PAWLEWSKI), 1891, A., 381.  
 rate of, as a measure of the vapour tension of hydrated salts (SCHULZE), 1888, A., 104.  
 rate and vapour tension of (MULLER-ERZBACH), 1887, A., 696.  
 tension, compounds which have a, equal to the vapour pressure of their saturated solutions (LESCAETTER), 1890, A., 553.  
 theory (TRAUBE), 1891, A., 874.  
 Lockyer's (VOGEL), 1883, A., 762.  
 studies in chemical optics with reference to (LE BLANC), 1890, A., 313.  
 velocity of (LESCAETTER), 1887, A., 100.  
 in solutions, *versus* association (PICKERING), 1891, A., 972.  
 in dilute solutions of tartrates (SONNENTHAL), 1892, A., 588, 1144.  
 into ions, theory of, and its consequences (PICKERING), 1890, P., 171; 1891, A., 972.  
 of aluminium fluoride (v. ASBÓTH), 1891, A., 806.  
 of alums and of sodium acetate (MÜLLER-ERZBACH), 1888, A., 1022.  
 of amine hydrochlorides and salts of the fatty acids in solution (MULLER), 1890, A., 684.  
 of aniline vapours (BURCH and MARSH), 1889, T., 656; P., 127.  
 of ammonium chloride (R. and G. F. R. BLOCHMANN), 1891, A., 1415.  
 of ammonium hydrogen carbonate (BERTHELOT and ANDRÉ), 1887, A., 10, 11.  
 of amylene hydrobromide under low pressures (LEMOINE), 1891, A., 970.  
 of bismuth chloride by water, effect of sodium chloride on the (CAUSSE), 1892, A., 122.  
 of calcium carbonate (LE CHATELIER), 1886, A., 760.  
 of carbonic anhydride (LE CHATELIER), 1889, A., 205.  
 of carbonic anhydride and steam (v. HOFMANN), 1891, A., 143.  
 of copper sulphate (MULLER-ERZBACH), 1887, A., 208; 1888, A., 101.  
 of electrolytes (OSTWALD), 1889, A., 931.  
 influence of temperature on the (ARRHENIUS), 1889, A., 1044.  
 theory of (OSTWALD), 1888, A., 1142; (VAN'T HOFF and REICHER), 1889, A., 202.

- Dissociation of gases and vapours by the silent discharge** (v. HOFMANN), 1891, A., 143.
- of the hydrate  $\text{HBr} \cdot 2\text{H}_2\text{O}$  (VAN'T HOFF), 1886, A., 501.
- of hydrated oxalic acid (LESCAETRE), 1887, A., 915.
- of hydrated salts (FROEYEN), 1888, A., 337.
- of hydrogen bromide and ammonia compounds (ROOZEBOOM), 1886, A., 500.
- of iodine and bromine vapours by the electric discharge (THOMSON), 1887, A., 1013.
- of liquids (ROOZEBOOM), 1886, A., 499.
- of magnesium oxide by means of metallic magnesium (MORSE and WHITE), 1891, A., 643.
- of nitrogen peroxide (E. and L. NATANSON), 1885, A., 862; 1886, A., 657.
- of nitrogen peroxide, liquid (CUNDALL), 1891, T., 1076; P., 129; (OTTEWILL), 1892, T., 242; P., 13.
- of oxyhaemoglobin, influence of temperature on the tension of (BRASSE), 1889, A., 630.
- of phosphonium bromide (NEWTH), 1892, A., 401.
- of saline hydrates and analogous compounds (LESCAETRE), 1889, A., 815.
- of salts containing water of crystallisation (MULLER-ERZBACH), 1884, A., 952; 1886, A., 10; 1887, A., 207; 1890, A., 206.
- of salts in very dilute solutions (WIEDEMANN), 1888, A., 1021; (PLANCK), 1888, A., 1144.
- of selenium chlorides (RAMSAY), 1891, A., 11.
- of sodium carbonate (KISSLING), 1891, A., 364.
- of substances dissolved in water (ARRHENIUS), 1888, A., 896.
- of substances in solution (MEXDELEEFF), 1890, A., 325.
- of the sulphides of cadmium and zinc by means of metallic cadmium and zinc (MORSE and WHITE), 1889, A., 946.
- supposed, of zinc oxide (MORSE and BURTON), 1888, A., 652.
- of zinc and cadmium oxides in the vapours of the respective metals (MORSE and WHITE), 1889, A., 755.
- isoDissociation, laws of** (LE CHATELIER), 1892, A., 3.
- Dissociation-constants of organic acids** (BADER), 1891, A., 257; WALKER, 1892, T., 696; P., 137.
- of stereoisomeric nitrogen compound, (HARTZSCH and MICHAEL), 1892, A., 1263.
- Dissolution.** See Solution.
- Dissolved substances and solids immersed in the solutions, attraction between** THOMLEY, 1885, A., 476, 866.
- volatilisation of, during the evaporation of the solvent (MARGUERITE-DELLACHARONNY), 1887, A., 211.
- "Dissolved wool,"** manual value of (PILGERMAN), 1883, A., 500.
- Dissymetry, molecular** (GUYE, 1892, A., 399, 758.
- $\alpha$ -Distearin,** preparation of (HINDENSHAGEN), 1884, A., 280.
- $\alpha$ -Distearyl glycerol phosphoric acid** and its salts (HINDENSHAGEN), 1884, A., 281.
- $\alpha$ -Distearyl glycerol phosphoric chloride** (HINDENSHAGEN), 1884, A., 281.
- Distillation, different methods of, compared** (KREIS), 1884, A., 1248.
- fractional, apparatus for (WINSINGER), 1884, A., 364; (HART), 1885, A., 481; (CLAUDON and MORIN; NOBION and OTTEN), 1888, A., 646.
- apparatus for, use of condensation in (CLAUDON), 1885, A., 331.
- in a current of steam (LAZARUS), 1885, P., 46; A., 716; (RANSKI), 1885, A., 950.
- in a vacuum, apparatus for (SCHULLER), 1883, A., 545; (LEW-KOWITSCHE), 1889, T., 359; P., 90; (NEWBURY), 1889, A., 12; (BRUHL), 1889, A., 207; (SCHULZ), 1891, A., 259.
- under reduced pressure, apparatus for (THORNE), 1883, T., 301; (GORBOFF and KISSLER), 1885, A., 950; (MEYER), 1887, A., 884; (GATTIER), 1890, A., 329; (VALENTA), 1890, A., 556; (WISLICENUS), 1891, A., 146.
- under reduced pressure, apparatus for maintaining a constant pressure during (PERKIN), 1888, T., 689; P., 74.
- method for avoiding bumping in (REISSMANN), 1888, A., 547; (MARKOWITSCHEFF), 1888, A., 1155.
- of wood, products of the (VLADESCO), 1890, A., 956.
- of zinc ethyl and zinc methyl, apparatus for (KATLPUSS), 1888, A., 255.

- Distillers' waste**, influence of, on milk secretion (SCHMOEGER and NEUBERT), 1884, A., 194.
- Distyrene and distyrenic acid** (ERDMANN), 1883, A., 474.
- Distyryl ketone** (*cinnamone; dibenzylideneacetone*) (CLAISEN and PONDER), 1884, A., 1166.
- p*-nitro- (V. BAEYER and BECKER), 1883, A., 1120.
- Distyryl vinyl diketone and its phenylhydrazine derivative** (DIEHL and EINHORN), 1885, A., 1221.
- di-o*-nitro- (DIEHL and EINHORN), 1885, A., 1222.
- Disuccinimidodihydroxamic acid** (GARNY), 1892, A., 138.
- o*:*p*-**Disulphaminebenzoic acid** (FAHLBERG and LINT), 1888, A., 367.
- Disulphamineisophthalic anhydride** (WINCHIN), 1891, A., 74.
- Disulphamine-*p*-toluic acid** (HOLMES), 1891, A., 1375.
- Disulphanilic acid**. See Anilinedisulphonic acid.
- Disulphones** (OTTO and DAMKÖHLER), 1885, A., 261, 537; (OTTO and CASANOVA), 1888, A., 255; (FROMM), 1888, A., 357; 1890, A., 55.
- formation of trisulphones from (LAVES), 1892, A., 613, 850.
- action of various substances on (OTTO and DAMKÖHLER), 1885, A., 537.
- Disulphonic acids** (LIMPRICHT), 1885, A., 1232.
- Diterebenthyl** (RENARD), 1888, A., 161.
- action of heat and of bromine on (RENARD), 1888, A., 721.
- Diterebenthylene** (RENARD), 1888, A., 721.
- Diterebenthylsulphonic acid** (RENARD), 1888, A., 162.
- Diterpene** from urine (LE NOBEL), 1885, A., 668.
- Diterpodilactones and -diterpolactonic acids**,  $\alpha$ - and  $\beta$ - (FITTIG and LEVY), 1890, A., 873.
- Diterpoxylic acids**,  $\alpha$ - and  $\beta$ -, salts of (FITTIG and LEVY), 1890, A., 873, 874.
- $\alpha$ -**Diterpylic acid** (FITTIG and LEVY), 1890, A., 874.
- Ditetrahydro- $\alpha$ -naphthaquinoline** (BAMBERGER and STETTENHEIMER), 1891, A., 1261.
- Di- $\alpha$ -tetrahydronaphthylcarbamide** (BAMBERGER and ALTHAUSSE), 1888, A., 960.
- Ditetrahydronaphthylcarbamide**, *di*-amido- (BAMBERGER and BAMMANN), 1889, A., 783.
- Ditetrahydro- $\beta$ -naphthylcarbiny**-carbamide and -thiocarbamide (BAMBERGER and HELWIG), 1889, A., 1198.
- Di- $\beta$ -tetrahydronaphthylthiocarbamide** (BAMBERGER and MÜLLER), 1888, A., 600.
- Ditetrahydronaphthyl-*l*-thiocarbamide** (BAMBERGER and BAMMANN), 1889, A., 783.
- Ditetramethylene ketone** (COLMAN and PERKIN), 1887, T., 236.
- Ditetramethylene diethylic and diphenylic glycols** (PERKIN and SINCLAIR), 1892, T., 58, 66.
- Dithienyl** (NAHNSEN), 1884, A., 1132; 1885, A., 51.
- per*bromo- (NAHNSEN), 1885, A., 51.
- Dithienyl ketone** ( *$\beta$ -thione*) and its hydrazide (GÄTTERMANN), 1886, A., 228.
- Dithienyl-tribrom-** and -trichlor-ethanes (PETER), 1884, A., 1001.
- Dithienyltrichlorethane**, *he*cabromo- (PETER), 1884, A., 1001.
- Dithienyl-*l*-brom-** and -*l*-chlor-ethylenes (PETER), 1884, A., 1001.
- Dithienylmethane** (MEYER), 1884, A., 586; (PETER), 1884, A., 1001.
- Dithienylsulphonic acid** (NAHNSEN), 1885, A., 51.
- Dithionates**. See Sulphur.
- Dithionic acid**. See Sulphur.
- Dithymol** (MESSINGER and PICKERSGILL), 1890, A., 1403.
- Dithymylamine** (LLOYD), 1887, A., 721.
- Dithymylic carbonate** (BENDER), 1887, A., 38.
- Ditolane he**cachloride (WISLIZENUS and BLANK), 1889, A., 262.
- Ditolaneazotide**. See Tetraphenylpyrazine.
- Ditolenylimidine** (PINNER), 1892, A., 1110.
- $\mu$* -**Ditolilbenzil** (BANDROWSKI), 1889, A., 147.
- Ditoluamides**, *o*- and *p*- (KRAFFT and KARSTENS), 1892, A., 712.
- imido- (KRAFFT and KARSTENS), 1892, A., 712.
- Ditoluene**, dichlorodioxonitroso- (*bis-o*-chloronitrosylbenzyl) (BEHREND and NISSEN), 1892, A., 1200.
- di*-*p*-nitrodinitroso- (*bis-p*-nitronitrosylbenzyl) (BEHREND and KONIG), 1891, A., 1035.
- d*-nitroso- (BEHREND and KONIG), 1890, A., 1122.
- Ditoluidotoluquinone** (FISCHER and HEPP), 1890, A., 912; 1891, A., 1046.

- p*-Ditoluidotoluquinone-*p*-toluidide (FISCHER and HEPP), 1888, A., 473.
- Ditolyl, quinol and quinone of (BRUNNER), 1889, A., 996.
- diamido-. See Tolidine.
- m:m*-Ditolyl (STOLLE), 1888, A., 699; (PERRIER), 1892, A., 851; (LOEWENHERZ), 1892, A., 852.
- dichloro-, and diiodo- (STOLLE), 1888, A., 699, 700.
- o:m*-Ditolyl (SCHULTZ), 1884, A., 903.
- o:p*-Ditolyl, bromo-derivatives of (CARNELLEY and THOMSON), 1885, T., 590; P., 88.
- di-bromo-, product of the oxidation of (CARNELLEY and THOMSON), 1885, T., 592; P., 88.
- o*-Ditolyl, dinitro-, preparation of (TÄTBER and LOEWENHERZ), 1891, A., 1491.
- p*-Ditolyl ketone (ELBS), 1887, A., 940; (ERREKA), 1891, A., 1033.
- Ditolyl ketone, di-amido- and di-nitro- (LANGE and ZUFALL), 1892, A., 1460.
- p*-Ditolyl ketoxime (GOLDSCHMIDT), 1890, A., 1412.
- Ditolyl/diamido-*o*-diazothioles, *o*- and *p*-, and their derivatives (HECTOR), 1890, A., 527.
- Di-*p*-tolyl/diamido-*o*-diazothiole cyanide (HECTOR), 1890, A., 527.
- nitroso- (HECTOR), 1890, A., 527.
- p*-Ditolyl/diamidohydroxybenzene (MIGNONNI), 1891, A., 190.
- p*-Ditolylamidomethylene-*o*-phenylenediamine (MOORE), 1889, A., 953.
- Ditolylamine, condensation of, with benzaldehyde (FISCHER and SIEDER), 1891, A., 434.
- o*-amido-. See Tolyldiethylenediamine.
- p*-Ditolylbenzylcarbamide (HAMMERICH), 1892, A., 1083.
- o:p*-Ditolylbiuret (KILN and HENSCHER), 1888, A., 474.
- p*-Ditolylisobutylcarbamide (HAMMERICH), 1892, A., 1083.
- p*-Ditolylcarbamie chloride (HAMMERICH), 1892, A., 1083.
- m*-Ditolylcarbamide (GATTERMANN and CANTZLER), 1892, A., 832.
- o*-Ditolylcarbamide (MAUTHNER and SUIDA), 1886, A., 886; (BISCHOFF and HAUSDORFER), 1890, A., 1285.
- p*-Ditolylcarbazide (FREUND), 1892, A., 512.
- Ditolylcarbolsactone (BISTRZYCKI and V. KONTANECKI), 1885, A., 1077.
- Ditolylchlorocarbimethylecarbinol (WILLERODT and GENIESER), 1888, A., 811.
- p*-Ditolyleyanocarbamide diargentocyanide (HAMMERICH), 1892, A., 1084.
- Ditolylidiacetylenethylenediamide, dichloro- (BISCHOFF and NASTVOGEL), 1890, A., 1161.
- Ditolylidicarboxylic acid (LOEWENHERZ), 1892, A., 852.
- p*-Ditolyl- $\alpha$ -diethyl- $\beta$ -diketopiperazines (BISCHOFF and MINZ), 1892, A., 1338.
- Ditolylidethylenediamine (MAUTHNER and SUIDA), 1886, A., 886.
- p*-Ditolylidiketodihydropyrazine (ABENIUS), 1890, A., 269.
- o*-Ditolylidiketopiperazine (BISCHOFF), 1888, A., 727; (ABENIUS and WIDEMAN), 1888, A., 824.
- p*-Ditolylidiketopiperazine (BISCHOFF), 1888, A., 727; (CONRAD and LIMPAUB), 1888, A., 854.
- o*-Ditolyl- $\alpha$ - $\beta$ -diketopiperazine (BISCHOFF and NASTVOGEL), 1889, A., 1015.
- p*-Ditolyl- $\alpha$ - $\beta$ -diketopiperazine (BISCHOFF and NASTVOGEL), 1890, A., 1162.
- o*-Ditolyl- $\alpha$ -diketopiperazine (BISCHOFF and NASTVOGEL), 1889, A., 1011; (BISCHOFF and HAUSDORFER), 1890, A., 1285; 1892, A., 1334.
- p*-Ditolyl- $\alpha$ - $\beta$ -diketopiperazine (BISCHOFF and HAUSDORFER), 1892, A., 1336.
- p*-Ditolyl- $\alpha$ -diketopiperazines (BISCHOFF and HAUSDORFER), 1890, A., 1281; 1892, A., 1337.
- Di-*p*-tolylidimethyl-*m*- and -*p*-phenylenediamines (HATSCHKE and ZEGA), 1886, A., 456, 457.
- Ditolylidiquinone (BRUNNER), 1889, A., 997.
- 5:5'-Ditolyl-4:4'-disulphonic acid (HELLE), 1892, A., 1466.
- 2-amido- (HELLE), 1892, A., 1467.
- Ditolylene-ethylenetetramine (GATTERMANN and HAGER), 1884, A., 1142.
- Ditolyleneic disulphide (JACOBSON and NER), 1889, A., 772.
- p*-Ditolylene sulphoxide (PARKER), 1890, A., 1136.
- as*-Di-*p*-tolylethane (ANSCHÜTZ and ROMIG), 1885, A., 769.
- Ditolylethylenylamidine (MALERY and KRAUSE), 1890, A., 371.
- p*-Ditolylethylene diketone (CLAUS and SCHLAPP), 1887, A., 827.
- Ditolylethylene ether (SCHREIBER), 1891, A., 553.
- o*-Ditolylethylenediamine (MAUTHNER and SUIDA), 1886, A., 886; (COLSON), 1887, A., 788; 1888, A., 684.

- Ditolyethylenediamines**, *o*- and *p*-, action of chloroacetic acid and oxalic acid on (BISCHOFF and NASTVOGEL), 1890, A., 1161, 1162.
- Di-*p*-tolylethylenesulphone** (OTTO and DAMKÖHLER), 1885, A., 538.
- Di-*o*-tolylethylsulphine** (PURGOTTI), 1890, A., 1420.
- Di-*p*-tolylethyltriazole** (BLADIN), 1890, A., 271.
- Ditolyformamidine**. See Ditoly-methenylamidine.
- p*-Ditolyglycerol** (LINDEMANN), 1891, A., 1199.
- Ditolyhydantoins**, *o*- and *p*- (BISCHOFF and HAUSDORFER), 1892, A., 1334, 1336.
- s*-Di-*p*-tolylhydrazine** (*p*-hydrazotoluene), formation of an *o*-amidotolylamine from (TÄUBER), 1892, A., 853.
- s*-Ditolyhydrazine**, diamido- and its salts (LIMPRICHT), 1885, A., 975; (HRAFF), 1885, A., 1128.
- p*-brom-** (JANOVSKY and ERB), 1887, A., 479.
- s*-Ditolyhydrazinedisulphonamide** (HELLE), 1892, A., 1468.
- m*-Ditolylic dicyanide** (LÖEWENHERZ), 1892, A., 852.
- disulphide**, *p*-diamido- (JACOBSON and NEY), 1889, A., 771.
- o*-Ditolylic dihydrosulphide** (LEUCKART), 1890, A., 606.
- p*-Ditolylic carbonate** (BENDER), 1887, A., 38.
- dicyanate** (FRENTZEL), 1888, A., 454.
- methylic tricyanide** (KRAFFT and KÖNIG), 1890, A., 1253.
- Ditolylic lead salts** (POLIS), 1889, A., 400.
- Ditolylic oxide** (*tolyl ether*), preparation of, from *p*-cresol (BUCH), 1885, A., 147.
- Ditolyline hydrochloride** (NÜLTING and WERNER), 1891, A., 211.
- p*-Ditolyliketopiperazine** (BISCHOFF and NASTVOGEL), 1889, A., 1010.
- m*-Ditolylmethenylamidine** (*ditolyl-formamidine*) and its derivatives (NIEMENTOWSKI and OBREMSKY), 1887, A., 936.
- Ditolylmethenylamidines**, *o*- and *p*- (SENIEB), 1885, T., 764, 766.
- Ditolylmethylcyanidine** (PINNER), 1892, A., 1110.
- Di-*p*-tolylmethyltriazole** (BLADIN), 1890, A., 271.
- p*-Ditolylnaphthylenediamine** (ANNAHEIM), 1887, A., 339.
- p*-Ditolyldiisonitrosoethane** (HOLLEMAN), 1888, A., 456.
- Di-*p*-tolylloxamide** (BLADIN), 1884, A., 1141.
- Ditolyloxindole** (*toluisidin*) and its derivatives (V. BÄYLER and LAZARUS), 1886, A., 154.
- Ditolyloxydiethylamine** (*imidotolyl cresyl ether*) (SCHREIBER), 1891, A., 552.
- Di-*o*-tolyl-*p*-phenylenediamine** (PHILIP), 1886, A., 942.
- Di-*p*-tolyl-*p*-phenylenediamine** (CALM), 1884, A., 593.
- Di-*p*-tolyl-*m*- and *p*-phenylenediamines** and their derivatives (HATSCHKE and ZEGA), 1886, A., 456, 457.
- Ditolyolphthalide** (VAN BERCHEM), 1885, A., 266.
- Ditolylpiperazine** [m.p. 154°] (BISCHOFF and NASTVOGEL), 1890, A., 1161.
- Ditolylpiperazines**, *o*- and *p*- (BISCHOFF), 1889, A., 1011; (BISCHOFF and HAUSDORFER), 1890, A., 1333.
- p*-Ditolylpyrrolone** (HOLLEMAN), 1888, A., 455.
- Ditolysemithiocarbazides**, *o*- and *p*- (DIXON), 1892, T., 1017, 1018.
- o*-Ditolylsulphone** (PURGOTTI), 1890, A., 1420.
- p*-Ditolylsulphoneacetone** (R. and W. OTTO), 1888, A., 282.
- Ditolylsulphonepropyl ether** (OTTO), 1891, A., 1229.
- p*-Ditolylsulphonethylamine** and its derivatives (OTTO and DAMKÖHLER), 1885, A., 538.
- o*-Ditolyltetrazine** (RUHEMANN), 1890, T., 52.
- nitro-** (RUHEMANN), 1890, T., 51.
- p*-Ditolyltetrazine** (RUHEMANN), 1889, T., 217; 1890, T., 50.
- derivatives of** (RUHEMANN), 1890, T., 50.
- o*-bromo-**, and **nitro-** (RUHEMANN), 1890, T., 51.
- o*-Ditolyltetrazinesulphonic acid** (RUHEMANN), 1890, T., 53.
- Ditolylthiocarbamide** (FISCHER and SIEDER), 1891, A., 431.
- Ditolylthiocarbamides**, *o*-, *m*- and *p*-, action of acetic anhydride on (WERNER), 1891, T., 402, 403.
- p*-Ditolylthiocarbamide**, *o*-nitro-, and *o*-nitro- (STEUDEMANN), 1884, A., 308, 307.
- o*-Ditolylthio-carbazide and -carbazone** (FREUND), 1892, A., 513.
- p*-Ditolylthio-carbazide and -carbazone** (FREUND), 1892, A., 512.
- p*-Ditolylthiophen** (HOLLEMAN), 1888, A., 455.

- Di-*o*-tolyltolylenediamine**, amido- (KUHLEWEIN), 1890, A., 371.
- p*-Ditriazobenzene** and ***m*-ditriazobenzoic acid** (GRIESS), 1888, A., 826, 827.
- Ditriazole**, derivatives of (BLADIN), 1890, A., 271.
- Diundecylenic acid** (KRAFFT and BRUNNER), 1885, A., 373; (BRUNNER), 1886, A., 1011.
- Diuramidonitrobenzoic acid** (GRIESS), 1885, A., 54.
- Diuretics** (POPOFF), 1886, A., 485.
- Diuretin** and analysis of (VULPIUS), 1890, A., 1475.
- Divalolactone** (FITTING and RASCH), 1890, A., 867; (FITTING and HOFFKEN), 1892, A., 814.
- Divalonic acid** (FITTING and RASCH), 1890, A., 868.
- Disovaleric acid**, thio- (LOVÉN), 1886, A., 333.
- Disovaleryl** (KLINGER and SCHMITZ), 1891, A., 890.
- Dixanthone** (v. KOSTANECKI and SEIDMANN), 1892, A., 1097.
- p*-Dixyl ketone** (ELBS and OLBERG), 1886, A., 463; (ELBS), 1887, A., 941; (ERRERA), 1891, A., 1053.
- Dixyls**, *di*amido-, and colouring matters derived therefrom (NÖLTING and STRICKER), 1889, A., 135.
- m*-Dixyl/*di*amido-*o*-diazothiole** (HECTOR), 1890, A., 528.
- Di-*o*- and -*m*-xylalamines** (MULLER), 1887, A., 663.
- Dixylbenzene** (SENFF), 1884, A., 427.
- Dixylcarbamide** (FRENTZEL), 1889, A., 241; (GATTERMANN and CANTZLER), 1892, A., 832.
- m*-Dixylcarbamide** (BRÖMMEL), 1888, A., 1296.
- p*-Dixylcarbinol** (ELBS and OLBERG), 1886, A., 463; (ELBS), 1887, A., 942.
- Dixyl/*trichlorethanes*, *m*- and *p*-** (ELBS and FORSTER), 1889, A., 713.
- m*-Dixyl/*trichlorethylene*** (ELBS and FORSTER), 1889, A., 713.
- p*-Dixyldiketodihydro-*p*-diazine** (ABENIUS), 1890, A., 269.
- p*-Dixyldiketopiperazine** (ABENIUS), 1888, A., 854.
- Dixyleneammonium salts** (SCHOLTZ), 1891, A., 1353.
- Dixylenic disulphide** (JACOBSON and NEY), 1889, A., 772.
- Dixylethane** (ANSCHÜTZ and ROMIG), 1885, A., 769.
- Di-*m*-xylethylene diketone** (CLAUS and WERNER), 1887, A., 827.
- Di-*p*-xylethylene diketone** (CLAUS and MURTFELD), 1887, A., 827.
- s*-Di-*m*-xyllylhydrazine** (*m*-*hydrazin*-*yl*-*m*) (NÖLTING and STRICKER), 1889, A., 136.
- Di-*o*-xyllylhydrazines**, *s*- and *m*-, and **di-*p*-xyllylhydrazine** (NÖLTING and STRICKER), 1889, A., 135, 136.
- m*-Dixylthiocarbamide**, action of acetic anhydride on (WERNER), 1891, T., 404.
- Dodecahydrotriphenylbenzene** (MELLIN), 1890, A., 1423.
- Dodecanedicarboxylic acid** (BROWN and WALKER), 1891, A., 1192.
- Dodecoic acid**. See Lauric acid.
- Dodecylene**, preparation of (KRAFFT), 1881, A., 571.
- Dodecylenic *di*bromide** and **dodecylidene** (KRAFFT), 1884, A., 1108.
- Dodecyl palmitate** (KRAFFT), 1884, A., 572.
- Dog**, formation of fat from carbohydrates in the (MUNK), 1887, A., 288.
- hemoglobin of the** (JAQUET), 1888, A., 731; 1890, A., 273.
- nutrition of the** (GUTMARAE), 1884, A., 344.
- urine of the**, nitrogenous constituents of (DEBISTRET), 1890, A., 279.
- Dogs**, digestion of starch by (ELLENBERGER and HOFMEISTER), 1892, A., 516.
- new-born**, glycogen in the liver of (DEMANT), 1887, A., 167.
- Dog-fish**, formation of urea in (v. SCHROEDER), 1890, A., 1451.
- Dolerite of Londorf** (STENG), 1889, A., 110.
- Dolomite from the Central Urat** (SAYTZEFF), 1889, A., 837.
- from the coal-measures** (WEISS), 1886, A., 775.
- from Leadhills** (COLLIE), 1889, T., 96.
- from Teruel in Spain** (BRUN), 1883, A., 31.
- concentration of zinc carbonate in** (DIEULAFAIT), 1885, A., 640.
- Domeykite**, from Zurickau (WEINBACH), 1883, A., 433.
- Doona zeylanica***, resin from (VALENTA), 1891, A., 1383.
- Dopplerrite** (MAYER), 1884, A., 265; (FRÜH), 1884, A., 923; (ALEXEEFF), 1892, A., 689.
- from Aussee** (DEMOK), 1883, A., 160.
- substance resembling**, from a peat bog near Scranton, Pa. (LEWIS), 1883, A., 427.
- Dotriacontane**. See Dicotyl.

- Double bond**, specific refraction in reference to (NASINI), 1885, A., 210.
- Double bonds**, theory of (SKRAUP), 1891, A., 1320.
- Double refraction**. See Photochemistry.
- Double salts**. See under the respective metals or basic radicles.
- Doundaké or African quinine** (HÜCKEL and SCHLAGDENHAUFFEN), 1886, A., 267.
- Dracena australis*, carbohydrate from (EKSTRAND and JOHANSON), 1888, A., 246.
- Dracena cinnabari*, red resin from (DOBBIE and HENDERSON), 1885, A., 808.
- Dragon's blood**, so-called (DOBBIE and HENDERSON), 1884, A., 462.
- Dreelite**, identity of, with barytes (LACROIX), 1888, A., 33.
- Drinking water**. See Water.
- Driving-bands**, dressing for (ANON.), 1883, A., 640.
- Dropping-flask** (POOL), 1885, A., 930.
- Drops**, dependence of the size of, on external influences (TRAUBE), 1886, A., 844.  
weight of, and their relation to the constants of capillarity and the capillary meniscus angle (TRAUBE), 1887, A., 210.
- Dropsy**, nature of the effusion in (HALLIBURTON), 1890, A., 1173.
- Drosera rotundifolia*, experiments with (BÜSGEN), 1884, A., 917.
- Drosera Whittakeri*, colouring matters of (RENNIE), 1887, T., 371; P., 36.
- Drugs**, estimation of ash in (KVASNICK), 1890, A., 833.
- "Dry extract"** (JAY), 1885, A., 602.
- Drying**, apparatus for (MEYER), 1886, A., 417.  
apparatus for heating and (MEYER), 1886, A., 278.  
in a vacuum at higher temperatures than that of the atmosphere, apparatus for (ANSCHÜTZ and KEKULÉ), 1885, A., 1035.
- Drying oils**. See Oils.
- Duboisine** (LADENBURG and PETERSEN), 1887, A., 740.
- Dudgeonite** (HEDDLE), 1891, A., 275.
- Duelo**, Galician (V. MIKLUCHO-MACLAY), 1885, A., 224.
- Dufrenite** (*delvauxite*) from Cornwall (KINCH, BUTLER and MIERS), 1887, A., 451; (KINCH), 1891, A., 274.  
from Vysocany, Bohemia (KOVÁK), 1890, A., 715.
- Dulcitol**, *isodulcitol* and derivatives. See Carbohydrates.
- isoDulcitolcarboxylic acid* and its lactone (FISCHER and TAFEL), 1888, A., 806.
- Dumortierite** from Harlem, New York, and Clip, Arizona (DILLER and WHITFIELD), 1889, A., 681.
- Duodecylacetylene** (KRAFFT and REUTER), 1892, A., 1164.
- Duodecylamine** and its salts (LITZT), 1886, A., 685.
- Duplothioacetone** and its derivatives (SPRING), 1884, A., 580; (AUTENRIETH), 1887, A., 463.
- Duplo/lithioacetone** (WILLGERODT), 1887, A., 1045.
- Durdenite** (DANA and WELLS), 1891, A., 154.
- 1:2:3:4-Durene**. See Prehnitene.
- Durene** (1:2:4:5-*tetramethylbenzene*) (SCHULZE), 1886, A., 232.  
preparation of (BEAUREPAIRE), 1889, A., 966.  
heats of combustion and formation of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1042.  
action of phosphoric chloride on (COLSON and GAUTIER), 1886, A., 679.  
action of sulphuric acid on (JACOBSEN), 1886, A., 694.  
oxidation of, by chromic acid (GISSMANN), 1883, A., 333.  
methyl duryl ketone from (CLAUS and FOMKING), 1888, A., 275.  
derivatives of (NEF), 1886, A., 64; (JACOBSEN and SCHNAPPAUFF), 1886, A., 67.
- Durene**, bromo- (GISSMANN), 1883, A., 334.  
action of sulphuric acid on (JACOBSEN), 1888, A., 137.
- di*bromo- (JACOBSEN), 1888, A., 137.  
chloro-, action of sulphuric acid on (TÜHL), 1892, A., 968.  
*mono*- and *di*-chloro- (TÜHL), 1892, A., 967.  
*tetrachloro*- (COLSON and GAUTIER), 1886, A., 679; (COLSON), 1886, A., 1016.  
6-iodo- (TÜHL), 1892, A., 967.
- 1:3:4:5-Durene** (1:3:4:5-*tetramethylbenzene*, *isodurene*) and its derivatives (JACOBSEN), 1883, A., 52; (ARMSTRONG and MILLER), 1884, A., 44.  
action of benzoic chloride on, in presence of aluminium chloride (ESSNER and GOSSIN), 1885, A., 253.  
nitration of (NÜLTING and STOECKLIN), 1891, A., 693.

1:3:4:5-Durene (1:3:4:5-tetramethylbenzene, *isolurene*), methyl duryl ketone from (CLAUS and FOECKING), 1888, A., 275.

Durenecarboxylic acid. See Tetramethylbenzoic acid.

Duredisulphonamide (JACOBSEN), 1886, A., 695.

"Dureneglycerol" (COLSON and GAUTIER), 1886, A., 679.

Duresulphonamide (JACOBSEN and SCHNAPAUFF), 1886, A., 67.

Duresulphonic acid (JACOBSEN and SCHNAPAUFF), 1886, A., 67; (JACOBSEN), 1886, A., 694. chloro- (TÖHL), 1892, A., 1465.

Duresulphonic chloride (JACOBSEN and SCHNAPAUFF), 1886, A., 67.

Durenol [m.p. 117°] and its derivatives (JACOBSEN and SCHNAPAUFF), 1886, A., 68.

1:2:3:4:5-Durenol [m.p. 87°]. See Prehnitol.

Duridine (*tetramethylaminobenzene*) [b.p. 253°] (V. HOFMANN), 1884, A., 1320.

[b.p. 260°] (LIMPACH), 1888, A., 464. *iso*Duridine (1:2:3:5-tetramethyl-4-aminobenzene) (NOLTING and BATTMANN), 1885, A., 384, 893.

Duroquinone (NEF), 1886, A., 65; 1888, T., 430.

Duroquinonecarboxylic acid (NEF), 1886, A., 241.

*o*-Duroylbenzoic acid (*tetramethylbenzoylbenzoic acid*) (FRIEDEL and CRAFT), 1889, A., 242.

Duryl methyl ketone from *as*- and *s*-durenes (CLAUS and FOECKING), 1888, A., 275.

*c*-Duryl methyl ketone (CLAUS and FÖHLINCH), 1889, A., 50.

*β*-*iso*Durylamide (HARRIS), 1890, A., 158.

Durylanilide and *β*-*iso*durylanilide (LEUCKART), 1890, A., 759.

Durylgyoxylic acid (CLAUS and FOECKING), 1888, A., 276.

Durylic acids. See Uminic acids.

Durylsulphone (JACOBSEN and SCHNAPAUFF), 1886, A., 67.

Dust explosions (ENGLER), 1886, A., 404.

Dusts, explosive and dangerous (TOBIN), 1883, A., 836.

Dutch metal, action of chlorine on (COWPER), 1883, T., 154.

Dvi-tellurium, theoretical properties of (MENDELÉEFF), 1889, T., 649.

Dyed cotton fabrics, microscopic investigation of (MEYER), 1883, A., 751.

Dyed fabrics, estimation of indigo in (RENARD), 1890, A., 931.

Dyeing cotton (VIGSON), 1891, A., 662. cotton-yarn with aniline-black in the cold (RENARD), 1884, A., 942.

novelties in (ANON.), 1883, A., 895. substitute for tartar emetic in (ANON.), 1884, A., 796.

theory of (KNECHT), 1889, A., 49; (KNECHT and APPELYARD), 1889, A., 869; (VIGNON), 1891, A., 832. Turkey red (SCHAAL), 1883, A., 256; (SCHATZ), 1883, A., 635; (MÜLLER-JACOBY), 1884, A., 1236.

with alizarin on indigo (ANON.), 1885, A., 106; (SCHLEURER), 1885, A., 711. with aniline-black in the dry way (GRAWITZ), 1892, A., 323.

wool and silk with basic coal-tar dyes, chemical process which takes place in (KNECHT), 1888, A., 832.

Dyes. See Colouring matters.

Dynamite, analysis of (SCHEIDING), 1891, A., 623.

Dypnopinacolene (DELAURE), 1892, A., 994.

Dypnopinacolins,  $\alpha$ - and  $\beta$ - (DELAURE), 1892, A., 993, 994.

$\alpha$ -Dypnopinacolin alcohol (DELAURE), 1892, A., 994.

Dypnopinacone (DELAURE), 1892, A., 993.

Dysalbumose (KUHNE and CHITTENDEN), 1884, A., 1389; 1885, A., 277.

Dyslyte (CLAMICIAN and ZATTI), 1890, A., 872; (BASSETT), 1891, T., 978.

"Dysoxydabel" (TRAUB), 1883, A., 709.

Dysprosium (LECOQ DE BOISBAUDRAN), 1886, A., 667.

Dysvitellose (NEUMEISTER), 1887, A., 286.

## E.

Earth, black, Russian (BRÜCKNER), 1887, A., 687.

blue, from the South African diamond fields (KNOP), 1891, A., 25.

edible, from Bolivia (ARZRUHT), 1886, A., 514.

infusorial from Richmond, Virginia (CABELL), 1885, A., 228.

Earthenware enamels (ANON.), 1884, A., 1229.

gilding (ANON.), 1885, A., 459.

goods (ANON.), 1883, A., 888.

Earth-nut. See Agricultural chemistry.

Earth-nut oil. See Oil.

Earths, alkaline. See Alkaline earths.

Earths of the cerium- and yttrium-groups (DEMARÇAY), 1887, A., 551;

(BETTINGER), 1890, A., 851; 1891, A., 984; 1892, A., 1400.

of the yttrium-group, separation of (KRÜSS), 1891, A., 1425.

- Earths**, rare, derived from fergusonite (KRÜSS and NILSON), 1887, A., 706.  
 methods and operations for extracting (AUER VON WEISBACH), 1885, A., 350.  
 process for obtaining, from ceriferous Hainstadt clays (STROHECKER), 1888, A., 28.  
 absorption spectra of (BAILEY), 1888, A., 1; (KIESWETTER and KRÜSS), 1888, A., 1038.  
 components of, yielding absorption spectra (KRÜSS and NILSON), 1887, A., 390; 1888, A., 208; (BAILEY), 1888, A., 208.  
 spectroscopic researches on (CROOKES), 1889, T., 255.  
 fluorescence of (LECOQ DE BOISBAUDRAN), 1885, A., 1174.  
 fractionation of (LECOQ DE BOISBAUDRAN), 1886, A., 423.  
 action of hydrogen peroxide on (LECOQ DE BOISBAUDRAN; LEVY), 1885, A., 635.  
 estimation of (LECOQ DE BOISBAUDRAN), 1890, A., 565.  
**Eau celeste** (BAUDIGNY), 1887, A., 773.  
**Ebony wood**, colouring matters of (BÉLOHOUTEK), 1885, A., 396.  
**Ebulliscope**, Raoult's (LESPIEAU), 1891, A., 9.  
**Egonic acid** (LIEDERMANN), 1891, A., 749.  
**Egonine**. See Alkaloids.  
**Egoninelactone**,  $\alpha$ -brom- (EICHENGRÜN and EINHORN), 1891, A., 66.  
**"Echurin"** (ANON.), 1884, A., 1450.  
**Eclogite**, from Frankenstein in Silesia (TRAUBE), 1889, A., 681.  
**Edenite** from Greenland (LORENZEN), 1886, A., 519.  
**Edible earth** from Bolivia (ARZRUZI), 1886, A., 511.  
**Edible fungi**, nutritive value of (MÖRNER), 1886, A., 1053.  
 poisonous properties of (DUPETIT), 1883, A., 611; 1884, A., 201.  
**Edisonite** (HIDDEN), 1889, A., 351.  
**Edmondsonite** (FLIGHT), 1883, A., 169; 1884, A., 417.  
**Efflorescence and deliquescence of salts**, relation of, to the maximum vapour tensions of their saturated solutions (LESCEUR), 1887, A., 208.  
**Effluvia** from chemical or voltaic reactions, electrification of (BROWN), 1891, A., 7.  
**Effluviography** (TOMMASI), 1886, A., 959.  
**Effusion of gases** (TIMOFÉEFF), 1891, A., 381.  
 lecture experiment on (FREER), 1892, A., 1150.  
**Effusions**, pathological (HALLIBURTON), 1890, A., 1173.  
**Egg**, proteids of white of (CORIN and BÉRARD), 1889, A., 1075.  
**Egg-albumin**. See Albumin.  
**Eggs**, infection of, by chicken cholera (BARTHÉLEMY), 1884, A., 1398.  
 of the *Bombyx mori*, chemical changes attending the development of the embryo in (TICHOMIROFF), 1885, A., 1000, 1150.  
 crustacean, digestive ferments in (ABELOIS and HEIM), 1892, A., 362.  
 hens', occurrence of peptone in, during incubation (FISCHER), 1886, A., 166.  
**Egg-substance**, estimation of (BEIN), 1890, A., 840.  
**Egg-yolk**, heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.  
 detection of the colouring matter of (BEIN), 1890, A., 840.  
 estimation of fat in (BEIN), 1892, A., 1134.  
**Egyptian blue** (MÜHLHAUSER), 1890, A., 215.  
**Egyptian sugar corn** (*maïze*), analyses of (RICHARDSON), 1885, T., 88.  
**Eikosihydrotriphenylbenzene** (MEL-LIN), 1890, A., 1423.  
**Eisenkobaltkies**. See Safflorite.  
**Ekdemite** (*heliophyllite*) from Harstigen mine, Sweden (HAMBERG), 1891, A., 20.  
 from Sweden (FLINK), 1890, A., 459.  
**Elæolite** from Litchfield, Maine (CLARKE), 1886, A., 677.  
**Elæolite-syenite** from Jivaara (WIJK), 1884, A., 413.  
**Elaidic acid**, stereoisomerism of oleic acid and (SAYTZEFF), 1892, A., 812.  
 boiling points of (KRAFFT and NOERDLINGER), 1889, A., 691.  
 oxidation of, with potassium permanganate in alkaline solution (SAYTZEFF), 1886, A., 140.  
 addition of chlorine and halogen acids to (PIOTROWSKI), 1890, A., 1396.  
**Elaidin reaction** with fatty oils (WELLMAN), 1891, A., 870.  
*Elaphomyces granulatus*, constituents of (BISSINGER), 1884, A., 480.  
**Elasticity of crystals**, coefficients of (BECKENKAMP), 1885, A., 729.

**Elastin** (CHITTENDEN and HART), 1889, A., 423.

behaviour of, in peptic digestion (HORBACZEWSKI), 1883, A., 927.

digestion of, with pepsin (HORBACZEWSKI), 1886, A., 270.

**Elastin-peptone** (HORBACZEWSKI), 1883, A., 927; 1886, A., 270.

**Elastoses** (CHITTENDEN and HART), 1889, A., 423.

**Elaterin**, detection of (JOHANNSON), 1885, A., 606.

**Elaterite** (ALEXÉEFF), 1892, A., 689.  
from Dingwall (MACADAM), 1891, A., 273.

from Ross-shire (MORRISON), 1891, A., 272.

#### ELECTROCHEMISTRY:—

**Accumulators** (BARKER), 1883, A., 765; (JABLOCHKOFF), 1885, A., 854; (ANON.), 1885, A., 1268; (SCHENIK and FARBAKY), 1886, A., 106; (KALISCHER), 1887, A., 314; (DRAKE and GORHAM), 1887, A., 418; (GLADSTONE and HIBBERT), 1891, A., 3, 777; (CANTOR), 1891, A., 514.

high pressure (SMITH), 1884, A., 246.

charge and discharge of (CROVA and GARBE), 1885, A., 1099.

charging (PREECE), 1885, A., 1175.

chemistry of (FRANKLAND), 1883, A., 839; 1890, A., 842; (CANTOR), 1891, A., 514.

reactions in (LODSINSKY), 1888, A., 1141.

theory of (STREINTZ), 1890, A., 315; 1892, A., 1381; (STREINTZ and NEUMANN), 1890, A., 1354.

thermal alterations in the (MEYER), 1888, A., 393.

variation of E.M.F. in (REYNIER), 1884, A., 881.

**Actinoelectricity of quartz** (HANKEL), 1883, A., 412, 950; 1885, A., 1187.

**Alternating currents.** See **Currents**.

**Balance, voltaic** (GORE), 1888, A., 1230.

detection of the combining proportions of compounds by the (GORE), 1889, A., 605.

**Battery.** See **Cells**, **Galvanic Combinations**.

**Battery residues**, utilisation of (ANON.), 1883, A., 896.

**Carbon contacts**, electrical resistance of (BIDWELL), 1883, A., 841.

**Carbon electrodes.** See **Electrodes**.

**Cathodes**, unequal electric conduction resistance at (GORE), 1885, A., 324.

#### ELECTROCHEMISTRY—

**Cells** (JABLOCHKOFF), 1885, A., 468;

(BORCHERS), 1887, A., 541;

(V. NEUMANN), 1887, A., 757;

(EISENMAN), 1887, A., 757;

(FRILDRICH), 1888, A., 99;

(ROBERTS), 1888, A., 639.

chemical theory of (EXNER and TUMA), 1889, A., 456.

theory of (WARBURG), 1890, A., 314.

cause of irregularities in the action of (HAYES and TROWBRIDGE), 1886, A., 293.

depolarisation of, by bromine (KOOSSEN), 1885, A., 3.

relation between electrical and chemical energy in (LÉVAT), 1891, A., 513.

E.M.F. of (BRAUN), 1883, A., 764; (OBERBECK and EDLER), 1891, A., 514.

distribution of E.M.F. in the cells of batteries (MIEGLER), 1888, A., 330.

seat of the E.M.F. in (LUDGE), 1885, A., 1027; 1886, A., 751; (AYRTON and PERRY), 1886, A., 750.

a probable cause of the difference between the observed E.M.F. of, and that calculated from thermochemical data (CHAPERON), 1884, A., 802.

resolution of the E.M.F. of, into their differences of potential (MOSE), 1888, A., 209; (MIEGLER), 1888, A., 392.

effect of chlorine on the E.M.F. of (GORE), 1889, A., 90.

change of potential of (GORE), 1889, A., 200, 201.

measurement of the internal resistance of (PEIRCE and WILLSON), 1890, A., 315.

effect of temperature on the E.M.F. and resistance of (PREECE), 1883, A., 840; 1884, A., 243.

relation of "Peltier's heat effect" to the available energy of (GUCKEL), 1885, A., 856.

for electric light (PROBERT), 1884, A., 1240.

photoelectric (BORGMANN), 1883, A., 625.

**Cell**, Bunsen, suppression of nitrous fumes from (D'ARSONVAL), 1885, A., 854.

founded on the oxidation of carbon in the cold (BARTOLI and PAPA-SOGLI), 1884, A., 1239.

with carbon electrodes (TOMMASI and RADIGUET), 1884, A., 1240.

## ELECTROCHEMISTRY—

- Cell**, Clark's, E.M.F. of (WRIGHT and THOMPSON), 1884, A., 246.  
 standard, practical form of (CARHART), 1890, A., 202; (NEGBAUR), 1892, A., 669.  
 chromic and nitric acid batteries, variation of the E.M.F. in (FROMME), 1883, A., 766.  
 constant (VOHWINKEL), 1885, A., 853.  
 Daniell's, of small internal resistance (BOTTOMLEY), 1885, A., 469.  
 E.M.F. of (KITTLER), 1883, A., 409; (MEYER), 1888, A., 393.  
 E.M.F. of certain dry forms of (v. BEETZ), 1886, A., 3.  
 relation between the E.M.F. of, and strength of the zinc sulphate solution (CARHART), 1885, A., 321.  
 thermal alteration in (MEYER), 1888, A., 393.  
 dichromate (GENDRON), 1890, A., 1354.  
 modification of (TROUVÉ; REGNIER), 1883, A., 700.  
 reply to observations of Regnier on (TROUVÉ), 1883, A., 765.  
 for electrical measurements (v. BEETZ), 1885, A., 2.  
 electrolytic, resistance of (SANKEY), 1890, A., 317.  
 ferric chloride, modification of (MOORE), 1887, A., 1071.  
 gas (MOND and LANGER; WRIGHT and THOMPSON), 1890, A., 841; (SCHARF), 1891, A., 374.  
 E.M.F. of (MARKOVSKY), 1892, A., 393.  
 and the silent discharge, compounds obtained by means of (FIGUIER), 1884, A., 1242.  
 Leclanché, and the reactions of manganese oxides with ammonium chloride (DIVERS), 1883, A., 273.  
 Leyden, electric discharge of (DVOŘÁK), 1883, A., 763.  
 of certain metals, platinum and nitric acid, variations of E.M.F. in cells (BURCH and VELEY), 1891, A., 514.  
 silver chloride, experimental researches on the electric discharge with (DE LA RUE and MULLER), 1885, A., 322.  
 standard (GOURY), 1887, A., 541.  
 for small differences of potential (NEGBAUR), 1892, A., 670.  
 See also Galvanic combinations.

## ELECTROCHEMISTRY—

- Circuit**, apparatus for breaking, in an atmosphere of hydrogen (MENGES), 1885, A., 3.  
 production of the current in the (SOHNCKE), 1889, A., 556.  
 metallic, of Ayrton and Perry (GOOSSENS), 1883, A., 141.  
**Conductivity** as a means of investigating the interaction of acids of complex function (BERTHELOT), 1890, A., 204.  
 basicity of acids deduced from their (BERTHELOT), 1891, A., 631, 632.  
 determination of the velocity of etherification by means of (NEGREANT), 1888, A., 1213.  
 irreciprocal (GEE and HOLDEN), 1889, A., 3.  
 molecular changes in metals as shown by their (LE CHATELIER), 1891, A., 1308.  
 quantitative estimations by measurement of (REICHERT), 1889, A., 545.  
 relative size of molecules calculated from the, of salt solutions (JAGER), 1888, A., 217.  
 study of the chemical constitution of neutralisation of acids and bases by means of their (BERTHELOT), 1892, A., 2.  
 analogy between capillarity and (TRAUBE), 1891, A., 1409.  
 fluidity and (STEPHAN), 1883, A., 769.  
 freezing point and (TRAUBE), 1891, A., 971.  
 specific inductive capacity and (COHN and ARONS), 1888, A., 394, 395.  
 osmotic pressure and reduction of the freezing point, relation between (VAN'THOFF and REICHERT), 1889, A., 668.  
 of air due to the formation of ozone (ELSTER and GETTEL), 1890, A., 676.  
 of air under reduced pressure (HOMÉN), 1886, A., 3.  
 of illumined air (ARRHENIUS), 1888, A., 544.  
 of gases and vapours (STENGER), 1885, A., 1028; (LUVINI), 1887, A., 4.  
 of hot gases (BUCHANAN), 1887, A., 1071.  
 of solid electrolytes (ROSENTHAL), 1891, A., 1307.  
 unipolar, of solid bodies (BRAUN), 1883, A., 769.

## ELECTROCHEMISTRY—

- Conductivity of solid substances at high pressure** (GRAETZ, 1887, A., 5.  
 of alloys of antimony and copper (KAMENSKY), 1885, A., 323.  
 of amalgams (WEBER), 1885, A., 211; 1887, A., 757.  
 of carbon, effect of absorbed gases on the (PROBERT and SOWARD), 1883, A., 769.  
 of solid carbon compounds (BARTOLI), 1885, A., 624; 1886, A., 191.  
 of ice (FOUSSIEREAU), 1884, A., 1241.  
 of lead dioxide (SHIELDS), 1892, A., 672.  
 of mercury and other metals at low temperatures (CAILLETER and BOUTY), 1885, A., 555.  
 of impure mercury, and methods of purification (MICHAELIS), 1885, A., 322.  
 of solid mercury (GRÜNMACHER), 1890, A., 98.  
 of solid mercury and its temperature coefficient (WEBER), 1885, A., 1028.  
 of fused salts (POINCARÉ), 1884, A., 457.  
 of fused and solid salts (GRAETZ), 1890, A., 1037.  
 of salts in the Bunsen flame (ARRHENIUS), 1891, A., 5.  
 of a fused mixture of potassium and sodium nitrates (BOUTY and POINCARÉ), 1888, A., 1231.  
 of precipitated membranes (TAMMANN), 1891, A., 140.  
 of selenium, effect of light on (KALISCHER), 1888, A., 99.  
 of serpentine (WIECHERT), 1886, A., 113.  
 of silver haloid salts (KOHLEAUSCH), 1883, A., 769.  
 of sulphur (DUTER), 1888, A., 640.  
 of liquids, effect of pressure on (BARUS), 1891, A., 250.  
 of water (FOUSSIEREAU), 1884, A., 1241; (KOHLEAUSCH), 1885, A., 323; (OSTWALD), 1890, A., 1357.  
 of pure water (PFEIFFER), 1888, A., 11.  
 of a solution, alteration of, by addition of a non-electrolyte (HOLLAND), 1892, A., 1382.  
 of solutions (PICKERING), 1889, P., 86.  
 of some solutions at temperatures between 18° and 100° (KRANNHALLS), 1890, A., 676.

## ELECTROCHEMISTRY—

- Conductivity of aqueous solutions** (CROMPTON, 1887, P., 126; 1888, T., 116.  
 of dilute solutions (BOUTY), 1884, A., 1241.  
 of substances in mixed solvents (ARRHENIUS), 1892, A., 1038.  
 of saline solutions (KOHLEAUSCH), 1886, A., 114; (BOUTY), 1886, A., 753; (OSTWALD), 1888, A., 331; (JÄGER), 1888, A., 397, 398; (CHRUSTSCHOFF), 1889, A., 808, 809; (CHRISTSCHEFF and PASHKOFF), 1889, A., 809; 1891, A., 141.  
 of solutions of salts in mixtures of alcohol and water (STEPHAN), 1883, A., 769.  
 of salt solutions, influence of water of crystallisation on the (TROTSCH), 1891, A., 141.  
 of salt solutions, relative size of the molecules calculated from (JÄGER), 1888, A., 217.  
 of salt solutions, determination of the size of the molecules of salts from (WALDEN), 1888, A., 591, 1008.  
 of supersaturated salt solutions (HEIM), 1886, A., 654.  
 of salts in dilute solutions (BOUTY), 1884, A., 881, 882; 1887, A., 753.  
 of mixtures of salts in dilute solution (BOUTY), 1886, A., 829; 1887, A., 577.  
 of solutions of double salts (KLEIN), 1886, A., 497; (KISIAKOWSKI), 1891, A., 6.  
 change of, in freshly prepared solutions (PFEIFFER), 1890, A., 204.  
 of electrolytes in solution (OSTWALD), 1889, A., 202.  
 of electrolytes, apparatus for determining the (OSTWALD), 1889, A., 4.  
 of electrolytes in very dilute solutions, coefficient of (KOHLEAUSCH), 1886, A., 113.  
 of acids (OSTWALD), 1885, A., 3, 323, 1029; 1888, A., 331; (KOHLEAUSCH), 1886, A., 114; (HARWIG), 1888, A., 399; (WALKER), 1892, T., 696.  
 of mixtures of aqueous solutions of acids (ARRHENIUS), 1887, A., 415.  
 of acids in dilute solution (BOUTY), 1887, A., 753.  
 of acids, influence of their constitution on (OSTWALD), 1886, A., 294.

## ELECTROCHEMISTRY—

- Conductivity** of organic acids and their salts (BERTHELOT), 1891, A., 631, 632; (OSTWALD), 1891, A., 632.
- of isomeric organic acids and their salts (BERTHELOT), 1891, A., 375, 517; (OSTWALD), 1891, A., 517.
- of solutions of organic acids, influence of boric acid on (MAGNANINI), 1892, A., 256, 1265.
- of aspartic acid (BERTHELOT), 1890, A., 204.
- of boric acid solutions (BOCK), 1887, A., 758.
- of boric acid solutions in presence of dulcitol (MAGNANINI), 1891, A., 251.
- of boric acid solutions containing mannitol (MAGNANINI), 1890, A., 1357.
- of hydrochloric acid in different solvents (KABLUKOFF), 1890, A., 97.
- of hydroxybenzoic acids and phenols (BERTHELOT), 1890, A., 677.
- of the ammonium and aniline salts of hydroxybenzoic acids (BERTHELOT), 1890, A., 1039.
- of concentrated nitric acid (BOUÏY), 1888, A., 640.
- of substituted succinic and glutaric acids (BISCHOFF and WALDEN), 1890, A., 1038.
- of sulphuric acid solutions (CROMPTON), 1888, T., 118; (PICKERING), 1889, P., 88; 1890, T., 86, 158.
- of sulphuric acid, concentrated solutions of (BOUÏY), 1889, A., 556.
- of sulphuric and pyrosulphuric acids (KOHLRAUSCH), 1883, A., 413.
- of alcohol (PFEIFFER), 1886, A., 4.
- of aqueous alcohol (PFEIFFER), 1885, A., 1029.
- of mixtures of alcohol and ether (PFEIFFER), 1886, A., 115.
- of cetyl alcohol (BARTOLI), 1885, A., 855.
- of bases in solution (KOHLRAUSCH), 1886, A., 114; (OSTWALD), 1886, A., 585.
- of cadmium salts, solutions of (WERSHOVEN), 1890, A., 1203.
- of liquid carbon compounds (BARTOLI), 1885, A., 624; 1886, A., 191.

## ELECTROCHEMISTRY—

- Conductivity** of carbonic anhydride solutions (PFEIFFER), 1885, A., 212.
- of chromic acid, aqueous solutions of (OSTWALD), 1888, A., 1009.
- maximum, of copper sulphate in very dilute solutions (SACK), 1891, A., 965.
- of potassium chloride, aqueous solutions of (BOUÏY), 1886, A., 653.
- of potassium sulphur compounds in solution (BOCK), 1887, A., 758.
- of their sodium salts, determination of the basicity of acids from (OSTWALD), 1889, A., 327.
- of sodium sulphide, solutions of (BOCK), 1887, A., 758.
- of solutions of zinc sulphate containing gelatin (LUEDEKING), 1889, A., 809.
- See also Electrical Resistance.
- Conduction**, galvanic, relations between coefficients of friction and (WIEDEMANN), 1884, A., 139.
- Conduction resistance**, unequal, at cathodes (GORE), 1885, A., 324.
- Conductors**, hollow, in electrolytes, distribution of electricity on (TRIBE), 1884, A., 248.
- Contact potential**. See Potential.
- Couples**, galvanic, a probable cause of the difference between the observed E.M.F. of, and that calculated from thermochemical data (CHAPERON), 1884, A., 802.
- change of potential of (GORE), 1889, A., 200, 201.
- effect of chlorine on the E.M.F. of (GORE), 1889, A., 90.
- metallic, E.M.F. of the currents yielded by, in simple saline solutions (DAMIEN), 1886, A., 190.
- thermoelectric, influence of temperature on the E.M.F. of (LE CHATELIER), 1886, A., 587.
- Current reversal** (KOCH and WILLNER), 1892, A., 759.
- Currents** produced by fused nitrates in contact with incandescent carbon (BRARN), 1883, A., 273.
- produced by immersion and emersion, and by the movement of a metal in a liquid (KROUHKOLL), 1884, A., 2.
- yielded by metallic couples in simple saline solutions, E.M.F. of (DAMIEN), 1886, A., 190.

## ELECTROCHEMISTRY—

- Currents**, effects of, on wine (MEN-GARINI), 1888, A., 188.  
 application of electrolysis to the standardising of (GRAY), 1887, A., 315.  
 electrochemical measurement of (POTIER), 1889, A., 557.  
 strong, measurement of (TROW-BRIDGE), 1885, A., 855.  
 weight voltameter for measuring (LEDINGHAM), 1884, A., 654.  
 aération (WRIGHT and THOMPSON), 1888, A., 639.  
 alternating, electrolysis and (SHELDON), 1888, A., 769.  
 electrodynamic interference of (OBERBECK), 1883, A., 897.  
 electrolysis with (MANEUVRIER and CHAPPIN), 1888, A., 1005; (AYRTON and PERRY), 1888, A., 1006; (DRECHSEL), 1888, A., 1234, 1276.  
 electrolysis of ammonium carbamate and carbonate with platinum electrodes and (GERDES), 1883, A., 27.  
 electrolysis of *n*-hexoic acid with (DRECHSEL), 1886, A., 1008.  
 trustworthiness of, for measuring electrical resistances (OSTWALD), 1885, A., 856.  
 rapidly, measurement of, with the galvanometer (GREENMAN), 1885, A., 471.  
 amalgamation (HAGA), 1883, A., 412.  
 galvanic, action of, on chlorides and chlorates (LINDOFF and TICHOMIROFF), 1883, A., 149.  
 theory of (WILKOWSKI), 1883, A., 948.  
 oxidation experiments with (SMITH), 1889, A., 926.  
 oxidation of sulphides by (SMITH), 1890, A., 1342.  
 photoelectric, increase of (MOSER), 1888, A., 9.  
 voltaic, relation of chemical corrosion to (GORE), 1885, A., 324.  
 estimation of lead as lead dioxide by means of (TENNEY), 1884, A., 777.  
**Depolarisation** of an electric cell by bromine (KOOSSEN), 1885, A., 3.  
**Dielectric constants** of certain gases and vapours (KLEMENČIĆ), 1885, A., 1030.  
 of insulating liquids (QUINCKE), 1883, A., 945.

## ELECTROCHEMISTRY—

- Dielectric liquids**, behaviour of, under strong electric charges (QUINCKE), 1886, A., 959.  
**Dielectric polarisation**, electromagnetic action of (KONTGEN), 1885, A., 1030.  
**Dielectric power**, co-existence of electrolytic conductivity and (BOUTY), 1892, A., 759.  
**Pseudo-dielectrics** (ARMSTRONG), 1886, A., 754.  
**Electric arc**, formation of, without contact of the electrodes (MANEUVRIER), 1887, A., 626.  
 an arrangement of, for the study of radiation of vapours (LIVING and DEWAR), 1883, A., 262.  
 action of, on gases, and its employment for demonstrations (LEPSIUS), 1890, A., 1047.  
 reaction current of (JAMIN and MANEUVRIER), 1883, A., 4.  
**Electric arc light**, action of, on water and oil colours used in dyeing and painting (DECAUX), 1884, A., 700.  
**Electric charges**, strong, behaviour of dielectric liquids under (QUINCKE), 1886, A., 959.  
**Electric discharge**, dissociation of some gases by (THOMSON), 1887, A., 1013.  
 influence of ultra-violet light on the (HERTZ), 1888, A., 13.  
 of Leyden batteries (DVOŘÁK), 1883, A., 763.  
 passage of, through nitrogen (THOMSON and THRELFALL), 1887, A., 328.  
 positive and negative, difference of (HELLMANN), 1883, A., 949.  
 production of ozone by the (DICHAIR and GUNTZ), 1888, A., 1234.  
 prolonged action of, on iodine (LUEDEKING), 1890, A., 687.  
 spectroscopic study of compounds rendered phosphorescent by the action of light or by the (BECKQUEREL), 1885, A., 1098.  
 through air and other gases (HERTZ), 1883, A., 700.  
 through gases (SCHUSTER), 1888, A., 396.  
 through rarefied gases (GOLDSTEIN), 1883, A., 266.  
 with the silver chloride battery, experimental researches on (DE LA RIVE and MULLER), 1885, A., 322.  
 glow, researches on (HERTZ), 1883, A., 949.

## ELECTROCHEMISTRY—

**Electric discharge**, vacuum, movement of gas in (SPOTTISWOODE and MOULTON), 1883, A., 5.

**Electric discharge**, silent (SHENSTONE and CUNDALL), 1887, T., 622.

behaviour of chlorine under the (VERNON), 1891, A., 877.

compounds obtained by means of gas batteries and (FIGUIER), 1884, A., 1242.

condensation of acetylene and benzene under the influence of (SCHUTZENBERGER), 1890, A., 961.

condensation of carbon monoxide under the influence of the (BERTHELOT), 1890, A., 691, 692; (SCHUTZENBERGER), 1890, A., 691, 692, 1358.

action of, on oxygen and nitrogen in presence of chlorine (HAUTEFUILLE and CHAPPIN), 1884, A., 710.

decomposition of carbon compounds by the (MAQUENNE), 1884, A., 542.

decomposition of formic acid by (MAQUENNE), 1883, A., 457.

dissociation of vapours by (v. HOFMANN), 1891, A., 143.

effects of the (SCHUTZENBERGER), 1890, A., 1358.

fluorescence of manganese compounds under the influence of the (LECOQ DE BOISBAUDRAN), 1887, A., 3.

synthesis of ammonium cyanide by (FIGUIER), 1886, A., 604.

**Electric double refraction** of insulating liquids (QUINCKE), 1883, A., 946.

**Electric lamps**, preparation of carbons for, from furfuraldehyde, or fucusaldehyde (SMITH), 1885, A., 1267. See also Incandescent lamps.

**Electric layers** of two liquids which are in contact, difference of potential of (BICHAT and BLONDLOT), 1884, A., 383.

**Electric leakage** (THOMSON and NEWALL), 1888, A., 400.

**Electric light**, as used in projecting spectra on the screen, hand-regulator for (WALTER), 1885, A., 631.

galvanic batteries for (PROBERT), 1884, A., 1240.

preparation and purification of carbon for (JACQUELAIN), 1883, A., 752.

## ELECTROCHEMISTRY—

**Electric light**, influence of, on the development of plants (DEHERAIN), 1883, A., 105.

use of, to influence chemical change (ARMSTRONG), 1886, P., 182.

**Electric liquid condenser** for examining the phenomenon of double refraction (QUINCKE), 1883, A., 947.

**Electric luminosity** of gases and heat of dissociation of the water molecule (WIEDEMANN), 1883, A., 547.

**Electric shadows** (RIES), 1883, A., 416.

**Electric spark**, decomposition of carbon compounds by the (PIZZARELLO), 1886, A., 10.

decomposition of carbon dioxide by (DIXON and LOWE), 1885, T., 571; P., 83.

particles of matter in (WÄCHTER), 1883, A., 415.

action of, on mixtures of nitric oxide with hydrogen, with methane, etc. (COOKE), 1889, A., 15.

**Electric**. See also Electrical and Electrolytic.

**Electrical behaviour** of some bismuth tin alloys, in a magnetic field (v. ERTINGSHAUSEN and NERNST), 1883, A., 546.

of metals in salt solutions (PELLAT), 1892, A., 393.

of platinum in persulphuric acid (RICHAZ), 1889, A., 1041.

of precipitated membranes (OBERBECK), 1891, A., 517.

**Electrical dialysis** (WARREN), 1888, A., 1235.

**Electrical energy**, chemical action and (BRAUN), 1883, A., 413.

equivalence of chemical energy and (JAHN), 1886, A., 840.

relation between chemical and, in galvanic cells (LÉVAY), 1891, A., 513.

and radiation in the spectrum of incandescent lamps, relation between (ARNEY and FESTING), 1885, A., 325.

**Electrical forces**, change of refractive index of liquids by (QUINCKE), 1883, A., 948.

**Electrical furnace** (E. H. and A. H. OWLES and MABERY), 1886, A., 401.

(owles', products from (MABERY), 1887, A., 551.

**Electrical measurements**, a constant element for (v. BEEZ), 1885, A., 2.

## ELECTROCHEMISTRY—

**Electrical neutrality** of vapour arising from electrified surfaces of liquids (BLAKE), 1884, A., 243.

**Electrical phenomena** developed in the formation of solid carbonic anhydride (HAUSKNECHT), 1891, A., 777.

**Electrical properties** of glass (T. and A. GRAY and DOBBIE), 1885, A., 470.

of palladium and platinum when containing hydrogen (FROMME), 1883, A., 766.

of rock salt (BRAUN), 1888, A., 9.

of salt solutions (MOER), 1886, A., 4, 925.

of semi-permeable walls (OSTWALD), 1890, A., 1354.

of stannic chloride (COLDRIDGE), 1890, A., 1065.

**Electrical relations**, certain generic,

of the alloys of platinum (BAUS'), 1889, A., 201.

**Electrical researches** (FROMME), 1883, A., 697, 766; (QUINCKEL), 1883, A., 945.

**Electrical resistance**, influence of the state of aggregation of various substances on their (GRUNMACH), 1889, A., 201.

method of measuring (PAGLIANT), 1892, A., 105.

trustworthiness of alternating currents for measuring (OSTWALD), 1885, A., 856.

of alcohol (FOUSSEREAU), 1885, A., 1100.

of the alloys of ferromanganese and copper (NICHOLS), 1890, A., 1356.

of antimony and cobalt, variations of, in a magnetic field (FAK), 1887, A., 760.

internal, of batteries, measurement of (PEIRCE and WILLSON), 1890, A., 315.

of bismuth (VAN ARBEL), 1889, A., 807; (ZAHN), 1891, A., 315.

of bismuth, variation of, when placed in a magnetic field (HURION), 1885, A., 469.

of bismuth and its alloys (VAN ARBEL), 1888, A., 545.

of soft carbon under pressure (MENDENHALL), 1887, A., 315.

of carbon contacts (BIDWELL), 1883, A., 811.

of copper at very low temperatures (v. WROBLEWSKI), 1885, A., 1099.

## ELECTROCHEMISTRY—

**Electrical resistance** of gases, influence of a magnetic field on (WITZ), 1890, A., 1359.

of glass, influence of temper on the (FOUSSEREAU), 1883, A., 701.

of insulators (FOUSSEREAU), 1884, A., 245.

of iron and its alloys at high temperatures (LE CHATELIER), 1890, A., 549.

of mercury (KOHLETSCH), 1889, A., 201; (GRUNMACH), 1889, A., 202.

of metals (LE CHATELIER), 1891, A., 4.

of metals, influence of light on (BOSTWICK), 1885, A., 469.

of nitrogen peroxide, variation in the, with rise of temperature (v. BOGUSKI), 1890, A., 203.

of psilomelane (MEYER), 1883, A., 701.

of salts in the Bunsen flame (ARRHENIUS), 1891, A., 5.

See also Conductivity.

**Electrical transport** of dissolved salts (CHASSY), 1889, A., 665.

**Electrical units** (CLAUSIUS), 1883, A., 764; (ANON.), 1885, A., 2.

**Electrical volatility** of the metals (DUDLEY), 1892, A., 1037.

**Electrical**. See also Electric and Electrolytic.

**Electricity** developed in the disengagement of gases (HANKEL), 1885, A., 2.

development of, in electrolytes (PLANCK), 1890, A., 677.

fuel to produce (BIBARD), 1883, A., 626.

influence of the chemical nature and pressure of gases on the generation of, by an induction machine (HEMPEL), 1884, A., 701; 1885, A., 1095.

method of generating (KENDALL), 1884, A., 652.

production of, by condensation of aqueous vapour (KALISHER), 1884, A., 138; (PALMIERI), 1885, A., 99.

production of, by evaporation (BLAKE), 1884, A., 243.

distribution of, on hollow conductors in electrolytes (TRIBE), 1884, A., 248.

conduction of, through gases (NARR), 1888, A., 397; (NAHRWOLD), 1888, A., 769.

## ELECTROCHEMISTRY—

- Electricity**, conduction of, by the vapours of heated salts (ARRHENIUS), 1891, A., 515.  
 passage of, through hot gases (THOMSON), 1890, A., 1037.  
 of flame (ELSTER and GEITEL), 1883, A., 141; 1884, A., 1238; (KOLLERT), 1884, A., 651; 1885, A., 2.  
 application of, in metallurgy (FISCHER), 1883, A., 398; 1884, A., 785, 933; (SCHUCHT), 1884, A., 541; (ANON.), 1884, A., 1229, 1885, A., 940.  
 decomposition of water by (TOMMANI), 1885, A., 1029.  
 saponification of fats by (ROTONDI), 1885, A., 1274.  
 treatment of syrups by (DESPEINIS), 1885, A., 205.  
 influence of, on the growth of roots and potatoes (HOLDERLEINS), 1885, A., 1152.  
 measurement of the quantity of, produced by a Zamboni's pile (KIECKE), 1884, A., 138.  
 atmospheric, connection of, with the formation of ozone in the air (WURSTER), 1887, A., 211.  
 contact (v. ULJANIN), 1888, A., 390; (ONTWALD), 1888, A., 886.  
   theory of researches on (EXNER), 1888, A., 208.  
   statical, researches on (DVOŘÁK), 1883, A., 763.  
   voltaic, development of, by atmospheric oxidation (WRIGHT and THOMPSON), 1887, A., 1008; 1889, A., 90.  
**Electrification**, conditions affecting area of (TRIBE), 1884, A., 247.  
 influence of, on the absorption of nitrogen by vegetable soils (BERTHELOT), 1889, A., 1237.  
 of effluvia from chemical or from voltaic reactions (BROWN), 1891, A., 7.  
 of a gas by a glowing platinum wire (NAHRWOLD), 1888, A., 1231.  
 of ice by water friction (SOHNCKE), 1886, A., 960.  
**Electrocapillary phenomena** (BRAUN), 1892, A., 349, 393; (GOUY), 1892, A., 553, 760.  
**Electrochemical actinometer** (GOUY and RIGOLLOT), 1888, A., 883.

## ELECTROCHEMISTRY—

- Electrochemical effects** on magnetising iron (ANDREWS), 1889, A., 92; 1890, A., 678.  
**Electrochemical energy** of light (GRIVEAUX), 1884, A., 382.  
**Electrochemical formation** of hydroxy- and chloro-cellulose (GOPPELSROEDER), 1885, A., 208.  
**Electrochemical investigations** (EXNER), 1891, A., 1309.  
   apparatus for (v. KLOBUKOFF), 1886, A., 653; 1887, A., 200; 1888, A., 769; 1889, A., 1094.  
**Electrochemical measurement** of currents (POTIER), 1889, A., 557.  
**Electrochemical phenomena**, Nobili's rings and allied (ELMAN), 1887, A., 759.  
**Electrochemical researches** on nitrogen (JOHNSON), 1884, A., 383.  
**Electrochemical studies** (ONTWALD), 1885, A., 1029; 1888, A., 331; 1889, A., 202.  
**Electrochemistry** of acetic acid (BERTHELOT and MATIGNON), 1892, A., 1139.  
   of some organic acids (JAHN), 1890, A., 99.  
**Electrodeposition** of carbon and silicon (GORE), 1885, A., 110.  
**Electrodes**, carbon, used for the electrolysis of acids, alteration of (DEBBAY and PÉCHARD), 1887, A., 1009.  
   dropping (ONTWALD), 1889, A., 807.  
   moist, use of (HARTLEY), 1885, A., 325.  
   platinum, polarisation of, in sulphuric acid (FROMME), 1888, A., 390; 1890, A., 316, 675; (RICHAIZ), 1890, A., 551, 676.  
   polarisation of (POINCARÉ), 1890, A., 933.  
   polarised, distortion of (GOTY), 1883, A., 897.  
   small, galvanic polarisation at (KOCH and WÜLLNER), 1892, A., 759.  
**Electrodissolution** and its use in analysis (WARREN), 1887, A., 531.  
**Electrodynamic interference** of alternating currents (OBERBECK), 1883, A., 897.  
**Electrodynamometer**, absolute (PÉLAT), 1887, A., 200.  
   mercurial (LIPPMANN), 1884, A., 949.

## ELECTROCHEMISTRY—

- Electrolysis** (SHTUHR), 1884, A., 541; (DRECHSEL), 1884, A., 1136; (CLARK), 1886, A., 294; (GEE and HOLDEN), 1888, A., 887; (VIOLE and CHASSAGNY), 1889, A., 558; (BRATN), 1891, A., 778; (SWINBURNE), 1892, A., 257.  
 new apparatus for (ROSENFELD), 1885, A., 715.  
 determination of the limits of (TRUHOT), 1881, A., 2.  
 experiment in (SEMMOLA), 1883, A., 540.  
 initial phase of (PILTSCHIKOFF), 1889, A., 663.  
 laws of (CHASSY), 1892, A., 1037.  
 phenomena of (GORE), 1885, A., 324.  
 secondary (SEMMOLA), 1886, A., 651.  
 theory of (ARMSTRONG), 1891, P., 118.  
 theory of diffusion and (PLANCK), 1892, A., 935. •  
 with alternating currents (MANEVRIER and CHAPPEL), 1888, A., 1005; (AYRON and PERRY), 1888, A., 1006; (DRECHSEL), 1888, A., 1234, 1276.  
 • with semi-permeable walls (OSF-WALD), 1890, A., 1354.  
 with zinc-carbon couples (TOMMASI), 1883, A., 4.  
 work done during (WRIGHT and THOMPSON), 1884, A., 247.  
 application of, to the standardising of electric current and potential meters (GRAY), 1887, A., 315.  
 extraction of the precious metals from all kinds of ores by (BLAS and MIEST), 1883, A., 134.  
 oxidation-products of carbon obtained by (MILLOI), 1883, A., 65.  
 • preparation of alloys by (WARREN), 1888, A., 27; 1892, A., 391.  
 preparation of boron and silicon by (HAMPE), 1889, A., 103.  
 precipitation of copper by, and its electrolytic purification (ANON.), 1886, A., 109.  
 precipitation of copper by, improvement in the apparatus used for (FOOT), 1885, A., 597.  
 application of, in preparing indigovats (GOPPEL-ROEDLER), 1881, A., 942, 1448.  
 preparation of magnesium by (GRAETZEL), 1885, A., 940.  
 production of metals and chlorine by (FISCHER), 1885, A., 941.

## ELECTROCHEMISTRY—

- Electrolysis**, preparation of nitrogen chloride by (MARCK), 1885, A., 347.  
 preparation of persulphocyanogen by (GOPPEL-ROEDLER), 1885, A., 107.  
 production of sulpho-colouring matters by (EWER and PICK), 1886, A., 187.  
 preparation of vanadious sulphate by (BRIERLEY), 1886, T., 822.  
 decomposition of ammonia by (IRVING), 1886, A., 518.  
 application of, to qualitative analysis (KOHN), 1892, A., 510.  
 analysis of red wine by means of (KLOHN), 1885, A., 298.  
 indirect determination of bromine, chlorine and iodine by (WHIRFIELD), 1887, A., 525.  
 quantitative analysis by (WIELAND), 1884, A., 1426; 1885, A., 442; (CLASSEN), 1885, A., 190, 597, 1094; 1888, A., 523; (CLASSEN and LUDWIG), 1885, A., 932; 1886, A., 493; (MOORE), 1886, A., 921; (CLASSEN and SCHELLE), 1889, A., 76.  
 quantitative estimation of nitric acid by (VORTMANN), 1890, A., 1467.  
 of animal tissues (STEWART), 1891, A., 597.  
 of bile (STEWART), 1891, A., 591.  
 of fused aluminium fluoride (MINET), 1890, A., 552, 1040; 1891, A., 152.  
 of fused aluminium oxide (MINET), 1890, A., 552.  
 of fused barium chloride (LIME), 1891, A., 1121.  
 of fused compounds of boron and silicon (MINET), 1891, A., 1321.  
 of fused potassium acetate (LASSAR-COHN), 1889, A., 1056.  
 of copper (GRAY), 1887, A., 315; 1888, A., 545; (SHAND), 1887, A., 1000.  
 of copper chloride (GRINCKE), 1889, A., 458.  
 of cryolite (HAMPE), 1889, A., 676.  
 of solid glass (WARMER), 1881, A., 1241.  
 of molybdenum (BARNWOLD), 1886, A., 18.  
 of silver (GRAY), 1887, A., 315.  
 of zinc (SHAND), 1887, A., 1000.  
 of alcohol (HABERMANN), 1887, A., 94.

## ELECTROCHEMISTRY—

- Electrolysis** of glycerol with electrodes of carbon and platinum (BARTOLI and PAPASOGLI), 1884, A., 170.
- of water (BARTOLI and PAPASOGLI), 1883, A., 540; (v. HELMHOLTZ), 1888, A., 100; (DUTER), 1889, A., 1094.
- of solutions, present condition of the theory of (KOHLENSCH), 1888, A., 1231.
- of salt solutions (RENARD), 1886, A., 115, 407.
- of salt solutions, crystallisation during (PAGLIANI), 1888, A., 892.
- of hydrated salts (GLADSTONE and TRIBE), 1881, A., 654.
- of mixed solutions (LEHMANN), 1890, A., 317.
- of a mixture of two salts in aqueous solution (HOULLEVIGNE), 1890, A., 678.
- of fatty acids (BUNGE), 1890, A., 1236.
- of bromo-derivatives of acetic, propionic and succinic acids (LASSAR-COHN), 1889, A., 1056.
- of ethylic potassium salts of the oxalic series (BROWN and WALKER), 1890, A., 583; 1891, A., 1192.
- of ammonia with carbon electrodes, oxidation of the azulmic matter obtained by (MILLOT), 1888, A., 242.
- of aqueous ammonia with carbon electrodes (MILLOT), 1886, A., 979.
- of aqueous ammonia, oxidation of carbon in (MILLOT), 1885, A., 1125; (BARTOLI and PAPASOGLI), 1886, A., 406.
- of ammonia and ammoniacal salts in solution with carbon electrodes (BARTOLI and PAPASOGLI), 1881, A., 176.
- of ammonium carbonate and carbonate with alternating currents and platinum electrodes (GERDES), 1883, A., 27.
- of ammonium sulphate (MCLEOD), 1886, P., 218.
- of bismuth solutions (THOMAS and SMITH), 1883, A., 1031.
- of boric acid solutions (BARTOLI and PAPASOGLI), 1883, A., 540.
- of chlorates (LIDOFF and TICHOMIROFF), 1884, A., 512.
- of cobalt salts in solution, oxidation by (MARSHALL), 1891, T., 760.

## ELECTROCHEMISTRY—

- Electrolysis** of cobalt oxalates (KEHRMANN and PICKERSGILL), 1891, A., 1189.
- of copper sulphate solutions, quantity of heat evolved in (JAHN), 1883, A., 1043.
- of *n*-hexoic acid with alternate currents (DRECHSEL), 1886, A., 1008.
- of hydrochloric acid (TOMMASI), 1883, A., 142; (v. HOFMANN), 1883, A., 280; (ROSENFELD), 1887, A., 633; (DEBRAY and PÉCHARD), 1887, A., 1009.
- of hydrofluoric acid (BARTOLI and PAPASOGLI), 1883, A., 590; 1889, A., 559; (MOISSAN), 1886, A., 819, 976.
- of hydrogen carbonates in solution (ASLANOGLOU), 1890, A., 1204.
- of magnesium chloride solutions (CROSS and BEVAN), 1888, P., 91.
- of molybdenum solutions (SMITH and HOSKINSON), 1886, A., 102.
- of metallic phosphates in acid solution (SMITH), 1891, A., 1140.
- of nitric acid (DEBRAY and PÉCHARD), 1887, A., 1009.
- of organic potassium salts in solution (LASSAR-COHN), 1889, A., 1056.
- of potassium acetate solutions (MURRAY), 1891, P., 134; 1892, T., 10; (BROWN and WALKER), 1891, A., 1192.
- of potassium acetate in alcoholic solutions (HABERMANN), 1887, A., 94.
- of potassium antimonate in solution with carbon electrodes (BARTOLI and PAPASOGLI), 1883, A., 590; 1889, A., 559.
- of potassium chlorate and perchlorate and of chloral hydrate (TOMMASI), 1886, A., 408.
- of potassium hydroxide in solution (BERSON and DESTREM), 1888, A., 1007.
- of pyrogallol solutions (ROTONDI), 1884, A., 175.
- of silver chloride dissolved in sodium thiosulphate (ASLANOGLOU), 1890, A., 1204.
- of silver fluoride, chlorate and perchlorate (GORE), 1885, A., 110.
- of sodium chloride (ROTONDI), 1884, A., 248; (NARDIN and BIDET), 1881, A., 541.

## ELECTROCHEMISTRY—

- Electrolysis** of concentrated solutions of sulphuric acid (BOUAY), 1889, A., 556.
- of aqueous sulphuric acid, with reference to the forms of oxygen obtained (MCLEOD), 1886, T., 591.
- of dilute sulphuric acid and hydrated salts (GLADSTONE and TRIBE), 1884, A., 654.
- of dilute sulphuric acid, formation of hydrogen peroxide at the anode during (RICHAIZ), 1888, A., 12.
- of dilute sulphuric acid, products of (RICHAIZ), 1885, A., 624.
- of solutions of metallic thiovanates (FRANKEL), 1891, A., 1170.
- of zinc sulphate solutions, quantities of heat evolved in (JAHN), 1883, A., 1043.
- Electrolyte**, development of E.M.F. between mercury and an (PASCHEN), 1891, A., 374.
- Electrolytes**, composite (ARMSTRONG), 1886, A., 754.
- conditions of equilibrium between (ARRHENIUS), 1890, A., 437.
- alternating currents and (SHELDON), 1888, A., 769.
- fused, batteries with (POINCARÉ), 1890, A., 551.
- constitution of (BARTOLI), 1883, A., 540.
- conductivity of (OSTWALD), 1889, A., 202.
- apparatus for determining (OSTWALD), 1889, A., 4.
- conductivity of solid (ROSENTHAL), 1891, A., 1307.
- coefficient of conductivity of, in very dilute solutions (KÖHLER-RATSCHE), 1886, A., 113.
- specific inductive capacity of (ROSE), 1891, A., 778.
- determination of potential difference between mercury and (BLONDLOT and BRIGHT), 1888, A., 1005.
- binary, difference of potential between two dilute solutions of (PLANCK), 1890, A., 1355.
- development of heat and electricity in (PLANCK), 1890, A., 677.
- E.M.F. of a metal in a series of (MAGNANINI), 1891, A., 3.
- changes of E.M.F., volume and temperature on mixing (GORE), 1892, A., 930.
- relation of heat to voltaic and thermoelectric action of metals in (GORE), 1885, A., 325.

## ELECTROCHEMISTRY—

- Electrolytes**, heat of formation of (JAHN), 1885, A., 1100.
- thermoelectric phenomena at the contact of two (BAGARD), 1892, A., 1037.
- thermoelectric relations of (DONLE), 1886, A., 960.
- cryoscopy of dilute aqueous solutions of non-electrolytes and (PICKERING; TRAUBE), 1891, A., 971.
- dissociation of (OSTWALD), 1889, A., 931.
- dissociation of, influence of temperature on the (ARRHENIUS), 1889, A., 1014.
- heat of dissociation of (ARRHENIUS), 1889, A., 1044.
- heat of dissociation of, correction in the calculation of the (ARRHENIUS), 1892, A., 931.
- dissociation of, theory of the (OSTWALD), 1888, A., 1142; VAN DER HOFF and KIEHLER, 1889, A., 202.
- free ions in OSTWALD and NERNST, 1889, A., 558.
- influence of the chemical energy of, on the minimum-point and change of potential of a voltaic couple (GORE), 1889, A., 200.
- influence of pressure on the resistance of (FINK), 1886, A., 586.
- separation of precipitates at the boundary of (KUMMEL), 1892, A., 1038.
- surface-tension of polarised mercury in different (PASCHEN), 1890, A., 552, 1036.
- validity of Joule's law for (JAHN), 1885, A., 1029; 1888, A., 10.
- voltaic energy of (GORE), 1889, A., 665.
- loss of voltaic energy of, by chemical union (GORE), 1889, A., 810.
- work done in the decomposition of (JAHN), 1885, A., 1100.
- Electrolytic copper**, occlusion of gases by (SOBER), 1889, A., 946.
- gas, ignition temperature of (FREYER and MEYER), 1892, A., 680.
- explosions of volatile carbon compounds and (PIZZARELLO), 1886, A., 762.
- Electrolytic actions**, non-reversible, thermoelectric law respecting (BOLTZMANN), 1887, A., 1072.
- behaviour of mica at high temperatures (SCHLIZEL), 1889, A., 664.

## ELECTROCHEMISTRY—

**Electrolytic actions**, cells, resistance of (SANKAY), 1890, A., 317.

**Electrolytic conduction** (ARMSTRONG), 1887, P., 127; 1888, T., 125.

action of the solvent on (FITZPATRICK), 1888, A., 101.

correlation of molecular composition and (ARMSTRONG), 1886, A., 754.

**Electrolytic conductivity** of polybasic acids (OSWALD), 1892, A., 1145.

of halogen compounds (HAMPE), 1888, A., 211, 887.

of rock crystal (WARBURG and TEGETMEIER), 1889, A., 91.

coexistence of dielectric power and (BOUTY), 1892, A., 759.

**Electrolytic crystallisation** and dimorphism of lead (LEHMANN), 1890, A., 437.

**Electrolytic detection** of manganese in presence of zinc and of bismuth in presence of lead (GRYARD), 1884, A., 868.

of mercury (WOLFF), 1889, A., 441.

of mercury in urine (ZIEGELER), 1888, A., 1344.

**Electrolytic dissociation**, formule for (VAN DER WAALS), 1891, A., 1309.

hypothesis of (ARRHENIUS), 1891, A., 521.

in solution (ARRHENIUS), 1891, A., 1148.

of salts, determination of, by means of solubility experiments (NOYES), 1892, A., 1143.

absorbent power of coloured salts and (MAGNANINI), 1892, A., 757.

the molecular theory and (CIAMICIAN), 1891, A., 300.

osmotic pressure and, theories of (PLANCK), 1892, A., 1143.

versus hydration (ARRHENIUS), 1889, A., 1099.

**Electrolytic estimations** (SMITH and KNER), 1886, A., 923.

use of double pyrophosphates in (BRAND), 1890, A., 294.

**Electrolytic estimation** of metals, apparatus for (LEVOIR), 1889, A., 548.

of metals as amalgams (VORTMANN), 1891, A., 1553; (GIBBS), 1892, A., 753.

of antimony (BRAND), 1890, A., 295; (LECRENIER), 1890, A., 421.

## ELECTROCHEMISTRY—

**Electrolytic estimation** of iron (SMITH), 1888, A., 1344.

of mercury (DE LA ESCOSURA), 1886, A., 650.

of palladium (SMITH and KELLER), 1890, A., 831.

of rhodium (JOLY and LEIDIE), 1891, A., 1141.

of zinc (MILLOT), 1883, A., 122.

**Electrolytic extraction** of antimony (BORCHERS), 1888, A., 230.

formation of hydrogen peroxide at the anode (RICHARZ), 1888, A., 12, 769; (TRAUBE), 1888, A., 210.

oxidation, attempts to obtain tartaric acid from glycerol and tartaric acid from erythritol by (BIZZARRI and CAMPANI), 1884, A., 298.

method of liquefying gases (WARREN), 1889, A., 7.

polarisation by metals (PILTSCHIKOFF), 1889, A., 663.

produced by small electromotive forces (FROMME), 1887, A., 317, 541.

researches (JAHN), 1883, A., 1042.

**Electrolytic separations** (SMITH and KNER), 1886, A., 923; (BRAND), 1890, A., 294; (SMITH and FRANKEL), 1890, A., 661, 1029; (SMITH), 1890, A., 1028; (SMITH and MUHR), 1891, A., 1296, 1396; (SMITH and WALLACE), 1892, A., 920.

**Electrolytic separation** of metals (FREIDENBERG), 1892, A., 1521.

of the metal on the free surface of the solution of its salt (GURKIN), 1888, A., 101.

of arsenic from copper (McCAY), 1891, A., 114.

of cadmium from zinc (SMITH and FRANKEL), 1889, A., 1033.

of iron (SMITH and MUHR), 1892, A., 917.

of mercury from copper (SMITH and FRANKEL), 1889, A., 797; (SMITH and MACAULEY), 1892, A., 239.

of zinc from cadmium (ELIASBERG), 1886, A., 281.

**Electrolytic synthesis** (DRECHSEL), 1884, A., 1136.

of dibasic acids (BROWN and WALKER), 1891, A., 1192.

theory of solution (LE BLANC), 1891, A., 1405.

See also Electric and Electrical.

## ELECTROCHEMISTRY—

**Electrolytically-dissociated substances.** solubility of mixtures of (NOYEN), 1891, A., 142.

**Electromagnetic action** of dielectric polarisation (RONIGEN), 1885, A., 1030.

**Electrometallurgy** of aluminium (MINET), 1891, A., 525.

**Electrometer**, an (BLAKE), 1884, A., 243.

application of, to the study of chemical reactions (BUTTY), 1887, A., 882.

Lippmann's capillary, experiments with (PRATT), 1888, A., 639.

limits of accuracy of (PASCHEN), 1890, A., 552.

**Electrometric measurement** of energy radiated from incandescent lamps (GARBE), 1884, A., 881.

**Electromotive activity** of the ions (NERNST), 1889, A., 1095; (NERNST and PAULI), 1892, A., 671.

**Electromotive dilution constants** (MIESLER), 1888, A., 13.

of silver and copper salts (MIESLER), 1887, A., 1072.

**Electromotive force** produced by the action of light on selenium (KALLISCHER), 1887, A., 693; (V. ULJANIN), 1888, A., 883.

produced during the combination of zinc and iodine in presence of water (LAURIE), 1886, A., 751.

produced in the reaction of cadmium, iodine and water (LAURIE), 1886, T., 700; P., 227.

development of, between mercury and an electrolyte (PASCHEN), 1891, A., 374.

distribution of, in the cells of batteries (MIESLER), 1888, A., 330.

seat of, in the voltaic cell (LONGE), 1885, A., 1027; 1886, A., 751; (AYRTON and PERRY), 1886, A., 750.

relation of latent heat, specific gravity, etc. to (GORE), 1892, A., 257.

seat of the variation of, with temperature (GUCKEL), 1890, A., 1035.

between metals at high temperatures (ANDREWS), 1885, A., 1175.

changes in, produced by changes of concentration of the exciting liquid (GORE), 1890, A., 1035.

changes of, on mixing electrolytes (GORE), 1892, A., 930.

## ELECTROCHEMISTRY—

**Electromotive force**, variation of, in accumulators (REYNIER), 1884, A., 881.

variation of, in chromic and nitric acid batteries (FROMME), 1883, A., 766.

variation of the capillary constants of the surfaces, water-ether, and water-carbon disulphide under the action of (KROUCKOLL), 1883, A., 1047.

small, electrolytic polarisation produced by (FROMME), 1887, A., 317, 541.

chemical affinity in terms of (WRIGHT and THOMPSON), 1884, A., 246; 1885, A., 325, 721.

in terms of chemical energy (CZARSKI), 1884, A., 650.

measurement of (REYNIER), 1884, A., 246; (PAGLIANI), 1892, A., 105.

of amalgams (LINDECK), 1889, A., 2.

of batteries, effect of temperature on the resistance and (FREECE), 1883, A., 840; 1884, A., 243.

of cells containing mixed salt solutions (BLUCHMANN), 1890, A., 202.

of cells of certain metals, platinum and nitric acid (BURCH and VELEY), 1891, A., 514.

of Clark's cell (WRIGHT and THOMPSON), 1884, A., 246.

of a Daniell's cell (KITTLER), 1883, A., 409; (MEYER), 1888, A., 393.

of a Daniell's cell and the strength of the zinc sulphate solution, relation between (CARHART), 1885, A., 321.

of certain dry forms of Daniell's cell (v. BEETZ), 1886, A., 3.

of a copper-iron junction, inversion of, at a high temperature (LE ROUX), 1885, A., 110.

of the currents yielded by metallic couples in simple saline solutions (DAMIEN), 1886, A., 190.

of galvanic combinations (BRAUN), 1883, A., 764.

of galvanic couples, a probable cause of difference between the observed, and that calculated from thermochemical data (CHAPERON), 1884, A., 802.

of galvanic elements (OBERBECK and EDLER), 1891, A., 514.

## ELECTROCHEMISTRY—

- Electromotive force** of galvanic elements, resolution of into their differences of potential (MOSER), 1888, A., 209; (MIESLER), 1888, A., 392.
- of gas batteries (MARKOVSKY), 1892, A., 393.
- of metallic salts (SPEYERS), 1890, A., 843; 1892, A., 255.
- of metals in cyanide solutions (THOMPSON), 1888, A., 392.
- of a metal in a series of electrolytes (MAGNANINI), 1891, A., 3.
- of mixtures (BOUZY), 1887, A., 877.
- of mixtures of aqueous solutions of acids (ARRHENIUS), 1887, A., 415.
- of polarisation (LE BLANC), 1891, A., 1405.
- of selenium (KALISCHER), 1889, A., 3; (V. ULANIN), 1889, A., 202; (RIGHT), 1889, A., 555.
- of thermoelectric couples, influence of temperature on (LE CHATELIER), 1886, A., 587.
- of thermoelectric piles (LODGE), 1886, A., 751.
- of thermo-elements, consisting of metals and solutions of their salts (EBELING), 1887, A., 414.
- and resistance of new forms of thermopiles (KAYSER), 1886, A., 3.
- of thin layers of hydrated peroxides (SCHREBER), 1889, A., 661.
- of tin cells (HERROUX), 1886, A., 752.
- of a constant voltaic cell with moving plates (LAURIE), 1887, A., 314.
- of voltaic cells having an aluminium plate as electrode (LAURIE), 1887, A., 315.
- of a voltaic couple, effect of chlorine on (GORE), 1889, A., 90.
- of zinc, property of the alkalis of increasing the (KOOSSEV), 1888, A., 209.
- Electromotive forces**, abnormal (HERROUX), 1889, A., 157.
- Electroplating** zinc with nickel (MIDINGER), 1884, A., 231.
- Electropotential series**, position of amalgams of zinc and cadmium in the (ROBB), 1884, A., 382.
- "Electro-pseudolysis"** (TOMMASI), 1885, A., 1029.
- "Electrostenolysis"** (BRAUN), 1892, A., 393.
- Electrosyntheses.** See Electrolytic synthesis.
- Electrothermal method** of elementary analysis (OSER), 1891, A., 621.

## ELECTROCHEMISTRY—

- Galvanic battery and cell.** See Cell, Galvanic combination.
- Galvanic circuit**, production of the current in (SCHUCKE), 1859, A., 556.
- metallic, of Ayrton and Perry (GOOSSENS), 1883, A., 141.
- Galvanic combinations:—**
- E.M.F. of, having an aluminium plate as electrode (LAURIE), 1887, A., 315.
- E.M.F. of constant, with moving plates (LAURIE), 1887, A., 314.
- E.M.F. of, containing mixed salt solutions (BLOCHMANN), 1890, A., 202.
- feric chloride as an exciting agent for (WARREN), 1887, A., 413.
- substitution of hydrogen peroxide for nitric acid in (KÖNIG), 1883, A., 765.
- new class of, in which oxidisable metals are replaced by alterable solutions (WRIGHT and THOMPSON), 1887, T., 672; P., 84.
- constant, with a negative electrode of carbon (FABINGI and FARKAS), 1888, A., 1001.
- copper oxide (DE LALANDE and CHAPERON), 1884, A., 1, 541; (DE LALANDE), 1891, A., 1405.
- with fused electrolytes (POINCARÉ), 1890, A., 551.
- liquid, conversion of, into dry piles (ONIMUS), 1884, A., 1240.
- with a circulating liquid (CARPENTIER), 1885, A., 711.
- with two liquids (DUPRÉ), 1885, A., 853; (WRIGHT and THOMPSON), 1889, A., 89.
- use of magnesium in (HEIM), 1888, A., 1002.
- selenium (FRITTS), 1886, A., 107.
- experiments with (BIDWELL), 1891, A., 777.
- sensitiveness to light of (BIDWELL), 1886, A., 2.
- silver-mercury, and its relation to temperature (STREINTZ), 1890, A., 550.
- Skrivanoff's (ANON.), 1883, A., 840.
- (pocket form) (MONNIER), 1884, A., 881.
- sodium dichromate (HARDING), 1887, A., 412.
- sulphur, sensitiveness to light of (BIDWELL), 1886, A., 2.
- tin, E.M.F. of (HERROUX), 1886, A., 752.

## ELECTROCHEMISTRY—

**Galvanic combinations:—**

water, simple form of (ROWLAND, 1887, A., 412.

See also Cell.

**Galvanic conduction**, relations between coefficients of friction and (WIEDEMANN), 1881, A., 139.  
current. See Current.

**Galvanic element**. See Cells, Galvanic combinations.

**Galvanic temperature coefficient** (STROCHAL and BARUS), 1884, A., 140.

**Galvanometer** for the determination of the magnetic rotatory polarisation of compounds (PERKIN), 1884, T., 431.

mercury (LIFFMANN), 1884, A., 881; (CARPENTIER), 1884, A., 949.

**Gas-battery**. See Cell.

**Glow**, residual, examination of (CROOKES), 1887, A., 1066.

**Glow discharge**, researches on (HERTZ), 1883, A., 949.

**Induction machine**, simplest form of (ELSTER and GEIHEL), 1885, A., 1098.

influence of the chemical nature and the pressure of gases on the generation of electricity by an (HEMPER), 1884, A., 701; 1885, A., 1098.

**Induction machines**, variation of (LOMEL), 1885, A., 1098.

**Induction spark**, action of, on benzene, toluene and aniline (DESTRECH), 1884, A., 1243.

action of, on carbonic anhydride and hydrogen (DIXON), 1886, T., 101.

action of, on carbonic oxide and steam (DIXON), 1886, T., 103.

action of, on phosphorus trichloride (MOISSAN), 1885, A., 215.

decomposition of the vapour of ethyl ether by means of (V. KLOBUKOFF), 1886, A., 1003.

use of, for detecting traces of arsenic (V. KLOBUKOFF), 1890, A., 922.

**Insulating liquids**, dielectric constants and electric double refraction of (QUINCKE), 1883, A., 945, 946.

**Insulating properties** of liquid oxygen and nitrogen (V. WRÓBLEWSKI), 1885, A., 1099.

**Insulator**, benzene as an (HERTZ), 1884, A., 244.

**Insulators**, electrical resistance of (FOUSSEREAU), 1884, A., 245.

## ELECTROCHEMISTRY—

**Ions**, free, in electrolytes (OSTWALD and NERNST), 1889, A., 558.

absolute velocity of the (WEBER), 1889, A., 1095.

electromotive activity of the (NERNST), 1889, A., 1095; (NERNST and PALLI), 1892, A., 671.

**Leyden batteries**, electric discharge of (DVOŘÁK), 1883, A., 763.

**Nobili's rings** and allied electrochemical phenomena (ELIAS), 1887, A., 759.

**Non-electrolytes**, cryoscopy of dilute aqueous solutions of electrolytes and PICKERING; TRAUBE), 1891, A., 971.

nature of chemical change in (ARMSTRONG), 1891, P., 118.

**Ohm**, method of determining (JOURBERG), 1883, A., 4.

**Photoelectric battery** (BOGMANN), 1883, A., 625.

**Photoelectric currents**, increase of (MOSE), 1888, A., 9.

**Piezoelectricity** of quartz (HANKEL), 1883, A., 412, 950.

**Pile** or auto accumulator (JABLOCHKOFF), 1885, A., 854.

Zamboni's, measurement of the quantity of electricity produced by a (RIECKE), 1884, A., 133.

**Piles**, dry, conversion of liquid batteries into (ONIMUS), 1884, A., 1240.

**Polarisation** (STREINTZ), 1883, A., 410; 1888, A., 99, 541; (PIRANI), 1885, A., 623; (JAHN), 1886, A., 839.

E.M.F. of (LE BLANC), 1891, A., 1405.

oscillations of the plane of, by electric discharges (BICHAT and BLONDLOT), 1883, A., 1.

dielectric, electromagnetic action of (RONIGEN), 1885, A., 1030.

electrolytic, produced by small electromotive forces (FROMMEL), 1887, A., 317, 541.

by metals (PILDSCHIKOFF), 1889, A., 663.

in the formation of persulphuric acid (RICHARZ), 1889, A., 1041.

influence of, on friction (WAITZ), 1884, A., 139.

of aluminium (STREINTZ), 1887, A., 415.

of copper by the extension of the surface in contact with a liquid conductor (KROUCHKOLL), 1887, A., 757.

## ELECTROCHEMISTRY—

- Polarisation** of electrodes (POINCARÉ), 1890, A., 933.  
 of platinum electrodes in sulphuric acid (FROMME), 1888, A., 390; 1890, A., 316, 675; (RICHARD), 1890, A., 551, 676.  
 at small electrodes (KOCH and WÜLLNER), 1892, A., 759.  
 theory of (WARBURG), 1890, A., 314.  
**Potential**, change of, of a voltaic couple (GORE), 1889, A., 200, 201.  
 contact, differences of (GORTY), 1892, A., 553.  
 difference of, of metals (PASCHE), 1891, A., 139.  
 of metals and their salts (PELLAT), 1889, A., 661.  
 fall of, at the cathode, in Geissler's tubes (WARBURG), 1890, A., 1035.  
**Potential difference** between two dilute solutions of binary electrolytes (PLANCK), 1890, A., 1355.  
 between mercury and electrolytes, determination of (BLONDLOT and BICHAT), 1884, A., 1005.  
 of electric layers of two liquids which are in contact (BICHAT and BLONDLOT), 1884, A., 383.  
 at the surface of contact of very dilute solutions (NEGBAUM; NERNST), 1892, A., 671.  
 relation between striking distance and, in various gases (PASCHE), 1889, A., 806.  
 small, standard galvanic cell for (NEGBAUM), 1892, A., 670.  
**Potential meters**, application of electrolysis to the standardising of (GRAY), 1887, A., 315.  
**Pyroelectricity** of blends and sodium chlorate (FRIEDEL and CURIE), 1884, A., 3.  
 of boracite (FRIEDEL and CURIE), 1884, A., 3; (MACK), 1881, A., 655.  
 of quartz (HANKEL), 1883, A., 412, 950; 1885, A., 1187; (FRIEDEL and CURIE), 1883, A., 897.  
 of topaz (FRIEDEL and CURIE), 1885, A., 469.  
**Resistance**. See Electric resistance.  
**Secondary batteries**. See Accumulators.  
**Siemens' mercury unit**, reproduction of (STRECKER), 1885, A., 1027, 1099.  
**Silent electric discharge**. See Electric discharge.  
**Specific conductivity**. See Conductivity.

## ELECTROCHEMISTRY—

- Specific inductive capacity**, conductivity and (COHN and ARONSON), 1888, A., 391, 395.  
 relation of, to latent heat of evaporation (OBACH), 1892, A., 258.  
 of electrolytes (ROSA), 1891, A., 778.  
 of liquids (NEGREAU), 1887, A., 413; (COHN and ARONSON), 1888, A., 391, 395; (TOMASZEWSKI), 1888, A., 395.  
 of water (COHN), 1890, A., 203.  
**Storage batteries**. See Accumulators.  
**Thermal alteration** in a Daniell's cell and in an accumulator (MEYER), 1888, A., 393.  
**Thermoelectric** and voltaic action of metals in electrolytes, relation of heat to (GORE), 1885, A., 325.  
 couples, influence of temperature on the E.M.F. of (LE CHATILLIER), 1886, A., 587.  
 forces at the surface of contact of a metal and a fused salt (POINCARÉ), 1890, A., 551.  
 law respecting non-reversible electrolytic actions (BOLTZMANN), 1887, A., 1072.  
 phenomena at the contact of two electrolytes (BAGARD), 1892, A., 1037.  
 piles, an arrangement of (CLAMOND and CARPENTIER), 1885, A., 854.  
 E.M.F. in (LODGE), 1886, A., 751.  
 E.M.F. and resistance of (KAYSER), 1886, A., 3.  
 position of carbon (BUCHANAN), 1886, A., 295.  
 properties of bismuth placed in a magnetic field (RIGHT), 1888, A., 102.  
 of compounds, effect of occluded gases on (MUCKMAN), 1889, A., 92.  
 of minerals (HANKEL), 1883, A., 510.  
 relations of electrolytes (DONLE), 1886, A., 960.  
**Thermoelectricity**, practical application of (FISCHER), 1883, A., 625.  
**Thermo-elements**, E.M.F. of some (EDELING), 1887, A., 414.  
**Unit**, Siemens' mercury, reproduction of (STRECKER) 1885, A., 1027, 1099.  
**Units**, electrical (CLAUSIUS), 1883, A., 764; (ANON.), 1885, A., 2.

## ELECTROCHEMISTRY—

**Volt**, a standard (GAFFIE), 1885, A., 1039.

**Voltaic action**, theory of (BROWN), 1857, A., 417.

and thermoelectric action of metals in electrolytes, relation of heat to (GORI, 1885, A., 325.

**Voltaic balance**. See Balance, voltaic.

**Voltaic battery and cell**. See Cells, Galvanic combinations.

**Voltaic current**, relation of chemical corrosion to (GORE), 1885, A., 324.

electricity, development of, by atmospheric oxidation WRIGHT and THOMPSON, 1887, A., 1008; 1889, A., 90.

**Voltaic energy** of dissolved chemical compounds (GORE, 1890, A., 317.

of electrolytes (GORE), 1889, A., 665.

of electrolytes, loss of, by chemical union (GORI), 1889, A., 810.

of aqueous solutions (GOLE, 1890, A., 941.

**Voltmeter**, heat changes at the poles of (EDMUND), 1883, A., 767.

for measuring electric currents (LEDINGHAM), 1884, A., 654.

**Element** (galvanic). See Cells and Galvanic combinations under Electrochemistry.

**Element** accompanying didymium (CLEVE; BRAUNER), 1883, A., 13.

new, spectroscopic, evidence of a, in antimony, copper and tellurium (GRUNWALD), 1890, A., 434.

new, in cobalt and nickel (KRUS and SCHMIDT), 1889, A., 349, 1114.

evidence of a new, in an Egyptian mineral (RICHMOND and OFF), 1892, T., 491; P., 87.

**Elements**, list of, announced from 1877—1887 (BOLTON), 1889, A., 13.

occurring in rare earths (KRUS and NITSON), 1887, A., 890.

existence of certain, in the sun (HITCHINS and HOLDEN), 1887, A., 1065.

some probable, in some "Lower Silurian" rocks (PRINGIE), 1887, A., 107.

in yttrorantalite, etc. (KIESEWITTER and KRUS), 1888, A., 1038.

atomic weights of (MILLS), 1885, A., 344; (BASAROFF), 1888, A., 406; (DELAUNEY), 1889, A., 1104.

equivalents of the (DELAUNEY), 1888, A., 902.

**Elements**, apparatus for the determination of the equivalents of certain (MORSE and KEISER, 1885, A., 481.

dispersive powers of (BRUHL), 1891, A., 776.

atomic refraction of (LE BLANC), 1890, A., 313.

indices of refraction of (KANONNIKOFF), 1885, A., 1.

metallic, spark-spectra emitted by, under varying conditions WIEDEMANN), 1884, A., 801.

ultra-violet spark spectra emitted by, and by their combinations under varying conditions, photographic investigations of (HARLEY), 1884, A., 137.

of the second periodic group, spectra of (KATZER and BUNGE), 1891, A., 965.

structure of the line spectra of (RYDLER), 1890, A., 674.

ultra-violet spectra of (LIVING and DEWAR), 1883, A., 262.

in various allotropic modifications, specific gravity and chemical affinities of (MUELLER-ERZBACH), 1883, A., 779.

mutual relations of the physical properties of (FRITZ), 1885, A., 117.

periodic law of the (MENDELLEFF), 1889, T., 634.

periodic relation of, tabular expression of the (BASSEIN), 1892, A., 562.

the periodic law and the occurrence of, in nature (CANNELLEY), 1885, A., 13.

periodic property of (SUTHERLAND), 1891, A., 12.

place of fluorine in the classification of (MOISSAN), 1892, A., 11.

relation between the atomic volume of, and the allotropic modifications of iron (OSMOND), 1890, A., 567.

**Elementary analysis**. See Analysis.

**Elemi oil** (WALACH), 1889, A., 1072.

**Eleonorite** (KONIG), 1890, A., 219.

**Eleoptene** from *Bursera crenata* (SPICA), 1885, A., 1142.

**Elephant's milk** (DORRMS), 1891, A., 98.

**Ellagic acid** (GOLD-SCHMIEDT and JAHODA), 1892, A., 990.

**Ellagitannic acid** (ZOLFFEL), 1891, A., 918.

**Ellonite** from Aberdeenshire (HEDDLE), 1886, A., 131.

**Elpasolite** (CROSS and HILLEBRAND), 1887, A., 344.

- Embelic acid** (WARDEN), 1889, A., 408.
- Embolite** (WELCH), 1886, A., 988.  
from Australia (MUNRO), 1886, A., 430.
- Embryo**, form in which reserve starch enters the (BROWN and MORRIS), 1890, T., 513.  
localisation of the secretion of diastase in the (BROWN and MORRIS), 1890, T., 493.  
relation of the endosperm to the (BROWN and MORRIS), 1890, T., 474.  
visible changes in the, during germination (BROWN and MORRIS), 1890, T., 466.  
young, secretion of an amylolytic (*diastase*) by (BROWN and MORRIS), 1890, T., 489.
- Embryos**, excised, development of, on foreign endosperms (BROWN and MORRIS), 1890, T., 478.  
of barley, culture of, on nutrient solutions and on water (BROWN and MORRIS), 1890, T., 483, 482.  
of ungerminated rye, analysis of (NACHBAUR), 1883, A., 107.
- Emerald**, artificial (HAUTEFEVILLE), 1888, A., 1044.  
from Alexander Co. (HIDDEN), 1885, A., 878.  
from Paavo, in Finland (WIIK), 1883, A., 561.
- Emery**, analyses of (JAGNAUX), 1886, A., 675.
- Emetine** (KUNZ), 1887, A., 980.  
assay of, in ipecacuanha wine (BLUNT), 1890, A., 310, 548.  
estimation of (JONES), 1886, A., 1086; (KREMEL), 1888, A., 1351.
- Emmonsite** (*calciocrocoite*, *emmonite*) (HILLEBRAND), 1887, A., 344; (CATHREIN), 1888, A., 1258; (DANA and WELLS), 1891, A., 154.
- Emodin** (SCHWABE), 1889, A., 69.  
from *Nephrolepis lusitanica* (BACHMANN), 1888, A., 722.
- Empholite**. See Diaspore.
- Emplectite** from Rézbánya (KRENNER), 1886, A., 126.
- Emulsin**, distribution of, in almonds (JOHANNSEN), 1888, A., 869.  
action of, on amygdalin, salicin, and carbamide (TAMMANN), 1889, A., 566.
- Emulsions** (RACHFORD), 1891, A., 948.
- Enamel**, oriental, on tiles and its imitation (BOECK), 1889, A., 1112.
- Enamels** for earthenware (ANON.), 1884, A., 1229.  
porcelain, composition of (WAGENER), 1888, A., 397.
- Enargite** from Montana (SEMMONS), 1887, A., 707.
- Encysted fluids**, contribution to the chemistry of (HAMMAERTEN), 1883, A., 874.
- Endlichite** (PENFIELD), 1887, A., 347.  
from New Mexico (GENTH and VOM RATH), 1886, A., 26.
- Endocarditis**, infective, chemical pathology of (MARTIN), 1892, A., 744.
- Endosperm**, foreign, development of excised embryos on (BROWN and MORRIS), 1890, T., 478.  
function of the starch of (BROWN and MORRIS), 1890, T., 478.  
visible changes in, during germination (BROWN and MORRIS), 1890, T., 466.  
relation of, to the embryo (BROWN and MORRIS), 1890, T., 474.
- Endothermic reactions**, spontaneous, and Berthelot's law of maximum work (COLLEY), 1890, A., 681.
- Energy** as the unit of an absolute system of measurement (OSTWALD), 1892, A., 1149.  
changes in, accompanying solution (BRAUN), 1887, A., 436.  
chemical. See Affinity, chemical.  
content in chemistry and physics (WALP), 1891, A., 1414.  
electrical. See Electrical energy and Voltaic energy under Electrochemistry.  
electrochemical, of light (GRIVEAUX), 1884, A., 382.  
factors of (MEYERHOFFER), 1891, A., 975.  
radiation, and temperature, relation between (ABNEY and FESLING), 1884, A., 219.
- Ennane**. See Nonane.
- Ensilage**. See Agricultural Chemistry.
- Enstatite** (v. CHRUSCHOFF), 1890, A., 19.  
from the enstatite-porphyrite of the Cheviot Hills, analysis of (PETERSEN), 1886, A., 211.
- Enterochlorophyll** (MACMUNN), 1883, A., 1159; 1884, A., 195; 1885, A., 1242.
- Enzyme**, cellulose-dissolving, search for, in the digestive tract of certain animals (BROWN), 1892, T., 352; P., 30.
- Enzymes** (O'SULLIVAN and THOMPSON), 1890, T., 835; P., 107.  
hydrolytic, origin of the, of germinated grain (BROWN and MORRIS), 1890, T., 511.  
thrombogenic (ARMSTRONG), 1890, T., 531.

**Enzymes**, tryptic, gelatin as a reagent for the detection of (FERMI), 1891, A., 1523.

**ENZYMES:—**

**Amylase**, presence of, in leaves (BRUNEL), 1885, A., 182.

**"Cerealin"** (GIRARD), 1885, A., 678.

**Dextrinase** (WIJSMAN), 1890, A., 998.

**Diastase** (BOURQUELOT), 1885, A., 927; (FANKHAUSER), 1886, A., 1061; 1888, A., 867; (LINTNER), 1887, A., 185; 1888, A., 497; (LOEW), 1887, A., 387; (KRABBE), 1892, A., 92.

artificial (REYCHLER), 1889, A., 621.

of secretion and of translocation (BROWN and MORRIS), 1890, T., 509.

action of, on ungelatinised starch (BROWN and MORRIS), 1890, T., 510.

considered as a mixture of maltase and dextrinase (WIJSMAN), 1890, A., 998.

genesis and distribution of the two varieties of, in the resting and germinating seed (BROWN and MORRIS), 1890, T., 505.

distribution of, in malted barley (BROWN and MORRIS), 1890, T., 508.

presence and function of, in plants (WORTMANN), 1891, A., 856.

formation of, under various conditions (ANON.), 1884, A., 476.

preparation of (O'SULLIVAN), 1884, T., 2; (LOEW), 1888, A., 607.

pure, preparation of (SCHARTLER), 1887, A., 1117.

artificial production of (SCHNEIDER), 1884, A., 1866.

does the aleurone-layer secrete? (BROWN and MORRIS), 1890, T., 520.

localisation of the secretion of, in the embryo (BROWN and MORRIS), 1890, T., 493.

characters of (LINTNER and ECKHARDT), 1890, A., 519.

absorption spectrum of (HARTLEY), 1887, T., 60.

deterioration of, by the action of heat (BOURQUELOT), 1887, A., 608.

action of (MÜLLER), 1887, A., 166.

action of acids, alkalis and alcohol on (JUNGK), 1884, A., 530.

action of hydrofluoric acid on (EFFRONT), 1891, A., 477.

**ENZYMES:—**

**Diastase**, action of, on starch grains within the plant (KRABBE), 1891, A., 605; 1892, A., 92.

**Emulsin**, distribution of, in almonds (JOHANNSEN), 1888, A., 869.

action of, on amygdalin, salicin and carbamide (TAMMANN), 1889, A., 566.

**Invertase** ( *$\beta$ -invertin, invertin*) (KJELDAHL), 1883, A., 225; (BOURQUELOT), 1884, A., 983; (O'SULLIVAN and TOMPSON), 1890, T., 834, 896; P., 107; (KELLNER, MORI and NAGAKURA), 1890, A., 282.

preparation of (O'SULLIVAN and TOMPSON), 1890, T., 869.

purification of (O'SULLIVAN and TOMPSON), 1890, T., 884.

absorption spectra of (HARTLEY), 1887, T., 60.

action of (MAYER), 1883, A., 486; (MÜLLER), 1887, A., 166.

action of, temperature most favourable to the (MAYER), 1883, A., 101.

effect of heat on solutions of (O'SULLIVAN and TOMPSON), 1890, T., 899.

action of, on cane-sugar (TAMMANN), 1889, A., 566; (O'SULLIVAN and TOMPSON), 1890, T., 843.

action of, on gelatinised starch (BOURQUELOT), 1884, A., 983.

influence of, on the fermentation of cane-sugar (BACER), 1883, A., 101.

influence of foreign substances on the action of, on cane-sugar (O'SULLIVAN and TOMPSON), 1890, T., 852.

theory of inversion by (O'SULLIVAN and TOMPSON), 1890, T., 918.

preservation of (O'SULLIVAN and TOMPSON), 1891, T., 47.

**Maltase** (WIJSMAN), 1890, A., 998.

**Papain** (MARTIN), 1886, A., 74.

action of, on vegetable proteid (MARTIN), 1886, A., 642.

**Papain digestion** (MARTIN), 1886, A., 641.

**Pepsin** (STENBERG), 1885, A., 921; (LANGLEY and EDKINS), 1886, A., 1051.

animal and vegetable (SCHADE), 1886, A., 271.

differences between trypsin and (BOURQUELOT), 1885, A., 403.

## ENZYMES—

- Pepsin** in normal and pathological urine (STADELMANN), 1889, A., 430.  
 methods of preparing extracts of (PODWYSSOZKI), 1887, A., 65.  
 influence of temperature on (BIERNACKI), 1891, A., 1272.  
 commercial, digestive power of (DANA), 1884, A., 471.  
 fate of (LEO), 1886, A., 381.  
 estimation of (VIGIER), 1885, A., 279.  
 comparative estimation of preparations of (LIPSKI), 1887, A., 66.  
 quantitative relationship of, to peptones (SCHURZ), 1885, A., 1147.
- Pepsin digestion** *versus* animal digestion (LADD), 1887, A., 513; 1889, A., 734.
- Pepsinogen** (LANGLEY and EDKINS), 1886, A., 1031.
- Rennet** in human urine (HELWES), 1889, A., 536.  
 action of (LEA and DICKINSON), 1890, A., 1175.  
 See also Agricultural Chemistry.
- Trypsin**, differences between pepsin and (BOURQUELOT), 1885, A., 408.  
 in urine (LEO), 1887, A., 69.  
 formation of (LEWIS and HEW), 1886, A., 381.  
 influence of temperature on (BIERNACKI), 1891, A., 1271.  
 digestion of fibrin by (HERRMANN), 1887, A., 1130.  
 fate of (LEO), 1886, A., 381.
- Zymase** of human milk (BLANCHAMP), 1888, A., 926.  
 of jequirity (BLANCHAMP and DUJARDIN), 1885, A., 1085.
- Zymases**, observations concerning organisms which produce (BLANCHAMP), 1885, A., 580.
- Eosin** (*tetrabromofluorescein*), fluorescence of alcoholic solutions of, on heating (WIEDEMANN), 1891, A., 139.  
*dichloro-* (LE ROYER), 1887, A., 832.  
*thio-* (GRAEBE and ZEHOKKE), 1884, A., 1025.
- Eosin group** of dyes, action of, as photographic sensitizers (BORHAMLEY), 1887, A., 874.
- Ephedra vulgaris***, alkaloids from (LADENBURG and OELSCHLAGEL), 1889, A., 1020.
- Ephedrine** from *Ephedra monostachya* (SPEHR), 1892, A., 893.

- $\psi$ -Ephedrine** and its derivatives (LADENBURG and OELSCHLAGEL), 1889, A., 1020.  
 constitution of (FILEHNE), 1891, A., 1264.
- Epi-/bromhydrin** (LESPICHAU), 1892, A., 420.
- Epichloramine** (S. HIFF), 1892, A., 29.
- Epichlorhydrin** (ZIKES), 1885, A., 1046; (PAUL), 1889, A., 31; (FAUCONNIER), 1889, A., 232.  
 relation between the spectrometrical constants and chemical constitution of (BRUHL), 1891, A., 630.  
 action of allylic iodide and zinc on (LOPAIKIN), 1885, A., 497.  
 action of ammonia on (FAUCONNIER), 1888, A., 1265.  
 action of aniline on (FAUCONNIER), 1888, A., 586, 1280.  
 action of benzoic anhydride on (VAN ROMBURGH), 1883, A., 62.  
 action of phenylhydrazine on (GERHARD), 1891, A., 582.
- Epidemics** caused by unsound bread (v. POEHL), 1883, A., 1157.
- Episode**, magnesium, from the Baikal Lake (DAMOUR and DES CLOTZEAUX), 1885, A., 31.  
 white, from the Beagle Canal, Terra del Fuego (LACROIX), 1887, A., 350.  
 from Rowe, Massachusetts (DANA), 1886, A., 23.  
 from Syphnos (v. FOULLON and GOLDSCHMIDT), 1890, A., 344.  
 as a rock-forming mineral (HOBBS), 1890, A., 460.  
 chemical composition of (LUDWIG; RENARD), 1883, A., 113.  
 absorption spectra of (BERQUEREL), 1889, A., 553.
- Epistilbite**, analysis of (TRICHMANN; JANNASCH), 1883, A., 442.
- Epsomite** from the Fala mine (WENBULL), 1886, A., 25.  
 from the Psychagnard anthracite mine (KUSCH), 1886, A., 516.  
 from Poland (ZIGLENICKY), 1887, A., 1021.  
 from White Island, New Zealand (MACIVOR), 1888, A., 563.  
 See also Magnesium sulphate.
- Equilibrium**, conditions of, in aqueous solutions (THOMSEN), 1886, A., 12.  
 conditions of, between solid and liquid compounds of water with salts (ROOZEBOOM), 1889, A., 752.  
 conditions of, of two substances in the three states, solid, liquid, and gaseous (ROOZEBOOM), 1887, A., 629.

**Equilibrium**, labile conditions of, in mixtures of two substances at a temperature below the melting point of either (BLUMKE), 1892, A., 936.  
 between hydrogen, chlorine and oxygen (LE CHATELIER), 1890, A., 8.  
 in the action of hydrochloric acid on antimony trisulphide, and of hydrogen sulphide on a solution of antimony trichloride (LANG), 1886, A., 20.  
 in homogeneous solutions when unequally heated (VAN BERCHEM), 1890, A., 444.  
 of chemical systems under unequal pressures (LE CHATELIER), 1892, A., 937; (SPRING), 1892, A., 1148.  
 of double salts of lead and potassium iodides with their aqueous solutions (SCHREINEMAKERS), 1892, A., 560.  
 chemical. See Chemical equilibrium.  
**Equisetaceæ**, composition of the ash of, and its bearing on the formation of coal (DIEULAFAIT), 1885, A., 583.  
**Equivalents** of the elements (DELAUNEY), 1888, A., 902.  
 of certain metals, apparatus to determine (MORSE and KEISER), 1885, A., 481.  
 optical (DOUMER), 1890, A., 433.  
 thermo-dynamic (DE LANDER and PRIETO), 1887, A., 99.  
**Erbia**. See Erbium oxide.  
**Erbium**, spectral researches on (THALÉN), 1883, A., 954.  
 thulium and, phosphorescence of (CROOKES), 1887, A., 1068.  
 oxide (*erbia*) from Brazilian xenotime (GORCEIX), 1886, A., 676.  
 spectra of (CROOKES), 1886, A., 749.  
**Erbium earths**, separation of, from didymium earths (KRÜSS), 1891, A., 1425.  
**Erbium group** (KRÜSS), 1891, A., 1424.  
 absorption spectra of the elements of (CROOKES), 1889, T., 265.  
**"Erebodium"** (PRINGLE), 1887, A., 107.  
**Ergosterin** (TANRET), 1889, A., 407.  
**Ergot** of rye and pharmaceutical preparations of (HAILBERG), 1893, A., 640.  
 constituents of (KOBERT), 1885, A., 821.  
 source of trimethylamine in (BRIEGER), 1887, A., 394.  
 chemical properties of the violet colouring matter in, and its detection in flour and bread (PALM), 1884, A., 376.  
**Ergotic acid** (KOBERT), 1885, A., 821.

**Ergotinine** (TANRET), 1885, A., 821; (BOMBELON), 1888, A., 970.  
*Erica vulgaris*, analysis of, and of its ash (PETERMANN), 1884, A., 207.  
**Ericaceæ**, andromedotoxin in (PICQUE), 1889, A., 644.  
 presence of cinnamic acid in the (ELJEMAN), 1887, A., 517.  
**Ericalco** from Vesuvius (SLACCHI), 1886, A., 600.  
**"Erika"** (TRAUTMANN), 1891, A., 195.  
**Erinite** from Utah (HILLEBRAND and WASHINGTON), 1888, A., 1043.  
 See also Copper arsenate.  
**Ersbyite**, so-called, from Parga (WILK), 1883, A., 561.  
**Erucamide** and **erucanilide** (REIMER and WILL), 1887, A., 233.  
**Erucic acid** and its derivatives (REIMER and WILL), 1887, A., 233.  
 heats of combustion and formation of (STOHMANN and LANGBEIN), 1891, A., 11.  
 boiling points of (KRAFFT and NOERDLINGER), 1889, A., 691.  
 oxidation of (HAZU and GRÜNNER), 1889, A., 375; (URWANSOFF), 1889, A., 1146.  
 conversion of, into helenic acid (REYCHLER), 1889, A., 1140.  
 stereometric relations of brassidic acid and (HOLT), 1892, A., 429, 812, 1427.  
**Erucic acid dichloride** (HOLT), 1892, A., 429.  
 brom- and chlor- (HOLT), 1892, A., 429.  
**isoErucic acid** (SATTZEFF), 1892, A., 812.  
**Erucic anhydride** (REIMER and WILL), 1887, A., 233.  
 phenylhydrazide (HOLT), 1892, A., 1428.  
**Eruptive rocks**. See Rocks.  
*Errum hirsutum* and *E. Lens*, composition of (NIXON), 1892, A., 522.  
*Erythema nodosum*, chemical composition of the bacillus from (BOVER), 1889, A., 539.  
*Erythraea centaurium*, constituents of (LENDRICH), 1892, A., 1262.  
**Erythrane**, the first anhydride of erythritol (HENNINGER), 1884, A., 897.  
 constitution of (GRIMANX and CLOËZ), 1890, A., 730.  
 ( $C_4H_6O_2$ ), second anhydride of erythritol (PRZYBYTEK), 1884, A., 979.  
**Erythrene**. See Butinene.  
*Erythrina Broteri* and *E. subumbra*, alkaloids from (GRENHOF), 1891, A., 335.

- Erythritol** (*erythrite*, *erythrol*) (COLSON), 1887, A., 353.  
 heat of combustion of (LUGNAN), 1889, A., 668.  
 thermochemistry of (BERTHELOT and MATIGNON), 1890, A., 1360;  
 (STOHMANN and LANGBEIN), 1892, A., 764.  
 action of, on alkali alkyl oxides (DE FORCRAND), 1890, A., 935.  
 action of *Bacterium aceti* on (BROWN), 1887, T., 641.  
 oxidation of (FISCHER and TAFEL), 1887, A., 652.  
 reduction of, by formic acid (HENNINGER), 1884, A., 897.  
 derivatives of (GRIMAU and CLOËZ), 1890, A., 730.  
 alkaline derivatives of (DE FORCRAND), 1891, A., 657.
- Erythritol bromhydrin** (COLSON), 1887, A., 354.  
 bromide (GRIMAU and CLOËZ), 1890, A., 730.
- Erythritolhydroxyanthraquinonecarboxylic acid** (BIRUKOFF), 1887, A., 1049.
- Erythrocentaurin** (LENDRICH), 1892, A., 1262.
- Erythrochromium salts**, normal and basic (JÖRGENSEN), 1883, A., 554, 556.
- Erythroglyceric acid** from glycerose (FISCHER and TAFEL), 1889, A., 478.
- Erythrogranulose** (BRÜCKNER), 1884, A., 576.
- Erythrohydroxyanthraquinonesulphonic acid** and its anhydride (LIFSCHÜTZ), 1884, A., 1189.
- Erythrooxide**, sodium, preparation and heat of formation of (DE FORCRAND), 1890, A., 935.  
 disodium (DE FORCRAND), 1891, A., 999.
- Erythroxides**, dibasic, constitution and heat of formation of (DE FORCRAND), 1891, A., 1312.
- Erythroxyanthraquinone**, new method of preparing (ROEMER), 1883, A., 71.
- Erythroxyline** (BENDER), 1886, A., 85.
- Erythroxylin**, alkaloids from (BENDER), 1886, A., 85.
- Erythroxylin coca** grown in India (WARDEN), 1889, A., 297.
- Eschscholzia californica**, morphine in (BAUDET and ADRIAN), 1889, A., 644.
- Eserine**, reaction for (FERREIRA DA SILVA), 1891, A., 1562.
- Essence** of rosewood (MORIN), 1888, A., 1308.
- Essence** of sandal wood (CHAPOTEAUT), 1883, A., 76.  
 adulteration of (MÉNARD), 1892, A., 1379.
- Essences**, detection of turpentine and other impurities in (CRISMER), 1892, A., 386.  
 See also Oils, essential.
- Essential oils**. See Oils.
- Etard's reaction** (v. MILLER and ROHDE), 1890, A., 978.
- "Etazole"** (PIUTTI), 1891, A., 176.
- Etching ink**, manufacture of (ANON.), 1884, A., 880.
- Ethaldehyde**. See Acetaldehyde.
- Ethane**, preparation of (FRANKLAND), 1885, T., 236.  
 heat of formation of (THOMSEN), 1883, A., 545.  
 illuminating power of (FRANKLAND), 1885, T., 235; P., 31.  
 action of heat on (LEWES), 1892, T., 329.  
 absorption coefficient of, in water (HENRICH), 1892, A., 1044.  
 derivatives. stereochemistry of (AVERWERS and MEYER), 1890, A., 1083.  
 from active amylic alcohol, influence of asymmetrical carbon-atoms on (JUST), 1884, A., 169.  
 haloid derivatives of (HENRY), 1884, A., 571.  
 hydrate of (VILLARD), 1888, A., 1021.  
 bromine substitution-products of (ANSCHÜTZ), 1884, A., 32.  
 bromo-derivatives of, molecular refraction of (WEEGMANN), 1888, A., 999.  
 chlorinated, properties of (HENRY), 1884, A., 979.
- Ethane, dibrom-** (*ethylidene bromide*), bromination of (MEYER and MÜLLER), 1892, A., 1114.  
*tribrom-* (*bromethylidene bromide*), action of sodium ethoxide on (MICHAEL), 1884, A., 418.  
 chloro-derivatives of, action of ammonia on (ENGEL), 1887, A., 793.  
*dichlor-*, action of aluminium chloride on mixtures of, with benzene, toluene or *m*-xylene (ANSCHÜTZ and ROMIG), 1885, A., 768.  
 behaviour of, with amylamine and ethylamine (v. HOFMANN), 1884, A., 1275.  
*trichlor-* (*nethylchloroform*), action of, on phenol in presence of alkalis (BIGINELLI), 1891, A., 296.  
 action of sodium benzenesulphonate on (R. and W. OTTO), 1888, A., 841.

- Ethane**, *hexachlor*-, thermochemistry of (BERTHELOT and MATIGNON), 1891, A., 1811.  
*chlorobrom*- (*ethyl ac chlorobromid*) and some compounds obtained therefrom (JAMES), 1883, T., 37.  
*trichlorobrom*- (HENRY), 1884, A., 978.  
*chlorobromid*-, and its decomposition (HENRY), 1884, A., 830.  
*dichlorid*- (HENRY), 1884, A., 719.  
*iod*- (*methyl iodiform*) (DE BOIS-VER), 1888, A., 930.  
*meth*-derivatives of (VILLIER), 1884, A., 717.  
*nitr*-, non-existence of a second (DUNSTAN and DYMOND), 1887, P., 125; 1888, T., 134.  
 constitution of (GÖRING), 1888, A., 355; (BEWARD), 1889, A., 112.  
 magnetic rotatory power of (PERKIN), 1889, T., 687.  
 action of alkali carbonates and hydroxides on (DUNSTAN and DYMOND), 1891, T., 411.  
 action of ammonia on (DUNSTAN and DYMOND), 1891, T., 412.  
 action of benzaldehyde on (PRIEST), 1885, A., 160.  
 action of feeble bases on (SOKOLOFF), 1888, A., 797.  
 action of zinc ethyl on (KISSEL), 1888, A., 436; (BEWARD), 1889, A., 112.  
 ammonium derivative of (DUNSTAN and DYMOND), 1891, T., 412.  
 sodium derivative of, action of alkyl iodides on (SOKOLOFF), 1889, A., 365.  
*trinitr*- (FRANCHIMONT), 1887, A., 466.
- Ethanedisulphonic acid** and its salts (ANDREASCH), 1883, A., 912; (MONARI), 1885, A., 970; (MAUZELIUS), 1888, A., 821.
- Ethanesulphonic acid** and its salts (BREINSTEIN and WIEGAND), 1883, A., 971.  
 preparation of (FRANCHIMONT), 1887, A., 468; (MAYER), 1890, A., 748.  
 amide of, preparation of (JAMES), 1883, T., 42.  
 amides of (FRANCHIMONT and KLOBNIE), 1887, A., 468.
- Ethanesulphonic acid**, amido-. See Taurine.  
 $\beta$ -chlor-, preparation of (JAMES), 1885, T., 365; P., 47.  
 salts of (JAMES), 1883, T., 41; (HÜBNER), 1884, A., 1126.
- Ethanesulphonic acid**,  $\beta$ -chlor-, action of primary, secondary, and tertiary monamines on their respective salts of (JAMES), 1885, T., 367.
- Ethanesulphonic chloride**,  $\beta$ -chlor-, action of ammonia on an ethereal solution of (JAMES), 1883, T., 42.
- Ethanesulphonimide** (JAMES), 1886, T., 490.
- s-Ethanetetracarboxylic acid** (BÜCHNER and WITTE), 1892, A., 824.
- Ethanesulphonates**, action of phosphoric chloride on (OTTO and RÜSING), 1891, A., 927.
- Ethanetricarboxylic acid** (BISCHOFF), 1883, A., 45.
- Ethanetrisulphonic acid** and its salts (MONARI), 1885, A., 970.
- Ethenyl amidomercaptan** (JACOBSON), 1888, A., 1307.
- Ethenylamidine** (*acetimidine*) (V. HOFMANN), 1884, A., 1289.  
 hydrochloride and platinochloride (PINNER), 1884, A., 723.  
 nitrite (LOSSEN), 1892, A., 53.  
 picrate (DIECKMANN), 1892, A., 705.
- Ethenyl-o-amidobenzamide**, and its salts (WEDDIGE), 1885, A., 661.  
*tetrachlor*- (DEHOFF), 1890, A., 802; 1891, A., 84.  
*nitr*- (DEHOFF), 1890, A., 802; 1891, A., 84; (THIEME), 1891, A., 917.
- Ethenyltetramidobenzene** (NIETZKI and HAGENDACH), 1887, A., 477.
- Ethenyldiamidobenzoic acid** (KAINER), 1886, A., 149.
- Ethenyl-o-amidobenzomethylamide** (WEDDIGE), 1887, A., 1044.
- Ethenylamidocumyl mercaptan** (JACOBSON and NEY), 1889, A., 772.
- Ethenylamidodimethylaniline mercaptan** (BERNSTEIN), 1889, A., 775.
- Ethenylamidohemipinic acid** (LIEBERMANN and KLEEMANN), 1887, A., 47.
- Ethenyltriamidonaphthalene** and its derivatives (MELDOLA and SREATFIELD), 1887, T., 691.
- Ethenylamidonaphthol** (BÜTCHER), 1883, A., 1114; 1885, A., 659.
- Ethenyltriamidonaphthyl ethyl ether** (HEERMANN), 1892, A., 1098.
- Ethenylamido- $\alpha$ -naphthyl mercaptan** (V. HOFMANN), 1887, A., 839; (JACOBSON), 1887, A., 961.
- Ethenyltriamidotoluene**, and its acetyl-derivative (NIEMENTOWSKI), 1886, A., 545.
- Ethenyl-o-amido-p-tolylamide** (NIEMENTOWSKI), 1888, A., 837.
- Ethenylamidoxime** and its derivatives (NORDMANN), 1885, A., 238.

- Ethenylamidoxyl mercaptan** (GUDMAN), 1888, A., 1282; (JACOBSON and NEY), 1889, A., 772.
- Ethenylanilidoxime** (NORDMANN), 1885, A., 239; (MÜLLER), 1890, A., 43.
- Ethenylazoximebenzenyl** (NORDMANN), 1885, A., 239.
- Ethenylchlor-*o*-amidodiphenylamine** (ERNST), 1891, A., 300.
- Ethenyldiphenylamidine** (NOLTING and WEINGÄRTNER), 1885, A., 384; (MABERY and KRAUSE), 1890, A., 371.  
action of carbonyl chloride on (LOEB), 1885, A., 1213.
- Ethenyldipropionimidine** (PINNER), 1883, A., 1099.
- Ethenylethyl-*o*-phenylenediamine** (HEMPEL), 1889, A., 600; 1890, A., 612.
- Ethenylfurfuran, nitro-derivatives of** (PRIES), 1885, A., 971.
- Ethenylglycollic acid, and its salts** (LOBRY DE BRUYN), 1886, A., 224.
- Ethenylic *t*/sulphide** (BONGARTZ), 1886, A., 1000.
- Ethenylimidobenzanilide** (LOEB), 1887, A., 42.
- Ethenyl- $\alpha$ -naphthol, nitro-/amido-, hydrochloride** (MEERSON), 1888, A., 713.
- Ethenylnaphthylenediamine** (PRAGER), 1885, A., 1239.
- Ethenylnitro-/amidobenzene** (NIETZKI and HAGENBACH), 1887, A., 476.
- Ethenyl-*o*-phenylenediamine, nitr-** (HEIM), 1888, A., 1097.
- Ethenyltolyleneamidine.** See Tolylenethenylamidine.
- Ethenyltolylenediamine** (NIEMEN-TOWSKI), 1886, A., 545; (WITT), 1887, A., 247.  
nitr- (BANKIEWICZ), 1888, A., 1184.
- Ethenyl- and isoethenyl-tolylenediamines and their derivatives** (NIEMEN-TOWSKI), 1892, A., 837, 838.
- Ethenyltri- $\alpha$ -naphthol** (WISLICENUS and ZWANZIGER), 1888, A., 376.
- Ethenyltriphenol** (WISLICENUS and REINHARDT), 1888, A., 374.
- Ethenyltripiperidine** (BUSZ and KULÉ), 1888, A., 302.
- Ethenyl-tripyrrocatechol, -triquinol and -triresorcinol** (WISLICENUS and SIEGFRIED), 1888, A., 374.
- Ether.** See Ethyl ether.
- Ethereal carbonates** (BENDER), 1887, A., 245.
- Ethereal oils.** See Oils.
- Ethereal salts, formation of, by means of ethylic chlorocarbonate** (R. and W. OTTO), 1891, A., 288.
- Ethereal salts, formation and decomposition of** (KONOWALOFF), 1888, A., 340, 1053, 1167.  
preparation of, by double decomposition (BERTONI and TRUFFI), 1884, A., 1110.  
production of, by fermentation (JACQUEMIN), 1890, A., 1454.  
velocity of formation of (MENSCHUTKIN), 1888, A., 105, 901.  
dispersion of (BARBIER and ROUX), 1891, A., 774.  
of some fatty acids, heat of combustion of (LUGININ), 1885, A., 327.  
normal isomeric, of the fatty series, calculation of the boiling points of (HINRICHS), 1892, A., 260.  
vapour densities of (MENSCHUTKIN and KONOWALOFF), 1886, A., 299.  
saturated and unsaturated, specific volumes of (WEGER), 1884, A., 8.  
homologous, diffusion of (WINKELMANN), 1885, A., 10.  
of nitrous acid (BERTONI), 1886, A., 217; 1887, A., 458; 1890, A., 353.  
of organic acids, hydrolysis of, by potassium acetate (CLAISEN), 1891, A., 425.  
of polybasic acids, hydrolysis of (LOSSEN and KÖHLER), 1891, A., 1013.  
action of alcohols on (PURDIE and MARSHALL), 1888, T., 391; P., 25.  
action of metallic alkylid oxides on mixtures of alcohols and (PURDIE), 1887, T., 627; P., 78.  
action of sodium on (HODGKINSON), 1891, P., 167.  
fatty  $\alpha$ -brominated or  $\alpha$ -chlorinated, action of potassium cyanide on (ZEIINSKY and BITSCHICHIN), 1889, A., 377.  
condensation of cyanides with (FLEISCHMATER), 1892, A., 431.  
decomposition of, in the alimentary canal (BAAS), 1890, A., 1013.  
estimation of, in brandy and spirits (MOHLER), 1891, A., 503.  
estimation of, in spirits (BELL), 1892, A., 387.
- Ethereal solutions.** See Solutions.
- Etherification** by double decomposition (BERTONI), 1886, A., 975; 1887, A., 458.  
by uranium salts (POHL), 1890, A., 727.  
continuous (NORTON and PRESCOTT), 1885, A., 496.  
determination of the velocity of, by means of electrical conductivity (NEGREANU), 1888, A., 1243.

- Etherification**, velocity of (NEGREANT), 1888, A., 1025.  
 influence of isomerism on (MENSCHUTKIN), 1884, A., 726.  
 of alcohols and acids (MENSCHUTKIN), 1884, A., 726.
- Ethers**, formation of, in the preparation of isobutylene and its homologues (VAUBLE), 1891, A., 996.  
 dispersion of (BARBIER and ROUX), 1890, A., 1353.  
 of the benzene series, heat equivalents of (STOHMANN, ROPATZ and HERZBERG), 1887, A., 128.  
 of the benzene series, action of phosphoric chloride on (COUSON), 1885, A., 252.  
 normal fatty, boiling points and specific volumes of (DOBRINER), 1888, A., 334.  
 compounds of hydrogen sulphide and selenide with (DE FORCRAND), 1883, A., 961.  
 mixed, decomposition of, by heat and by nitric acid (ERRERA), 1887, A., 1103.
- Ethinediphtalyl**. See Diphtalylethane.
- Ethoxalylacetyl-furfuramidine and -tolenylamidine** (PINNER), 1892, A., 1007, 1008.
- Ethoxide**, barium, heat of solution of (DE FORCRAND), 1884, A., 4.  
 ferric (GRIMAUD), 1884, A., 573.  
 potassium, heat of formation of (DE FORCRAND), 1887, A., 204.  
 heat of solution of (DE FORCRAND), 1884, A., 5.  
 sodium, action of iodine on (MULDER), 1889, A., 363.  
 oxidation of, by atmospheric oxygen (v. HEMMELMAYR), 1891, A., 1332.  
 saponification by (KOSSEL and KRUGER), 1891, A., 1143;  
 (OBERMULLER), 1892, A., 1139.  
 zinc, non-existence of (DEMUTH and MEYER), 1890, A., 482.
- Ethoxides**, sodium, heats of formation and solution of (DE FORCRAND), 1884, A., 142.  
 heat of solution of (DE FORCRAND), 1884, A., 4.  
 action of carbonic oxide on mixtures of sodium salts of organic acids and (SCHROEDER), 1884, A., 38.
- Ethoximidofurfuran** (DOUGLAS), 1892, A., 831.
- Ethoxyacetal**, thio- (ATTENRIETH), 1891, A., 541.
- Ethoxyacetamide**, action of bromine on (v. HOFMANN), 1886, A., 45.
- 1:4-Ethoxyacetamidoquinoline** (VIL), 1892, A., 1104.
- Ethoxyacetonediphenylmercaptole**, thio- (ATTENRIETH), 1891, A., 568.
- Ethoxyacetone-ethylmercaptole**, thio- (ATTENRIETH), 1891, A., 567.
- o-Ethoxyacetophenone** (FILLIE and CLAUS), 1892, A., 959.
- Ethoxyacrylic acid** from *o*-dichloropropionic acid (OITTO), 1890, A., 957.
- 3-Ethoxy-4-amidophenol** WILL and PUKALL), 1887, A., 661.
- Ethoxyanisimide** (TAFFEL and ENOCH), 1890, A., 491.
- $\mu$ -Ethoxyantipyrine** (STOZ), 1892, A., 1080.  
 salicylate (AUSCHITZ), 1892, A., 1082.
- Ethoxyanthracene** (GOLDMANN), 1888, A., 711.
- Ethoxyanthraquinone** (LIEBERMANN and JEFFINEK), 1888, A., 716.
- Ethoxyarecaine** (JAHNS), 1891, A., 95.
- Ethoxyazobenzene**. See under Azo.
- o-Ethoxybenzaldoxime** (LOW), 1892, A., 58.
- Ethoxybenzamide** [in p. 201] (GALLERMAN and RUSSOLMO), 1890, A., 975.
- p*-Ethoxybenzamide** [in p. 206] (PINNER), 1891, A., 61.
- Ethoxybenzamide**, nitr- (THIEME), 1891, A., 916.
- 5- $\mu$ -Ethoxybenzamidine-2-*p*-ethoxyphenyl-6-hydroxy-*m*-diazine-4-carboxylic acid** (PINNER), 1891, A., 64.
- Ethoxybenzamidine hydrochlorides**, *o*- and *p*- (PINNER), 1891, A., 64.
- Ethoxybenzene** (*phenyl ethyl ether*), *mono*-, *di*- and *tri*-bromo-*m*-amido- and bromo-*m*-nitro- (LINDNER), 1885, A., 775.
- m*-Ethoxybenzenesulphonic acid** (DE LITTLE and LAGAN), 1891, A., 310.
- Ethoxybenzenesulphonic acids**, *o*-, *m*-, and *p*-, and their derivatives (LAGAN), 1892, A., 1059.
- m*-Ethoxybenzenylamidoxime** ethyl ether (CLEMM), 1891, A., 699.
- $\mu$ -Ethoxybenzenylamidoxime** ethyl ether (KRONL), 1891, A., 700.
- $\mu$ -Ethoxybenzimidoeethyl ether hydrochloride** (PINNER), 1891, A., 64.
- Ethoxybenzoic acid**, biom-, and di-biom- (PFRANKE), 1887, A., 487.  
 nitr- (THIEME), 1891, A., 916.
- $\mu$ -Ethoxybenzoic anilide** (LEFKART and SCHMIDT), 1885, A., 1224.
- sulphinide** (REMSER and PALMER), 1887, A., 144.
- o-Ethoxybenzonitrile** (PINNER), 1891, A., 63; (LOW), 1892, A., 58.

- p*-Ethoxybenzonitrile (PINNER), 1891, A., 64.
- Ethoxybenzonitriles, *o*- and *p*-, imidoethers from (PINNER), 1891, A., 63.
- nitro- (LOBRY DE BRUYN), 1885, A., 857.
- p*-Ethoxybenzophenone (*p*-benzoylphenetol) (GATTERMANN, EHRLHARDT and MAISCH), 1890, A., 964.
- o*-Ethoxybenzylamine (LOW), 1892, A., 58.
- Ethoxybenzyleneanthrone (BACH), 1890, A., 1425.
- Ethoxybromo-*m*-nitrobenzene (LINDER), 1885, A., 775.
- Ethoxybromotoluene (SCHREIBER), 1891, A., 552.
- $\gamma$ -Ethoxybutyric acid (FITTIG and STROM), 1892, A., 813.
- Ethoxycaffeine (FISCHER), 1883, A., 355; (THOMS), 1890, A., 1166.
- p*-Ethoxycarbanil (KÜHLER), 1884, A., 1159.
- Ethoxychlorides, silicon derivatives of, action of phosphorus oxychloride on (STOKES), 1891, A., 1171.
- 6-Ethoxy-2:3:5-trichloro-4-amidopyridine (STOKES and v. PECHMANN), 1887, A., 157.
- Ethoxychloro-oxymethylpurin (FISCHER), 1884, A., 997.
- Ethoxycinchonic acid and its salts (KÖNIGS and KÖRNER), 1884, A., 84.
- Ethoxycinnoline (BUSCH and KLETT), 1892, A., 1494.
- p*-Ethoxycoumarilic acid (WILL and BECK), 1886, A., 882.
- Ethoxy-*o*-cresol (LIMPACH), 1892, A., 447.
- $\beta$ -Ethoxycrotonic acid and its salts (FRIEDRICH), 1883, A., 968.
- Ethoxycyano-*p*-tolenylimide (GLOCK), 1888, A., 1291.
- Ethoxycymene (*cymyl ethyl ether*) (JESURUN), 1886, A., 696.
- iodo- (WILGERDIT and KORNBLUM), 1889, A., 697.
- Ethoxydihydroxyanthraquinone from anthrapurpurin (LIEBERMANN and JELLINEK), 1888, A., 717.
- Ethoxydimethyl/*l*-amidoquinone, chlor- (KEHRMANN), 1891, A., 904.
- m*-Ethoxydimethylaniline, actions of (GRIMAUD), 1891, A., 693.
- Ethoxydimethylbenzidine (NÖLTING and WERNER), 1891, A., 213.
- Ethoxydimethyl-*m*-diazine (PINNER), 1891, A., 469.
- hydrobromide (PINNER), 1889, A., 1006.
- Ethoxydimethylpyridine (CANZONERI and SPICA), 1887, A., 499; (CONRAD and EPSTEIN), 1887, A., 501; (CONRAD and ECKHARDT), 1889, A., 520.
- Ethoxydiphenyl (HIRSCH), 1889, A., 510.
- l*-amido- (WEINBERG), 1888, A., 285.
- d*-nitro- (HIRSCH), 1889, A., 511.
- Ethoxydiphenylamine, *d*-nitro- (SCHOFFE), 1889, A., 773.
- Ethoxydiphenyldiethyldisulphone-phenylenediamine (ATTENRIETH and HINSBERG), 1892, A., 161.
- m*-Ethoxydiphenyldisulphone-*o*-phenylenediamine (ATTENRIETH and HINSBERG), 1892, A., 161.
- p*-Ethoxydiphenylethylamine (PHILIP and CALM), 1885, A., 155.
- p*-Ethoxydiphenylquinoxaline (ATTENRIETH and HINSBERG), 1892, A., 732.
- Ethoxydiphenylsulphonic acid, *d*-amido- (WEINBERG), 1888, A., 285; (FEER and MÜLLER), 1889, A., 258.
- Ethoxyethanetricarboxylic acid (BISCHOFF), 1883, A., 45.
- Ethoxyethylamine (LOSSEN), 1889, A., 1065.
- Ethoxyethylanthranlyl (GOLDMANN), 1888, A., 1202.
- Ethoxyethylbenzamide (LOSSEN), 1889, A., 1065.
- Ethoxyethylhydroquinoline ethiodide (KOHN), 1886, T., 505.
- d*-nitro- (KOHN), 1886, T., 509.
- Ethoxyethylhydroquinolium hydroxide (KOHN), 1886, T., 505.
- Ethoxyethylphenol, nitroso- (KRAUS), 1892, A., 45.
- Ethoxyethyltheobromine (FISCHER), 1883, A., 357.
- Ethoxyhydrocotarnine methiodide (HECTOR), 1890, A., 531.
- p*-Ethoxyhydrocoumarilic acid (WILL and BECK), 1886, A., 882.
- Ethoxyhydroquinoline (FISCHER), 1883, A., 1116; (FISCHER and RENOUF), 1884, A., 1049.
- Ethoxymethenyl-amidophenol, -phenylenediamine and -tolenylenediamine (SANDMEYER), 1887, A., 135.
- Ethoxymethyl ethyl and propyl ketones (INDELT), 1886, A., 1011.
- p*-Ethoxymethylaniline (BISCHOFF and NASTVOGEL), 1889, A., 1012.
- Ethoxymethylbenzidine (NÖLTING and WERNER), 1891, A., 213.
- $\gamma$ -Ethoxymethyl- $\psi$ -carbostyryl (FRIEDLÄNDER and MÜLLER), 1887, A., 978.
- $\beta$ -Ethoxymethylcrotonic acid (FRIEDRICH), 1883, A., 969.
- Ethoxymethyldiphenyl (ADAM), 1888, A., 959.

- α*-Ethoxymethylhydroquinoline** (FISCHER), 1883, A., 1147.
- Ethoxymethylindole** (ERLENBAUGH), 1892, A., 955.
- 3-Ethoxy-1-methyl-1-propylbenzene** (*thymol ethyl ether*), 2-bromo- and 2:5-bromamido- (MAZZARA and VIGHI), 1890, A., 883.
- Ethoxy-4'-methylquinoline** (KNORR), 1887, A., 159.
- α*-Ethoxynaphthalene**, nitro-derivatives of (HEERMANN), 1891, A., 1379.
- β*-Ethoxynaphthalene** (*naphthyl ethyl ether*), 1':4'-dinitro- (ONUFROWICZ), 1891, A., 321.
- β*-Ethoxynaphthalene**, 1-nitro-, and action of ammonia on (WITTKAMPF), 1884, A., 1036.  
nitro-derivatives of (GAESS), 1891, A., 459.
- α*-nitroso- (v. ILINSKI), 1886, A., 474.
- 4-Ethoxynaphthaquinone**, 3-chloro- (ZINCKE), 1888, A., 710.
- Ethoxynaphthazine** (AUTENRIETH and HINSBERG), 1892, A., 733.
- Ethoxynaphthoic acid** (GATTERMANN), 1888, A., 575.
- Ethoxynaphthyl phenyl ketone** (*benzyl-α-ethoxynaphthalene*) (GATTERMANN, EHRLHART and MAISCH), 1890, A., 964.
- 1:4-Ethoxynaphthylamine** (*amidonaphthyl ethyl ether*) and its derivatives (GRANDMOUGIN and MICHEL), 1892, A., 862; (HEERMANN), 1892, A., 1097.
- Ethoxynaphthylamines** and derivatives of (GAESS), 1891, A., 460.
- β*-Ethoxynaphthyl mono- and di-sulphides** (ONUFROWICZ), 1891, A., 322.
- Ethoxynaphthylphenyl**, diamido- (WEINBERG), 1888, A., 286.
- Ethoxydinitronaphthyl sulphide** (ONUFROWICZ), 1891, A., 321.
- Ethoxynitrotoluenesulphonic acid** (LIMPRICHT), 1885, A., 1234.
- Ethoxynitro-*m*-xylenesulphonic acid** and its salts (LIMPRICHT), 1885, A., 1234.
- p*-Ethoxyphenanthrazine** (AUTENRIETH and HINSBERG), 1892, A., 733.
- Ethoxyphenylacetylene** (FITTIG and CLAUS), 1892, A., 989.
- p*-Ethoxyphenylamidoacetic acid** (BISCHOFF and NASTVOGEL), 1889, A., 1011.
- Ethoxyphenyl-*l*-bromonitroethane**, *m*-nitro- (FRIEDLÄNDER and LAZARUS), 1885, A., 1138.
- p*-Ethoxyphenylcarbamide** (BERLINERBLAU), 1885, A., 148.
- o*-Ethoxyphenylchloroacrylic acid** (FITTIG and CLAUS), 1892, A., 989.
- Ethoxyphenylcyanamides**, *o*- and *p*- (BERLINERBLAU), 1885, A., 148.
- 1-*p*-Ethoxyphenyl-2:3-dimethylpyrazolone** (STOLZ), 1892, A., 1080.
- m*-Ethoxy-*o*-phenylenediamine** (AUTENRIETH and HINSBERG), 1892, A., 160.
- Ethoxyphenylethyl-*p*-tolylamine** (HATSCHEK and ZEGA), 1886, A., 456.
- p*-Ethoxyphenylhydrazine** and its salts (STOLZ; ALTSCHUL), 1892, A., 1080, 1081.
- p*-Ethoxyphenylhydrazinesulphonic acid** and its salts (ALTSCHUL), 1892, A., 1082, 1081.
- 2-*p*-Ethoxyphenyl-6-hydroxy-4:5-dimethyl-*m*-diazine** and -4:5-methylethyl-*m*-diazine (PINNERT), 1891, A., 61.
- Ethoxyphenylic sulphide** (TASSINARI), 1892, A., 1316.
- p*-Ethoxyphenylimidodiacetic acid**, ethoxyanilide of (BISCHOFF and NASTVOGEL), 1889, A., 1012.
- 1-Ethoxyphenyl-3-methyl-5-pyrazolone** (STOLZ), 1892, A., 1080.
- 5-Ethoxy-1-phenyl-3-methyl-6-pyridazone** (ACH), 1890, A., 71.
- Ethoxyphenyl-naphthastilbazonium chloride**, action of heat and of ammonia on (WITT and SCHMIDT), 1892, A., 1247.  
hydroxide (WITT and SCHMIDT), 1892, A., 863.
- Ethoxyphenyl-*o*-naphthylenediamine** (WITT and SCHMIDT), 1892, A., 863.
- o*-Ethoxyphenylpropionic acid** (FITTIG and CLAUS), 1892, A., 989.
- 3-Ethoxy-1-phenylpyrazoline**, 4-bromo- (FISCHER and KNOETENAGEL), 1887, A., 933.
- Ethoxyphenylisoquinoline** (GABRIEL), 1886, A., 631.
- Ethoxyphenylthiocarbamide** (TIEHMANN), 1889, A., 1165; (VOLTMER), 1890, A., 1126; 1891, A., 558.
- Ethoxyphenylthiocarbamides**, *o*- and *p*- (BERLINERBLAU), 1885, A., 148.
- Ethoxyphenyltoluene**, diamido- (WEINBERG), 1888, A., 286.
- Ethoxyphenyltoluenesulphonic acid**, diamido- (WEINBERG), 1888, A., 286.
- p*-Ethoxyphenyl-*p*-tolylethylamine** (HATSCHEK and ZEGA), 1886, A., 457.
- p*-Ethoxyphenylurethane** and some of its derivatives (KÜHLER), 1881, A., 1159.
- Ethoxypiaselenole** (HINSBERG), 1890, A., 161.

- p*-Ethoxypiazthiole (ATTENRIETH and HINSBERG), 1892, A., 734.
- α*-Ethoxypropanilide (BISCHOFF and HILSDORFER), 1892, A., 1337.
- α*-Ethoxypyridine (v. PRICHMANN and BALTZER), 1892, A., 209.
- α*-(*β*-Ethoxypyridine, dichlor- (KOENIGS and HEIGY), 1884, A., 1369.
- β*-Ethoxypyridine (FISCHER and RENOUE), 1884, A., 1370; (WEIDEL and BLAT), 1886, A., 77.
- 6-Ethoxypyridine, 2:3:5-trichloro-4-amido- (STOKES and v. PRICHMANN), 1887, A., 157.
- 6-Ethoxy-2-pyridone-3:5-dicarboxylic acid (GUTHZEIT and DRESSSEL), 1889, A., 861.
- 3-Ethoxyquinol (WILL and PUKALL), 1887, A., 661.
- 1-Ethoxyquinoline (FISCHER), 1883, A., 1146; (FISCHER and RENOUE), 1884, A., 1049.
- 1-Ethoxyquinoline, derivatives of (VIS), 1892, A., 1105.
- 4-amido- (VIS), 1892, A., 1105.
- 1'-Ethoxyisoquinoline, 3'-chlor- (GABRIEL), 1887, A., 62.
- α*-Ethoxy-*β*-quinolinecarboxylic acid (FRIEDLANDER and GOHRING), 1884, A., 1020.
- 3-Ethoxy-1:4-quinone (WILL and PUKALL), 1887, A., 661.
- 3-Ethoxyquinone, 6-chloro-2:5-diamido- (KEHRMANN), 1891, A., 904.
- p*-Ethoxyquinoxaline (ATTENRIETH and HINSBERG), 1892, A., 732.
- p*-Ethoxyquinoxalinedicarboxylic acid (ATTENRIETH and HINSBERG), 1892, A., 733.
- o*-Ethoxystyrene, *α*-brom- (FITTIG and CLAUS), 1892, A., 989.
- Ethoxystyrylhydantoin hydrobromide (PINNER and SPILKER), 1889, A., 706.
- Ethoxy-*α*-styrylpyridine (BUTTER), 1890, A., 149.
- Ethoxysuberic acid and its salts (HELL and KEMPEL), 1885, A., 755; (HEMPER), 1885, A., 756.
- Ethoxysuccinic acid and some of its salts (PURDIE), 1885, T., 886, 875.
- Ethoxyisosuccinic acid (TANATAR), 1891, A., 175; 1892, A., 1305.
- See also Ethylmalic acid.
- α*-Ethoxy-*ω*-tetrahydronaphthalene (BAMBERGER and BORDT), 1890, A., 509.
- Ethoxytetrahydroquinoline, preparation of methyl- and ethyl-derivatives of (ANON.), 1883, A., 871.
- Ethoxytetramethylenecarboxylic acid (PERKIN and SINCLAIR), 1892, T., 46.
- Ethoxythioxy chloride, decomposition of, on distillation (GEUTHER), 1884, A., 1256.
- 2-Ethoxytoluene (*tolyl ethyl ether*), preparation of (STAEDEL), 1883, A., 585.
- Ethoxytoluene, brom- and imido- (SCHREIBER), 1891, A., 552.
- 3-Ethoxytoluene, 4:6-dinitr- and 2:4:6-trinitr- (STAEDEL and KOLB), 1891, A., 187.
- 2-Ethoxytoluene-3.5 disulphonic acid (LIMPRICHT), 1885, A., 1233.
- 2-Ethoxytoluene-4-sulphonic acid (HEFFTER), 1884, A., 454.
- 4-Ethoxy-*m*-toluic acid (COOH:Me = 1:3) (BROWN), 1883, A., 471.
- Ethoxytriphenylmethane (ALLEN and KÖLLIKER), 1885, A., 655.
- 6-Ethoxy-*m*-xylene-4-sulphonic acid (LIMPRICHT), 1885, A., 1234.
- 4-Ethoxy-*m*-xylene-6-sulphonic acid\* (MOODY), 1891, P., 190.
- Ethyl allyl ether, action of hydrogen chloride and bromide on (KJNER), 1891, A., 164.
- Ethyl *tert*-amyl ether (KONDAKOFF), 1888, A., 802.
- Ethyl *iso*-amyl ether, *α*-chlor- (CLAUS and TRAINER), 1887, A., 231.
- amyl ketone (BÉHAL), 1889, A., 227.
- bromopropyl ether (LESPIEAU), 1892, A., 420.
- butyl ether (HENRY), 1892, A., 28.
- isobutyl ether (MEISSLER), 1887, A., 1088.
- β*-butyl ketone (WISLICENTIS), 1883, A., 966.
- isobutyl ketone and oxidation of (WAGNER), 1892, A., 36.
- isocrotyl ether (SCHLESCHUKOFF), 1884, A., 1276.
- α*-cyanethyl ketone (HANRIOT and BOUYEAULT), 1889, A., 842.
- α*-cyanoisopropyl ketoxime (HANRIOT), 1892, A., 80.
- Ethyl ether, production of, by the action of "*Aspergillus glaucus*" on lemon juice (PHIPSON), 1884, A., 855.
- vinyl alcohol a constant constituent of (POLECK and THUMMEL), 1890, A., 118.
- refractive index and specific gravity of (OUDEMANS), 1886, A., 437.
- electrical conductivity of mixtures of ethylic alcohol and (PFEIFFER), 1886, A., 115.
- heat of combustion of (STOHMANN), 1887, A., 425.
- thermal properties of (RAMSAY and YOUNG), 1887, A., 320.

- Ethyl ether solutions**, dilute, cryoscopy of (PICKERING), 1892, A., 1045.  
 expansion of, at various pressures (GRIMAUD), 1886, A., 498.  
 temperature of solidification of (OLSZEWSKI), 1884, A., 817.  
 slow combustion of (DUNSTAN and DYMOND), 1890, T., 585.  
 products of the slow combustion of (LEGLER), 1883, A., 860; 1886, A., 327; 1889, A., 579.  
 decomposition of the vapour of, by means of the induction spark (v. KLOBUKOFF), 1886, A., 1003.  
 action of light on (DUNSTAN and DYMOND), 1890, T., 574, 988; P., 69.  
 action of light on pure, in presence of moist oxygen (RICHARDSON), 1889, P., 134; 1890, P., 146; 1891, T., 15.  
 action of ozone on (DUNSTAN and DYMOND), 1890, T., 584.  
 behaviour of, with sulphuric acid (SCHOLVIEN), 1891, A., 410.  
 action of sulphuric anhydride on (HUBNER), 1884, A., 1126.  
 action of, on plant-life (BRENSTEIN), 1888, A., 624.  
 preservative effect of vapour of, on organic substances (DEBOIS), 1884, A., 932.  
 formation of an explosive substance from (CLEVE), 1891, P., 15.  
 formation of hydrogen peroxide from, influence of temperature on the (RICHARDSON), 1891, T., 56.  
 conditions under which hydrogen peroxide is formed from (RICHARDSON), 1889, P., 134; (DUNSTAN and DYMOND), 1890, T., 574, 988; P., 69.  
 influence of, on the velocity of the hydrolytic action of yeast (O'SULLIVAN), 1892, T., 935.  
 examination of (VULPIUS), 1886, A., 1079.  
 liquid paraffin as a reagent for the presence of water in (CHRISMER), 1884, A., 1073.  
 separation of, from ethylic bromide (SCHOLVIEN), 1891, A., 410.  
 primary haloid derivatives of (HENRY), 1885, A., 882.
- Ethyl ether, chlor-** (BACHMANN), 1883, A., 726.  
*di*chlor-, actions of (NATTERER), 1885, A., 365; (WISLICENUS), 1885, A., 366.  
*s-isodichlor-* (*ethylidene chloride*), derivatives of (GEUTHER), 1885, A., 237.
- Ethyl ether, tri- and tetra-chlor-** (GODEFROY), 1886, A., 607.
- Ethyl hexyl ketone** (WAGNER), 1892, A., 35.  
 licaryl ether (BARBIER), 1892, A., 1236.  
 menthyl ether (BRUHL), 1892, A., 200, 348.
- Ethyl mercaptan**, action of diazobenzenesulphonic acid and diazobenzenesulphonic chloride on (STRADLER), 1884, A., 1328.  
 action of iodine on a mixture of sodium benzenesulphinate and (ORTO and TROMER), 1891, A., 924.  
 action of, on phenylic salt- (SEIFERT), 1885, A., 1057.  
 action of phenylcarbimide on (GOLDSCHMIDT and MEISSLER), 1890, A., 500.  
 action of sulphur on (BOITGER), 1884, A., 1282.  
 compounds of aldehydes and ketones with (BAUMANN), 1887, A., 126.
- Ethyl mercaptan, amido-** (GABRIEL), 1889, A., 870.  
 hydrochloride (GABRIEL), 1891, A., 815.
- Ethyl isopropenyl ether** (FAWORSKY), 1889, A., 360.  
 propyl ether (HENRY), 1892, A., 28.  
 propyl ketone, action of methylic iodide and zinc on (SOKOLOFF), 1888, A., 1170.  
 oxidation of (WAGNER), 1892, A., 35.  
 isopropyl ketone (WAGNER), 1892, A., 36.  
 propyl pinacone, isomeride of (PERKIN), 1883, T., 94.  
 vinyl ether, *mono*-, *di*- and *tri*-chlor- (GODEFROY), 1886, A., 606.
- Ethylacetanilide** (PICHEL), 1890, A., 758.  
 nitration of (NÖLTING and COLLIN), 1884, A., 1013.  
*p*-nitr- (NÖLTING and COLLIN), 1884, A., 1013.
- Ethylacetimide**, and its hydrochloride (PINXER), 1883, A., 1090.
- Ethylacetone**. See Methyl propyl ketone.
- Ethylacetoneitranylde** (WELER), 1883, A., 579.
- Ethylacetothienone** (SCHLEICHER), 1886, A., 539.  
 oxime of (SCHLEICHER), 1886, A., 227.  
 nitr- (SCHLEICHER), 1886, A., 227.

- thylacetotoluidide, *m*-nitro- (NIEBETOWSKI), 1887, A., 938.  
 ylacetyl-. See also Acetyl-ethyl-  
 ylacetylacetone (COMBES), 1887, A., 653.  
 magnetic rotation of (PERKIN), 1892, T., 813, 851.  
 thyl- $\gamma$ -acetylbutyric acid (FITTIG and CHRIST), 1892, A., 962.  
 ylacetylene. See Butinene.  
 thyl- $\beta$ -acetylpropionic acid (YOUNG), 1883, T., 173.  
 nhydride obtained by the distillation of (YOUNG), 1883, T., 180.  
 ylacridine (VOLPI), 1892, A., 342.  
 ylaesculetin (WILL), 1884, A., 67.  
 ylaldoxime (PETRACZEK), 1883, A., 569.  
 ction of azotoluene and diazobenzene on (MAI), 1892, A., 1079.  
 ylallylamine and its platin- and platin-chlorides (LIEBERMANN and MAI), 1883, A., 909.  
 ylallylsuccinic acids, isomeric (HJELT), 1890, A., 133; 1892, A., 697.  
 ylallylthiocarbamide (HECHT), 1890, A., 477.  
 ylamarine (CLAUS and SCHERDEL), 1886, A., 237.  
 ylamidoacetic hydrochloride, action of nitrous acid on (CURTIUS), 1884, A., 42.  
 nitrite (CURTIUS), 1884, A., 987.  
 ylamidoacetoyamidine, a new creatinine (DUVILLIER), 1886, A., 1016.  
 thylamidoacetophenone (v. BAAYER), 1884, A., 1021.  
 ylamidoazobenzenesulphonic acid, sodium salt of (*ethyl-orange*) (BERNTSEN and GOSKE), 1887, A., 666.  
 thylamidobenzamide (FINGER), 1888, A., 948.  
 ylamidobenzoic acid, *o*-sulpho-, potassium salt of (FAHLBERG and LIST), 1887, A., 835.  
 ylamido- $\alpha$ -butyrocyanidine (Duvillier), 1884, A., 613.  
 ylamido-carbamidobenzoic acid, and its salts (GRIENS), 1885, A., 1226.  
 yl- $\alpha$ -amidocinnamic acid, and nitroso- (FISCHER and KUZEL), 1884, A., 440.  
 ylamido-cresols (STAEDEL), 1883, A., 866.  
 ylamidoethylpiperonylcarboxylic anhydride (PERKIN), 1890, T., 1035.  
 thyl- $\alpha$ -amido-hexic acid, and its derivatives (Duvillier), 1884, A., 664.  
 action of cyanamide on (Duvillier), 1883, A., 1154.  
 Ethylamidohydrocarbostyryl (FISCHER and KUZEL), 1884, A., 442.  
 $\alpha$ -Ethylamido- $\alpha$ -naphthaphenazine (EICKER), 1891, A., 470.  
 $\alpha$ -Ethylamido- $\alpha$ -naphthalolazine (EICKER), 1891, A., 471.  
*p*-Ethylamido-*m*-nitrobenzophenone (SCHÖPFF), 1892, A., 336.  
 Ethyl-*o*-amidophenol, chlor- (KNORR), 1889, A., 1219.  
 Ethylamido- $\beta$ -phenylpropionic acid, nitroso- (FISCHER and KUZEL), 1883, A., 1132.  
 Ethylamidopiperonyl- $\omega$ -carboxylic anhydride (PERKIN), 1891, T., 158.  
 $\alpha$ -Ethylamidopropionic acid (Duvillier), 1885, A., 373.  
 $\alpha$ -Ethylamidopropionocyanidine (Duvillier), 1885, A., 819.  
 Ethylamine, properties of (v. HOFMANN), 1889, A., 688.  
 magnetic rotatory power of (PERKIN), 1889, T., 691, 729.  
 compressibility of an aqueous solution of (ISAMBERT), 1888, A., 216.  
 nitrication of, by soil (MUNRO), 1886, T., 633.  
 derivatives (GABRIEL), 1888, A., 439; 1891, A., 815.  
 Ethylamine arsenious bromide (LANDAU), 1889, A., 211.  
 hydriodide,  $\beta$ -iod- (GABRIEL), 1888, A., 669.  
 hydrochloride, magnetic rotatory power of (PERKIN), 1889, T., 713.  
 hydrogen diamine-chromium thiocyanate (CHRISTENSEN), 1892, A., 1000.  
 hydrosulphide, vapour-tension of (ISAMBERT), 1883, A., 727.  
 picrate (SMOLKA), 1886, A., 453.  
 platinothiocyanate (GUARESCHI), 1892, A., 286.  
 vanadates (BAILEY), 1884, T., 692, 695; (DITTE), 1887, A., 899.  
 Ethylamine, brom-, and its derivatives (GABRIEL), 1888, A., 439; 1889, A., 848, 1134.  
 conversion of, into vinylamine (GABRIEL), 1888, A., 1267.  
 $\beta$ -chlor-, salts of (GABRIEL), 1888, A., 440.  
 seleno- and thio-derivatives of (COBLENTZ), 1891, A., 1216.  
 thio-, and its derivatives (GABRIEL), 1891, A., 816; 1892, A., 130.  
*d*/thio- (COBLENTZ and GABRIEL), 1891, A., 817.  
 thionyl- (MICHAELIS), 1891, A., 718.

- Ethylanhydrazetonebenzil** (JAPP and BURTON), 1887, T., 432; P., 32.
- Ethylanhydroecgonine** and its derivatives (EINHORN), 1887, A., 741.
- Ethylanildiguanidine** (PELLIZZARI), 1892, A., 357.
- Ethylaniline** (PICTET), 1890, A., 758.  
preparation of (REINHARDT and STAEDEL), 1883, A., 578.  
action of phthalic anhydride on (PIUTTI), 1884, A., 448.  
action of silicon tetrachloride on (REYNOLDS), 1892, T., 455.  
acetyl-derivative, preparation of (REINHARDT and STAEDEL), 1883, A., 578.  
ethylphenylphthalamate (PIUTTI), 1884, A., 450.
- \*Ethylaniline, amido-**. See Ethylphenylenediamine.  
brom-. See Ethylbromaniline.  
chloro-, hydrochloride (NEMIROW-SKY), 1885, A., 741.  
nitr-. See Ethylnitraniline.  
*d*-nitr- (HEMPFEL), 1889, A., 600.  
*o*-nitronitroso- (HEMPFEL), 1889, A., 600; 1890, A., 612.  
1:4-nitroso- (FISCHER and HEPP), 1887, A., 244.
- Ethylanilphthalein** (PIUTTI), 1884, A., 450.
- Ethylarecaine** (JAHNS), 1891, A., 95; 1892, A., 739.
- β*-Ethylasparagine** (PIUTTI), 1889, A., 591.
- Ethylazaurolic acid** and its derivatives (MEYER and CONSTAN), 1883, A., 40.
- Ethylazimidobenzene** (HEMPFEL), 1890, A., 612.
- Ethylazimidotoluene** (NÖLTING and APT), 1888, A., 273.
- Ethylbarbituric acid** (CONRAD and GUTHZEIT), 1888, A., 314.
- Ethylsobarbituric acid** (LEHMANN), 1890, A., 32.
- Ethylsbenzaldoxime** (GOLDSCHMIDT and KJELLIN), 1891, A., 1478.
- Ethylbenzaldoximes, *α*- and *β*-** (BECKMANN), 1889, A., 607.
- Ethylbenzamide** [m.p. 67°] (GATTERMANN and SCHMIDT), 1887, A., 358; (MÜLLER), 1890, A., 43.
- Ethylbenzamide, *β*-brom-** (GABRIEL), 1889, A., 1134.  
*β*-bromo-*m*-nitr- (ELFELDT), 1892, A., 213.  
*β*-chlor- (GABRIEL and HEYMANN), 1890, A., 1267.
- p*-Ethylbenzamide** [m.p. 115°–116°] (GATTERMANN and ROSSOLIMO), 1890, A., 975.
- p*-Ethylbenzanilide** (SMITH), 1892, A., 488.
- Ethylbenzene** (*phenylethane*), occurrence of, in commercial xylene (NÖLTING and PALMER), 1891, A., 1197.  
dispersive power of (BARBIER and ROUX), 1889, A., 805.  
action of heat on (FERRO), 1887, A., 572.  
action of aluminium chloride on (HEISE and TÖHL), 1892, A., 1309.  
action of chlorine on, in sunlight (SCHRAMM), 1887, A., 807.  
action of chromyl chloride on (v. MILLER and RÖHDE), 1890, A., 978.  
action of ethylmalonic chloride on (BÉHAL and AUGER), 1890, A., 493.  
derivatives of (STIDA), 1890, A., 134.  
isomeric derivatives of (SEMPOTOWSKI), 1890, A., 54.
- Ethylbenzene, *o*- and *p*-amido-**, derivatives of (PATCKNICH), 1884, A., 1142; 1885, A., 255.  
*p*-brom- (ASCHENBRANDT), 1883, A., 320.  
*ω*-brom-, from styrolene (BERNTSEN and BENDER), 1883, A., 70.  
*ortho*-brom- (FRIEDEL and CRAFTS), 1886, A., 229.  
chloro-derivatives of (ISTRATI), 1885, A., 251; 1886, A., 230, 343.  
*ω*-*di*-chlor- (FORRER), 1884, A., 1020.  
chloronitro-derivatives of (ISTRATI), 1888, A., 260.
- Ethylbenzene-*m*- and -*p*-sulphonic acids** (SEMPOTOWSKI), 1890, A., 54.
- Ethylbenzenesulphonic acid, *o*-amido-** (PATCKNICH), 1885, A., 256.
- Ethylbenzene-*m*-sulphonic acid, *o*-brom-** (SEMPOTOWSKI), 1890, A., 55.
- Ethylbenzene-*o*-sulphonic acid, *p*-brom-** (SEMPOTOWSKI), 1890, A., 55.
- Ethylbenzenylamidine** (LOSSEN), 1892, A., 53.
- Ethylbenzhydroxamic acids, *α*- and *β*-** (LOSSEN), 1884, A., 1324; 1889, A., 1064; (PINNER), 1884, A., 1325.
- Ethyl-*anti*- and -*syn*-benzhydroxamic acids** (WERNER), 1892, A., 463, 464.
- Ethylbenzimidide hydrochloride** (PINNER), 1883, A., 1090.
- m*-Ethylbenzoic acid** (VOSWINKEL), 1889, A., 39.
- p*-Ethylbenzoic acid** and its salt (ASCHENBRANDT), 1883, A., 319.  
nitr-, and its salts (ASCHENBRANDT), 1883, A., 320.
- p*-Ethylbenzophenoneoximes, *anti*- and *syn*-** (SMITH), 1892, A., 488.
- Ethylbenzoylactic acid** (PERKIN), 1884, T., 179; (v. BAeyer and PERKIN), 1884, A., 63.

- Ethylbenzoylacetone** (CLAISEN and LOWMAN), 1888, A., 692.
- Ethylbenzoylcarboxylic acid**, *o*-dichloronitr- (ZINCKE and LAT- TEN), 1892, A., 1229; (ZINCKE and SCHARFENBERG), 1892, A., 1232.
- lactone of (ZINCKE and LAT- TEN), 1892, A., 1230; (ZINCKE and SCHARFENBERG), 1892, A., 1232.
- Ethylbenzoylcegonine** (NOVY), 1887, A., 1126.
- Ethylbenzoyl-*d*-cegonine** (EINHORN and MARQUARDT), 1890, A., 913.
- Ethylbenzoyl-*p*-nitranilide** (MELDOLA and SALMON), 1888, T., 779.
- Ethylbenzoyl-**. See also Benzoylethyl-.
- Ethylbenzyl-**. See also Benzylethyl-.
- Ethylbenzylidene cyanide** (NEURE), 1889, A., 597.
- Ethylbergapic acid** (POMERANZ), 1892, A., 72.
- Ethylbismuthine iodide** (MARQUARDT), 1887, A., 803.
- Ethylborneol** (BOUCHARDAT and LA- FONT), 1887, A., 596.
- Ethyl-*p*-bromaniline**, action of diazo- tised *m*- and *p*-nitranilines on (MEL- DOLA and STREATFIELD), 1889, T., 423, 428.
- Ethylbromisatoid** (v. BAAYER and OECONOMIDES), 1883, A., 201.
- Ethyl-*o*-bromomaleimide** (ZANETTI), 1890, A., 907.
- Ethylbromopiperonylcarboxylic an- hydride**,  $\omega$ -amido- (PERKIN), 1890, T., 1017.
- Ethylbutane**. See *n*-Hexane.
- Ethylbutylacetaldehyde** (RAUPEN- STRAUCH), 1887, A., 791.
- Ethylbutylbenzene** (BAUR), 1891, A., 1166.
- Ethylisobutylglyoxaline** (*acetylthyliso- amyline*) (RADZISZEWSKI and SZULI), 1884, A., 986.
- Ethylisobutylhydantoin** (PINNER and SPILKER), 1889, A., 706.
- Ethylisobutylquinol** (FIALA), 1886, A., 451.
- s*-Ethylisobutylthiocarbamide** (HECHT), 1892, A., 702.
- $\alpha$ -Ethylbutyrolactone** (CHANLAROFF), 1885, A., 374.
- Ethylcaprolactone**. See Hydroxyoctoic acid, lactone of.
- Ethylcarbostyryl** (FRIEDLÄNDER and WEINBERG), 1883, A., 204.
- Ethyl- $\psi$ -carbostyryl and its derivatives** (FRIEDLÄNDER and WEINBERG), 1885, A., 989.
- $\alpha$ -Ethylcarboxyphenylacetic acid**, imide of (*ethylhomo-*o*-phthalimide*) (GA- BRIEL), 1887, A., 1113.
- $\beta$ -Ethylcarboxyphenyl  $\alpha$ -methylpyr- role-acetic acid and -*m*-benzoic acid** (PAAL and SCHNEIDER), 1887, A., 274.
- Ethylcarvaerol** (LUSTIG), 1886, A., 346.
- Ethylcetyl**. See Ethylhexadecyl.
- Ethylchitenidine** (CLAUS), 1892, A., 1250.
- Ethyl-*o*-chloramine**, action of, on aromatic amines, and on hydrazobenzene (PIERSON and HEUMANN), 1883, A., 915.
- 4'-Ethyl-*o*-chloroisoquinoline** (GA- BRIEL), 1887, A., 1113.
- $\alpha$ -Ethyl- $\beta$ -chlorotetracylic acid** (KOLL), 1889, A., 488.
- Ethylchrysoidine and its derivatives** (NOLTING and STRICKER), 1886, A., 543.
- Ethyl-*o*-cinochenine** (COMSTOCK and KOENIGS), 1885, A., 1249.
- di*brom- (COMSTOCK and KOENIGS), 1888, A., 72.
- Ethyl-*o*-cinocheninic acid** (COMSTOCK and KOENIGS), 1885, A., 1249; 1888, A., 72.
- Ethyleinchonamine** (HESE), 1885, A., 66.
- $\alpha$ -Ethyleinchonic acid** (DOEBNER), 1887, A., 504.
- $\alpha$ -Ethyleinnamaldehyde**, *m*-nitr- (v. MILLER and ROHDE), 1889, A., 984.
- Ethyleinnamylamide**,  $\beta$ -brom- (EL- FELDT), 1892, A., 215.
- Ethyleinnamylhydantoin** (PINNER and SPILKER), 1889, A., 705.
- Ethylcitraconic acid and anhydride** (FITTIG), 1891, A., 453.
- Ethyl-*d*-cocaine aurochloride** (EINHORN and MARQUARDT), 1890, A., 913.
- 1-Ethylcomenamic acid** (*dihydro- $\gamma$ -ethyl- pyridinecarboxylic acid*) (MENDEL), 1883, A., 1203.
- Ethylcoumaric acid** (EBERT), 1883, A., 472.
- $\alpha$ -Ethylcoumarin** (FITTIG and BROWN), 1890, A., 777.
- derivatives of (ALDRINGEN), 1892, A., 330.
- thio- (ALDRINGEN), 1890, A., 624.
- Ethylcoumarinic acid and its salts** (EBERT), 1883, A., 471.
- Ethylcoumarinic *di*bromide** (FITTIG and CLAUS), 1892, A., 989.
- $\alpha$ -Ethylcoumaroxime and its acetate** (ALDRINGEN), 1890, A., 624.
- $\alpha$ -Ethylcoumarphenylhydrazide** (ALD- RINGEN), 1890, A., 624.

- Ethylcoumazonic acid** (WIDMAN), 1884, A., 304.
- Ethylcrotonic acids.** See Hexenoic acids.
- Ethyl- $\psi$ -cumene** and its derivatives (TOHL and V. KARCHOWSKI), 1892, A., 990.
- Ethyleyanacetamide** (HENRY), 1887, A., 796.
- Ethyleyanethine** (v. MEYER), 1883, A., 353.
- Ethyleyanocamphor** (HALLER), 1891, A., 1499.
- Ethyleystein** (BRENZINGER), 1892, A., 1111.
- Ethylidaphnetins** (WILL and JUNG), 1884, A., 1042.
- Ethyldeoxybenzoin** (MEYER and OELKERS), 1888, A., 703.
- Ethylidibenzoin** (JAPP and OWENS), 1885, T., 90.
- Ethylidiguamide** and its compounds (EMICH), 1883, A., 974.
- Ethylidihydrocurcumin** (JACKSON and MENKE), 1883, A., 481.
- Ethylidihydrostrylpyridine** (PLATH), 1889, A., 164.
- 3'-Ethyl-2:4'-diketodihydroquinazoline** (SÖDERBAUM), 1890, A., 1254.
- Ethylidiosphenol** (SHIMOMYAMA), 1888, A., 1205.
- Ethylidipropylamine** (PASSON), 1891, A., 1118.
- Ethylidipropylcarbinol** (*nonylic alcohol*) (TSCHIBOTAREFF and SAYTZEFF), 1886, A., 437.
- 5-Ethyl-2:4-dipropyl-*m*-diazine, 6-amido-**. See Cyanpropine.
- Ethylidiresorcinyl tetrethyl ether** (HERZIG and ZEISEL), 1891, A., 75.
- Ethylene**, preparation of (FRANKLAND), 1884, T., 31.
- flame, experiments on (SMITHELLS and INGLE), 1892, T., 210.
- illuminating power of, when burnt with non-luminous combustible gases (FRANKLAND), 1884, T., 30.
- illuminating power of, when mixed with carbonic oxide (FRANKLAND), 1884, T., 36.
- illuminating power of, when mixed with marsh gas (FRANKLAND), 1884, T., 37.
- illuminating power of, influence of aqueous vapour on the (FRANKLAND), 1884, T., 232.
- illuminating power of, influence of incombustible diluents on the (FRANKLAND), 1884, T., 227.
- density of liquid and saturated vapour (CAILLETET and MATHIAS), 1886, A., 758.
- Ethylene**, absorption coefficient of, in water and in alcohol (HENRICH), 1892, A., 1044.
- boiling points of, under low pressures (OLSZEWSKI), 1884, A., 1257.
- solidifying point of (OLSZEWSKI), 1887, A., 634; 1889, A., 821.
- action of heat on (DAY), 1886, A., 781; (NORTON and NOYES), 1887, A., 226; (LEWES), 1892, T., 329.
- action of heat on mixtures of, with benzene, naphthalene and toluene (FERKO), 1887, A., 372.
- action of aluminium bromide on (GUNFAYSON), 1886, A., 999.
- oxidation of (WAGNER), 1888, A., 665.
- direct combination of hydrogen with (BERTHELOT), 1883, A., 565.
- explosion of, with less than its own volume of oxygen (LEAN and BONE), 1892, T., 873; P., 144.
- explosion of, with oxygen, under diminished pressure (MEYER and SEUBERT), 1884, T., 584, 594.
- derivatives of diazoamido-compounds (MELDOLA and STREATFIELD), 1892, P., 119.
- s*- and *as*-dihaloid derivatives of, table of the formulæ and boiling points of the known (HENRY), 1884, A., 831.
- hydrate (VILLARD), 1888, A., 1241.
- Ethylene**, bromo-derivatives of (ANSCHÜTZ), 1884, A., 32.
- molecular refraction of (WEGMANN), 1888, A., 999.
- brom-. See Vinylic bromide.
- as*-dibrom-, formula of (MICHAEL), 1884, A., 418.
- s*-dibrom- (*acetylenic dibromide*), molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- action of aluminium bromide on benzene and (ANSCHÜTZ), 1883, A., 807.
- as*-bromiod- (HENRY), 1884, A., 830, 831.
- dibromiod*- (HOMOLKA and STOLZ), 1885, A., 1198.
- chlor-. See Vinylic chloride.
- as*-dichlor- (HENRY), 1884, A., 719.
- tetrachlor*-, thermochemistry of (BERTHELOT and MATIGNON), 1891, A., 1311.
- as*-chloriod- (HENRY), 1884, A., 719, 831.
- diiod*- (*acetylenic diiodide*), isomeric varieties of (KEISER), 1890, A., 594; (PATERNO and PERATONER), 1890, A., 1219; 1891, A., 654.

- Ethylene**, triiod- (HOMOLKA and STOLZ), 1885, A., 1198.  
 nitro-derivatives of (VILLIER), 1884, A., 33; 1885, A., 1044.
- Ethylene chlorhydrin**, preparation of (LADENBURG), 1883, A., 1077; (BOUCHARLAT), 1885, A., 498.  
 action of benzylamine on (GOLD-SCHMIEDT and JAHODA), 1891, A., 1351.  
 action of carbonyl chloride on (NEMIROWSKY), 1885, A., 741; (ORTO), 1891, A., 1873.
- Ethylene diketones**, aromatic (CLAUS, WERNER, SCHLARB and MUNTZELD), 1887, A., 827.
- Ethylene ethers** of the nitrophenols and hydroxybenzoic acids (WAGNER), 1884, A., 433.
- Ethylene grouping**, refraction equivalent of (BIRUHL), 1887, A., 193.
- Ethylene series**, some oxides of, and their action on water (ELTEKOFF), 1883, A., 566.
- Ethyleneamidobenzoic acids** (SCHIFF and PARENTI), 1885, A., 266.
- Ethylene-*di*- $\beta$ -amidodi- $\alpha$ -crotonic acid** (MASON), 1887, A., 494.
- Ethyleneaniline**, condensation of, with aldehydes (MOOS), 1887, A., 577.
- Ethyleneauramine** (FEHRMANN), 1888, A., 157.
- Ethylenebisbenzoyl-*o*-carboxylic acid**, action of amines on (BAUMANN), 1887, A., 785.
- Ethylenebisphenylenediamine** (GATTERMANN and ILGER), 1884, A., 1142.
- Ethylenebisphenylmethyllummonium bromide**, and its salts (HUBNER, TOLLE and ATHENSTADT), 1884, A., 1318.
- Ethylenebisphenylmethylpyrazolone** (*ethylenedimethylpyrazolone*) (PERKIN and OMREMSKY), 1886, A., 936.
- Ethylenebistolylmethyllummonium**, and its salts (HUBNER, TOLLE and ATHENSTADT), 1884, A., 1318.
- Ethylenebistolylmethyllummonium bromide** (HUBNER, TOLLE and ATHENSTADT), 1884, A., 1317.
- Ethylenecarbamide** (FISCHER and KOCH), 1886, A., 528.
- Ethylenecarbamide**, dinitr- (FRANCHIMONT and KLOBBE), 1888, A., 1180.
- Ethylene- $\psi$ -carbamide** (GABRIEL), 1889, A., 849.
- Ethylenediamine**, action of, on acetylacetone (COMBES), 1889, A., 851.  
 action of, on pyrocatechol (MERZ and RIS), 1887, A., 722.
- Ethylenediamine**, action of, on ethylic dibromosuccinate (FORSSELL), 1891, A., 1004.  
 action of, on succinic acid (MASON), 1888, P., 96; 1889, T., 10.  
 action of, on thioamides (FORSSELL), 1891, A., 1003; 1892, A., 1247.  
 action of dithioxamide on (FORSSELL), 1892, A., 1247.  
 condensation derivatives of (MASON), 1887, A., 493.  
 platinothiocyanate (GUARESCHI), 1892, A., 287.
- Ethylenediamines**, characteristics of (COLON), 1888, A., 139.
- Ethylenediamine-*di*bromo- and-*di*-chloro-praseocobalt salts** (JORGENSEN), 1890, A., 953.
- Ethylenediamine-*di*chlorovioleocobalt salts** (JORGENSEN), 1890, A., 953.
- Ethylenediamine-luteocobaltic chloride** (JORGENSEN), 1889, A., 352.
- Ethylenedibenzamic acid**, and its salts (SCHIFF and PARENTI), 1885, A., 266.
- Ethylenedicarbanilic chloride** (HANSEN), 1887, A., 578.
- Ethylenedimethyloxyquinizine**.  
 See Ethylenebisphenylmethylpyrazolone.
- Ethylenedimorphine** (*dicodethine*) (GRIMAU), 1883, A., 359.
- Ethylenedipthalimide** (GABRIEL), 1887, A., 1037.
- Ethylenediquinoline** (WARTANIAN), 1891, A., 330.
- Ethylenedisuccinamic acid** (MASON), 1889, T., 12.
- Ethylenedisuccinimide** (MASON), 1889, T., 11.
- Ethylenedisulphone** (ORTO and CANANNOVA), 1888, A., 255.
- Ethylenediurethane** (FISCHER and KOCH), 1886, A., 528.
- Ethylene-ethenyldiamine** (v. HOFMANN), 1888, A., 1050.
- Ethyleneimidothiocarbamate hydrobromide** (ANDREASCH), 1883, A., 665.
- Ethylenimine** (LADENBURG and ABEL), 1888, A., 441, 1268; (MAJERT and SCHMIDT), 1891, A., 415.  
 derivatives of (LADENBURG and ABEL), 1888, A., 441.
- Ethylenelactic acid**. See Hydracrylic acid.
- Ethylenemalonamide** (FREUND), 1884, A., 729.
- Ethylenemalononic acid**. See Trimethylene-1:1-dicarboxylic acid.

**Ethylene-mercaptandipyrrolicand-mercaptopyrrolic acids** (FASBENDER), 1888, A., 805.

**Ethylenemethyl-**. See Methyleneethyl-.

**Ethylene/nitro-carbamide or -ureine** (FRANCHIMONT and KLOBBE), 1889, A., 126.

**Ethylene- $\psi$ -selenocarbamide** (BARINGER), 1890, A., 880.

**Ethylene- $\psi$ -thiocarbamide** (GABRIEL), 1889, A., 848.

**Ethylenethiocyanosulphonic acid**, formation of (JAMES), 1883, T., 40.

**Ethylene/lithiodicarbamide** (SCHATZMANN), 1891, A., 744.

**Ethylenetolyl-**. See Tolyethylene-.

**Ethylenic anisyl-imidoanisylthiocarbamate and -thiocarbamate** (FOERSTER), 1888, A., 945.

**Ethylenic bases** (GABRIEL), 1889, A., 1166; (v. HOFMANN), 1891, A., 414. action of heat on the hydrochlorides of (v. HOFMANN), 1891, A., 415.

**Ethylenic bromide**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295. action of, on alkyl metallic oxides (DE FORCRAND), 1887, A., 544. action of ammonia on (GALEWSKY), 1890, A., 952. action of dimethyl-*p*-toluidine and dimethylaniline on (HUBNER, TÖLLE and ATHENSTÄDT), 1884, A., 1317. action of ethylsulphide on (MASSON), 1886, T., 249; P., 168. action of, on the sodium derivatives of ethylic acetate, benzoylacetate, and acetonedicarboxylate (FREER and PERKIN), 1887, T., 820; P., 95. action of normal sodium sulphite on (JAMES), 1883, T., 43. *tetranitr-* (LOSANITSCH), 1883, A., 564; (VILLIER), 1884, A., 33.

**Ethylenic carbamate** (GATTERMANN), 1888, A., 574. carbonate (NEMIROWSKY), 1884, A., 419. chloride, action of phosphoric chloride on (COLSON and GAUTIER), 1886, A., 680. action of, on the cornea (DUBOIS and ROUX), 1888, A., 517. *perchloride*, heat of formation of (THOMSEN), 1883, A., 544. chlorobromide (*chlorobromethane*) and some compounds obtained from it (JAMES), 1883, T., 37. chlorothiocyanate, preparation of (JAMES), 1885, T., 39; 1885, T., 365; P., 47.

**Ethylenic chlorothiocyanate**, action of sodium sulphite on (JAMES), 1883, T., 40. cyanide. See Succinonitrile.

**diphenylcarbamide** (HANSEN), 1887, A., 578. fluoride, hydrolysis of (CHABRIÉ), 1891, A., 281.

**Ethylenic glycol in wine** (HENNINGER), 1888, A., 631. preparation of (BOUCHARDAT), 1885, A., 498. thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764. thermal value of the hydroxyl groups in (DE FORCRAND), 1892, A., 576. action of ammonium chloride on, at high temperatures (v. HOFMANN), 1884, A., 1284. action of *Bacterium acidi* on (BROWN), 1887, T., 638. action of carbon oxychloride on (NEMIROWSKY), 1884, A., 419. oxidation of, in alkaline solution with lead peroxide (GLÄSER and MORAWSKI), 1890, A., 20. compounds of, with aldehydes (LOCHERT), 1888, A., 670. compound of chloral with (DE FORCRAND), 1889, A., 689. sodium (DE FORCRAND), 1888, A., 1238. alcoholates of (DE FORCRAND), 1889, A., 367, 562. *disodium* (DE FORCRAND), 1892, A., 421. phenylcarbamate (SNAPE), 1885, T., 773. nitr-, magnetic rotatory power of (PERKIN), 1889, T., 684, 726.

**Ethylenic imidophenylthiocarbamate** (BERTRAM), 1890, A., 1292. imidothioacetate hydrobromide (GABRIEL and HEYMANN), 1891, A., 702. imidothiobenzoate hydrobromide (GABRIEL and HEYMANN), 1891, A., 701. mercaptan dibenzoate (GABRIEL and HEYMANN), 1891, A., 701.  $\alpha$ - and  $\beta$ -naphthylimidonaphthylthiocarbamates (EVERS), 1888, A., 601.  $\alpha$ -naphthyl-thio- and -*di*thio-carbamates (EVERS), 1888, A., 602. nitrate, magnetic rotatory power of (PERKIN), 1889, T., 684, 726. action of alkaline solutions on (MIXIER), 1892, A., 692. nitrite (BERTONI), 1886, A., 217.

- Ethylene** *acanthylidenic* oxide (LOCHERT), 1888, A., 670.  
 oxide, heat of combustion of (BRUHL), 1891, A., 633.  
 thermochemistry of (BERTHELOT), 1883, A., 174, 275.  
 action of phosphonium iodide on (DE GILARD), 1885, A., 1121.  
*phenylethyl* oxide (HENRY), 1883, A., 803.  
 selenide (HAGELBERG), 1890, A., 950.  
 sodium thiosulphate (PURGOTT), 1892, A., 1418.  
 tetraphenyl *isocyanide* (KRAFFT and KOENIG), 1890, A., 1253.  
 thiobenzenesulphonates (OIRO and ROSSING), 1887, A., 953.  
 dithiocyanate (JAMES), 1883, T., 40; (PARENTI), 1891, A., 29.  
 thio-*p*-toluenesulphonate (OIRO and ROSSING), 1887, A., 954; (OIRO and HEYDECKE), 1892, A., 990.
- Ethylethenyltolylene-diamine** (HINBERG), 1887, A., 817.
- Ethylxanthones** (HERZIG), 1892, A., 1355.
- Ethylformanilide** (PICTET and CREPIEU), 1888, A., 689; (PICTET), 1890, A., 758.
- Ethylisofornanilide** (COMSPOCK and CLAPP), 1892, A., 708.
- Ethylformimide**, and its derivatives (PINNER), 1883, A., 731.
- Ethyl-fumaramic acid and -fumarimide** (PIUTTI), 1889, A., 591, 590.
- Ethylfurfuraldoxime** (ODERNHEIMER), 1884, A., 585.
- Ethylfurfurylcarbinol** (PAWLINOFF and WAGNER), 1884, A., 1304.
- Ethylglutaconic acid** (GUTHZETT and DRESSEI), 1891, A., 179.
- m*-**Ethylglycolylamidocuminic acid** (ABENIUS), 1890, A., 270.
- Ethylglycolyl-*p*-toluidide** (ABENIUS), 1888, A., 851; 1890, A., 269.
- Ethylglycolyl-*p*-xylylide** (ABENIUS), 1890, A., 269.
- Ethylglycuronic acid**, *trichlor*- (KÜLZ), 1885, A., 283.
- Ethylglyoxaline** [b.p. 210°] and its derivatives (WALLACH), 1883, A., 910.
- p*-**Ethylglyoxaline** (*oxalpropylinc*), synthesis of (RADZISZEWSKI), 1883, A., 729.
- Ethyl-hemipinamic acid and -hemipin-isimide** (GOLDSCHMIEDT), 1888, A., 1117.
- Ethylhexadecyl** (*ethylcoyl*) from ethylic and hexadecylic iodides (SORABJI), 1885, T., 40.
- Ethylhexadecyl-amine and -ammonium iodide** (KRAFFT and MOYE), 1889, A., 689.
- Ethylhexoimide hydrochloride** (PINNER), 1883, A., 1090.
- Ethylhexylglyoxaline** (*oxalethylacanthylinc*) (KARCY), 1887, A., 911.
- α*-**Ethylhomo-*o*-phthalimide** (*imide of α-ethylcarboxyphenylacetic acid*) (GABRIEL), 1887, A., 1113.
- α*-**Ethylhomo-*o*-phthalonitrile** (GABRIEL), 1887, A., 1112.
- α*-**Ethylhomopiperidinic acid** (ASCHAN), 1891, A., 466.
- Ethylhydrastamide** (FREUND and HEIM), 1891, A., 92.
- Ethylhydrasteine** (FREUND and ROSENBERG), 1890, A., 533.
- Ethylhydrastimide** (FREUND and HEIM), 1891, A., 92.
- Ethylhydrastine** (POWER), 1885, A., 675; (KERSIEN), 1890, A., 74; (SCHMIDT and KERSTEIN), 1890, A., 649.
- ethiodide** (FREUND and ROSENBERG), 1890, A., 533.
- hydroxide** (SCHMIDT), 1890, A., 1169.
- Ethylhydrazido-β-phenylpropionic acid** (FISCHER and KUZEL), 1883, A., 1132.
- Ethylhydrobérberine** (GAZE), 1890, A., 1012.
- derivatives of (LINK), 1892, A., 1499.
- Ethylhydrocarbazostyryl** (FISCHER and KUZEL), 1883, A., 1132; 1884, A., 442.
- Ethylhydrocarbostyryl** (FRIEDLÄNDER and WEINBERG), 1883, A., 204.
- Ethylie salts of αβ-halogenised acids**, dehalogenisation of (MICHAEL and SCHULTHEISS), 1891, A., 1184.
- of normal fatty acids, boiling points and specific volumes of (GARTENMEISTER), 1886, A., 966.
- Ethylie acet-*o*-amidobenzoate** (WEDDIGE), 1887, A., 1043.
- acetamidotoloxamate (SCHIFF and VANNI), 1892, A., 599.
- acetanilidoacetate and *α*-acetanilido-propionate (PAAL and OTTEN), 1890, A., 1415, 1416.
- Ethylie acetate**, formation of, from acetic acid and ethylic alcohol (MENSCHUTKIN), 1884, A., 1295.
- commercial, preparation of (CLARK), 1883, A., 1080.
- action of, on isumylic and isobutylic alcohols (PURDIE and MARSHALL), 1888, T., 395.

**Ethyl acetate**, action of, on ethyl phthalate (WILHELM), 1888, A., 1193.

action of alkaline hydrosulphides on (GOTTIG), 1886, A., 332.

action of phenylbromacetic acid on (WELTNER), 1885, A., 793.

influence of neutral salts on the rate of hydrolysis of (ARRHENIUS), 1888, A., 340.

compound of, with calcium chloride (ALLAIN LECANT), 1885, A., 371.

combination of, with magnesium chloride (ALLAIN LECANT), 1885, A., 371; 1886, A., 440.

substituted, hydrolysis of (FREER and DUNLAP), 1892, A., 1148.

**Ethyl acetate**, amido- (GABRIEL and HEYMAN), 1890, A., 1268.

chloro-derivatives of (DELAURE), 1888, A., 672.

**Ethyl acetoacetate** (JAMES), 1885, T., 1; (ISBERT), 1886, A., 1009; (NEF), 1892, A., 140; (FREER), 1892, A., 953.

preparation of, from chloroacetone (MATTHEWS and HODGKINSON), 1883, A., 311.

synthesis of (v. BAAYER), 1886, A., 223.

synthesis of, from cyanacetone (JAMES), 1886, A., 333.

constitution of (GEUTHER), 1884, A., 836; (FREER), 1891, A., 1181;

(BRÜHL), 1892, A., 583; (v. PECHMANN), 1892, A., 816;

(CLAISEN), 1892, A., 1072.

formula of (WEDEL), 1884, A., 835.

magnetic rotation of (PERKIN), 1892, T., 808, 836.

action of the homologues of acetaldehyde on ammonia and (ENGELMANN), 1886, A., 258.

action of chlor- and brom-acetone, acetophenone bromide and phenylbromacetic acid on (WELTNER), 1884, A., 746.

action of alcohols on (PETERS), 1890, A., 1096.

condensation of, with aldehydes (CLAISEN and MATTHEWS), 1884, A., 413; (PERKIN), 1885, T., 258.

action of alkylamines, amides, and amidines on (KUCKERT; CANZONERI and SPICA; PINNER), 1885, A., 751.

action of ammonia on (COLLIE), 1885, A., 373; (CONRAD and EPSTEIN), 1888, A., 253.

**Ethyl acetoacetate**, condensation of benzaldehyde with (MATTHEWS), 1883, T., 206.

action of carbamide on (BEHREND), 1884, A., 583; (BEHREND and ERNERT), 1890, A., 1240.

condensation of members of the carbamide-group with (BEHREND), 1886, A., 443.

action of, on cinnamaldehyde (BIGINELLI), 1890, A., 768.

action of, on diacyanophenylhydrazine (BLADIN), 1892, A., 597.

action of, on dextrose in presence of alcoholic ammonia (BIGINELLI), 1890, A., 732.

action of, on aromatic diamines (KNOBE; WITT), 1887, A., 247.

action of diazobenzene chloride on (JAPP and KLINGEMANN), 1888, T., 540.

condensations of  $\alpha$ -diketones with (JAPP and KLINGEMANN), 1888, T., 114.

action of ethyl  $\beta$ -bromopropionate on (EMERY), 1891, A., 517.

action of ethylenic bromide on (PERKIN), 1884, A., 64; 1885, T., 828.

action of guanidine on (KÖHLER), 1886, A., 443.

action of hydrazo-compounds on (v. PERGER), 1886, A., 1046.

action of hydroxylamine on (WESTENBERGER), 1884, A., 581; (HANTZSCH), 1891, A., 740.

action of methyltetramethylenic dibromide on (COLMAN and PERKIN), 1888, T., 197.

action of nitric acid on (PRÖPPER), 1883, A., 573; (CHANCEL), 1883, A., 914.

action of phenylhydrazine on (NEF), 1892, A., 142; (FREER), 1892, A., 953.

action of propylenic bromide on (PERKIN), 1885, T., 850.

condensation of, with pyruvic acid (DIETZEL), 1889, A., 593.

condensation of, with quinone (v. PECHMANN), 1889, A., 42.

condensation of, with succinic acid (v. EYNERN), 1889, A., 592.

action of sulphur dichloride on (DELINLE), 1887, A., 915.

action of thiocarbamide on (LIST), 1886, A., 443; 1887, A., 127.

action of trimethylenic bromide on (PERKIN), 1888, A., 1083; 1887, A., 32.

condensation of, with urethane (MEISTER), 1888, A., 675.

- Ethyl acetoacetate**, condensation-products of (HANTZSCH), 1883, A., 1083; (ANSCHUTZ, BENDIX and KFRP), 1891, A., 172.  
 stereoisomeric dioximes from (NUSSEBERGER), 1892, A., 1175.  
 syntheses with (KNORR), 1887, A., 159, 275, 601; 1888, A., 1111.  
 addition of bromine to (LIPPMANN), 1883, A., 177; (DUISBERG), 1883, A., 656.  
 introduction of acid radicles into (V. PECHMANN), 1892, A., 696.  
 method for introducing nitrogenous radicles into (JUST), 1885, A., 513.  
 detection of, in urine (LEGAL), 1888, A., 1346.  
 derivatives of (WEDEL), 1884, A., 834; (JAMES), 1885, T., 1; (ISBERT), 1886, A., 1009; (SCHONBRODT), 1890, A., 27.  
 derivatives of, action of ammonia on (CONRAD and EPSTEIN), 1888, A., 253.  
 derivatives of, action of nitric acid on (CHANCEL), 1883, A., 914.  
 acetyl and benzoyl derivatives of (V. PECHMANN), 1892, A., 817.  
 aldehyduramides (BIGINELLI), 1891, A., 908; 1892, A., 56.  
 monalkyl-derivatives of, action of diazo-salts on (JAPP and KLINGEMANN), 1888, T., 532.  
 amidobenzoic derivatives of (PELLIZZARI), 1891, A., 1484.  
 dibromide (LIPPMANN), 1883, A., 177.  
 haloid derivatives of (CONRAD), 1883, A., 177; (CONRAD and GUTHZEIT), 1883, A., 1082; (MEWES), 1888, A., 817; (HANTZSCH), 1890, A., 1238; (HALLER and HELD), 1892, A., 697.  
 sulphur derivatives of (AUTENRIETH), 1891, A., 204.  
 chlorination of (OSSIPOFF), 1889, A., 1056.  
 chlorine derivatives of (GEYRESSE), 1889, A., 122.
- Ethyl acetoacetate**, chlor-, action of nitric acid on (PRÜPPER), 1883, A., 573.  
 action of thiocarbamide on (ZÜRCHER), 1889, A., 725.  
 dichlor-, action of barium thiocyanate on (ZÜRCHER), 1889, A., 726.
- Ethyl acetoacetate**/thioglycollic acid (BONGARTZ), 1888, A., 479.
- Ethyl acetonedicarboxylate** (HALLER and HELD), 1891, A., 171; (V. PECHMANN), 1891, A., 671; 1892, A., 481.
- Ethyl acetonedicarboxylate**, magnetic rotation of (PERKIN), 1892, T., 812, 839.  
 action of ammonia on (V. PECHMANN and SPOKES), 1885, A., 1202; 1887, A., 155.  
 action of ammonia, isobutylamine and aniline on (EMERY), 1891, A., 422.  
 action of ethylenic bromide on (FREER and PERKIN), 1887, T., 845.  
 action of hydrazo-compounds on (V. PERGER), 1886, A., 1046.  
 action of nitrous acid on (V. PECHMANN), 1891, A., 738.  
 action of phosphoric chloride on (BURTON and V. PECHMANN), 1887, A., 467.  
 imido-ethers (HALLER and HELD), 1891, A., 171.
- Ethyl acetonedioxalate** (CLAISEN), 1891, A., 426.
- Ethyl acetoneoxalate** (*ethyl acetylpyruvate*) (CLAISEN and STILO), 1887, A., 917.  
 refractive and dispersive powers of (PERKIN), 1892, T., 854.  
 magnetic rotation of (PERKIN), 1892, T., 820, 854.  
 conversion of, into *s*-hydroxytoluic acid (CLAISEN), 1890, A., 364.  
 coloured compounds from (CLAISEN), 1891, A., 422.
- Ethyl acetoneitramidobenzoate** (ZACHARIAS), 1891, A., 912.  
 acetonylacetoacetate, action of hydrochloric acid on (PAAL), 1885, A., 249.  
 derivatives of (PAAL), 1885, A., 248.
- Ethyl acetophenoneacetoacetate** (PAAL), 1884, A., 598.  
 action of ammonia and primary amines on (LEDERER and PAAL), 1886, A., 75.  
 action of reducing agents and of hydrochloric acid on (WELTNER), 1884, A., 746.  
 derivatives of (PAAL), 1885, A., 248.
- Ethyl acetophenoneoxalate**, magnetic rotation of (PERKIN), 1892, T., 833, 864.  
 acetosodacetate. See **Ethyl sodacetate**.  
 aceturate, and its conversion into ethylic acetylglucolate (CURTIUS), 1884, A., 1807.
- Ethyl acetylacetoacetate**, preparation of (JAMES), 1885, T., 5.

**Ethylie acetylacetoacetate**, action of sodium ethylate on (JAMES), 1885, T., 8.

decomposition of, by water at the ordinary temperature (JAMES), 1885, T., 8.

metallic derivatives of (JAMES), 1885, T., 6.

**Ethylie acetylacetonedicarboxylate** (CLAISEN and ZEDEL), 1889, A., 377.

acetyladiolate (PERKIN), 1889, P., 142.

acetylallophanate (SEIDEL), 1886, A., 357.

acetylisoamylideneacetate (MATTHEWS), 1883, T., 202; (CLAISEN and MATTHEWS), 1884, A., 413.

acetylbenzilate (BICKEL), 1889, A., 999.

acetylbenzylideneacetate (CLAISEN and MATTHEWS), 1884, A., 443.

action of, on phenylhydrazine (KNORR and BLANK), 1885, A., 810.

acetylisobutylideneacetate (MATTHEWS), 1883, T., 202; (CLAISEN and MATTHEWS), 1884, A., 443.

acetylbutyrate, oxime of (WESTENBERGER), 1884, A., 581.

$\beta$ -acetylisobutyrate (ZANETTI), 1892, A., 74.

acetylarabintricarboxylate (NEF), 1892, A., 145; (CLAISEN), 1892, A., 1070.

acetylrichlorethylideneacetate (MATTHEWS), 1883, T., 203; (CLAISEN and MATTHEWS), 1884, A., 443.

$\alpha$ -acetylrichlorocrotonate (MATTHEWS), 1883, T., 203.

acetylcitrate (RUEHMANN), 1887, T., 404.

$\alpha$ -acetylcrotonate (CLAISEN and MATTHEWS), 1884, A., 443.

3-acetyldihydro-2:4:6-collidinedicarboxylate (BREYER), 1891, A., 1091.

acetylenedicarboxylate (PUM), 1888, A., 1058.

$\alpha$ -acetylfurfuracrylate (MATTHEWS), 1883, T., 204.

acetylfurfuralacetate (CLAISEN and MATTHEWS), 1884, A., 443.

$\alpha$ -acetylglutarate (EMERY), 1891, A., 547.

action of ammonia and aniline on (EMERY), 1891, A., 1187.

acetylglycollate, preparation of (CURTIUS), 1884, A., 1307.

acetylhexoate, oxime of (WESTENBERGER), 1884, A., 581.

**Ethylie  $\beta$ -acetylhydroxy- $\alpha\beta$ -dibromopropionate and  $\beta$ -acetylhydroxymethylacrylate** (v. PECHMANN), 1892, A., 817.

$\alpha$ -acetyl- $\beta'$ -hydroxyhydromuconate (NEF), 1892, A., 143.

acetyl- $\beta$ -imidolmurate (CANZONERI and SPICA), 1885, A., 750.

acetylglutonedicarboxylate (CONRAD and GUTHEIT), 1887, A., 500.

acetylmalonate (CONRAD and GUTHEIT), 1883, A., 44; (MICHAEL), 1888, A., 1054.

action of, on benzamidine (PINXEN), 1890, A., 496.

decomposition of, and of its homologues, by nitrous acid (LANG), 1887, A., 717.

acetylmethylacetoacetate (JAMES), 1885, T., 9.

acetylmethylamidoformate (KLOBBE), 1891, A., 293.

acetylmethylhexamethylenecarboxylate and its hydrolysis (FREER and PERKIN), 1888, T., 212, 213.

acetylmethylpentamethylenecarboxylate and its hydrolysis (FREER and PERKIN), 1888, T., 197, 198.

acetylmethyltrimethylenecarboxylate (PERKIN), 1884, A., 1155; 1885, T., 850; (PERKIN and STENHOUSE), 1892, T., 67.

acetylphenylhexamethylenecarboxylate (KIPPING and PERKIN), 1890, T., 319.

acetylpropionate, oxime of (WESTENBERGER), 1884, A., 581.

acetylpropylacetate (CHANCEL), 1883, A., 915.

acetylpyruvate. See Ethylie acetoneoxalate.

**Ethylie acetylsuccinate and its homologues**, action of ammonia and amines on (EMERY), 1891, A., 544.

action of hydrocyanic acid on (BACH), 1886, A., 1012.

action of nitrous acid on (THAL), 1892, A., 1074.

**Ethylie acetylitartronate** (CONRAD and BRÜCKNER), 1892, A., 39.

acetyltetramethylenecarboxylate, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.

acetylthienoneoxalate (ANGELI), 1892, A., 154.

derivatives of (SALVATORI), 1892, A., 303.

acetyldithiocarbamate (CHANLAROFF), 1883, A., 40.

- Ethyllic  $\alpha$ - and  $\beta$ -acetyltricarballoylates** (EMERY), 1891, A., 423.
- Ethyllic acetyltrimethylenecarboxylate** (PERKIN), 1885, T., 829; (FREER and PERKIN), 1887, T., 825; A., 33.
- molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- action of *isoamylic* iodide and sodium ethoxide on (MARSHALL and PERKIN), 1891, T., 892.
- action of phenylhydrazine on (FREER and PERKIN), 1887, T., 839.
- action of phosphoric chloride on (FREER and PERKIN), 1887, T., 841.
- oxidation of (FREER and PERKIN), 1887, T., 840.
- Ethyllic acetyltrimethylenedicarboxylate** (FREER and PERKIN), 1887, T., 845.
- aconitate (RUHEMANN), 1888, A., 255.
- action of ethyllic sodomalonate on (AUWERS), 1891, A., 546.
- acrylate, action of ethyllic alcohol on (PURDIE and MARSHALL), 1891, T., 475.
- conversion of, into  $\beta$ -alanine (WENDER), 1890, A., 862.
- adipate, synthesis of, from ethyllic potassium succinate (BROWN and WALKER), 1890, A., 583.
- alkali tartrates (LASSAR-COHN), 1887, A., 918.
- Ethyllic alcohol** (*spirits of uine*), artichokes a source of (ANON.), 1884, A., 526.
- from melon-juice (LEVAT), 1884, A., 233.
- formation of, in the fermentation of bread (MARCANO), 1884, A., 532.
- manufacture of, from wheat (ANON.), 1883, A., 630.
- preparation of (ANON.), 1884, A., 132.
- purification of (NAUDIN), 1881, A., 645; (CAZENÈVE and CHAPUIS), 1884, A., 1085; (WALLER), 1890, A., 727; (MOHLER), 1891, A., 997.
- technical purification of (LUNGE, MEYER and SCHULZE), 1885, A., 708.
- purification of, prepared from molasses or beetroot (SALZER), 1883, A., 630.
- physical properties of mixtures of, with water (GERLACH), 1886, A., 193; (FARRINGTON), 1890, A., 856.
- hydrated, magnetic rotation of (PERKIN), 1886, T., 780.
- Ethyllic alcohol** (*spirits of wine*), electrical conductivity of (PFEIFFER), 1886, A., 4.
- electrical conductivity of aqueous solutions of (PFEIFFER), 1885, A., 1029.
- electrical conductivity of mixtures of ether and (PFEIFFER), 1886, A., 115.
- electrical resistance of (FOUSSEREAU), 1885, A., 1100.
- heats of combustion and formation of (BERTHELOT and MATIGNON), 1892, A., 1139.
- heat conductivity of (CHREE), 1888, A., 642.
- heat conductivity of mixtures of, with water (HENSEBERG), 1889, A., 459.
- specific heats of solutions of (BLUMCKE), 1885, A., 1031; (TIMO-FÉEFF), 1891, A., 1406.
- thermal properties of (RAMSAY and YOUNG), 1885, A., 1178.
- thermal properties of a mixture of ethyllic oxide and (RAMSAY and YOUNG), 1887, T., 755; P., 91.
- cryoscopy of dilute solutions of (PICKERING), 1892, A., 1045.
- specific gravities of mixtures of carbonic anhydride and (BLUMCKE), 1887, A., 435.
- solidification of (WROBLEWSKI and OLZEWESKI), 1883, A., 781.
- vapour pressures of (RAMSAY and YOUNG), 1885, T., 654; (RICHARDSON), 1886, T., 762, 768, 771, 773; (SCHMIDT), 1892, A., 397.
- alteration of volume on mixing with ether (RAMSAY and YOUNG), 1887, T., 768, 774.
- solubility of some substances in a mixture of water and (BODLÄNDER), 1891, A., 791.
- conversion of, into aldehyde by "Champignon du muguet" (LIXON-SIER and ROUX), 1890, A., 1179; 1891, A., 854.
- decomposition of, by the silent discharge (MAQUENNE), 1884, A., 543.
- electrolysis of (HABERMANN), 1887, A., 94.
- evaporation of, from wooden vats (SCHROBE), 1884, A., 526.
- action of *Bacterium aceti* on (BROWN), 1886, T., 175; P., 136.
- action of, on the compound  $(\text{SCN}_2\text{H}_5)_2\text{SiBr}_2$  (REYNOLDS), 1888, T., 857.
- action of iodine on (TRAUBE and NEUBERG), 1891, A., 656.

**Ethyl alcohol** (*spirits of wine*), action of hot manganese dioxide on vapour of (DONATH), 1889, A., 230.  
 action of metallic alkyl'oxides on mixtures of ethereal salts and (PURDIE), 1887, T., 630.  
 combined action of potassium dichromate and chlorine on (GODEFROY), 1884, A., 660.  
 action of heated zinc dust on a mixture of benzene and (DENNSTEDT), 1890, A., 1429.  
 action of heated zinc dust on piperidine and, products of the (DENNSTEDT), 1890, A., 1429.  
 action of zinc dust on a mixture of pyttrole and (DENNSTEDT), 1890, A., 1428.  
 oxidation of, by permanganate (BENEDIKT and NEUDORFER), 1892, A., 1529.  
 influence of, on the action of invertase on cane-sugar (O'SULLIVAN and TOMPSON), 1890, T., 860.  
 formation and change of, in the organism (ALBERTONI), 1888, A., 973.  
 in the brain in cases of inebriation (KUIJPER), 1884, A., 370.  
 influence of, on metabolism in man (KELLER), 1889, A., 288.  
 influence of, on proteid metabolism (CHITTENDEN and SMITH), 1891, A., 1272.  
 is it eliminated by the milk? (KLINGEMANN), 1892, A., 865.  
 secretion of perspiration by the skin after taking (BODLÄNDER), 1888, A., 977.  
 compound of, with sodium disulphide (DEMONT), 1891, A., 1170.  
 compounds of, with stannic chloride (FISCHER), 1885, A., 377.  
 compounds of, with water (MENDELÉEFF), 1887, T., 778.  
 supposed hydrates of (PICKERING), 1890, A., 857.  
 examination of commercial (GIRARD and ROCQUES), 1889, A., 445; (BORNTRÄGER), 1889, A., 552.  
 alleged tests for (GLADSTONE and TRIBE), 1883, T., 346.  
 liquid paraffin as a reagent for the presence of water in (CRISMER), 1884, A., 1073.  
 detection of higher alcohols in (BARDY), 1892, A., 1379.  
 detection and estimation of, in corpses (SEYDA), 1891, A., 118.

**Ethyl alcohol** (*spirits of wine*), detection of impurities in (GODEFROY), 1888, A., 875; (ROUGIER), 1888, A., 993; (CAZENÈVE), 1889, A., 928; (BORNTRÄGER), 1890, A., 669; (MOHLER), 1890, A., 1472.  
 estimation of (BOHLIG), 1886, A., 493; (RÖSE), 1888, A., 1133; (BENEDIKT and NEUDORFER), 1892, A., 1529.  
 estimation, indirect, of (BLUNT), 1892, A., 543.  
 estimation of, by Röse's process (GRÜNHUT), 1892, A., 1031.  
 estimation of, by oxidation with potassium dichromate and sulphuric acid (FRANKLAND and FREW), 1891, T., 93.  
 estimation, halymetric, of, in beer (KLEINERT), 1884, A., 641.  
 estimation of, in essential oils (HAGER), 1889, A., 445.  
 estimation of small proportions of, in viscous liquids (BOGMANN), 1884, A., 641.  
 estimation of acetone in denaturated (VIGNON), 1891, A., 1142.  
 estimation of impurities in, by Röse's method (SCALA), 1891, A., 1555.  
 estimation of methyl alcohol in presence of (VAN DE VEVERE), 1885, A., 600; (HEHNER), 1887, A., 1142.  
 titration of, with chromic acid (BOURCART), 1890, A., 1030.  
**Ethyl alcohol**, amido-. See Hydroxyethylamine.  
*dichlor*-, and its derivatives (DELAURE), 1887, A., 713.  
*trichlor*-, action and fate of, in the animal organism (KÜLZ), 1885, A., 283.  
 zinc salt of (DELAURE), 1888, A., 663.  
 nitr. (DEMUTH and MEYER), 1889, A., 366; 1890, A., 857.  
 sodium salt of (DEMUTH and MEYER), 1890, A., 858.  
 oxime of (ALEXÉEFF), 1886, A., 999.  
**Ethyl alcohol aldehyde**. See Acetaldehyde.  
 aldehydophenoxyacetates, *m*- and *p*- (ELKAN), 1887, A., 253.  
 allophanyl-glycolate and  $\alpha$ -lactate (TRAUBE), 1889, A., 394, 964.  
 allophanyltartrate (TRAUBE), 1889, A., 965.  
 allylacetate, action of alcoholic sodium ethoxide on (PURDIE and MARSHALL), 1891, T., 482.  
 allylacetate, magnetic rotation of (PERKIN), 1892, T., 809.

**Ethylie allyleynacetate** (HENRY), 1887, A., 796.  
*isoallylenetetra-carboxylate*. See Ethylie propanetetra-carboxylate.  
*amidacetate* and its hydrochloride (CURTIUS), 1883, A., 1087; (CURTIUS and GOEBEL), 1888, A., 576.  
*p*-amidacetate, and its derivatives (COLLIE), 1885, A., 373. condensation products of, with hydrochloric acid (COLLIE), 1887, A., 501.  
 "amidacetosuccinate" (CONRAD and EPSTEIN), 1888, A., 253.  
*o*-amidobenzoate, action of ammonia on derivatives of (ZACHARIAS), 1891, A., 912.  
*m*-amidocarboxyphenyloxamate (SCHIFF), 1884, A., 906.  
**Ethylie  $\beta$ -amidocrotonate** (*ethylie  $\beta$ -amidobutyrate*), refractive and dispersive powers of (PERKIN), 1892, T., 861.  
 magnetic rotation of (PERKIN), 1892, T., 828, 859.  
 action of heat on (COLLIE), 1891, T., 172.  
 action of nitrous acid on (KNORR), 1884, A., 1368.  
**Ethylie *m*-amidocumate** (ABENIUS), 1888, A., 854.  
*diamidocyanurate* (v. HOFMANN), 1886, A., 931.  
*diamidodiethylideneadipate* (PERKIN and OBERMSKY), 1886, A., 936.  
 "amidoethylacetate" (CONRAD and EPSTEIN), 1888, A., 253.  
*amidoethylenedicarboxylate* (RUFEMANN and MORRELL), 1891, T., 747; 1892, T., 792.  
 action of baryta on (RUFEMANN and MORRELL), 1891, T., 749.  
 *$\beta$ -amido- $\alpha$ -ethylideneglutarate*, lactam of (EMERY), 1891, A., 1187.  
 *$\beta$ -amidoethylidenesuccinate* and its derivatives (EMERY), 1891, A., 514.  
*amidoformic chloride* (GATTERMANN and SCHMIDT), 1887, A., 358.  
 *$\beta$ -amidoglutaconate* (EMERY), 1891, A., 422.  
 "amidomethylacetate" (CONRAD and EPSTEIN), 1888, A., 253.  
*amidomethylthiazolecarboxylate* (ZÜRCHER), 1889, A., 725; (HALLEE and HELD), 1892, A., 697.  
*m*-amidophenyllutinedicarboxylate (LEPETIT), 1887, A., 846.  
*amidopropionate* (CURTIUS and KOCH), 1889, A., 376.

**Ethylie diamidopyromellitate** (NEF), 1886, A., 64; 1887, A., 257; 1888, T., 443.  
 *$\alpha$ -amidoquinoldicarboxylate*, acetyl-derivatives of (BÖNIGER), 1888, A., 955.  
 *$\alpha$ -amidoquinonedicarboxylate* (HANTZSCH and ZECKENDORF), 1887, A., 727.  
 *$\alpha$ -amidoquinonedihydrocarboxylate* (BÖNIGER), 1888, A., 954.  
*p*-amidoquinonedimalonate (STIEGLITZ), 1891, A., 455.  
*p*-*di*amidoterephthalate (v. BAYER), 1886, A., 445.  
 *$\mu$ -amidothiazoleedicarboxylate* (RUFELFF), 1891, A., 224.  
*amidothiazylacetate* (HANTZSCH), 1890, A., 1238.  
 *$\mu$ -amidothiazylacetate* (STEUDE), 1891, A., 743.  
*amidothiazylisobutyrate* (HANTZSCH and SCHIFFER), 1892, A., 697.  
*mono-* and *di*-amidothiocyanurates (KLASON), 1886, A., 523, 521.  
*amidotolylcarbamates*, isomeric (SCHIFF and VANNI), 1891, A., 702.  
*1-m*-amidotolyl-2,5-dimethylpyrrole-3,4-dicarboxylate (KNORR), 1887, A., 276.  
*amidotolylloxamate* (SCHIFF and VANNI), 1892, A., 1208.  
*amidovalerate hydrochloride* (TAFEL), 1889, A., 961.  
*ammonium sulphate* (KRAFFT and BOURGEOIS), 1892, A., 700.  
 *$\alpha$ -isocamyl- $\beta$ -amidocrotonate* (PETERS), 1890, A., 1097.  
*amylid*/sulphide (OTTO and ROSSING), 1887, A., 212.  
*isocamylmalonate* (PAUL and HOFFMANN), 1890, A., 1099.  
 *$\beta$ -amylxyquarternylate* (ENKE), 1890, A., 865.  
*isocamylquinol* (FIALA), 1886, A., 451.  
*angelate* (BEILSTEIN and WIEGAND), 1885, A., 42.  
 action of alcoholic sodium ethoxide on (PURDIE and MARSHALL), 1891, T., 482.  
*anilidoacetate*, and nitrite of (KOSSEL), 1892, A., 468, 469.  
 *$\beta$ -anilidoacrylate* (v. PECHMANN), 1892, A., 818.  
 *$\alpha$ -anilidobutyrate* (NASTVOGEL), 1889, A., 1013.  
*anilidocrotonate*, action of methylic iodide on (CONRAD and ECKHARDT), 1889, A., 508.  
 *$\alpha$ -anilido- $\alpha$ -cyanopropionate* (GERSON), 1887, A., 260.

**Ethyllic  $\beta$ -anilido- $\alpha$ -ethylideneglutarate**, lactam of (EMERY), 1891, A., 1187.  
**anilidoformacetate** (PAAL and OTTEN), 1890, A., 1415.  
**2:5-anilidonitrobenzoate** (GROHMANN), 1892, A., 326.  
**anilido $\alpha$ -nitrophenylmalonate** (JACKSON and BENTLEY), 1892, A., 1218.  
**nitrito** (JACKSON and BENTLEY), 1892, A., 1217.  
**anilido $\alpha$ -nitrophenyltartrate** (JACKSON and BENTLEY), 1892, A., 1218.  
 **$\beta$ -anilidophenylacrylate** (CONRAD and LIMPACH), 1888, A., 505.  
**anilidophenylsuccinate** (HELL and POLIAKOFF), 1892, A., 820.  
 **$\alpha$  anilidopropionate** (NASTVOGEL), 1889, A., 1012.  
**anilidopyrotartarinate** (SCHILLER-WECHSLER), 1885, A., 900.  
**anilidoisossuccinamate** (GENSEN), 1887, A., 260.  
**anilidosuccinate** (KUSSEROW), 1889, A., 1064.  
**anisate**, melting point of (PERKIN), 1889, T., 551.  
**anisnylamidoximecarboxylate** (MILLER), 1890, A., 145.  
**anisylhydroxamate** (PIEPER), 1883, A., 462.  
 **$\alpha$ - and  $\beta$ -aspartates** (PIUTTI), 1889, A., 382, 381.  
**constitution of** (PIUTTI), 1889, A., 383.  
**isotropate**. See Ethyllic truxillate.  
**azinoethylenedicarboxylate** (CURTIUS and LANG), 1892, A., 453.  
**azinsuccinate**, formation of, from ethyllic diazoacetate (CURTIUS), 1885, A., 886.  
**azinsuccinates** (CURTIUS and KOCH), 1885, A., 885.  
**azo-**. See under Azo-.  
**benzamidoxalacetate** (WISLICENUS), 1891, A., 922.  
**benzamidylcarbamate** (PINNER), 1891, A., 59.  
***m*-benzammalonate** (SCHIFF), 1884, A., 906.  
**benzam-sebate and -succinate** (PELLIZARI), 1885, A., 534, 533.  
**benzanisylhydroxamates**,  $\alpha$ - and  $\beta$ -, and decomposition of, by heat (PIEPER), 1883, A., 461.  
**benzenazocamphocarboxylate** (HALLER), 1892, A., 1344.  
**benzenediazo- $\Delta^{14}$  and - $\Delta^{25}$ -dihydroterephthalates** (v. BAEYER and v. BRÜNING), 1891, A., 1487.

**Ethyllic benzenediazoterephthalate** (v. BAEYER and v. BRÜNING), 1891, A., 1487.  
 **$p$  benzenedihydrato- $\Delta^{14}$  and - $\Delta^{25}$ -dihydroterephthalates** (v. BAEYER, JAY and JACKSON), 1891, A., 1486.  
**benzenesulphinate** (OTTO and ROISING), 1885, A., 1231.  
**benzenesulphonate** (KRAFFT and ROOS), 1892, A., 1220.  
**benzenesulphone- $\alpha$ -amidobenzoate** (FRANKE), 1892, A., 334.  
**benzenetrisulphonate** (JACKSON and WING), 1888, A., 153.  
**benzenylamidoximecarbonate** (FALCK), 1885, A., 1217.  
**benzenylamidoxime-*m*-carboxylate** (MÜLLER), 1886, A., 808.  
**benzenyl-amidoximeoxalate and -azoximemethenylcarboxylate** (WÜRM), 1890, A., 258, 259.  
**benzhydroxamate** (PIEPER), 1883, A., 462.  
**benzhydroximate** (TIEMANN and KRUGER), 1885, A., 790; (KRUGER), 1885, A., 896.  
**benzilate** (KLINGER and STANDKE), 1889, A., 835.  
**benzoate**, amido-, salts of (GABRIEL and HEYMANN), 1890, A., 1267.  
**benzoic sulphinide** (FAHLBERG and LIST), 1887, A., 835.  
**Ethyllic benzoyleacetate** (v. BAEYER and PERKIN), 1884, A., 63; (JAMES), 1885, T., 10.  
**preparation of** (PERKIN), 1884, T., 174; (CLAISEN and LOWMAN), 1887, A., 583.  
**magnetic rotation of** (PERKIN), 1892, T., 831, 861.  
**condensation of, with benzaldehyde** (PERKIN), 1885, T., 258.  
**action of bromine on** (BENDER), 1888, A., 1189.  
**action of ethylenic bromide on** (PERKIN), 1884, A., 64; 1885, T., 836.  
**condensation of, with furfuraldehyde** (PERKIN and STREHNOWSE), 1891, T., 1011.  
**action of phosphorus pentachloride on** (PERKIN), 1885, T., 256.  
**condensation of, with sodium succinate** (FITTIG and SCHLOESSEK), 1888, A., 1039.  
**condensation of, with succinic acid** (FITTIG), 1889, A., 592.  
**action of trimethylenic bromide on** (PERKIN), 1883, A., 1083; 1887, A., 32.  
**condensation products of** (PERKIN), 1885, T., 280.

- Ethylie benzoylacetate**, reduction of (PERKIN), 1885, T., 253.  
 derivatives of (STIERLIN), 1888, A., 1088, 1298.  
 copper salt of (JAMES), 1885, T., 10; (FEIT), 1891, A., 459.  
 pyrazoline derivatives from (KNORR and KLOTZ), 1887, A., 1121.  
 stereoisomeric dioximes from (NUSSEBERGER), 1892, A., 1175.
- Ethylie benzoylallylacetate** (PERKIN), 1885, T., 241.  
 preparation of, and decomposition products of (PERKIN), 1884, T., 186.  
 benzoyl*iso*butylacetate (PERKIN and CALMAN), 1886, T., 165.  
 benzoylcyanoacetate and its salts (HALLER), 1886, A., 240; 1887, A., 1031.  
 heat of neutralisation of (HALLER and GUNTZ), 1888, A., 894.  
 3-benzoyldihydro-2:4:6-collidinecarboxylate (BEYER), 1891, A., 1091.  
 benzoyl- $\alpha$ -dinnethyl-*p*-difurfuran- $\beta$ -dicarboxylate (IKUTA), 1892, A., 610.  
*m*-benzoyldimethyldifurfurandicarboxylates,  $\alpha$ - and  $\beta$ - (HANTZSCH), 1887, A., 262.  
*o*- and *p*-benzoyldimethyldifurfurandicarboxylates (NUTH), 1887, A., 803.  
 benzoylethylacetate (PERKIN), 1885, T., 241.  
 and its decomposition products (PERKIN), 1884, T., 179, 180.  
 $\beta$ -benzoyl- $\alpha$ -ethylsuccinate (DIRTRICH and PAUL), 1889, A., 257.  
 benzoylhomocoonate (BAUM), 1886, A., 562.  
 benzoylmalamate (CURTIUS and KOCH), 1887, A., 31.  
 benzoylmalonate (BISCHOFF), 1883, A., 912.  
 benzoylmethylacetate (PERKIN and CALMAN), 1886, T., 156.  
 benzoylmethylallylacetate (PERKIN and STENHOUSE), 1891, T., 999.  
 3-benzoyl-1-methyldihydrocollidinecarboxylate (BEYER), 1891, A., 1091.  
 benzoylmethyltrimethylenecarboxylate (PERKIN and STENHOUSE), 1892, T., 84.  
 benzoylnitrosoacetate, preparation and properties of (PERKIN), 1885, T., 243.  
 benzoyl-*n*- and -*iso*-propylacetates (PERKIN and CALMAN), 1886, T., 160.  
 benzoylpyruvate (BEYER and CLAUSEN), 1887, A., 943.
- Ethylie benzoylsantonite** (CANNIZZARO and CARNELUCCI), 1883, A., 77.  
 benzoylsuccinate, preparation and properties of (PERKIN), 1885, T., 272.  
 decomposition products of (PERKIN), 1885, T., 274.  
 $\beta$ -benzoylsuccinate (BISCHOFF), 1883, A., 912.  
 benzoyltetramethylenecarboxylate (PERKIN), 1883, A., 1033.  
 benzoyltrimethylenecarboxylate (PERKIN), 1885, T., 836, 840.  
 benzoyltrimethyltrifurfuratricarboxylate (LANG), 1887, A., 263.  
 benzylacetacetic-*o*-carboxylate (BULLOW), 1887, A., 144.  
 $\alpha$ -benzylacetylglutarate (FITTIG and CHRIST), 1892, A., 962.  
 benzylallylsulphonacetate (MICHAEL and PALMER), 1885, A., 986.  
 benzylbenzoylacetate and its hydrolysis (PERKIN and STENHOUSE), 1891, T., 1006, 1007.  
 benzylbutanetricarboxylate (BISCHOFF and WALDEN), 1889, A., 959; (BISCHOFF and MINTZ), 1890, A., 774.  
 benzylisobutanetricarboxylate (BISCHOFF and MINTZ), 1890, A., 774.  
 benzyleyanosuccinate (BARTHE), 1889, A., 708.  
 benzylidicarboxyglutaconate (GUTHZEIT and DRESSEL), 1891, A., 179.  
 action of ammonia on (RUHEMANN and MORRELL), 1891, T., 748.  
 action of phenylhydrazine on (RUHEMANN and MORRELL), 1892, T., 795.  
 4-benzyl-2:6-dimethylhydropyridine-3:5-dicarboxylate (JEANRENAUD), 1888, A., 965.  
 benzylethanetricarboxylate (BISCHOFF and MINTZ), 1890, A., 774.  
 benzylethylidicarboxyglutarate (GUTHZEIT and DRESSEL), 1891, A., 179.  
 benzylidenebenzoylacetate, preparation and properties of (PERKIN), 1885, T., 260, 262.  
 benzylidenediacetoacetate, and the action of bromine on (HANTZSCH), 1886, A., 77.  
 benzylidenedibenzoyldiacetate (BUCHNER and CURTIUS), 1885, A., 1238.  
 4-benzylidene-2:6-dimethyldihydropyridine-3:5-dicarboxylate (EPSTEIN), 1886, A., 257.

**Ethyllic** 4-benzylidene-2:6-dimethylpyridine-3:5-dicarboxylate (ERSTEIN), 1886, A., 258.  
 benzylidenemalonate, action of ethyllic sodacetate on (BREDT), 1891, A., 712.  
 and its carboxylic acid (CLAISEN and CRISMER), 1884, A., 444.  
 benzylidomalonate (BISCHOFF and HAUSDÖRFER), 1887, A., 916.  
 benzylpropanetricarboxylate (BISCHOFF and MINTZ), 1890, A., 774.  
 bisdinutrophenylacetate (V. RICHTER), 1888, A., 1189.  
 brassate (REIMER and WILL), 1887, A., 233.  
 $\alpha$ -bromacetate, action of potassium cyanide on (ZELINSKY and BIRCHICHIN), 1889, A., 377.  
 bromacetate, chlor- (HENRY), 1884, A., 421.  
 bromacetacetate (NEF), 1892, A., 143; (HALLER and HELD), 1892, A., 818.  
 dibromadipate (RUEHMANN and BLACKMAN), 1890, T., 372.  
 tetrabromadipate (RUEHMANN and DUFFON), 1891, T., 753.  
 dibrom-*o*-amidophenylvalerate hydrochloride (DIEHL and EINHORN), 1887, A., 486.  
 bromanilidodinitrophenylmalonate (JACKSON and BANCROFT), 1890, A., 982.  
 $\alpha$ -bromomethylacetate (NEF), 1892, A., 144.  
 $\omega$ -bromomethylacetate (FREER and PERKIN), 1887, T., 833; A., 33.  
 bromethylamido- $\alpha$ -crotonate (GABRIEL), 1891, A., 817.  
 bromide, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
 bromide, bromination of (MEYER and MÜLLER), 1892, A., 577, 1414.  
*p*-bromobenzenesulphonate (KRAFFT and ROOS), 1892, A., 1220.  
*p*-bromobenzoate (ERRERA), 1887, A., 1107.  
 $\alpha$ -bromobutyrate, action of triethylamine on (DUVILLIER), 1890, A., 234.  
 $\alpha\beta$ -dibromobutyrate (PALMER), 1889, A., 686; (MICHAEL and SCHULTHEISS), 1891, A., 1184.  
 $\alpha$ -bromoisobutyrate, action of, on ethylic propylmalonate and isopropylmalonate (BISCHOFF and TIGERHEIDT), 1890, A., 1103.  
 bromocinnamate, conversion of, into ethylic benzoylacetate (MICHAEL and BROWNE), 1886, A., 703.

**Ethyllic**  $\alpha$ -bromocinnamates, action of phenylhydrazine on (RUEHMANN), 1892, T., 279.  
 bromoctylate (AUWER and BERNHARDI), 1891, A., 1190.  
 $\alpha$ -bromocanthylate (HELL and SCHULE), 1885, A., 757.  
 bromofumarate (PUM), 1888, A., 1058.  
 action of potassium ethoxide on (MÜLLER and WELLMAN), 1889, A., 376.  
 $\gamma$ -bromoisohexanoate (BREDT), 1886, A., 531.  
 dibromohydromuconate (RUEHMANN and DUFFON), 1891, T., 752.  
 di- and tetra-bromoketipates (FRIITZ, DAINLER and KELLER), 1889, A., 491.  
 mono- and di-bromomaleates (PUM), 1888, A., 1058.  
 bromomaleate, action of potassium ethoxide on (MÜLLER and WELLMAN), 1889, A., 376.  
 bromomalonate (KNOEVENAGEL), 1888, A., 707.  
 action of potassium acetate on (CONRAD and BRÜCKNER), 1892, A., 39.  
 bromomethylacetacetate (RUBLEFF), 1891, A., 223.  
 $\alpha$ -bromomethylacetacetate (NEF), 1892, A., 144.  
 bromomethylpentamethyleneacetacetate (FREER and PERKIN), 1888, T., 211.  
 bromo- $\beta$ -naphthoate (EKSTRAND), 1891, A., 934.  
 bromodinitrophenylacetacetate (JACKSON and MOORE), 1889, A., 781; 1890, A., 772.  
 bromodinitrophenylmalonate (JACKSON and ROBINSON), 1888, A., 1091; 1890, A., 377; (JACKSON), 1889, A., 880.  
 nitrite (JACKSON and BENTLEY), 1892, A., 1219.  
 bromotrinitrophenylmalonate (JACKSON and MOORE), 1890, A., 497.  
 action of nitric acid on (JACKSON and BENTLEY), 1892, A., 1217.  
 nitrite (JACKSON and BENTLEY), 1892, A., 1217.  
 dibromodinitrophenylmalonate (JACKSON and BANCROFT), 1890, A., 982.  
 bromotrinitrophenyltartronate (JACKSON and BENTLEY), 1892, A., 1218.  
 dibromopentacetetracarboxylate (PERKIN and PRENFICT), 1891, T., 827.

**Ethylid dibromophenylpropionate**, melting point of (ARONSTEIN and HOLLEMAN), 1889, A., 878.  
**bromophloroglucinoldicarboxylate** (BALLY), 1888, A., 956.  
 **$\alpha$ -bromopropionate** (ZELINSKY), 1887, A., 912; (DUVILLIER), 1890, A., 234.  
     action of potassium cyanide on (ZELINSKY), 1889, A., 122.  
     action of silver on (HELL and ROTHBERG), 1889, A., 371.  
**bromopropylacetoacetate**, preparation of (LIPP), 1886, A., 218.  
**bromopyruvate** (HELL and SANGIER), 1886, A., 447.  
**dibromoquinonehydrodicarboxylate** (BONIGER), 1888, A., 954.  
**dibromoquinoneterephthalate** (STIEGLITZ), 1891, A., 456.  
**bromostearate** (AUWERS and BERNHARDI), 1891, A., 1190.  
**bromosuccinate**, action of ammonia on (KÖRNER and MENOZZI), 1887, A., 1031.  
     action of  $\alpha$ - and  $\beta$ -naphthylamines on (HELL and POLIAKOFF), 1892, A., 860.  
**Ethylid dibromosuccinate**, action of aniline on (LOPATINE), 1887, A., 1046.  
     action of ethylenediamine on (FORSSELL), 1891, A., 1004.  
     action of, on ethylid malonate (PERKIN), 1884, A., 1300.  
     action of potassium ethoxide on (MULDER and WELLEMANN), 1889, A., 376.  
     action of silver on (GORODETZKY and HELL), 1888, A., 937.  
     action of zinc on (MICHAEL and SCHULHES), 1891, A., 1184; (CLAUS), 1891, A., 1338; (MICHAEL), 1892, A., 40.  
**Ethylid dibromo-2:4:6-trimethyl-pyridine- and -hydroxy-pyridine-3:5-dicarboxylates, dibromides of** (HANTZSCH), 1883, A., 82.  
 **$\alpha$ -bromovalerate** (JULIN), 1885, A., 137.  
**bromoisovalerate**, action of silver on (HELL and MAYER), 1889, A., 372.  
     action of trimethylamine on (DUVILLIER), 1890, A., 956.  
 **$\alpha$ -bromoisovalerate**, action of, on sodium malonic ether (ROUER), 1884, A., 423.  
**bromundecylenate** (NOERDLINGER), 1890, A., 1237.  
**butaneheptacarboxylate** (BISCHOFF), 1888, A., 1061.

**Ethylid butanehexacarboxylate** (BISCHOFF), 1883, A., 912.  
**butanetetracarboxylate** (BISCHOFF and RARCH), 1885, A., 240.  
**butanepentacarboxylate** (EMERY), 1891, A., 424.  
**butane- $\omega_2\omega_3$ -tetracarboxylate** (PERKIN), 1886, A., 934; 1887, T., 19.  
**butanetricarboxylate** (POLKO), 1888, A., 131; (BISCHOFF and V. KUILBERG), 1890, A., 743.  
**isobutanetricarboxylate** (LEUCKART), 1885, A., 1201; (BARNSTEIN), 1888, A., 135; (BARTHE), 1889, A., 588; (BISCHOFF and V. KUILBERG), 1890, A., 743; (BISCHOFF), 1891, A., 292.  
 **$\beta$ -isobutoxyquaterylate** (ENKE), 1890, A., 865.  
 **$\alpha$ -isobutyl- $\beta$ -amidocrotonate** (PEIERS), 1890, A., 1097.  
 **$\beta$ -isobutylamidoglutaconate** (EMERY), 1891, A., 422.  
**isobutylparaconate** (FITZIG and KRAENCKER), 1890, A., 874.  
**butyrate**, production of, by fermentation (JACQUEMIN), 1890, A., 1455.  
     action of sodium on (BRUGGEMANN), 1888, A., 1176.  
**isobutyrate**, action of, on ethylid oxalate (WISLICHENUS), 1888, A., 1193.  
     action of sodium on (BRUGGEMANN), 1888, A., 1176; (HANTZSCH), 1889, A., 372.  
 **$\alpha$ -butyrolbutyrate** (HAMONET), 1890, A., 235.  
***n*- and *iso*-butyrocyanoacetates** (HALLER), 1888, A., 818.  
**butyromalonate** (LANG), 1887, A., 717.  
**camphocarboxylate** (ROUER), 1886, A., 249; (BRUHL), 1892, A., 348.  
     action of sodium benzyloxide on (MINGUIN), 1892, A., 74.  
**camphorates and isocamphorates** (FRIEDEL), 1892, A., 500.  
**camphorimidoacetate** (HALLER and ARTH), 1887, A., 1031.  
**camphoroxalate phenylhydrazone** (TINGLE), 1890, T., 655.  
**camphorymalonate** (WINZER), 1890, A., 1150.  
**carbacetooacetate**, so-called (POLONOWSKA), 1886, A., 1011; (HANTZSCH), 1892, A., 819.  
**Ethylid carbamate (urethane) and its derivatives** (JACQUEMIN), 1886, A., 1085; (MULDER), 1888, A., 1063.  
     in the alcoholic extract of normal urine (JACQUEMIN), 1888, A., 878; (JAFFE and COHN), 1890, A., 654.

**Ethylie carbamate** (*urethane*), action of *p*-chloro-phenylhydrazine on (HEWITT), 1891, T., 211.  
 condensation of, with ethylic acetoacetate (MEINER), 1888, A., 675.  
 decomposition of (ARTH), 1854, A., 731; 1886, A., 692.  
 an hypnotic (v. JAKSCH), 1886, A., 572.  
 therapeutic action of (MAIRER and COMBEMALE), 1886, A., 640.  
 chlor- (NEMIROWSKY), 1885, A., 741; (GATTERMANN), 1888, A., 574.  
**Ethylie carhamidotolyloxamate** (SCHIFF and VANNI), 1891, A., 631, 908; 1892, A., 603, 1208.  
 carbamylphenylcarbamate (*carboxy-ethyl-o-amidobenzenamide*) (ABR), 1889, A., 610.  
 carbanilate, conversion of, into amido-benzoic acid (HENTCHEL), 1885, A., 792.  
 carbanilido-2:4-dimethylpyrrole-3- and -5-carboxylates (KNOHR), 1887, A., 277, 276.  
 carbonate, thio-derivatives of (KLASON), 1887, A., 1029.  
 carbonates, heats of combustion of (LUGNIN), 1884, A., 547.  
 isocarbonylrottritarate (KNOHR), 1889, A., 385.  
 carboxyacetacetate (CLAISEN), 1892, A., 1070.  
 $\alpha$ -carboxy- $\beta$ -acetylglutarate (CONRAD and GUTHZEI), 1886, A., 336.  
 carboxycarbamate (WURTZ and HENNINGER), 1885, A., 969.  
 carboxy-2:5-dimethylpyrrolyacetate (KNOHR), 1886, A., 332.  
 carboxyethylacetacetate (MICHAEL), 1892, A., 1179.  
 $\alpha$ -carboxyethylpimelate (SCHLEICHER), 1892, A., 427.  
 carboxyglutarate (EMERY), 1891, A., 547.  
 carboxyphenyl-selate and -succinate (PELLIZZARI), 1885, A., 534, 533.  
 chelidamate (LEICH), 1885, A., 46.  
 chloracetate, action of, on primary diamines (ZIMMERMANN and KNYREM), 1883, A., 797.  
 action of sodium on (FITTIG and ERLÉNDBACH), 1888, A., 1052, 1269; (ERLÉNDBACH), 1892, A., 953.  
 chlor- (HENRY), 1884, A., 421.  
 dichloracetate, action of, on barium thiocyanate (ZURCHER), 1889, A., 726.  
 action of, on the sodium derivative of ethylic malonate (BISHOP and PERKIN), 1891, P., 41.

**Ethylie chloracetacetate**, constitution of (HANTZSCH and SCHIFFER), 1892, A., 697.  
 action of nitric acid on (PRÖPPER), 1883, A., 573.  
 action of phenylhydrazine on (BENDER), 1888, A., 53.  
 action of sodium phenylmercaptide on (OTTO and ROSSING), 1891, A., 712.  
 dichloracetacetate, action of potassium cyanide on (JAMES), 1887, T., 289; P., 25.  
 chloracetacetates (HALLER and HELD), 1889, A., 588.  
*tetra-* and *penta-*chloracetacetates (GENÈRESE), 1889, A., 123.  
 dichloradipate (RUEHMANN), 1890, T., 939.  
 chloralimidocarboxylate (MOMHELEN), 1891, A., 1003.  
 chloranilate (KEHRMANN), 1890, A., 136.  
 chloroethenyltricarboxylate (BISCHOFF), 1883, A., 45.  
 dichloroethenyltricarboxylate (BISCHOFF and RACH), 1885, A., 244.  
*mono-* and *di-*chloroethylacetacetates (ISBERT), 1886, A., 1010.  
 dichloroethylcrotonate (FREER and PERKIN), 1887, T., 843.  
 trichloroethylidenemalonate (KOMNENOS), 1884, A., 423.  
 chloride, nitr- (DEMUTH and MEYER), 1890, A., 858.  
 chlorinimidocarbonate (SANDMEYER), 1886, A., 611.  
*p*-chlorobenzene-sulphonate (KRAFFT and ROUS), 1892, A., 1220.  
*tetrachlorobenzoate* (TUST), 1887, A., 1046.  
 chlorobromomalonate (CONRAD and BRÜCKNER), 1892, A., 39.  
 chlorobutanetricarboxylate (BISCHOFF), 1890, A., 1101.  
**Ethylie chlorocarbonate** (PAWLEWSKI), 1892, A., 963.  
 action of, on nitrogenous organic matter (v. MEYER), 1885, A., 140.  
 action of, on potassium cyanate (WURTZ and HENNINGER), 1885, A., 968.  
 action of, on salts of fatty and aromatic acids (R. and W. OTTO), 1888, A., 813.  
 action of, on sodium formate, acetate, etc. (R. and W. OTTO), 1891, A., 283.  
 decomposition of, by zinc chloride (ULSCH), 1885, A., 376.

- Ethylie tetrachlorodiketoadipate** (HANTZSCH and ZECKENDORF), 1887, A., 727.
- chloroformate, chlorine substitution products of (MULLER), 1890, A., 1095.
- chlor- (NEMIROWSKY), 1885, A., 741.
- chlorofumarate (PERKIN), 1888, T., 700.
- molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- action of ammonia on (PERKIN), 1888, T., 702.
- $\gamma$ -chloroisohexanoate (BREDI), 1886, A., 531.
- trichloro-*p*-hydroxybenzoylfurfuran- $\alpha$ -methyl- $\beta$ -carboxylate (IKUTA), 1892, A., 609.
- tetrachloro- $\alpha$ -hydroxy- and dichloro-hydroxyketo-hydrindene-carboxylates (ZINCKE and AINSIE), 1892, A., 858.
- chlorolevulinate, action of, on ethylic sodomalonate (CONRAD and GUTHZEIGER), 1886, A., 336.
- action of phenylhydrazine on (BENDER), 1888, A., 1188.
- chloromaleate (PERKIN), 1888, T., 708.
- chloromalonate, action of phenylhydrazine on (BURMEISTER and MICHAELIS), 1891, A., 1068.
- dichloromalonate (CONRAD and BRUCKNER), 1892, A., 39.
- $\alpha$ -chloromethylacetacetate (RUBLEFF), 1891, A., 223.
- $\beta$ -dichloromucronate (RUHEMANN and ELLIOTT), 1890, T., 933.
- chloronaphthalenesulphonate (CLEVE), 1889, A., 155.
- $\alpha\beta$ -dichloro-naphthyl-, -propyl- and -iso-propyl-carbamates (OTTO), 1891, A., 1374.
- dichlorocotinate (SEYFFERTH), 1887, A., 158.
- o*-chlorophenylhydrazidopyruvate (HEWITT), 1891, T., 211.
- $\alpha\beta$ -dichloro-phenyl-, propyl- and -iso-propyl-carbamates (OTTO), 1891, A., 1374.
- $\beta$ -chlorophthalate (GRAEBE and REE), 1886, T., 529.
- dichlorophthalate (LE ROYER), 1887, A., 832.
- chloropropenyltricarboxylate (BISCHOFF), 1890, A., 1101.
- $\beta$ -dichloropropionate (FROMME and OTTO), 1887, A., 913.
- $\alpha\beta$ -dichloro-propyl- and -isopropyl-carbamates (OTTO), 1891, A., 1374.
- Ethylie dichloro-propyl- and -isopropyl-chlorocarbonates** (OTTO), 1891, A., 1374.
- di*- and *tri*-chloropyromucates (HILL and JACKSON), 1890, A., 600, 601.
- trichloroquinolacetacetate (IKUTA), 1892, A., 608.
- p*-dichloroquinoldiacetoacetate (IKUTA), 1892, A., 609.
- dichloroquinoldicarboxylate (HANTZSCH and ZECKENDORF), 1888, A., 278; (HANTZSCH and HERRMANN), 1888, A., 954.
- p*-dichloroquinoldimalonate (SIEGLITZ), 1891, A., 455.
- trichloroquinoneacetacetate (IKUTA), 1892, A., 608.
- p*-dichloroquinonediacetoacetate (IKUTA), 1892, A., 609.
- additive products of (IKUTA), 1892, A., 610.
- dichloroquinomedicarboxylate (HANTZSCH and ZECKENDORF), 1887, A., 727.
- dichloroquinonedihydrodicarboxylate (HANTZSCH and ZECKENDORF), 1888, A., 278.
- p*-chloroquinonedimalonate (SIEGLITZ), 1891, A., 455.
- chloro-thio- and -perthio-carbonates (KLASON), 1887, A., 1029, 1030.
- chlorothioformate (BERGREEN), 1888, A., 445.
- chloroxalate (ANSCHÜTZ), 1890, A., 236.
- chrysylcarbamate (ABEGG), 1891, A., 730.
- cinchonate (VAN DER KOLF and VAN LEENT), 1889, A., 1017.
- Ethylie cinnamate**, refractive power of, at different temperatures (PERKIN), 1892, T., 304.
- polymerisation of (LIEBERMANN), 1889, A., 1196.
- conversion of, into methylie cinnamate (PURDIE), 1887, T., 628.
- additive compound of, with ethylie sodacetacetate (MICHAEL and FREER), 1891, A., 914.
- Ethylie *o*- and *p*-cinnamates**, preparation of (STUART), 1883, T., 408.
- cinnamic diazoacetate (BUCHNER), 1888, A., 1275.
- cinnamidoximecarboxylate (WOLFF), 1890, A., 42.
- cinnamoylcyanacetate (HALLER), 1888, A., 1298.
- cinnamoyldiethylacetate (MATTHEWS), 1883, T., 205, 207; 1888, P., 102; 1889, T., 38; (CLAISEN and MATTHEWS), 1884, A., 444.

**Ethyllic cinnamoyldiethylacetate, di-**  
bromide (MATTHEW), 1883, T.,  
206.  
cinnamoylethylacetate (MATTHEW),  
1883, T., 207; (CARSEN and MAT-  
THEW), 1884, A., 444.  
citral/bromopyrotatitate (MICHAEL  
and SCHULTHESS), 1891, A., 1145.  
citriconate, magnetic rotation of (PER-  
KIN), 1887, P., 99; 1888, T.,  
581, 591.  
action of ethyllic sodomalonate on  
(MICHAEL and SCHULTHESS),  
1892, A., 590.  
cocaylbenzoylhydroxyacetate (EIN-  
HORN), 1889, A., 420.  
crosolecarboxylate (WENDE), 1887,  
A., 45.  
crotonate, action of ethyllic alcohol on  
(PURDIE and MARSHALL), 1891,  
T., 478.  
cumate, *m*-amido- (ABENITZ), 1888,  
A., 854.  
cumylacetate (WIDMAN), 1889,  
A., 1183.  
 $\psi$ -cumylcarbamate (FRENTZEL), 1889,  
A., 241.  
 $\psi$ -cumyliziacetoacetate (HALLER),  
1885, A., 818.  
cumylmalonate (WIDMAN), 1889, A.,  
1182.  
cuproacetonedicarboxylate (DÜNSCH-  
MANN and V. PEHMANN), 1891,  
A., 673.  
**Ethyllic cyanacetate** (HALLER), 1887,  
A., 797.  
action of, on aniline (QUENDA), 1892,  
A., 1072.  
action of, on organic bases (GUARE-  
CHI), 1892, A., 1071.  
condensation of, with benzaldehyde  
(CARRICK), 1890, A., 1270; 1892,  
A., 1086.  
action of hydroxylamine on (MO-  
DEEN), 1892, A., 139.  
**Ethyllic dicyanacetate** (HALLER), 1890,  
A., 1395.  
cyanacetate (JAMES), 1887, T.,  
287; P., 25; (HALLER and HELD),  
1887, A., 799, 1029.  
heat of neutralisation of (HALLER  
and GUNTZ), 1888, A., 894.  
derivatives of (HELD), 1889, A.,  
1141.  
homologues of (HALLER), 1888, A.,  
818.  
 $\gamma$ -cyanacetate (HALLER and  
HELD), 1892, A., 819.  
cyanate, molecular weight of (PA-  
TERNÒ and NASINI), 1890, A., 725.  
See also Cyanetholine.

**Ethyllic cyanethinecarboxylate** (V.  
MEYER), 1885, A., 140.  
cyanide. See Propionitrile.  
*o*- and *m*-cyanobenzoates (MÜLLER),  
1886, A., 803.  
*p*-cyanobenzoate (MÜLLER), 1885, A.,  
1227.  
*n*-cyanobenzylacetate (GABRIEL and  
HATSMANN), 1889, A., 1172.  
*n*-dicyanobenzylacetate (GABRIEL  
and HATSMANN), 1889, A.,  
1172.  
*o*-dicyanobenzylmalonate (HATSMANN),  
1889, A., 1172.  
cyanocinnamate (CARRICK), 1892,  
A., 1087.  
 $\alpha$ -cyanocinnamate (CARRICK), 1892,  
A., 1086.  
cyanoconylcarbamate (V. MEYER)  
1885, A., 140.  
cyanodiphenylsuccinate (POPPE),  
1890, A., 504.  
cyanomalonate (HALLER), 1887, A.,  
1030; 1889, A., 858.  
heat of neutralisation of (HAL-  
LER and GUNTZ), 1888, A.,  
894.  
 $\alpha$ -cyanopropionate (ZELINSKY), 1889,  
A., 122.  
additive compound of hydrogen  
cyanide with (ZELINSKY and  
BITSCHICHIN), 1892, A., 1301.  
cyanopyruvate, oxime of (FLEISCH-  
HAUER), 1892, A., 431.  
cyanosuccinate (HALLER and BAR-  
THE), 1888, A., 937; (ZELIN-  
SKY and BITSCHICHIN), 1889,  
A., 377.  
synthesis by means of (BARTHE),  
1889, A., 588.  
cyanotricarballylate (HALLER and  
BARTHE), 1888, A., 937; (MÜL-  
LER), 1892, A., 1181.  
cyanurate, molecular weight of (PA-  
TERNÒ and NASINI), 1890, A.,  
725.  
action of phosphorus pentachloride  
and of ammonia on (PONOMAREFF),  
1886, A., 216.  
additive compounds of, with cyano-  
gen bromide (MULDER), 1886,  
A., 38.  
isocyanurate (PONOMAREFF), 1886,  
A., 217.  
vapour density of, at different  
temperatures (KRAPIVIN and  
ZELINSKY), 1889, A., 1128.  
cyanurocarboxylate (WURTZ and  
HENNINGER), 1885, A., 969.  
isodehydracetate (POLONOWSKA),  
1886, A., 1011.

**Ethylidenebenzoylacetate**, preparation and properties of (PERKIN), 1885, T., 283.  
**dehydrobenzylidenediacetoacetate** (HANFZSCH), 1886, A., 77.  
**dehydrocholate** (LASSAR-COHN), 1892, A., 741.  
**dehydrodiacetylacetonedicarboxylate** (CONRAD and GUTHZEIT), 1886, A., 333.  
**dehydrophotosantonate** (VILLAYE-CHE), 1886, A., 74.  
**diacetoacetate**, refractive and dispersive powers of (PERKIN), 1892, T., 857.  
     magnetic rotation of (PERKIN), 1892, T., 823, 854.  
**diacetoxy-succinosuccinate** and **-terephthalate** (NEF), 1890, A., 986.  
 **$\alpha\beta$ -diacetyladipate** (PERKIN and OBREMSKY), 1886, A., 936.  
 **$\alpha\alpha'$ -diacetyladipate** (PERKIN), 1889, P., 141; 1890, T., 204, 215.  
     action of phenylhydrazine on (PERKIN), 1890, T., 221.  
     decomposition of, by heat (PERKIN), 1890, T., 224.  
**diacetyldiamidopyromellitate** (NEF), 1888, T., 446.  
**diacetylcomenamate**, and its monoacetyl-derivative (OST), 1885, A., 48.  
 **$\alpha\omega$ -diacetyl- $\alpha\omega$ -diethylpimelate** (KIPPING and PERKIN), 1890, T., 30.  
**Ethylidene  $\alpha\alpha'$ -diacetyl- $\alpha\alpha'$ -dimethylpimelate** (KIPPING and MACKENZIE), 1890, P., 117; 1891, T., 569; P., 110.  
     preparation of (KIPPING and MACKENZIE), 1891, T., 571.  
     hydrolysis of (KIPPING and MACKENZIE), 1891, T., 580.  
     decomposition products of (KIPPING and MACKENZIE), 1891, T., 569; P., 110.  
     dihydrazone of (KIPPING and MACKENZIE), 1891, T., 573.  
**Ethylidene diacetylenedicarboxylate** (V. BAAYER), 1885, A., 1198.  
**diacetylfumarate** (JUST), 1886, A., 141.  
 **$\alpha\beta$ -diacetylglutarate** (KNORR), 1886, A., 332.  
 **$\alpha\omega$ -diacetylhexoate** (KIPPING and PERKIN), 1889, T., 333.  
     action of alcoholic ammonia on (KIPPING and PERKIN), 1889, T., 339.  
     diacetylmethyladipate and its decomposition by heat (PERKIN and STENHOUSE), 1892, T., 73, 75.

**Ethylidene  $\alpha\omega$ -diacetyl- $\alpha$ -methylhexoate** (KIPPING and PERKIN), 1889, T., 345.  
 **$\alpha\beta$ -diacetylpropionate** (ONSIPOFF), 1890, A., 863.  
**diacetylacemate** (PERKIN), 1887, T., 369.  
**Ethylidene diacetylsuccinate**, action of, on ammonia and primary amines (KNORR), 1885, A., 554.  
     action of, on ammonia, hydroxylamine and phenylhydrazine (KNORR), 1885, A., 994, 995.  
     action of nitrous acid on (THAL), 1892, A., 1074.  
     hydrolysis of (KNORR), 1889, A., 385.  
     derivatives of (KNORR), 1889, A., 385.  
     dioxime of (MUNCHMEYER), 1886, A., 877.  
**Ethylidene diacetyltartrate** (PERKIN), 1887, T., 368.  
     crystalline form of (SORET), 1886, A., 619.  
**diacetyltetramethylenedicarboxylate** (PERKIN and OBREMSKY), 1886, A., 937.  
 **$\alpha\omega$ -diacetylvalerate** and hydrolysis of (PERKIN), 1890, T., 228, 229.  
**allylacetonedicarboxylate** (VOLHARD), 1892, A., 434.  
**diallyldicarboxylglutarate** (GUTHZEIT and DRESSSEL), 1890, A., 879.  
**diallylmalonate** (MATVÉEFF), 1889, A., 124.  
     magnetic rotation of (PERKIN), 1886, T., 209; P., 153.  
**dianilidosuccinate** (GORODITZKY and HELL), 1888, A., 951.  
**dianisylimidothiocarbamate** (FOERSTER), 1888, A., 945.  
**diazo-** See under Azo-  
**dibenzoylacetate**, preparation of (PERKIN), 1885, T., 246, 248.  
     preparation and properties of (PERKIN and STENHOUSE), 1891, T., 1000.  
     action of phenylhydrazine on (PERKIN and STENHOUSE), 1891, T., 1005.  
**dibenzoylacetacetate** (NEF), 1892, A., 145.  
**dibenzoylcomenamate** (OST), 1885, A., 49.  
**dibenzoyldioxy-pyromellitate** and **-terephthalate** (NEF), 1890, A., 985, 986.  
 **$\alpha\omega$ -dibenzoylhexoate** (KIPPING and PERKIN), 1889, T., 347.  
**dibenzoylmethylacetate** (PERKIN and STENHOUSE), 1891, T., 1005; P., 43.

- Ethyl  $\alpha$ -dibenzoyloxysuccinosuccinate** (NEF), 1890, A., 986.
- Ethyl dibenzoylsuccinate** (V. BAEYER and PERKIN), 1884, A., 838.  
preparation of (PERKIN and SCHLOSSER), 1890, T., 949.  
preparation and properties of (PERKIN), 1885, T., 263.  
action of sulphuric acid on (V. BAEYER and PERKIN), 1884, A., 838; (PERKIN), 1885, T., 271.  
decomposition products of (PERKIN), 1885, T., 265.
- Ethyl dibenzylacetoacetate** (FITZIG and CHRIST), 1892, A., 963.
- $\alpha\alpha'$ -dibenzylacetonedicarboxylate** (DUNSCHMANN and V. PECHMANN), 1891, A., 674.
- dibenzylcarbamate** (HAMMERICH), 1892, A., 1084.
- dibenzylidicarboxylglutarate** (GUTHZEIT and DRESSSEL), 1890, A., 879.
- dibenzylidihydroxyterephthalate** (NEF), 1890, A., 986.
- dibenzylmalonate** (BISCHOFF and SIEBERT), 1887, A., 952.
- dibenzylpentanetetraacboxylate** (PERKIN and PRENTICE), 1891, T., 843.
- diisobutylamineoxalate** (MALBOT), 1891, A., 284.
- diisobutylpentanetetraacboxylate** (PERKIN and PRENTICE), 1891, T., 841.
- diisobutylphimelate** (PERKIN and PRENTICE), 1891, T., 842.
- dicarboxytetraacboxylate** (CONRAD and GUTHZEIT), 1883, A., 46; 1884, A., 297; (BISCHOFF and RACH), 1885, A., 244, 264; (BISCHOFF and HAUSDÖRFER), 1887, A., 916.
- dicarboxyglutaconate**, action of ammonia on (RUHEMANN and MORRELL), 1891, T., 745; 1892, T., 791.  
action of phenylhydrazine on (RUHEMANN and MORRELL), 1892, T., 793.  
alkyl substitution products of (GUTHZEIT and DRESSSEL), 1891, A., 178.
- dicarboxyglutarate** (GUTHZEIT and DRESSSEL), 1888, A., 1061.
- dicinnamylcyanacetate** (HALLER), 1888, A., 1298.
- diethoxyacetoacetate** (ERLENBACH), 1892, A., 955.
- diethylacetoacetate**, action of ammonia on (JAMES), 1886, T., 58.
- Ethyl diethylacetoacetate**, condensation of benzaldehyde with (MATTHEWS), 1885, T., 205.  
action of phosphorus pentachloride on (JAMES), 1886, T., 50.
- $\alpha\alpha'$ -diethylacetonedicarboxylate** (DUNSCHMANN and V. PECHMANN), 1891, A., 673.
- diethyl-*mono*- and -*di*-chloroacetoacetates** (JAMES), 1886, T., 52, 54.  
action of sodium methoxide on (JAMES), 1886, T., 54, 56.
- diethylethanoacetate** (ZELINSKY and BITCHIKHIN), 1889, A., 377.
- diethyldicarboxyglutarate** (GUTHZEIT and DRESSSEL), 1890, A., 878.
- $\beta$ -diethyldisulphonebutyrate** (BARMANN), 1887, A., 123.
- diethylethanoetetraacboxylate** (BISCHOFF), 1888, A., 1061.
- diethylmalonate** (SCHUKOWSKI), 1888, A., 1179.
- diethylpentanetetraacboxylate** (PERKIN and PRENTICE), 1891, T., 833.
- diethylphimelate** (PERKIN and PRENTICE), 1891, T., 834.
- diethylprotocatechuete** (HERZIG), 1884, A., 846.
- dihydrodiamidopyromellitate** (NEF), 1890, A., 983.
- $\alpha$ -dihydrodibenzylidihydroxyterephthalate** (NEF), 1890, A., 986.
- dihydrodibenzoyldioxy-pyromellitate and -terephthalate** (NEF), 1890, A., 986, 987.
- dihydrogen hydrocamphorylmalonate** (WINZER), 1890, A., 1151.
- dihydrogen phosphate** (LOSEN and KÜHLER), 1891, A., 1014.
- dihydroxybutanetetraacboxylate** (POLONOWSKY), 1888, A., 1067.
- dihydroxydicarboxyphenylacetate** (CORNELIUS and V. PECHMANN), 1886, A., 802.
- dihydroxydurylate** (NEF), 1888, T., 437.
- m*- $\alpha$ -dihydroxymethylcoumarilate** (LANG), 1887, A., 263.
- dihydroxypropionate** (CURTIUS and KOCH), 1889, A., 376.
- dihydroxypropyldicarboxyldiphenylallopphanate** (WIDMAN), 1884, A., 1023.
- dihydroxypyromellitate** (NEF), 1888, T., 447.
- dihydroxyquinonedicarboxylate** (HANTZSCH and LOEWY), 1886, A., 354.  
and its hydro-derivatives (BÜNGER), 1889, A., 878.

- Ethylie** dihydroxytartrate (ANSCHÜTZ and GELDERMANN), 1891, A., 725; (ANSCHÜTZ and PARLATO), 1892, A., 1181.
- dihydroxyterephthalate (NEF), 1890, A., 986.
- p*-diketohexamethylenetetra-carboxylate (NEF), 1887, A., 257; 1888, T., 455.
- derivatives of (NEF), 1889, A., 509.
- diketohydrindenecarboxylate (WISLICENUS), 1888, A., 1193.
- dimethoxydiethylacetacetate (JAMES), 1886, T., 57.
- dimethoxyterephthalate (NEF), 1890, A., 986.
- $\alpha\alpha$ -dimethylacetonedicarboxylate (DÜNSCHMANN and V. PECHMANN), 1891, A., 674.
- 2:4-dimethyl-5-acetylpyrrole-3-carboxylate (MAGNANINI), 1889, A., 57.
- dimethylamidobenzeneazophenyl-dimethylpyridinedicarboxylate (LEPETIT), 1887, A., 1053.
- 2:6:4-dimethyl-*isobutyl*- and -*isopropyl*-hydropyridine-3:5-dicarboxylates (ENGELMANN), 1886, A., 259.
- 2:6:4-dimethyl-*isobutyl*pyridine-3:5-dicarboxylate (ENGELMANN), 1886, A., 260.
- dimethyl-*isobutyl*ylacetate (WOHLBRÜCK), 1887, A., 1099.
- dimethyl-*dicyno*- adipate and -pimelate (ZELINSKY), 1892, A., 430.
- dimethyl-*dicyno*glutarate (ZELINSKY), 1890, A., 132.
- dimethyl-dicarboxylglutarate (GUTHZEIT and DRESSEL), 1890, A., 873.
- $\alpha\beta$ -dimethylglycidate (MELIKOFF and ZELINSKY), 1888, A., 1056.
- 2:6:4-dimethylhexyl-pyridine-3:5-dicarboxylate and -hydropyridinedicarboxylate (JAECKLE), 1888, A., 1104.
- dimethylhydropyridinedicarboxylate (GRIESS and HARROW), 1888, A., 1313.
- dimethylie phosphate (LOWEN and KÜHLER), 1891, A., 1015.
- dimethyloxypyridinedicarboxylate (COLLIE), 1891, T., 174.
- brom- (COLLIE), 1891, T., 175.
- dimethylpentametetracarboxylate (PERKIN and PRENTICE), 1891, T., 829.
- $\alpha\alpha$ -dimethylpimelate (KIPPING and MACKENZIE), 1890, P., 117; 1891, T., 571, 575; (PERKIN and PRENTICE), 1891, T., 831.
- Ethylie-2:6:4-dimethylpropyl-hydropyridine- and -pyridine-3:5-dicarboxylates** (JAECKLE), 1888, A., 1103, 1101.
- dimethylpyridinecarboxylate [b.p. 260°] (CANZONERI), 1885, A., 751.
- $\alpha\gamma$ -dimethylpyridine- $\beta$ -carboxylate (MICHAEL), 1885, A., 1244.
- 2:6-dimethylpyridine 3:5-dicarboxylate (ENGELMANN), 1886, A., 259.
- 2:6:4-dimethylpyridone-3:5-dicarboxylate (CONRAD and GUTHZEIT), 1886, A., 334.
- 2:6:4-dimethylpyrone-3:5-dicarboxylate (CONRAD and GUTHZEIT), 1887, A., 502; (PERATONER and STRAZZERI), 1891, A., 1334.
- action of ammonia and of primary amines on (CONRAD and GUTHZEIT), 1887, A., 500.
- action of phosphoric sulphide on (GUTHZEIT and EPSTEIN), 1887, A., 920.
- 2:5-dimethylpyrrolinocarboxylate, formation of (HANTZSCH), 1890, A., 1155.
- 2:5-dimethylpyrroline-3:4-dicarboxylate (KNORR), 1884, A., 1368; 1885, A., 248, 554, 994.
- 2:4-dimethylpyrroline-3:5-dicarboxylate (KNORR), 1887, A., 276.
- antidimethylsuccinate* (BISCHOFF and VORT), 1889, A., 490.
- dimethylsuccinosuccinate (V. BAEYER), 1892, A., 1182.
- dimethyltetrazonedicarboxylate (KLOBBIE), 1891, A., 293.
- dimethylthiazolecarboxylate (HANTZSCH), 1889, A., 724.
- $\alpha\beta$ -dimethylumbelliferonocarboxylate (V. PECHMANN), 1892, A., 432.
- dioxysuccinate (ANSCHÜTZ and PARLATO), 1892, A., 1181.
- diphenacylacetacetate (PAAL and HOERMANN), 1890, A., 258.
- diphenacylbenzoylacetate (KAPF and PAAL), 1888, A., 839.
- diphenacylmalonate (KUES and PAAL), 1887, A., 261.
- diphenoxymalonate (CONRAD and BRÜCKNER), 1892, A., 40.
- diphenylacetosodacetate (HODGKINSON), 1886, P., 169.
- diphenylanilidoacetate (KLINGER and STANDKE), 1889, A., 885.
- diphenylazimethylenedicarboxylate (CURTIS and LANG), 1892, A., 453.
- diphenylcarbamyl-*di*bromo- and -*di*-chloro-quinoldicarboxylates (GOLDSCHMIDT and MEISLER), 1890, A., 500, 499.

- Ethyl** diphenyl-chloracetate and -cyanacetate (BICKEL), 1889, A., 999.  
 5-diphenyl- $\alpha$ -dimethyldipyrrol-1-ethylene- $\beta$ -dicarboxylate (PAAL and SCHNEIDER), 1887, A., 273.  
 $\beta$ -diphenyl- $\alpha$ -ethylsulphonebutyrate (ATTENRIETH), 1891, A., 205.  
 $\alpha\alpha$ -diphenylfurfuran- $\beta$ -carboxylate (KAPF and PAAL), 1889, A., 148.  
 diphenylfurfurandicarboxylate (PERKIN and CALMAN), 1886, T., 167.  
 diphenylhydrazinediacetyladiate (PERKIN), 1889, P., 111; 1890, T., 221.  
 diphenylimidodibenzylmalonate (JUNT), 1886, A., 150.  
 $\beta$ -diphenylimidolactate (WEISE), 1889, A., 253.  
 diphenylizindiacetyladiate (PERKIN and OBRENNKY), 1886, A., 936.  
 diphenylizin-diacetylsuccinate and -succinosuccinate (KNORR and BULOW), 1884, A., 1382, 1381.  
 $\beta$ -diphenyllactate (WEISE), 1889, A., 253.  
 diphenylmethanecarbamate (MANN), 1889, A., 261.  
 1:5-diphenyl-3-methylpyrazole-4-carboxylate (KNORR and BLANK), 1885, A., 556.  
 1:3-diphenyl-5-methylpyrazole-4-carboxylate (KNORR and BLANK), 1885, A., 810.  
 diphenylpropionate (HENDERSON), 1891, T., 735.  
 diphenylpyrazolecarboxylate (BEYER and CLAIKEN), 1887, A., 944.  
 2:6:4-diphenylpyrone-3:5-dicarboxylate (FEIST), 1891, A., 459; (DÜNNCHMANN and v. PECHMANN), 1891, A., 675.  
 2:5-diphenylpyrrole- $\beta$ -carboxylate (KAPF and PAAL), 1888, A., 840; 1889, A., 148.  
 diphenylisosuccinate, preparation of (HENDERSON), 1891, T., 731.  
 $\beta$ -diphenylsulphonebutyrate (ATTENRIETH), 1891, A., 204.  
 2:5-diphenyl-1- $\alpha$ - and  $p$ -tolylpyrrole-carboxylates (PAAL and BRAIKOFF), 1890, A., 263.  
 diphtalate (GRAEBE and JULLARD), 1888, A., 154.  
 dipropyl-dicarboxyglutarate (GUTHZEIT and DRESSEL), 1890, A., 878.  
 dipropyl- and diisopropyl-pentane-tetracarboxylates (PERKIN and PRENTICE), 1891, T., 836, 839.  
 dipropyl- and diisopropyl-pimelates (PERKIN and PRENTICE), 1891, T., 837, 840.
- Ethyl** disulphaminebenzoate (FAHLBERG and LIST), 1887, A., 836.  
 ditannacetoacetate (BÜTINGER), 1892, A., 181.  
 $p$ -ditolylcarbamate (HAMMERICH), 1892, A., 1084.  
 1:2- $m$ -ditolyl-3-methylpyrazolone-carboxylate (v. PERGER), 1886, A., 1046.  
 duroquinonecarboxylate (NEF), 1887, A., 255.  
 eegonate (LIEBERMANN), 1891, A., 749.  
 erucate (REIMER and WILL), 1887, A., 233.  
 ethanetetra-carboxylate (CONRAD and BISCHOFF), 1883, A., 46; (BISCHOFF), 1883, A., 912; 1888, A., 1061; (CONRAD and GUTHZEIT), 1884, A., 297; (BISCHOFF and RACH), 1885, A., 214, 264.  
 ethanetricarboxylate (BISCHOFF), 1883, A., 45; 1890, A., 742; (BISCHOFF and v. KÜHLBERG), 1890, A., 742.  
 physical constants of alkyl-derivatives of (BISCHOFF and WALDEN), 1890, A., 745.  
 ethoxy-acetoacetate and -chloracetoacetate (ERLENBACH), 1892, A., 954, 953.  
 ethoxyethylacetoacetate (ISBERT), 1886, A., 1010.  
 6-ethoxy-2-hydroxypyridine-3:5-dicarboxylate (GUTHZEIT and DRESSEL), 1891, A., 939.  
 2'-ethoxy-4'-hydroxyquinoline-3'-carboxylate (BISCHOFF), 1889, A., 519.  
 ethoxyhydroxyquinoxalineacetate (ATTENRIETH and HINSBERG), 1892, A., 733.  
 ethoxymethylacetoacetate (ISBERT), 1886, A., 1010.  
 ethoxyoctoate (HANTZSCH), 1889, A., 372.  
 ethoxyoxalacetate (WISLICENT and SCHEIDT), 1891, A., 545.  
 phenylhydrazone (WISLICENT and SCHEIDT), 1892, A., 458.  
 $\alpha$ -ethoxyphenylglycinate (VATER), 1884, A., 1144.  
 6-ethoxy- $\alpha$ -pyrone-3:5-dicarboxylate (GUTHZEIT and DRESSEL), 1889, A., 860; 1891, A., 939.  
 6-ethoxy- $\alpha$ -pyridone-3:5-dicarboxylate (GUTHZEIT and DRESSEL), 1891, A., 939.  
 $\beta$ -ethoxyquartenylate (KOLL), 1889, A., 488.  
 ethoxysuccinate (PURDIE), 1885, T., 866.

- Ethylacetoacetate**, magnetic rotation of (PERKIN), 1892, T., 809, 837.  
 action of diazobenzene chloride on (JAPP and KLINGEMANN), 1888, T., 537.  
 bromine derivatives of (WEDEL), 1884, A., 835.  
 sulphur derivatives of (AUTENRIETH), 1891, A., 204.
- Ethylacetonedicarboxylate** (DUNSCHEMANN and V. PECHMANN), 1891, A., 673.  
 $\alpha$ -ethylacetylglutarate (FITTING and CHRIER), 1892, A., 962.  
 $\beta$ -ethylacetylsuccinate, decomposition of (YOUNG), 1883, T., 172, 175; A., 456.  
 ethylbutanetricarboxylate (BISCHOFF and HJELT), 1888, A., 1057; (BISCHOFF and MINTZ), 1890, A., 744.  
 ethylisobutanetricarboxylate (BISCHOFF and MINTZ), 1890, A., 744.  
 ethylcemenamate hydrochloride (MENDEL), 1885, A., 1203.  
 ethyleyanacetate (HENRY), 1887, A., 796.  
 ethyleyanacetoacetate (HELD), 1884, A., 727; 1889, A., 1141.  
 ethylidicarboxylglutarate (GUTHZEIT and DRESSEL), 1891, A., 179.  
 $\alpha$ -ethyl- $\beta$ -diethylidisulphonebutyrate (AUTENRIETH), 1891, A., 205.  
 ethylene- $\beta$ -amido- $\alpha$ -crotonate (MASON), 1887, A., 494.  
 ethylene- $\beta$ -amidoformate and its nitro-derivative (FRANCHIMONT and KLOBBE), 1889, A., 125.  
 ethylenecarbanilate (HANSSEN), 1887, A., 578.  
 ethylenedicarbamate (RHODOPOLLO), 1891, A., 1195.  
 ethylenedicarbonate (WALLACH), 1885, A., 254.  
 ethylenephenoxybenzoates (WAGNER), 1884, A., 435.  
 $\alpha$ -ethylenetricarboxylate (BISHOP and PERKIN), 1891, P., 41.  
 ethylethanetetra-carboxylate (BISCHOFF and RACH), 1885, A., 244.  
 ethylethanetricarboxylate (BARFELD), 1889, A., 588; (BISCHOFF and V. KUHLEBERG), 1890, A., 743.  
 ethylideneacetoacetate, magnetic rotation of (PERKIN), 1892, T., 810, 837.  
 ethylidene-malonate and -dimalonate (KOMNENOS), 1884, A., 422.  
 ethylimidophenylethylthiocarbamate (BERTRAM), 1890, A., 1291; 1892, A., 466.
- Ethyl ethylmalonate** (DAIMLER), 1887, A., 360.  
 ethyloxalacetate (ARNOLD), 1888, A., 1179.  
 ethylpiperidinebetainesalts (KRÜGER), 1891, A., 943.  
 ethylpropanetricarboxylate (BISCHOFF and MINTZ), 1890, A., 743.  
 ethylsantonite (CANNIZZARO and CARNELUTTI), 1883, A., 78.  
 ethylurethanephénylacétate (KOSSEL), 1892, A., 469.  
 ferrocyanide (FREUND), 1888, A., 571.  
 fluoride (MOISSAN), 1888, A., 1262; 1889, A., 363.  
 hydrates of (VILLARD), 1890, A., 1386.  
 o-formate (HULLEMAN), 1890, A., 582.  
 formylacetate. See Ethylic  $\beta$ -hydroxyacrylate.  
 fulminurate (SEIDEL), 1892, A., 690.  
 isomer of (SEIDEL), 1892, A., 1417.
- Ethylic fumarate**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
 magnetic rotatory power of (PERKIN), 1887, P., 99; 1888, T., 574, 592.  
 action of ethylic sodomalonate on (MICHAEL and SCHULTHEISS), 1892, A., 590.  
 action of methylamine on (KÖRNER and MENOZZI), 1890, A., 869.  
 action of sodium methoxide and ethoxide on (PURDIE), 1885, T., 856, 865.  
 conversion of, into methylic fumarate (PURDIE), 1887, T., 627.
- Ethylic furfuralbenzoylacetate** (PERKIN and STENHOUSE), 1891, T., 1011.  
 furfurylacrylate (MARCKWALD), 1888, A., 678; (CLAISEN), 1891, A., 427.  
 $\beta$ -furfurylamidocrotonate (BIGNELLI), 1892, A., 57.  
 furfurylcarbamate (MARCKWALD), 1891, A., 182.  
 glutaconate, action of ammonia on (RUHEMANN and MORRELL), 1891, T., 745.  
 glutarate, magnetic rotatory power of (PERKIN), 1888, T., 567, 589.  
 glycidate (MELIKOFF and ZELINSKY), 1888, A., 1056.  
 glycolate (MEYER), 1884, A., 992.  
 isoeptanetetra-carboxylate (FREER and PERKIN), 1888, T., 217.  
 $\alpha$ -heptoheptate (HAMONET), 1890, A., 235.  
 hexane-tetra- and deca-carboxylates (BISCHOFF), 1888, A., 1061.  
 hexanetricarboxylate (BISCHOFF and HJELT), 1888, A., 1057; (BISCHOFF and MINTZ), 1890, A., 744.

**Ethyllic hexamethylene-1:1:3:3-tetracarboxylate** (PERKIN), 1891, T., 803.  
**hippuramidoacetate** (CURTIUS), 1883, A., 339.  
**hippurate**, synthesis of (CURTIUS), 1884, A., 1848.  
     action of sodium ethoxide on (RUGHEIMER), 1889, A., 1210.  
     compound obtained by the action of sodium ethoxide on (RUGHEIMER), 1892, A., 1002.  
**p-homobenzenylamidoximecarboxylate** (SCHUBERT), 1890, A., 48.  
**homogentisate** (WOLKOW and BAUMANN), 1891, A., 1129.  
**homo-o-phthalate** (GABRIEL), 1887, A., 1112.  
**hydrazine-benzoate** and **-benzoylpyruvate** (RODER), 1887, A., 150.  
**hydrazomethylthiazolecarboxylate** (WOHMANN), 1891, A., 225.  
**hydrazopropionate** (CURTIUS and LANG), 1892, A., 452.  
**hydrocamphorylmalonate** (WINZER), 1890, A., 1151.  
**hydrochloranilate** (NEF), 1890, A., 1271.  
**hydrogen adipate**, dissociation constant of (WALKER), 1892, T., 712.  
**hydrogen camphorate**, *allo*- (BRUHL), 1892, A., 1102.  
**hydrogen carboxylanthranilate** (SCHMIDT), 1888, A., 371.  
**hydrogen carbuvate** (FEIST), 1889, A., 593.  
**hydrogen ac-m-crotonamidobenzoate** (PELLIZZARI), 1891, A., 1485.  
**hydrogen dimethylmalonate**, dissociation constant of (WALKER), 1892, T., 712.  
**hydrogen 2:6-dimethylpyridine-3:5-dicarboxylate** (WEISS), 1886, A., 719.  
**hydrogen ethylmalonate**, dissociation constant of (WALKER), 1892, T., 712.  
**hydrogen fumarate** (PURDIE), 1885, T., 857.  
     preparation and properties of (SHIELDS), 1891, T., 736.  
     dissociation constant of (WALKER), 1892, T., 714.  
**hydrogen furfuralmalonate** (MARCKWALD), 1888, A., 678.  
**hydrogen hemipinate** (WEGSCHEIDER), 1891, A., 712.  
**hydrogen 2:6-hydroxyethoxypyridine-3:5-dicarboxylate** (GUTHZETT and DRESSSEL), 1891, A., 939.  
**hydrogen hydroxyisophthalate** (HÄHLE), 1891, A., 1369.  
**hydrogen maleate**, preparation and properties of (SHIELDS), 1891, T., 740.

**Ethyllic hydrogen maleate**, dissociation constant of (WALKER), 1892, T., 714.  
**hydrogen malonate**, properties of (MASSOL), 1891, A., 1012.  
     dissociation constant of (WALKER), 1892, T., 711.  
     action of sodium ethoxide on (PURDIE), 1885, T., 873.  
**hydrogen methronate** (v. EYNERN), 1889, A., 592.  
**hydrogen methyldehydrohexonedicarboxylate** (PERKIN), 1887, T., 741.  
**hydrogen oxalate** (ANN HUTZ), 1884, A., 296.  
**hydrogen oximidosuccinate**, isomerism of (HANTZSCH and WERNER), 1890, A., 350; (CRAMER), 1891, A., 823.  
**hydrogen 4:2:6-phenyltrimethylpyridine-3:5-dicarboxylate** and its derivatives (HANTZSCH), 1885, A., 397.  
**hydrogen phenylsuccinimide** (BLOCHMANN), 1887, A., 932.  
**hydrogen phthalate**, dissociation constant of (WALKER), 1892, T., 714.  
**hydrogen propiononedicarboxylate** (MARCKWALD), 1888, A., 678.  
**hydrogen sebate** and **suberate**, dissociation constants of (WALKER), 1892, T., 713.  
**hydrogen succinate** and **isosuccinate**, dissociation constants of (WALKER), 1892, T., 711, 712.  
**hydrogen sulphate**, non-existence of the supposed modification of (REBS), 1888, A., 1156.  
     estimation of, in Rabel water (GAUFFRAND), 1886, A., 1079.  
**hydrogen sulphide** (KLASON), 1888, A., 356.  
**hydrogen 2:4:6-trimethylpyridine-3:5-dicarboxylate** and its salts (MICHAEL), 1885, A., 61.  
**hydrogen  $\gamma$ -truxillate** (LIEBERMANN), 1889, A., 1194.  
**hydroparvolinedicarboxylate** (ENGELMANN), 1886, A., 258.  
**hydrophthalylxalate**, derivatives of (WISLICENUS), 1888, A., 1194.  
 **$\beta$ -hydroxyacrylate** (*ethyllic formylacetate*) (WISLICENUS), 1888, A., 129; (v. PECHMANN), 1892, A., 816.  
     acetyl- and benzoyl-derivatives of (v. PECHMANN), 1892, A., 817.  
 **$\beta$ -hydroxyamidoglutamate** (v. PECHMANN and STOKES), 1885, A., 1202.  
**p-hydroxybenzoyl- $\alpha$ -methylfurfuran- $\beta$ -carboxylate** (IKUTA), 1892, A., 611.

**Ethylie *m*-hydroxycoumarilate** (HANSCH), 1887, A., 262.  
 1:2:5-hydroxydimethylpyrrole-3:4-dicarboxylate (KNORR), 1887, A., 275.  
 hydroxydiphthallate (HANSLEBACH), 1888, A., 486.  
 hydroxymethylthiazolecarboxylate (HANSCH and WEBER), 1888, A., 257.  
 hydroxyisooxazoledicarboxylate (v. PECHMANN), 1891, A., 738.  
 hydroxyphenylacetate (ALEXANDER), 1890, A., 1135.  
*p*-hydroxyphenylacetate (SALKOWSKI), 1889, A., 1173.  
*m*-hydroxyphenyldimethylpyridine-dicarboxylate (LEPETIER), 1887, A., 1053.  
 1 *o*-hydroxyphenyl-2:5-diphenylpyrrole-3-carboxylate (PAAL and BRAUKOFF), 1890, A., 264.  
 hydroxyphenylethenylamidoxime-carbonate (GROSS), 1885, A., 1218.  
 6:2:4-hydroxyphenylmethyl-*m*-diamine-5-acetate- and -5-propionate (PINNER), 1890, A., 69, 70.  
 4'-hydroxy-2'-phenyl-1- and -3-methylquinoline-3'-carboxylates (JUNT), 1886, A., 812.  
 hydroxyquinolinecarbonate (LITTMANN), 1888, A., 164.  
 hydroxytetratate (CLOEZ), 1890, A., 739.  
 hydroxytoluquinoxalineacetate (ATTENRIETH and HINSBERG), 1892, A., 709.  
 $\gamma$ -hydroxyvalerate (NEUGEBAUER), 1885, A., 651.  
 hypochlorite (SANDMEYER), 1885, A., 1045; 1886, A., 607.  
 $\beta$ -imidobutyrate. See Ethylie  $\beta$ -amidocrotonate.  
 imidocarbonate (SANDMEYER), 1886, A., 611.  
     action of, on aromatic ortho-compounds (SANDMEYER), 1887, A., 135.  
*N*-imidodiacyladipate (PERKIN), 1889, P., 141.  
 imidodicarboxylate (KRAFT), 1891, A., 42.  
*N*-imidodiethyladipate (PERKIN), 1890, T., 218.  
 imidophenyl-ethylthiocarbamate and -thiocarbamate (BERTRAM), 1890, A., 1291; 1892, A., 466.  
 imidosuccinamate (HELL and POLLAKOFF), 1892, A., 820.  
 indolecarboxylate (RODER), 1887, A., 150.  
 iodacetate, chlor- (HENRY), 1884, A., 421.

**Ethylie iodacetoacetate** (SCHÖNBRODT), 1890, A., 28.  
**Ethylie iodide**, preparation of (WALKER), 1892, T., 717.  
     molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
     action of, on magnesium (MASSON and WILSMORE), 1891, P., 17.  
     action of, on triethylamine, effect of various solvents on the velocity of (MENSCHUTKIN), 1890, A., 1366.  
**Ethylie iodopropargylate** (v. BAeyer), 1885, A., 1199.  
*N*-iodosuccinamate (CURTIUS and KOCH), 1887, A., 34.  
 itadibromopyrotartiate (MICHAEL and SCHULTHEISS), 1891, A., 1185.  
 itachloropyrotartiate, action of ethylie sodomalonate on (MICHAEL and SCHULTHEISS), 1892, A., 591.  
 itaconate, magnetic rotatory power of (PERKIN), 1887, P., 99; 1888, 584, 591.  
     action of ethylie sodomalonate on (MICHAEL and SCHULTHEISS), 1892, A., 591.  
 ketacetate (ERLENBACH), 1892, A., 955.  
 ketipate (FRITIG and DAIMLER), 1887, A., 362.  
 lactate, production of, by fermentation (JACQUEMIN), 1890, A., 1455.  
     physiological action of (PELLACANI and BERTONI), 1888, A., 309.  
 levulinate, derivatives of (MICHAEL), 1891, A., 1337.  
     halogen derivatives of (CONRAD and GUTHZEIT), 1885, A., 42.  
 malate, inactive (WISLIZENUS), 1892, A., 1431.  
**Ethylie maleate**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
     magnetic rotatory power of (PERKIN), 1887, T., 99; 1888, T., 572, 591.  
     action of ethylie sodomalonate on (MICHAEL and SCHULTHEISS), 1892, A., 590.  
     action of methylamine on (KÖRNER and MENOZZI), 1890, A., 869.  
     action of sodium methoxide and ethoxide on (PURDIE), 1885, T., 867, 868.  
**Ethylie malonanilidate** (RÜCHHEIMER and HOFFMANN), 1884, A., 1023.  
**Ethylie malonate**, action of fatty aldehydes on (KOMMENOS), 1884, A., 422.  
     action of allylic iodide and zinc on (MARTINOFF and SCHUKOWSKI), 1888, A., 820; (MATVÉEFF), 1889, A., 124.

**Ethylie malonate**, action of benzaldehyde on (CLAISEN and CHRISMER), 1884, A., 444.  
 action of  $\alpha\beta$ -*di*bromopropionic acid on (CONRAD and GUTHZEIT), 1884, A., 991.  
 action of ethylenic bromide on (PERKIN), 1884, A., 832; 1885, T., 807.  
 action of ethylic  $\beta$ -bromopropionate on (EMERY), 1891, A., 547.  
 action of ethylic *di*bromosuccinate on (PERKIN), 1884, A., 1300; 1885, T., 822.  
 action of ethylic iodide and zinc on (DAIMLER), 1887, A., 360; (MARTINOFF and SCHUKOWSKI), 1888, A., 820; (SCHUKOWSKI), 1888, A., 1179; 1889, A., 958.  
 condensation of formaldehyde with (PERKIN), 1886, A., 691.  
 action of methylenic iodide on (TANATAR), 1891, A., 175.  
 action of methylenic iodide and chloride on, in the presence of sodium ethoxide (TANATAR), 1891, A., 174.  
 action of sodium on (v. BAeyer), 1886, A., 223.  
 action of trimethylenic bromide on (PERKIN), 1883, A., 1083.  
 action of zinc alkyl-compounds on (LANG), 1887, A., 261.  
 addition of, to compounds containing doubly-linked carbon atoms (CLAISEN), 1887, A., 800.  
 method for introducing nitrogenous radicals into (JUST), 1885, A., 513.  
 preparation of *mono*-, *di*- and *tri*-substituted succinic acids from (BISCHOFF), 1890, A., 742.  
 nitrobenzyl-derivatives of (LELMANN and SCHLEICH), 1887, A., 490.  
 phenylhydrazide and nitrosophenylhydrazide (MICHAELIS and BURMEISTER), 1892, A., 1004.  
**Ethylic mandelate** (Beyer), 1884, A., 65; (MICHAEL and JEANPRETRE), 1892, A., 1089.  
 meconates (MKNEL), 1883, A., 656.  
 mercaptides (KLASON), 1888, A., 356.  
 mesaconate, magnetic rotatory power of (PERKIN), 1887, P., 99; 1888, T., 585, 592.  
 action of ethylic sodomalonate on (MICHAEL and SCHULTHESS), 1892, A., 591.  
 mesityloxide-anhydroadicarbonylate and -dicarbonylate (HANTZSCH), 1883, A., 1083.

**Ethylic mesoxalate** (CONRAD and BRÜCKNER), 1892, A., 40.  
 methacrylate (ATWERS and KOEBER), 1891, A., 1016.  
 action of alcoholic sodium ethoxide on (PUNDIE and MARSHALL), 1891, T., 481.  
 methanedimalonate (KLEBER), 1888, A., 1057.  
 methanetetra-carboxylate (CLAISEN and ZEPPEL), 1889, A., 377.  
 methanetetracarboxylate (CONRAD and GUTHZEIT), 1883, A., 44; (MICHAEL), 1885, A., 1055; (CLAISEN and ZEPPEL), 1889, A., 377.  
 action of nitric acid on (FRANCHIMONT and KLOBBE), 1891, A., 426.  
*o*-methoxybenzylacetate (TAHARA), 1892, A., 844.  
 methoxydiethylacetate (JAMES), 1886, T., 55.  
*p*-methoxyphenylamidocrotonate (CONRAD and LIMPACH), 1888, A., 853.  
 $\beta$ -methoxyquartenylate (ENKE), 1890, A., 865.  
 methylacetate, action of diazobenzene chloride on (JAPP and KLINGEMANN), 1888, T., 532.  
 action of *o*- and *p*-diazotoluene chlorides on (JAPP and KLINGEMANN), 1888, T., 535, 537.  
 sulphur derivatives of (AUTENRIETH), 1891, A., 204.  
 methylacetonedicarboxylate (DÜNNEMANN and v. PECHMANN), 1891, A., 674.  
 $\beta$ -methylacetylsuccinate, action of nitrous acid on (THAL), 1892, A., 1074.  
 methylallylacetate, preparation of (JAMES), 1885, T., 4.  
 $\alpha$ -methyl- $\beta$ -amidocrotonate (PETER), 1890, A., 1097.  
 methylamidoformate, action of nitrous acid on (KLOBBE), 1891, A., 292.  
 methylazimidothiazolecarboxylate (WOHMANN), 1891, A., 226.  
 methyl-bromo- and -chloro-thiazolecarboxylates (WOHMANN), 1891, A., 225.  
 methylbutanetricarboxylate (BISCHOFF and WALDEN), 1889, A., 959; (BISCHOFF and MINZ), 1890, A., 743.  
 methylisobutanetricarboxylate (BISCHOFF and MINZ), 1890, A., 744.  
 methylcamphocarboxylate (HALLEN), 1891, A., 1500; (BRÜHL), 1892, A., 201.

**Ethylie** 1:2-methylcarboxyethylpyrrole-acetate (NEF), 1892, A., 144.  
 $\alpha$ -methyl- $\beta$ -chlorocinnamate (PERKIN and CALMAN), 1886, T., 158.  
 $\beta$ -methylcoumarilate (HANZSCH), 1886, A., 707.  
 methylevanacetate (HENRY), 1887, A., 796.  
 methylcyanacetate (HELD), 1884, A., 727; (HELD), 1889, A., 1142.  
 methylcyanosuccinate (BARHE), 1889, A., 588.  
 methyl- $\alpha$ -cyanotricarallylate (MULLEN), 1892, A., 1182.  
 methyldehydrohexonecarboxylate (PERKIN), 1887, T., 709.  
   preparation of (KIPPING and PERKIN), 1889, T., 331.  
   action of hydrogen bromide on (PERKIN), 1887, T., 725.  
 methyldehydrohexonedicarboxylate (PERKIN), 1887, T., 739.  
 $\alpha$ -methyl- $\beta$ -diethyldisulphone-butyrate (ACTENRIETH), 1891, A., 205.  
 methylidihdropentene-dicarboxylate and -methylketonecarboxylate (PERKIN), 1889, P., 142; 1890, T., 206.  
 methylenemalonate and its isomeride (ZELINSKY), 1890, A., 364.  
 methylethanetricarboxylate (BISCHOFF and v. KÜHLBERG), 1890, A., 742.  
 methylethylacetate (JAMES), 1885, T., 5.  
 methylformylacetate (WILICENS), 1888, A., 180.  
 $\alpha$ -methylglycidate (MELIKOFF and ZELINSKY), 1888, A., 1056.  
 methylmethylglyoximecarboxylate (NUSSEBERGER), 1892, A., 1176.  
 methylmethylglyoximecarboxylate (ethylie  $\alpha\beta$ -diisonitrosobutyrate) (CERESOLE and KOECKERT), 1884, A., 1121; (NUSSEBERGER), 1892, A., 1175.  
 methylhexamethylenedicarboxylate (FREER and PERKIN), 1887, P., 96; 1888, T., 206.  
 allomethylie camphorate (BRUHL), 1892, A., 1101.  
 methylie sulphide (KLASON), 1888, A., 356.  
 methyl- $\alpha$ - and - $\beta$ -naphthalenecarboxylates (HANTZSCH and PREIFFER), 1886, A., 717.  
 methylloxalacetate (WILICENS and ARNOLD), 1888, A., 361; (ARNOLD), 1888, A., 1179.

**Ethylie** methylloxalacetate, action of aniline on (WILICENS and SPIRO), 1890, A., 378.  
 methylpentamethylenedicarboxylate (COLMAN and PERKIN), 1888, T., 192.  
 methylpropylacetate and its saponification with alcoholic potash (JONES), 1885, A., 376.  
 4'-methylquinoline-2'-carbonate, methiodide of (HANTZSCH), 1886, A., 369.  
 2'-methylquinolylcarboxylate (CONRAD and LIMPACH), 1888, A., 1109.  
 methylthiazolecarboxylate (WOHMANN), 1891, A., 226.  
   diazohydrate (WOHMANN), 1891, A., 225.  
 methylthiazolepropionate (RUBLEFF), 1891, A., 223.  
 methylthiazylacetate (HANTZSCH), 1890, A., 1238; (STREDE), 1891, A., 743.  
 morphine carbonate (OIRO and HOLST), 1892, A., 638.  
 mucobromate, action of potassium nitrite on (HILL and SANGER), 1883, A., 47.  
 isomuconate (RUEHMANN and BLACKMAN), 1890, T., 374.  
 myristate, boiling point of (REIMER and WILL), 1885, A., 1197.  
 $\beta$ -naphthalenesulphonate (KRAFFT and ROOS), 1892, A., 1220.  
 $\alpha$ - and  $\beta$ -naphthylamidoximecarboxylates (RICHTER), 1890, A., 63, 62.  
 $\alpha$ -naphthindolecarboxylate (SCHLIEFER), 1887, A., 963.  
 $\beta$ -naphtholazophenylmethylpyridinedicarboxylate (LEPETIT), 1887, A., 1053.  
 $\alpha$ -naphtholcarboxylate (SCHMIDT and BURKHARD), 1888, A., 59.  
 $\alpha$ - and  $\beta$ -naphthylamidoacetates (BISCHOFF and HAUSDORFER), 1892, A., 1341.  
 $\beta$ -naphthyl- $\beta$ -amidoisobutyrate (BISCHOFF and MINTZ), 1892, A., 1342.  
 $\alpha$ - and  $\beta$ -naphthylamidobutyrate (BISCHOFF and MINTZ), 1892, A., 1338.  
 $\alpha$ - and  $\beta$ -naphthylamidocrotonates (CONRAD and LIMPACH), 1888, A., 504.  
 $\alpha\alpha$ - and  $\alpha\beta$ -naphthylamido- $\alpha$ -cyanopropionates (GERSON), 1887, A., 261.  
 $\alpha$ - and  $\beta$ -naphthylamidopropionates (BISCHOFF and HAUSDORFER), 1892, A., 1337.  
 $\alpha$ - and  $\beta$ -naphthylamidosuccinates (HELL and POLIAKOFF), 1892, A., 860.

**Ethyllic**  $\alpha$ -naphthylazoacetate (ODDÖ), 1891, A., 1381; 1892, A., 367.  
 $\beta$ -naphthylbenzylmalonate (JST), 1886, A., 617.  
 naphthylchloroethylcarbamates (OTTO), 1891, A., 1373.  
 1- $\alpha$ -naphthyl-2:5-dimethylpyrrole-3:4-dicarboxylate (KNORR), 1887, A., 275.  
 1- $\beta$ -naphthyl-2:5-dimethylpyrrole-3:4-dicarboxylate (KNORR), 1885, A., 555.  
 1- $\alpha$ - and  $\beta$ -naphthyl-2:5-diphenylpyrrole-3-carboxylates (PAUL and BRAIKOFF), 1890, A., 263.  
 naphthylhydrazinelevulinate (STECHE), 1888, A., 284.  
 naphthyllic carbonate (BENDER), 1887, A., 37.  
 $\alpha$ - and  $\beta$ -naphthylimidonaphthylthiocarbamates (EVERS), 1888, A., 601.  
 $\beta$ -naphthylphenylcarbamate (PASCHKOWETZKY), 1892, A., 166.  
 nicotenyamidoximecarbonate (MICHAELIS), 1892, A., 208.  
 nitracetamidobenzoates (THIEME), 1891, A., 916, 917.  
 nitracetoacetate (?) (SCHONBRODT), 1890, A., 28.  
 nitracetylmethylamidobenzoate (THIEME), 1891, A., 917.  
 3:4-nitramidobenzoate (GROHMANN), 1891, A., 306.  
 3:2-nitramidobenzoate (ZACHARIAS), 1891, A., 912.  
 5:2-nitramidobenzoate (GROHMANN), 1892, A., 326.  
 5:4-nitramidobenzoate (THIEME), 1891, A., 916.  
 nitranthrolate, nitroso-anthrone of (LIEBERMANN and HAGEN), 1883, A., 73.  
 nitrate, magnetic rotatory power of (PERKIN), 1889, T., 682.  
 action of alkaline solutions on (MIXTER), 1892, A., 692.  
*mono-* and *di*-nitroethoxybenzoate (THIEME), 1891, A., 915, 916.  
 nitrosouccinamate (PIUTTI), 1891, A., 175.  
**Ethyllic nitrite** (*nitrous ether*), preparation of (DUNSTAN and DYMOND), 1888, A., 1048.  
 methylated, detection of (MUTER), 1891, A., 123.  
 estimation of (ALLEN), 1886, A., 279; (LUNGE), 1886, A., 392.  
 estimation of, in "spirit of nitrous ether" (DYMOND), 1885, A., 842; (THRESH), 1890, A., 927.

**Ethyllic nitrite** (*nitrous ether*), estimation of, in "spirit of nitrous ether" and kindred preparations (ALLEN), 1885, A., 1013.  
**Ethyllic** *p*-nitrobenzylamidoximecarboxylate (WEINER), 1890, A., 45.  
*p*-nitrobenzoylacetate (PERKIN and BELLENOT), 1886, T., 447.  
*p*-nitrobenzoylallylacetate (PERKIN and BELLENOT), 1885, A., 795; 1886, T., 451.  
 nitrobenzoylamidobenzoate (ZACHARIAS), 1891, A., 912.  
*o*-nitrobenzoylbenzylmalonate (BISCHOFF and SIEBERT), 1887, A., 952.  
*p*-nitrobenzoylethylacetate (PERKIN and BELLENOT), 1885, A., 794; 1886, T., 450.  
*o*-nitrobenzoylmalonate (BISCHOFF), 1883, A., 912.  
 quinoline derivatives from (BISCHOFF), 1889, A., 519.  
*mono-* and *di*-nitrobenzoylmalonates (BISCHOFF and RACH), 1885, A., 264, 263.  
*di*-*p*-nitrobenzoylsuccinate (PERKIN and BELLENOT), 1885, A., 795; 1886, T., 452.  
*p*-nitrobenzoyl-tetramethylene- and -trimethylene-carboxylates (PERKIN and BELLENOT), 1885, A., 795.  
*p*-nitrobenzylcarbamate (HAFNER), 1889, A., 982; 1890, A., 487.  
 nitrobenzylethylmalonate (LELLMANN and SCHLEICH), 1887, A., 490.  
 $\alpha$ -nitroisobutyrate (KOLOTOFF), 1889, A., 1140.  
*o*- and *p*-nitrocinnamates, preparation of (SPURAT), 1883, T., 408.  
*di*nitrocinnamate (FRIEDLÄNDER and MÄHLY), 1885, A., 1137, 1138.  
 reduction of (FRIEDLÄNDER and MÄHLY), 1883, A., 918.  
*o*-nitrocinnamylacetate (FISCHER and KUZEL), 1883, A., 587, 588.  
 nitro-*o*- and -*p*-cresolates (STAEDEL), 1883, A., 662.  
 trinitrodiphenylacetate (DIRRICH), 1890, A., 1418.  
*o*- and *p*-nitrodiphenylmethylpyrazenecarboxylates (KNORR and JÜDICKE), 1885, A., 1248, 1247.  
*mono-* and *di*-nitrohydroxybenzoates, action of ammonia on (THIEME), 1891, A., 915, 916.  
 nitromalonate (FRANCHIMONT and KLOBBE), 1889, A., 1143.  
*m*-nitromandelate (BEYER), 1885, A., 983.

**Ethylie** nitromethylamidobenzoate (THIEME), 1891, A., 917.  
*p*-nitromethylcoumarilate (NUTH), 1887, A., 803.  
*p*-nitro-nitrosobenzoylacetate (PERKIN and BELLENOR), 1886, T., 449.  
*d*-nitrophenylacetate, derivatives of (DITTRICH and MEYER), 1891, A., 1224; 1892, A., 178.  
*o*-*p*-*d*-nitrophenylacetacetate (HECKMANN), 1884, A., 178.  
*tr*-nitrophenylacetacetate (DITTRICH), 1890, A., 1418.  
*p*-nitrophenyldehydrohexonocarboxylate (PERKIN), 1887, T., 735.  
4-*o*- and *m*-nitrophenyl-2:6-dimethylhydropyridine-3:5-dicarboxylates (LEPETIT), 1887, A., 845.  
4-*m*-nitrophenyl-2:6-dimethylpyridine-3:5-dicarboxylate (LEPETIT), 1887, A., 845.  
*tr*-nitrophenylenedimalonate (JACKSON and MOORE), 1890, A., 498.  
nitrite (JACKSON and BENTLEY), 1892, A., 1219.  
*o*-nitrophenylglycollate (DUPARC), 1887, A., 948.  
*o*-nitrophenylic carbonate (BENDER), 1887, A., 38.  
*d*-nitrophenylmalonate (v. RICHTER), 1888, A., 1189.  
*d*-nitrophenyl-*m*-methylacetate (SENKOWSKI), 1889, A., 255.  
*o*-nitrophenyl-nitroso- and -isositrosoacetates (GABRIEL), 1883, A., 920.  
nitropiperonylacylate (PERKIN), 1891, T., 156.  
*d*-nitropyromellitate (NEF), 1888, T., 442.  
nitrosoacetacetate, reduction of (KNORR), 1884, A., 1368.  
nitrosoacetonedicarboxylate (v. PECHMANN), 1891, A., 738.  
nitrosobenzoylacetate (v. BAAYER and PERKIN), 1884, A., 64.  
 $\alpha\beta$ -*di*isositrosobutyrate. See **Ethylie** methylglyoximecarboxylate.  
nitrosobutyrylacetate (LANG), 1887, A., 717.  
nitrosocyanacetate (MÜLLER), 1891, A., 1450.  
*p*-nitro-sodiobenzoylacetate, action of trimethylene bromide on (PERKIN), 1887, T., 702, 734.  
nitrosomethylamidofornate (KLOBBE), 1891, A., 293.  
nitrosomethylisostychnate (TAFEL), 1892, A., 1013.  
nitrosophenolcarboxylate (WALKER), 1884, A., 1008.

**Ethylie** *d*-nitrososuccinosuccinate and its derivatives (EBERT), 1885, A., 1122.  
nitrostearate (CLAUS and PREIFFER), 1891, A., 542.  
nitrotolyl-carbamate and -oxamate (SCHIFF and VANNI), 1891, A., 702; 1892, A., 601.  
nitrouacilcarboxylate (KÖHLER), 1887, A., 128.  
octanetesserakaidecarboxylate (BISCHOFF), 1888, A., 1061.  
opianate, action of potassium cyanide on (GOLDSCHMIEDT and EGGER), 1891, A., 1371.  
orcinyldicarbonate (WALLACH), 1885, A., 254.  
oxalacetanilide (WISLICENUS and SATTLER), 1891, A., 902.  
**Ethylie oxalacetate** (WISLICENUS), 1887, A., 234; 1888, A., 361, 1178.  
action of aniline on (WISLICENUS and SPIRO), 1890, A., 378.  
action of bromine on (WISLICENUS), 1890, A., 133.  
reduction of (WISLICENUS), 1892, A., 147.  
compound of, with phenylhydrazine (WISLICENUS and SCHEIDT), 1892, A., 49.  
phenylhydrazone (WISLICENUS), 1887, A., 235.  
**Ethylie oxalaceto-*p*-toluidate** (WISLICENUS and SATTLER), 1891, A., 903.  
**Ethylie oxalate**, preparation of (SCHATZKI), 1885, A., 512; 1887, A., 360.  
action of, on acetone (CLAISEN and STYLOV), 1887, A., 917.  
action of organic acids on (LORIN), 1888, A., 937.  
action of a mixture of allylic and ethylic iodides and zinc on (BARAETEFF), 1887, A., 361.  
action of ethylic isobutyrate and other ethereal salts on (WISLICENUS), 1888, A., 1193.  
action of ethylic chloracetate and zinc on (FITTIG and DAIMLER), 1887, A., 361.  
action of, on lactones (WISLICENUS), 1888, A., 1194.  
action of phosphoric chloride on (FAUCONNIER), 1892, A., 588.  
behaviour of, towards resorcinol (MICHAEL), 1887, A., 949.  
combinations of, with anilides (WISLICENUS and SATTLER), 1891, A., 902.  
and alanine: a correction (SCHIFF), 1884, A., 995.

**Ethylie oxalate**, diphenylhydrazide (BOLING and TAFEL), 1892, A., 981.  
 $\alpha$ - and  $\beta$ -naphthylhydrazides (FREUND), 1892, A., 511, 509.  
 phenylhydrazide (BLOW), 1887, A., 138.  
 p-tolylhydrazide (FREUND), 1892, A., 512.  
**Ethylie oxalethylacetanilate** (WISLICENTUS and SATTLER), 1891, A., 903.  
 oxalhippurate (WISLICENTUS), 1891, A., 922.  
 oxallevalinate (WISLICENTUS), 1888, A., 1273.  
 oxalosuccinate (WISLICENTUS), 1889, A., 767.  
 oxamate (*oxamethane*) (MORLEY and SAINT), 1883, T., 401.  
 oxamethanetolylcarbamate (SCHIFF and VANNI), 1891, A., 702.  
 oxamidotolylloxamate (*oxamethanetolylloxamidi*) (SCHIFF and VANNI), 1891, A., 908; 1892, A., 603.  
 $\alpha$ -oximepropionate (HANTZSCH and WOHLBRUCK), 1887, A., 717.  
 oximidoacetate (CRAMER), 1892, A., 700.  
 oximidobenzoate (PINNER), 1884, A., 739.  
 oximidocarbonate (SANDMEYER), 1886, A., 612.  
 oximidosuccinate and its salts (EBERT), 1885, A., 1122; (PIUTTI), 1889, A., 383.  
 6-oxy-2:4-dimethylpyridine-3-carboxylate (COLLIE), 1885, A., 374.  
 4-oxy-1:2:6-trimethylpyridine-3:5-dicarboxylate (CONRAD and GUTH-ZEIT), 1887, A., 500.  
 parvolinedicarboxylate (ENGELMANN), 1886, A., 259.  
 pentacetylgluconate (VOLPERT), 1887, A., 127.  
 pentamethylenedicarboxylate (PERKIN), 1887, T., 244.  
 pentaneoctocarboxylate (CHABRIÉ), 1892, A., 1316.  
 pentanetetracarboxylate (PERKIN), 1886, A., 225; 1887, T., 241.  
 preparation of (PERKIN and PRENTICE), 1891, T., 822.  
 syntheses with the aid of (PERKIN), 1891, T., 798; (PERKIN and PRENTICE), 1891, P., 43.  
 1:3:3:5-pentanetetracarboxylate (EMERY), 1891, A., 547.  
 pentanetricarboxylate (WALTZ), 1883, A., 46; (BISCHOFF and WALDEN), 1889, A., 959; (BISCHOFF and MINTZ), 1890, A., 743.  
 peroxide (BERTHELOT), 1883, A., 305.

**Ethylie phenacylisomylmalonate** (PAUL and HOFFMANN), 1890, A., 1100.  
 phenacylbenzoylacetate (KAPF and PAUL), 1888, A., 839.  
 phenacylbenzoylacetate, derivatives of (KAPF and PAUL), 1889, A., 147.  
 phenacylethylmalonate (DILLREICH and PAUL), 1889, A., 257.  
**Ethylie phenanthroxyleneacetoacetate** (JAPP and STREATFEILD), 1883, T., 28; (JAPP and KLINGEMANN), 1891, T., 1.  
 actions of (JAPP and KLINGEMANN), 1888, P., 114.  
 action of acetic acid, of alcoholic hydrogen chloride, of alcoholic potash and of ammonia on (JAPP and KLINGEMANN), 1891, T., 14, 22, 24, 25.  
 action of formic acid on (JAPP and KLINGEMANN), 1891, T., 3.  
 action of hydriodic acid on (JAPP and STREATFEILD), 1883, T., 29.  
 action of propionic acid and of sulphuric acid and alcohol on (JAPP and KLINGEMANN), 1891, T., 17, 18.  
 brom- (JAPP and STREATFEILD), 1883, T., 29.  
**Ethylie isophenanthroxyleneacetoacetate** (JAPP and KLINGEMANN), 1891, T., 2, 4.  
 action of acetic anhydride, of phenylhydrazine and of bromine on (JAPP and KLINGEMANN), 1891, T., 7, 8.  
 hydrolysis of, with caustic alkalis (JAPP and KLINGEMANN), 1891, T., 11.  
 reduction of, with hydriodic acid, and with zinc and hydrochloric acid (JAPP and KLINGEMANN), 1891, T., 10, 8.  
**Ethylie  $\alpha$ -phenanthroxyleneisocrotonate** (JAPP and KLINGEMANN), 1891, T., 2.  
 and its behaviour towards caustic alkalis (JAPP and STREATFEILD), 1883, T., 31.  
 phenoxyethoxybenzoate (WAGNER), 1884, A., 435.  
 phenylacetate, amido- (GABRIEL and ELFELDT), 1892, A., 214.  
 phenylacetylsuccinate, and its derivatives (WELTNER), 1884, A., 746.  
 phenylacetylurate (HOTTER), 1887, A., 369.  
 phenylallophanate (v. STOWJENTIN), 1885, A., 1196.  
 phenylazo-acetyl- and -benzoylpyruvates (BEYER and CLAIEN), 1888, A., 829.  
 phenyl- $\beta$ -azocrotonate (BENDER), 1888, A., 53; (NEF), 1892, A., 143.

- Ethylc** phenylbenzamidopyrazolone-carboxylate (WISLICENS), 1891, A., 923.
- phenylbromacetate (ALEXANDER), 1890, A., 1135.
- phenyl-*d*-bromopropionate, preparation of (PERKIN), 1883, T., 172.
- action of an alcoholic solution of silver nitrate on (KINNICTT and MOORE), 1891, A., 1055.
- phenylcarbamate, nitration of (VAN ROMBURGH), 1892, A., 712.
- phenylcarbazate (HELLER), 1891, A., 1213.
- phenylcarbonate (PAWLEWSKI), 1884, A., 1005.
- conversion of, into salicylic acid (HENTSCHEL), 1883, A., 588.
- phenylcarboxysuccinate (ALEXANDER), 1890, A., 1135.
- phenylcyanacetate (HALLER), 1888, A., 1298.
- phenylcyanopyruvate (ERLENMEYER), 1889, A., 990.
- phenyldehydrohexonecarboxylate (PERKIN), 1887, T., 727.
- phenyldiazolonecarboxylate (FREUND), 1892, A., 513.
- phenyldimethylpyridazindicarboxylate (KNORR), 1885, A., 555.
- 1-phenyl-2-6-dimethyl-4-pyridone-3:5-dicarboxylate (CONRAD and GUTHZEIT), 1886, A., 331.
- phenyldimethylpyrrolecarboxylate (LEDERER and PAAL), 1886, A., 75.
- 1:2:5-phenyldimethylpyrrole-3:4-dicarboxylate (KNORR), 1885, A., 555.
- 1-*p*-phenylenbis-2:5-diphenylpyrrole-3-carboxylate (PAAL and BRAIKOFF), 1890, A., 264.
- 1-*m*-phenylenediphenyl- $\alpha$ -dimethylpyrrole- $\beta$ -dicarboxylate (PAAL and SCHNEIDER), 1887, A., 274.
- m*-phenylenedipropionate (KIPPING), 1888, T., 34.
- phenylethylallophanate (NEUBERT), 1886, A., 874.
- phenylethyl-*mono*- and -*di*-thiocarbamates (BILLETER and SPROHL), 1888, A., 365.
- phenylformylacetate (WISLICENS), 1888, A., 129.
- phenylglyoxylate, oxime of (*ethylc phenylisonitrosoacetate*) (GABRIEL), 1883, A., 920.
- phenylhexamethylenedicarboxylate (KIPPING and PERKIN), 1890, T., 315.
- phenylhippurate (KOSSEL), 1892, A., 463.
- phenylhydrazidacetate (REISSERT and KAYSER), 1891, A., 1054.
- Ethylc** phenylhydrazidopropionate (REISSERT), 1892, A., 1456.
- phenylhydrazilethylenedicarboxylate (RUHEMANN and MORRELL), 1892, T., 794.
- phenylhydrazineacetylacrylate (BENDER), 1888, A., 1188; (DECKER), 1889, A., 49.
- phenylhydrazine- $\beta$ -carboxylate (NEF), 1892, A., 145.
- phenylhydrazineoxalacetate (WISLICENS), 1888, A., 1178.
- phenyl- $\beta$ -hydrazocitronate (NEF), 1892, A., 142.
- phenylhydrazoneacetylglyoxylate, action of phenylhydrazine on (JAPP and KLINGEMANN), 1888, T., 529.
- phenylhydrazoneketophenylpyrazolonecarboxylate (WISLICENS and SCHEIDT), 1892, A., 458.
- phenylhydrazonemesoxalate (v. PECHMANN), 1891, A., 739.
- phenylic *o*-oxalate (CLAPAREDE and SMITH), 1883, T., 360; (STAUD and SMITH), 1884, T., 301.
- phenylic *d*-sulphide (OFFO and ROSSING), 1887, A., 243.
- phenylimidoacetate, action of hydrocyanic acid on (v. MILLER and PLOCHL), 1892, A., 1196.
- phenylimidobenzoyl-ethylmalonate and -malonate (JURR), 1886, A., 150.
- phenylimidodiacetate anilide (HAUSDORFER), 1889, A., 1014.
- phenylimidomethyloxalacetate (WISLICENS and SPIRO), 1890, A., 379.
- phenylimidopyrrolylpyruvate (ANGELI), 1890, A., 1243.
- phenylimidoxalacetate (WISLICENS and SPIRO), 1890, A., 378.
- phenylizinaethylsuccinate (KNORR and BLANK), 1884, A., 1380.
- phenyliziniacetylsuccinate and -succinosuccinate (KNORR and BÜLOW), 1884, A., 1381, 1380.
- phenyliziniaphenylpyrazolehydrobenzenecarboxylate (KNORR and BÜLOW), 1884, A., 1381.
- phenylmethylcarbamate (GEBHART), 1883, A., 384.
- phenylmethylcyanosuccinate (ZELINSKY and BUCHSTAB), 1891, A., 1065.
- phenylmethylhydrazonitrosoacetate (BALTZER and v. PECHMANN), 1891, A., 1116.
- 1-phenyl-3-methylpyrazolone-4-acetate (KNORR and BLANK), 1884, A., 1380.

- Ethyl 1-phenyl-4-methylpyrazolone-4-carboxylate** (BURTON and v. PECHMANN), 1891, A., 673; (RUEHMANN and MORRELL), 1892, T., 798.
- 1-phenyl-3-methylpyrazolone-4-succinate** (EMERY), 1891, A., 423.
- 2:5-phenylmethylpyrrole-3-carboxylate** (LEDERER and PAAL), 1886, A., 75.
- $\mu$ -phenyl- $\alpha$ -methylthiazolecarboxylate** (HUBACHER), 1891, A., 221.
- phenylisonitrosoacetate**. See **Ethyl phenylglyoxalate, oxime of**.
- phenylloxalacetate** (WISLICENUS), 1887, A., 587.
- phenylhydrazide** (WISLICENUS), 1888, A., 1193.
- phenylparaconate** (FITZIG and LEONI), 1890, A., 894.
- phenylpropiolate, preparation of** (PERKIN), 1884, T., 174.
- 1-phenylpyrazolonecarboxylates** (WISLICENUS), 1888, A., 1178; (RUEHMANN and MORRELL), 1892, T., 794, 798.
- phenylsulphoformate, preparation of** (OTTO and RÜSSING), 1885, A., 1231.
- phenylsulphonacetates, properties of** (MICHAEL and COMEY), 1884, A., 319; (MICHAEL and PALMER), 1885, A., 986.
- phenyltartarinate** (CONRAD and BRÜCKNER), 1892, A., 40.
- phenyltetramethylamidocrotonate and its condensation** (CONRAD and LIMPACH), 1885, A., 851.
- phenylthio-carbonate and -formate** (OTTO and RÜSSING), 1886, A., 692.
- phenylthiouramidotolylloxamate** (SCHIFF and VANNI), 1890, A., 1125; 1892, A., 599.
- phenylthiouranilidooacetate** (KOSSEL), 1892, A., 468.
- phenyltrimethylamidopyrroledicarboxylate** (KNORR), 1887, A., 275.
- phenyltrimethylenedicarboxylate** (BUCHNER), 1888, A., 1275.
- phenyl-uramido- and -uranilido-acetates** (KOSSEL), 1892, A., 468.
- phenylvalerate** (ANSCHÜTZ and BERNS), 1891, A., 913.
- phloroglucinoltricarboxylate** (BALLY), 1888, A., 955.
- phosphate** (GEUTHER), 1884, A., 1282.
- phosphite** (JAEHNE), 1890, A., 858.
- phthalamidobenzoate** (PELLIZZARI), 1885, A., 534.
- phthalate, action of ethyl acetate on** (WISLICENUS), 1888, A., 1193.
- Ethyl phthalate, action of ethyl propionate on** (WISLICENUS and KÜTZLER), 1889, A., 1068.
- chloride and its decomposition with ethylsodomalonnate** (ZELINSKY), 1887, A., 669.
- $\gamma$ -phthalimido-benzylpropylmalonate and -dipropylmalonate** (ASCHAN), 1891, A., 467.
- $\beta$ -phthalimidoethylmalonate** (ASCHAN), 1891, A., 1247.
- $\gamma$ -phthalimidoethylpropylmalonate** (ASCHAN), 1891, A., 466.
- $\gamma$ -phthalimidomethylpropylmalonate** (ASCHAN), 1891, A., 1246.
- $\gamma$ -phthalimidopropylmalonate** (GABRIEL), 1890, A., 1129.
- preparation of** (GABRIEL and ASCHAN), 1891, A., 948.
- phthalocyanacetate** (MÜLLER), 1891, A., 1337.
- phthaloxylidimalonate** (WISLICENUS), 1888, A., 150.
- phthalylacetacetate** (FISCHER and KOCH), 1883, A., 806; (BÜLOW), 1887, A., 144.
- phenylhydrazine derivative** (BÜLOW), 1887, A., 144.
- phthalylamidooacetate** (REESE), 1888, A., 149.
- phthalylethoxy-ethylmalonate and -sodomalonnate** (WISLICENUS), 1888, A., 151.
- phthalyl-malonate and -dimalonate** (WISLICENUS), 1888, A., 150.
- $\beta$ -picolinebetaine salts** (KREGER), 1891, A., 943.
- pimelate, preparation of** (PERKIN and PRENTICE), 1891, T., 825.
- piperazyloxamate** (SCHMIDT and WICHMANN), 1892, A., 211.
- piperidylloxamate** (WALLACH and LEHMANN), 1887, A., 385.
- platinocyanide** (FREUND), 1888, A., 571.
- potassioacetonedicarboxylate** (DÜNSCHMANN and v. PECHMANN), 1891, A., 673.
- potassiocyanacetooacetate** (JAMES), 1887, T., 287.
- potassium malonate, preparation of** (FREUND), 1884, A., 1123.
- properties of** (MASSOL), 1891, A., 1012.
- electrolysis of** (BROWN and WALKER), 1890, A., 583; 1891, A., 1192.
- potassium suberate, electrolysis of** (BROWN and WALKER), 1891, A., 1192.
- potassium succinate, electrolysis of** (BROWN and WALKER), 1890, A., 583.

- Ethylie propanetetracarboxylate** (BISCHOFF), 1883, A., 46; (PERKIN), 1886, A., 691; (AUWERS, KÖBNER and V. MEYENBURG), 1892, A., 41.
- propanetetracarboxylate**, preparation of (PERKIN and PRENTICE), 1891, T., 991.
- propanetricarboxylate** (BISCHOFF), 1883, A., 45; (BISCHOFF and V. KUHLEBERG), 1890, A., 742.
- synthesis of mesaconic and citraconic acids from** (BISCHOFF), 1890, A., 1101.
- $\beta$ -propanetricarboxylate** (BISHOP and PERKIN), 1891, P., 41.
- propenyl-*o*-amidophenol- $\omega$ -carboxylate** (HANTZSCH), 1883, A., 1111.
- $\alpha$ -propiobutyrate** (HAMONET), 1890, A., 235.
- propiocyanacetate** (HALLER), 1888, A., 818.
- propiomalonate** (LANG), 1887, A., 717.
- propionate**, action of, on ethylie phthalate (WISLIGENUS and KÜTZLE), 1889, A., 1068.
- propiononedicarboxylate** (MARCKWALD), 1888, A., 677.
- propionylpentacarboxylate** (BISCHOFF), 1888, A., 1061.
- propioylpropionate** (ISRAEL), 1886, A., 334; (HANTZSCH and WOHLBRÜCK), 1887, A., 717.
- constitution of** (GETTHER), 1887, A., 915.
- $\beta$ -propoxyquartenylate** (ENKE), 1890, A., 865.
- propylic carbonate** (PAWLEWSKI), 1884, A., 1279.
- $\alpha$ -propyl- $\beta$ -chlorocinnamate** (PERKIN and CALMAN), 1886, T., 162.
- propylcyanosuccinate** (BARTHE), 1889, A., 588.
- propylene-bis- $\beta$ -amido- $\alpha$ -crotonate** (STRACHE), 1888, A., 1173.
- n*- and *iso*-propylethanetricarboxylates** (WALTZ), 1883, A., 46.
- propylic succinate**, hydrolysis of (LOSSEN and KÖHLER), 1891, A., 1013.
- n*- and *iso*-propylmalonates**, action of ethylie  $\alpha$ -bromo-*isobutyrate* on (BISCHOFF and TIGERSTEDT), 1890, A., 1103.
- propylparaconate** (FITTIG and SCHMIDT), 1890, A., 872.
- isopropylisovalerylacetate*** (WOHLBRÜCK), 1887, A., 1099.
- pyridinebetaine salts** (KRÜGER), 1891, A., 941.
- pyridonetetracarboxylate** (PERATONER and STRAZZERI), 1891, A., 1334.
- Ethylie pyrogallocarboxylate** (WILL and ALBRECHT), 1884, A., 1335.
- pytomucate**, chloro-derivatives of (HILL and JACKSON), 1890, A., 482.
- pyronetetracarboxylate** (PERATONER and STRAZZERI), 1891, A., 1334.
- pyrovanadate** (HALL), 1887, T., 754.
- pyruvate** (ANGELI), 1890, A., 1000, 1156.
- oxime of** (*ethylie pyrogallisonitroso-propionate*), anhydride of (ANGELI), 1890, A., 1156.
- 3:1-pyrrylphenylpyrazole-5-carboxylate** (ANGELI), 1890, A., 1214.
- quinoline-*p*-methenylamidoximecarboxylate** (BIEDERMANN), 1890, A., 175.
- quinoltetracarboxylate** (NEF), 1887, A., 257; 1888, T., 447.
- quinoltetrahydrodicarboxylate** (HANTZSCH and ZECKENDORF), 1888, A., 279.
- quinone-*p*-dicarboxylate**, derivatives of (HANTZSCH and ZECKENDORF), 1887, A., 727; 1888, A., 278.
- quinonedihydro-*p*-dicarboxylate** (HERRMANN), 1886, A., 1027.
- quinonedihydrodicarboxylate**, hydrate of (HANTZSCH and ZECKENDORF), 1888, A., 279.
- quinonedioximecarboxylate** (JEANRENAUD), 1889, A., 872.
- quinonedurylate** (NEF), 1888, T., 436.
- quinone- $\beta$ -imidotetracarboxylate** (NEF), 1889, A., 509.
- quinoneoximecarboxylate** (BRIDGE), 1892, A., 1457.
- quinonepyromellitate** (NEF), 1888, T., 446.
- quinonetetracarboxylate** (NEF), 1886, A., 550; 1888, T., 446.
- quinonetetrahydrocarboxylate** (HERRMANN), 1883, A., 1085.
- quinovate** (LIEBERMANN), 1884, A., 1191.
- racemate**, magnetic rotation of (PERKIN), 1887, T., 364; P., 29.
- vapour-density of** (ANSCHÜTZ), 1885, A., 966.
- resorcinyldicarboxonate** (WALLACH), 1885, A., 254.
- isosaccharate** (TIEMANN), 1884, A., 725.
- salicylanilamidoximecarboxylate** (MILLER), 1890, A., 146.
- santonate**, amine and hydrazone of (FRANCESCONI), 1892, A., 1353.
- oxime of** (FRANCESCONI), 1892, A., 1352.
- sebate**, magnetic rotatory power of (PERKIN), 1884, T., 518; 1888, T., 568, 587.

- Ethylie selenocyanacetacetate** (HOFMANN), 1889, A., 726.  
 silicates, action of phosphorus oxychloride on (STOKES), 1891, A., 514, 1171.
- Ethylie sodacetacetate**, preparation and properties of (ELION), 1891, A., 171.  
 constitution of (MICHAEL), 1888, A., 674, 1054; 1892, A., 1178, 1428; (NEF), 1892, A., 140.  
 action of acetic acid on (JAMES), 1885, T., 2.  
 action of, with benzaldehyde, etc. (MICHAEL), 1887, A., 716.  
 action of bromacetophenone on (PAAL), 1884, A., 598.  
 action of *o*-cyanobenzyl chloride on (HAUSMANN), 1889, A., 1172.  
 action of ethereal salts of unsaturated acids on (MICHAEL), 1887, A., 672; (MICHAEL and SCHULTHESS), 1892, A., 590.  
 action of ethylenic bromide on (FREER and PERKIN), 1887, T., 820; P., 95; (MARSHALL and PERKIN), 1891, T., 858.  
 action of, on ethylic benzylidenemalonate (BREDT), 1891, A., 712.  
 action of ethylic chlorocarbonate on (CLAISEN), 1889, A., 375; 1892, A., 1070; (CLAISEN and ZEDEL), 1889, A., 377; (NEF), 1892, A., 145; (MICHAEL), 1892, A., 1178.  
 action of, with phenylic isocyanate (MICHAEL), 1887, A., 716.  
 action of picric chloride on (DIRTICH), 1890, A., 1418.  
 action of propylenic bromide on (PERKIN and STENHOUSE), 1892, T., 67.  
 action of sulphur chloride on (V. BUCHKA), 1885, A., 1200.  
 action of, with thiocarbimides (MICHAEL), 1887, A., 716.  
 action of trimethylenic bromide on (PERKIN), 1887, T., 702.  
 additive products of, with ethereal salts of unsaturated acids (MICHAEL and FREER), 1891, A., 914.
- Ethylie sodacetonedicarboxylate**, action of ethylenic bromide on (FREER and PERKIN), 1887, T., 820.  
 action of trimethylenic bromide on (PERKIN), 1887, T., 702; A., 32.  
 sodacetothiosulphate (PURGOTT), 1892, A., 1419.  
 sodacetylmalonate, constitution of (MICHAEL), 1888, A., 674.  
 sodethanetetracarboxylate, action of benzoic chloride on (PERKIN), 1888, T., 10.
- Ethylie sodethylacetacetate**, preparation and properties of (ELION), 1891, A., 171.  
 action of ethylenic bromide on (MARSHALL and PERKIN), 1891, T., 893.  
 sodethylmalonate, action of acetic chloride on (MICHAEL), 1892, A., 1179.  
 sodiobenzamidoxalacetate (WILLICENT), 1891, A., 922.
- Ethylie sodiobenzoylacetate**, action of chloracetone on (COLLIER), 1891, T., 191.  
 action of ethylenic bromide on (FREER and PERKIN), 1887, T., 820; (MARSHALL and PERKIN), 1891, T., 853.  
 action of propylenic bromide on (PERKIN and STENHOUSE), 1892, T., 82.  
 action of trimethylenic bromide on (PERKIN), 1887, T., 702, 726.
- Ethylie sodiocarbamate** (MULDER), 1888, A., 1064.  
 action of iodine on (MULDER), 1889, A., 363.  
 syntheses with (KRAFT), 1891, A., 42.  
 sodiocyanacetate (HENRY), 1887, A., 796.  
 action of dibasic acid chlorides on (MULLER), 1891, A., 1337.  
 action of ethylic salts of unsaturated acids on (MICHAEL), 1887, A., 672; (MULLER), 1892, A., 1181.  
 sodiocyanotricarballylate (MULLER), 1892, A., 1181.  
 disodiiodiacetyladiquate (PERKIN), 1890, T., 216.  
 disodioisohexanetetracarboxylate, action of bromine on (FREER and PERKIN), 1888, T., 220.
- Ethylie sodiomalonate**, actions of (MICHAEL), 1887, A., 716.  
 action of benzanilidoimide chloride on (JUST), 1886, A., 149.  
 action of chloroform on (CONRAD and GUTHZEIT), 1883, A., 311.  
 action of, on chloromethyl ether (KLEBER), 1888, A., 1056.  
 action of *o*-cyanobenzyl chloride on (HAUSMANN), 1889, A., 1172.  
 action of ethereal salts of unsaturated acids on (MICHAEL and SCHULTHESS), 1892, A., 590.  
 action of ethylenic bromide on (FITTING and ROEDER), 1883, A., 730.  
 action of ethylic  $\alpha$ -bromosuccinate on (ROSEN), 1884, A., 423.

**Ethylie sodiomalonate**, action of ethylie dichloracetate on (BISHOP and PERKIN), 1891, P., 41.  
 action of ethylie chlorocarbonate on (CLAISEN), 1889, A., 375; (CLAISEN and ZEDEL), 1889, A., 377.  
 action of phthalyl dichloride on (WILKINSON), 1888, A., 149.  
 action of, on resorcinol (MICHAEL), 1888, A., 956.  
 action of triphenylcarbonyl bromide on (HENDERSON), 1887, T., 224.  
 additive products of, with ethereal salts of unsaturated acids (MICHAEL and FREER), 1891, A., 914.  
 derivatives, action of iodine on (BISCHOFF and HAUSDÖRFER), 1887, A., 916.  
**Ethylie disodiummalonate** (BISCHOFF and RACH), 1885, A., 244.  
*disodiopentametetracarboxylate* (PERKIN), 1887, T., 243; (PERKIN and PRENTICE), 1891, P., 43.  
 action of benzyldenic chloride on (PERKIN and PRENTICE), 1891, T., 850.  
 action of methylenic iodide on (PERKIN), 1891, T., 798.  
*sodiophenylsulphonacetate*, action of heat on (OTTO and RÜSSING), 1889, A., 994.  
 behaviour of alkyl-halogen compounds with (OTTO and RÜSSING), 1889, A., 994.  
 replacement of the sodium of, by alkyls (MICHAEL), 1890, A., 781; (OTTO and RÜSSING), 1890, A., 1137.  
*disodiopropanetetracarboxylate*, action of trimethylenic bromide on (PERKIN and PRENTICE), 1891, T., 994.  
*sodioquinoltetracarboxylate* (NEF), 1889, A., 509.  
*disodiotartrate*, transformation of, by ethylie chloride (MULDER), 1891, A., 830.  
*mono- and di-sodiotartrates* (MULDER), 1890, A., 595.  
*sodiothiosulphate*, preparation and properties of (OTTO and RÜSSING), 1892, A., 799.  
*sodiumhydroxyisophthalate* (HÄHLE), 1891, A., 1369.  
*sodoalacetanilate* (WISLICENUS and SÄTTLER), 1891, A., 902.  
*sodoalacetate* (WISLICENUS), 1888, A., 1178.  
*succinate* (DAVIDOFF), 1886, A., 444.  
 synthesis of, from ethylie potassium malonate (BROWN and WALKER), 1890, A., 583.

**Ethylie succinate phenylhydrazide** (MICHAELIS and HERMENS), 1892, A., 1495.  
*succinic chloride* (MICHAELIS and HERMENS), 1892, A., 1495.  
*succinimidoacetate* (HALLER and ARTH), 1887, A., 1031.  
*succinocyanacetate* (MULLER), 1891, A., 1337.  
**Ethylie succinosuccinate** (v. BAEYER), 1886, A., 445; (HANTZSCH and HERRMANN), 1888, A., 675.  
 formation of, from ethylie dihydroxyterephthalate (HERRMANN), 1886, A., 550, 706.  
 constitution of (HERRMANN), 1883, A., 1084; (EBERT), 1885, A., 1122.  
 action of phosphoric chloride on (LEVY and ANDREOCCI), 1888, A., 840; (LEVY and CURCHOD), 1889, A., 1179.  
 relationship between phloroglucinol and (v. BAEYER), 1891, A., 1485.  
 and allied compounds, alleged tautomerism of (NEF), 1890, A., 983.  
 benzene derivatives from (LOEWY), 1886, A., 1028.  
 desmotropic derivatives of (BONIGER), 1888, A., 954.  
*phenylhydrazine derivatives* of (v. BAEYER, JAY and JACKSON), 1891, A., 1486.  
 constitution of (v. BAEYER and v. BRÜNING), 1891, A., 1486.  
*quinone derivatives* of (HANTZSCH and LOEWY), 1886, A., 354.  
**Ethylie o-sulphaminobenzoate** (FAHLBERG and LINT), 1887, A., 835; (REMSEN and DOHME), 1889, A., 992.  
*sulphide*, action of ethylenic bromide on (MASSON), 1886, T., 249.  
*platinum derivatives* of (BLOMSTRAND), 1889, A., 230.  
*mono- and s-dichlor-*, physiological action of (MEYER), 1887, A., 857.  
*disulphide*, chlor-, constitution of Guthrie's (SPRING and LECRENIER), 1888, A., 664.  
*sulphides* (BÜTTGER), 1884, A., 1282; (KLASON), 1888, A., 356.  
*sulphochloride, dichlor-*, (JAMES), 1885, A., 365.  
*tannacetate* (BÜTTINGER), 1892, A., 181.  
*tartrate*, magnetic rotation of (PERKIN), 1887, T., 363; P., 29.  
 action of alkali ethoxides on (MULDER), 1890, A., 595; (MULDER and WELLMAN), 1889, A., 376.

**Ethylie tartrate** (FREUND), 1884, A., 1124; (PINNER), 1885, A., 759.  
 preparation of (PINNER), 1886, A., 48.  
**telluride** (MARQUARDT and MICHAELIS), 1888, A., 1066.  
 preparation of (DEMARÇAY), 1884, A., 663.  
**teraconate** (FROSI), 1885, A., 393.  
**terpenylate** (FITTIG and LEVY), 1890, A., 873.  
**tetracarbanilidotetrahydroxyterephthalate** (GOLDSCHMIDT and MEISSLER), 1890, A., 500.  
**tetracytillosaccharate** (TIEMANN and HAARMANN), 1886, A., 689.  
**tetrahydronaphthalenetetracarboxylate** (v. BAeyer and PERKIN), 1884, A., 908; (PERKIN), 1887, P., 93; 1888, T., 1.  
**tetrahydroxysuccinate** (ANSCHUTZ and PARLATO), 1892, A., 1181.  
**tetramethylenecarboxylate** (PERKIN), 1887, T., 12.  
**tetramethylenedicarboxylates** (PERKIN), 1883, A., 1084; 1887, T., 2, 23.  
**tetramethylenetetracarboxylate** (PERKIN), 1886, A., 934; (GUTHZEIT and DRESSEL), 1890, A., 879.  
**tetraphenylsuccinate** (BICKEL), 1889, A., 999.  
**tetrate** (MOSCHELES and CORNELIUS), 1888, A., 1272.  
**tetraphylacetonedicarboxylate** (DÜNSCHMANN and v. PECHMANN), 1891, A., 674.  
**thioacetamidooctoacetate** (STEUDE), 1891, A., 743.  
**trithioacetate** (LAVES), 1892, A., 154.  
**Ethylie thioacetooacetate** (MICHAELIS and PHILIPS), 1890; A., 582; (SPRAGUE), 1891, T., 329; P., 60.  
 preparation of (v. BUCHKA and SPRAGUE), 1890, A., 28; (SPRAGUE), 1891, T., 331.  
 action of phenylhydrazine on (v. BUCHKA and SPRAGUE), 1890, A., 796; (SPRAGUE), 1891, T., 332.  
 condensation of, with *p*-tolylhydrazine (SPRAGUE), 1891, T., 339.  
**Ethylie  $\mu$ -thioacetylacetoacetate** (STEUDE), 1891, A., 744.  
**thiocarbimidoacetate** (KLASON), 1891, A., 180.  
**perthiocarbonate** (KLASON), 1887, A., 1030.  
**thiocarbonylbenzoylacetate** (BERGREEN), 1888, A., 446.

**Ethylie thiocyanate**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 296.  
 action of chlorine on (JAMES), 1885, A., 365.  
 action of thioacetic acid on (CHANLAROFF), 1883, A., 39.  
**perthiocyanate** (KLASON), 1889, A., 228.  
**4-thio-2:6-dimethylpyrone-3:5-dicarboxylate** (GUTHZEIT and ERSTEIN), 1887, A., 920.  
 **$\beta$ - $\alpha$ -thiodiphenoxybutyrate** (ESALLE and BARMANN), 1886, A., 579.  
 **$\beta$ - $\alpha$ -thiodiphenoxy- $\alpha$ -ethylbutyrate** (ATTENRIETH), 1891, A., 205.  
**thiodiphenylallopbanate** (SEIDEL), 1886, A., 357.  
**thiomethylsalicylate** (SEIFFERT), 1885, A., 1058.  
**thiomethyluracilacetate** (LISZ), 1887, A., 128.  
 **$\beta$ -thiophenoxyevulinate** (DELISLE), 1889, A., 489.  
**isothiophenylallopbanate** (SEIDEL), 1886, A., 357.  
**thiophenyldimethylpyridinedicarboxylate** (GUTHZEIT and ERSTEIN), 1887, A., 920.  
**thioisophthalate** (LUCKENBACH), 1884, A., 1158.  
**thioxalate** (MORLEY and SAINT), 1883, T., 400.  
**thymol carbonate** (RICHTER), 1883, A., 1112.  
**tiglate** (BEILSTEIN and WIEGAND), 1885, A., 42.  
***p*-toluenazoacetoacetate** (v. RICHTER and MÜNZER), 1884, A., 1342.  
**toluene-sulphinate and-sulphoformate** (OTTO and RÖSSING), 1885, A., 1232.  
***p*-toluenesulphonate** (KRAFFT and ROOS), 1892, A., 1220.  
***o*- and *p*-toluidooacetates** (BISCHOFF and HAUSDÖRFER), 1892, A., 1334, 1335.  
 **$\beta$ -*p*-toluidooacrylate** (v. PECHMANN), 1892, A., 818.  
***o*-*o*- and *p*-toluidobutyrate** (BISCHOFF and MINTZ), 1892, A., 1338.  
***o*-*o*- and *p*-toluido- $\alpha$ -cyanopropionates** (GERSON), 1887, A., 260, 261.  
 **$\beta$ -*p*-toluidodiaacrylate** (v. PECHMANN), 1892, A., 818.  
***o*-*o*- and *p*-toluidopropionates** (BISCHOFF and HAUSDÖRFER), 1892, A., 1337.  
***o*-toluidosuccinamate** (GERSON), 1887, A., 260.  
***p*-tolylbenzylmalonate** (JUST), 1886, A., 617.

- Ethylie** *o*-tolylcyanacetate (HALLER), 1888, A., 1298.  
*p*-tolyl diazolonocarboxylate (FRETND), 1892, A., 513.  
 1-*p*-tolyl-2:5-dimethylpyrrole-3:4-dicarboxylate (KNORR), 1885, A., 555.  
 tolylenedimethylpyrroledicarboxylate (KNORR), 1887, A., 276.  
*p*-tolylhydrazine acetoacetate (KNORR), 1884, A., 1154.  
 triacetoacetate (NEF), 1892, A., 145.  
 triacetylphloroglucinoltricarboxylate (BALLY), 1888, A., 955.  
 triazoacetate (CURRIUS and LANG), 1889, A., 370.  
 tricarbaniidophloroglucinoltricarboxylate (GOLDSCHMIDT and MEISLER), 1890, A., 500.  
 4-tridecyl-2:6-dimethyl-hydropyridine- and -pyridine-3:5-dicarboxylates (KRAFFT and MAI), 1889, A., 1017.  
 triethylacetonedicarboxylate (DÜNSCHMANN and v. PECHMANN), 1891, A., 674.  
 triethyl-gallate and -pyrogallalcarboxylate (WILL and ALBRECHT), 1884, A., 1335.  
 triketohexamethylenecarboxylate trioxime (BALLY), 1888, A., 955.  
 trimesate (PIUTTI), 1887, A., 491.  
 synthesis of (PIUTTI), 1887, A., 587.  
 2:4:6-trimethylidihydropyridine-3-carboxylate (HANTZSCH), 1883, A., 84.  
 trimethylenecarbanilate (HANSEN), 1887, A., 578.  
 trimethylenecarboxylate (PERKIN), 1885, T., 817; A., 1049.  
 trimethylenedicarboxylate (PERKIN), 1884, A., 832; 1885, T., 807.  
 trimethylenetetracarboxylate (PERKIN), 1884, A., 1300; 1885, T., 822.  
 trimethylenetricarboxylate (CONRAD and GUTHZEIT), 1884, A., 991.  
 2:4:6-trimethylpyridine-3-carboxylate (HANTZSCH), 1883, A., 84; (MICHAEL), 1885, A., 61.  
**Ethylie** 2:4:6-trimethylpyridine-3:5-dicarboxylate and its derivatives (HANTZSCH), 1883, A., 83.  
 ammonium salt of, decomposition of, by potash (HANTZSCH), 1884, A., 1046.  
 methiodide and methohydroxide of (HANTZSCH), 1884, A., 1045.  
 methiodide, decomposition of (HANTZSCH), 1885, A., 397.  
**Ethylie** 1:2:6-trimethyl-4-pyridone-3:5-dicarboxylate (CONRAD and GUTHZEIT), 1886, A., 334.  
**Ethylie** trimethylpyrroledicarboxylate (KNORR), 1885, A., 555.  
 triphenylcarbinylnalonate (HENDERSON), 1887, A., 671.  
 triphenylmethylnalonate (HENDERSON), 1887, T., 225.  
 $\beta$ -triphenylpropionate (HENDERSON), 1887, T., 227.  
 1:2:5-triphenylpyrrole-3-carboxylate (KAPF and PAAL), 1889, A., 149.  
 tropate (LIEBERMANN), 1891, A., 749.  
 truxillates (*ethylie isotropates*) (LIEBERMANN), 1888, A., 1211.  
 undecylenate (PERKIN), 1886, T., 296; (NOERDLINGER), 1890, A., 1237.  
 magnetic rotation of (PERKIN), 1886, T., 207.  
 urethanotolylloxamate (*oromethanotolylurethane*) (SCHIFF and VANNI), 1892, A., 601.  
 uvitonate (BÖTTINGER), 1884, A., 758.  
 valerovalerate (HAMONET), 1890, A., 235.  
*o*-vanadate (HALL), 1887, T., 752.  
 vinacolate, constitution of (MICHAEL), 1887, A., 468.  
 xanthochelidonate (CLAISEN), 1891, A., 426.  
 xylenylamidoximecarboxylate (OPPENHEIMER), 1890, A., 50.  
*m*-xylylchloromalonate (POPPE), 1890, A., 499.  
*o*-xylyldimalonate (v. BAeyer and PERKIN), 1884, A., 908.  
 1-*m*-xylyl-2:5-diphenylpyrrole-3-carboxylate (PAAL and BRAIKOFF), 1890, A., 263.  
*o*-, *m*- and *p*-xylylenedichlorodimalonates (KIPPING), 1888, T., 14, 26, 35.  
*o*-, *m*- and *p*-xylylenedimalonates (KIPPING), 1888, T., 16, 27, 35.  
*m*-xylyl-malonamate, -malonate, and -malonmethylnamate (POPPE), 1890, A., 498.  
**Ethylidene** derivatives (RÜBENCAMP), 1885, A., 136.  
**Ethylidene** diethyl ether. See Acetal.  
**Ethylidene**acetophenone, trichlor- (KOENIGS), 1892, A., 695.  
**Ethylidene**bishydroxynaphthaquinonehydrazide (ZINCKE and THELEN), 1888, A., 1098.  
**Ethylidene**bisthioglycollic acid (BONGARTZ), 1888, A., 478.  
**Ethylidene**chloro-phenyl- and -*p*-tolylsulphones (OTTO), 1890, A., 379, 380.

- Ethylidene-cinchonic and -cinchonic acids** (CHATS, 1892, A., 1490).
- Ethylidene-*o*-cyanophenylhydrazine** (BLADIN), 1892, A., 597.
- Ethylidenediactic acid.** See  *$\beta$*  Methylglutamic acid.
- Ethylidene-diethoxy- and -dimethoxybenzene** (GATIERMANN, EHRHARDT and MAISCH), 1889, A., 862.
- Ethylidenediethylidysulphone** (ESCALE and BAUMANN), 1887, A., 123; (FROMM), 1890, A., 55.
- Ethylidenechloride** (FROMM), 1890, A., 55.
- Ethylidenedimethylidysulphone** (BAUMANN and KAST), 1889, A., 1232.
- Ethylidenedi- $\alpha$ -naphthol** (CHATS and TRAINOR), 1887, A., 231.
- Ethylidene-dinaphthylacetal and - $\beta$ -dinaphthyl oxide** (CLAISON), 1887, A., 271.
- Ethylidenediphenol** (CHATS and TRAINOR), 1887, A., 231.
- Ethylidenediureide, trichloro-** (PINNER and LIEFCHITZ), 1887, A., 1032.
- Ethylidene-ethanetricarboxylic acid and its salts** (HJELT), 1885, A., 243.
- Ethylidene-ethylenedisulphone** (FASBENDER), 1888, A., 804.
- Ethylidene-ethylenic disulphide** (FASBENDER), 1888, A., 804.
- Ethylidenelime silver nitrate** (REYHLER), 1883, A., 903.
- Ethylidenelactic acid.** See Lactic acid.
- Ethylidene-2'-methylquinoline, trichloro-** (EINHORN), 1886, A., 264.
- Ethylidenephénylhydrazine.** See Acetaldehydephenylhydrazine.
- Ethylidenephthalide, dimitr-** (GABRIEL), 1886, A., 620.
- Ethylidenepropionic acid** (FITTIG and FRANKEL), 1890, A., 535.
- 2-Ethylidenepyrazoline** (PINNER and LIEFCHITZ), 1887, A., 1032.
- Ethylidenerhodanic acid** (NFKI and BOUQUIN), 1885, A., 40.
- Ethylidene- $\mu$ -toluidine, chloro-** (BERINGERBLAU and POLIKIER), 1887, A., 813.
- Ethylidene acetochloride** (FRANCHIMONT), 1883, A., 452.
- bromide (dibromomethane), bromination of** (MEYER and MULLER), 1892, A., 1414.
- brom- (tribromomethane), action of sodium ethoxide on** (MICHAEL), 1884, A., 418.
- Ethylidene chloride of aluminum, action of aluminium chloride on mixtures of, with benzene, toluene or *m*-xylene** (ANSHUTZ and ROMIG), 1890, A., 1885, A., 768.
- behaviour of, with ethylamine and amylamine** (V. HOFMANN), 1884, A., 1275.
- trichlorolactate, tetrachloro-** (ANSHUTZ and HASLAM), 1890, A., 27.
- diacetate** (FRANCHIMONT), 1883, A., 453.
- glycol, trichloro-** See Chloral hydrate.
- lactate** (LEIPER), 1888, A., 500.
- oxyacetate, action of ammonia on** (GEIHER), 1889, A., 814.
- oxyclocholates** (LAASCH), 1883, A., 788.
- oxychloride, constitution of** (LAASCH), 1883, A., 788.
- Ethylidene chloride (s-sulphochloroethane), derivatives of** (GEIHER), 1885, A., 237.
- Ethylimidodiethylidioxamide** (SCHIEFF), 1884, A., 995.
- Ethylimidomethylene-ethylenic disulphide** (MOLAU), 1891, A., 895.
- Ethylindazole** (FISCHER and TAFEL), 1885, A., 541.
- Ethylisindazole-acetic acid and -carboxylic acid** (FISCHER and TAFEL), 1885, A., 542, 543.
- Ethylindene, amido-** (V. MILLER and ROHDE), 1889, A., 984.
- Ethylindole, synthesis of** (FISCHER and HESS), 1884, A., 1181.
- 3'-Ethylindole** (PRIET and DUPARC), 1888, A., 370.
- Ethylindolecarboxylic acid, synthesis of** (FISCHER and HESS), 1884, A., 1181.
- Ethylisiodamine** (RASHIG), 1886, A., 45.
- Ethyl- $\psi$ -isatin** (V. BAYER), 1884, A., 74.
- synthesis of** (FISCHER and HESS), 1884, A., 1181.
- $\alpha$ -ethyloxime and  $\beta$ -oxime** (V. BAYER), 1884, A., 74, 75.
- $\beta$  indogenide of** (V. BAEYER), 1884, A., 76.
- Ethylitaconic acid** (FITTIG), 1891, A., 453.
- Ethylitamic acid, salts of** (FILLIN and DELISLE), 1890, A., 588.
- Ethylleucazone and its derivatives** (MEYER and CONSTANT), 1883, A., 40.
- Ethylmaleic acid, formation of** (BISCHOFF), 1891, A., 1221.
- Ethylmalic acid, biom-, sodium salt of** (MÜLLER and HAMBURGER), 1883, A., 812.
- See also Ethoxysuccinic acid.

- Ethylmalon-amide** and -anilide (FREUND and GOLDSMITH), 1888, A., 675.
- Ethylmalonanilic acid** (FREUND and GOLDSMITH), 1888, A., 676.
- Ethylmalonic acid**, thermochemistry of (STUHMANN, KLEBER and LANGBEIN), 1889, A., 1097.
- derivatives of (FREUND and GOLDSMITH), 1888, A., 675.
- brom- [m.p. 104°] (CONRAD and BRÜCKNER), 1892, A., 40.
- $\gamma$ -brom- [m.p. 116°] (PERKIN), 1885, T., 814.
- Ethylmalonic chloride**, action of, on ethylbenzene (BÉHAL and AUGER), 1890, A., 493.
- Ethylmalonylhydrazide** (FREUND and GOLDSMITH), 1888, A., 687.
- Ethylmercaptopomethylthiazoline**. See Ethylsulphydromethylthiazoline.
- Ethylmercaptophtalimide**. See Ethylphthalimide, sulphydro-.
- Ethylmesaconic acid** (FITTIG), 1891, A., 453.
- Ethylmethyl-**. See Methyl-ethyl-.
- Ethylmorphine**. See Codethyline under Alkaloids.
- $\beta$ -Ethyl-naphthalene** (BRUNEL), 1884, A., 1035.
- $\alpha$ -Ethyl-naphthalenecarboxylamide** (HARRIS), 1890, A., 158.
- Ethyl- $\beta$ -naphthindolesulphonic acid**, sodium salt of (HINSBERG), 1892, A., 1158.
- Ethyl- $\alpha$ - and - $\beta$ -naphthols**, trinitr- (SÄEDEL), 1883, A., 863.
- Ethyl- $\beta$ -naphthoxindole** (HINSBERG), 1892, A., 1458.
- Ethyl-naphthylamine**. See Naphthyl-ethylamine.
- Ethyl-1:4-naphthylenediamine** (BAMBERGER and GOLDSCHMIDT), 1891, A., 1239.
- hydrochloride (KOCK), 1888, A., 469.
- Ethyl-nitramine** (FRANCHIMONT and KLOBBE), 1889, A., 492.
- Ethyl- $\alpha$ -nitraniline** (HEMPPEL), 1889, A., 600; 1890, A., 611.
- Ethyl- $m$ -nitraniline** (NOLTING and STRICKER), 1886, A., 543.
- Ethyl- $m$ - and - $p$ -nitranilines**, action of diazotised  $p$ -bromaniline on (MELDOLA and STREATFEILD), 1889, T., 428, 423.
- action of diazotised nitranilines on (MELDOLA and STREATFEILD), 1887, T., 110, 111.
- Ethyl- $p$ -nitraniline** (WELLER), 1883, A., 579.
- Ethyl- $m$ - and - $p$ -nitrobenzaloximes** (GOLDSCHMIDT and KJELLIN), 1891, A., 1478, 1477.
- Ethyl- $m$ -nitrobenzenylamidine** (LOUSEN), 1892, A., 52.
- Ethyl- $\mu$ -nitrobenzenyloxime nitrite** (WEINER), 1890, A., 46.
- Ethyl-nitrolic acid**, preparation of (MEYER and CONSTANT), 1883, A., 40.
- Ethyl- $p$ -nitrophenylnitrosamine** (MELDOLA and STREATFEILD), 1886, T., 631.
- Ethyl-nitrouracil** (LEHMANN), 1890, A., 32.
- Ethyl-nitrous acid**, potassium salt of (CHANCEL), 1883, A., 914.
- Ethyl-nanthaldoxime** (WESTENBERGER), 1884, A., 581.
- Ethyl-orange** (BERNTSEN and GOSKE), 1887, A., 666.
- Ethyl-oxalamidobenzoic acid** and its derivatives (SCHIFF), 1886, A., 549.
- Ethyl-oxalenediuramidoxime** and its dicarbonate (ZINKEISEN), 1890, A., 124.
- Ethyl-oxalic acid**, potassium salt of (MORLEY and SAINT), 1883, T., 402.
- Ethyl-oxalic chloride** (ANSCHÜTZ), 1886, A., 1011.
- action of, on derivatives of carbamide and guanidine (V. STOJENTIN), 1885, A., 1195.
- Ethyl-oxalylacetylbenzamidine** (PINNER), 1889, A., 1009.
- Ethyl-oxalyl- $\alpha$ -amidobenzamide** (KNAPE), 1891, A., 910.
- Ethyl-oximide**, derivatives of (PINNER), 1883, A., 1083.
- $\alpha$ -Ethyl- $\gamma$ -oxyvaleric acid** and its salts (YOUNG), 1883, T., 174.
- Ethyl-paraconic acid** (FITTIG and DELISE), 1890, A., 587.
- Ethyl-pentyl sulphide**, occurrence of, in Ohio petroleum (MABERY and SMITH), 1891, A., 1173.
- Ethyl-phenetol** (AUER), 1884, A., 1002.
- Ethyl-phenol**, preparation of, by Liebermann's process (ERRERA), 1885, A., 775.
- and its derivatives (AUER), 1884, A., 1002.
- $\alpha$ -Ethyl-phenol**. See Phlorol.
- $\mu$ -Ethyl-phenol** (SEMPOTOWSKI), 1890, A., 54.
- Ethyl-phenolammonium iodide**,  $\alpha$ -brom- (HANZSCH), 1883, A., 1111.
- Ethyl-phenolphthalein** (AUER), 1884, A., 1002.
- Ethyl-phenol- $m$ -sulphonic acid**, derivatives of (SEMPOTOWSKI), 1890, A., 55.

- Ethylphenyl propyl ketone** (BÉHAL and AUGER), 1890, A., 493.
- Ethylphenyl-**. See also Phenylethyl-.
- Ethylphenylene-blue** (NÖLFING and SIECKER), 1886, A., 544.
- Ethyl-*m*-phenylenediamine** (*amidoethylunitine*) (NÖLFING and SIECKER), 1886, A., 545.
- Ethyl-*o*-phenylenediamines** (HEMPER), 1889, A., 600; 1890, A., 612.
- Ethyl-*p*-phenylenediamine** (SCHWEITZER), 1886, A., 347; (FISCHER and HEPP), 1887, A., 244.
- p*-Ethylphenyl-*p*-ethylmesatin** (PACCKSCH), 1885, A., 256.
- Ethylisophthalic acid** (DOEBNER), 1890, A., 1283; 1891, A., 1064.
- Ethylphthalimide** (LANDSBERG), 1883, A., 476; (GRAEBE and PIOTET), 1889, A., 141.
- brom-** (GABRIEL), 1887, A., 1037.
- preparation of** (GABRIEL), 1889, A., 870.
- chlor-** (SEIFZ), 1891, A., 1472.
- sulphydro-** (GABRIEL), 1889, A., 870; 1891, A., 815; 1892, A., 130.
- Ethylphthalimidine** (GRAEBE and PIOTET), 1889, A., 141.
- Ethylpicoline**. See Methyl ethylpyridine.
- Ethylpiperidine** ( *$\beta$ -lutidine hexahydride*) (OCHSNER DE CONINCK), 1884, A., 1047.
- $\alpha$ -Ethylpiperidine** (LADENBURG), 1886, A., 159; 1887, A., 65, 740.
- specific rotation of** (LADENBURG), 1887, A., 238.
- $\gamma$ -Ethylpiperidine** (LADENBURG), 1884, A., 760; 1887, A., 65.
- synthesis of** (LADENBURG), 1884, A., 1054.
- Ethylpiperidine, 1-amido-** (GABRIEL), 1891, A., 817.
- Ethylpiperidinebetaine and its salts** (KRÜGER), 1891, A., 943.
- Ethyl- $\beta$ -piperidone** (ASCHAN), 1891, A., 466, 1246.
- Ethylpiperidylthiocarbamide** (DIXON), 1889, T., 624.
- Ethylpiperonylic acid,  $\omega$ -amido-**, **preparation of** (PERKIN), 1890, T., 1053.
- action of heat, of methylic iodide and of nitrous acid on** (PERKIN), 1890, T., 1053.
- salts of, with acids** (PERKIN), 1890, T., 1056.
- $\omega$ -chlor-** (PERKIN), 1890, T., 1029.
- Ethylpiperonylic anhydride,  $\omega$ -amido-** (PERKIN), 1890, T., 992, 1013.
- Ethylpiperonylic anhydride,  $\omega$ -amido-**, **fusion of, with potash** (PERKIN), 1890, T., 1015.
- opiate of** (PERKIN), 1890, T., 1082.
- $\psi$ -opiate of** (PERKIN), 1890, T., 1076, 1080.
- nitrosoamido-** (PERKIN), 1890, T., 1018.
- $\alpha$ -Ethylpiperylalkine**. See Hydroxypropylpiperidine.
- Ethylpropargylamine hydriodide** (PAAL and HEHMANN), 1890, A., 230.
- Ethylisopropenyl sulphide** (AUTENRIETH), 1890, A., 361.
- Ethylpropionimide hydrochloride** (PINNER), 1883, A., 1090.
- Ethylpropylacetic acid** (KILIANI), 1886, A., 441.
- $\alpha$ -Ethyl- $\beta$ -propylacetaldehyde** (RAUPENSTRAUCH), 1887, A., 794.
- Ethylpropylaniline and its derivatives** (CLAUS and HIRZEL), 1887, A., 134.
- Ethylpropylbenzene** (WIDMAN), 1891, A., 688.
- m*-Ethylpropylbenzene** (RENARD), 1884, A., 173.
- m*-Ethylisopropylbenzene and its derivatives** (V. DER BECKE), 1891, A., 183.
- p*-Ethylpropylbenzene and its derivatives** (WIDMAN), 1891, A., 45; (V. DER BECKE), 1891, A., 183.
- p*-Ethylpropylbenzene- $\alpha$ - and - $\beta$ -sulphonamides** (WIDMAN), 1891, A., 45.
- Ethylisopropylbenzenesulphonic acids, derivatives of** (V. DER BECKE), 1891, A., 183.
- $\beta$ -Ethylpropylglyoxaline ( *$\beta$ -oxalpropylpropylene*), synthesis of** (RADZISZEWSKI), 1883, A., 729.
- Ethylisopropylglyoxaline (*oxalethylbutylene*)** (RIEGER), 1889, A., 119.
- Ethylpropylic sulphide, occurrence of, in Ohio petroleum** (MABERY and SMITH), 1891, A., 1173.
- p*-Ethylisopropylphenol** (V. DER BECKE), 1891, A., 184.
- Ethylpropylquinol** (FIALA), 1886, A., 454.
- 3'-Ethyl-2'-propylquinoline** (DOEBNER and V. MILLER), 1884, A., 1376; (KAHN), 1886, A., 262.
- Ethylpropylthiocarbamide** (HECHT), 1890, A., 476.
- Ethylpropylthiocarbanilide** (BILLETER and STROHL), 1883, A., 365.
- $\alpha$ -Ethyl-*p*-isopropyltoluene** (CLAUS), 1892, A., 985.

- $\alpha$ -Ethylpyridine** (LADENBURG), 1886, A., 159; 1887, A., 60.
- $\beta$ -Ethylpyridine**, properties and derivatives of (STOEHR), 1891, A., 579; 1892, A., 629.
- $\gamma$ -Ethylpyridine** (OECHSNER DE CONINCK), 1884, A., 910; (LADENBURG), 1886, A., 159; 1887, A., 60.  
synthesis of (LADENBURG), 1883, A., 1151.
- 4-Ethylpyridine ( $\beta$ -lutidine)** (OECHSNER DE CONINCK), 1883, A., 739.  
hydrate of (OECHSNER DE CONINCK), 1883, A., 220.
- Ethylpyridinecarboxylic acid** (DÜRRKOPF and GORTSCH), 1890, A., 795.
- Ethylpyridium iodide**, action of heat on (LADENBURG), 1883, A., 1151.
- Ethyl- $\alpha$ -pyridone** (v. PECHMANN and BALTZER), 1892, A., 209.
- Ethylpyromeconamic acid** (MENNEL), 1885, A., 1204.
- Ethylpyrrole** [b.p. 164°] (DENNSTEDT and ZIMMERMANN), 1886, A., 1043.
- 1-Ethylpyrrole** (ZANETTI), 1890, A., 65, 907; 1891, A., 1387.
- Ethylpyrroles**,  $\alpha$ - and  $\beta$ -, constitution of (ZANETTI), 1892, A., 350.
- Ethylpyrroleazo-**. See under Azo-.
- 1-Ethylpyrrole-2:5-dibenzoic acid** (BAUMANN), 1887, A., 736.
- Ethylquercetin** (HERZIG), 1888, A., 1309.
- Ethylquinazole** (FISCHER and KÜZEL), 1884, A., 442.  
and its salts (FISCHER and KÜZEL), 1883, A., 812.
- Ethylquinazolecarboxylic acid** (FISCHER and KÜZEL), 1883, A., 812; 1884, A., 442.  
bromo-derivatives of (FISCHER and KÜZEL), 1884, A., 442.
- Ethylquinidine** (CLATS), 1892, A., 1250.
- Ethylquinol**, thio- (LEUCKART), 1890, A., 604.
- 2'-Ethylquinoline** (REHER), 1887, A., 279; 1888, A., 66; (DUEBNER), 1887, A., 504.  
oxidation of (v. MILLER), 1891, A., 1095.  
derivatives of (REHER), 1887, A., 279; 1888, A., 66.  
 $\omega$ -dichlor- (CARLIER and EINHORN), 1891, A., 83.
- 3'-Ethylquinoline** (KAHN), 1886, A., 263; (REHER), 1887, A., 279; 1888, A., 66.
- 2'-Ethylquinoline-3'-carboxylic acid** (KAHN), 1886, A., 263.
- Ethylquinoline-3:4'-dicarboxylic acid** (v. MILLER), 1890, A., 1325.
- 3'-Ethylquinolinesulphonic acid** (REHER), 1887, A., 280.
- Ethylquinolone**, homo-, and nitro-derivatives of (DECKER), 1892, A., 879, 880.
- Ethylrosinduline** (FISCHER and HEPP), 1890, A., 908.
- Ethylsafranines**,  $\alpha$ - and  $\beta$ - (SCHWEITZER), 1886, A., 348.
- Ethylsalicylaldehyde**, melting point of (PERKIN), 1889, T., 551.
- Ethylsantonous acid** (L'ANNIZZARO and CARNELUTTI), 1883, A., 78.
- Ethyl- $\beta$ -diselenidodiphtalamic acid** (COBLENTZ), 1891, A., 1216.
- $\beta$ -Ethyl- $\alpha$ -stilbazole 6:3-styrylethylpyridine**, and its derivatives (PLATH), 1889, A., 163, 901.
- Ethylsuccinic acid (*mutanedicarboxylic acid*)** (YOUNG), 1883, T., 178; (POLKO), 1888, A., 135; (BISCHOFF and v. KÜHLBERG), 1890, A., 742.  
thermochemistry of (STORMANN, KLEBER and LANGBEIN), 1889, A., 1097.  
dibrom-, and its salts (CLATS), 1883, A., 44.
- Ethylsuccinimide** (LANDSBERG), 1883, A., 477.  
derivatives of (PINNER), 1883, A., 1088.  
hydrochloride (PINNER), 1883, A., 731.
- Ethylsuccinimide** (COMSTOCK and WHEELER), 1892, A., 701.
- Ethylsuccinosuccinic acid**, and its salts (WEDEL), 1884, A., 835; (MOMHELES and CORNELIUS), 1888, A., 1272; 1889, A., 489.
- Ethylsulphamic acid** (BEILSTEIN and WIEGAND), 1883, A., 971.
- Ethyl- $\beta$ -sulphidodiphtalamic acid** (COBLENTZ), 1891, A., 1216.
- Ethylsulphine**, isothiocyan- (MIOLATI), 1891, A., 893.
- Ethylsulphinic acid** (AUTENRIETH), 1891, A., 203.
- Ethylsulphoneacetic acid** (R. and W. OTTO), 1888, A., 577.
- Ethylsulphoneacetone** (OTTO and TRÜGER), 1891, A., 665.
- $\beta$ -Ethylsulphoneisocrotonic acid** (AUTENRIETH), 1891, A., 204.
- Ethylsulphonecyanamide** (HEBENSTREIT), 1890, A., 502.
- Ethylsulphonediphtalamic acid** (GABRIEL), 1892, A., 131.
- Ethylsulphonophenylsulphonal** (AUTENRIETH), 1891, A., 1067.

- Ethylsulphonepropionic acids**,  $\alpha$ - and  $\beta$ - (R. and W. OTTO), 1888, A., 577.
- Ethylsulphydroacetal** (AUFENRIETH), 1891, A., 541.
- Ethylsulphydromethylthiazoline** (HIRSCH), 1890, A., 860.
- Ethyltaurine**, preparation of (JAMES), 1885, T., 368.
- Ethylteraconic acid**, salts of (ROBER), 1884, A., 459.
- Ethyl- $\beta$ -tetrahydronaphthylamine** (BAMBERGER and MILLER), 1889, A., 888.
- Ethyltetrahydroquinoline**, Wischnegradsky's (CLAUS and STGELIIZ), 1884, A., 1051.
- 2'-Ethyltetrahydroquinoline** (REHER), 1887, A., 279.
- Ethylthalline**, and some of its salts (SKRAUP), 1886, A., 90.
- Ethyltheobromine**, brom-, and its derivatives (FISCHER), 1883, A., 357.
- apo-Ethyltheobromine** (FISCHER), 1883, A., 357.
- Ethylthienyl hexyl ketone and acetoxime** (SCHLEICHER), 1886, A., 539.
- Ethyl-*mono*- and -*di*-thiobiurets** (HECHT), 1892, A., 703, 704.
- Ethylthiocarbamide**, action of nitrous acid on (DIXON), 1892, T., 525.
- Ethylthiocarbamide-allylic, -benzyllic, -ethyllic, and -propylic cyanides** (HECHT), 1890, A., 1104.
- Ethylthiocarbimide**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 296.
- action of aldehyde-ammonia on (DIXON), 1888, T., 414.
- $\alpha$ -Ethylthiocoumarin** (ALDRINGEN), 1892, A., 330.
- Ethylthio- $\beta$ -dinaphthylamine** (KYM), 1890, A., 1307.
- $\alpha$ -Ethylthiophen** (SCHLEICHER), 1886, A., 227.
- limited oxidation of (SCHLEICHER), 1886, A., 534.
- brom- (DEMCIN), 1886, A., 538.
- $\beta$ -Ethylthiophen** (DAMSKI), 1887, A., 237; (GERLACH), 1892, A., 829.
- derivatives of (BOZ), 1885, A., 766.
- Ethylthiophenhydroxamic acid** (DOUGLAS), 1892, A., 831.
- Ethylthiophenic acid**, and its salts (SCHLEICHER), 1886, A., 227.
- Ethyl-thiosinamine and - $\psi$ -thiosinamine** (HECHT), 1890, A., 477; (AVENARITS), 1891, A., 549.
- m*-Ethylthiouramidobenzoic acid** (ASCHAN), 1884, A., 907.
- Ethylthymolsulphonic acid** (WIDMAN), 1886, A., 470.
- Ethyltolenylamidine platinochloride** (FLOUK), 1888, A., 1290.
- Ethyl- $\mu$ -tolindole and - $\mu$ -tolindolecarboxylic acid** (HELF), 1886, A., 552.
- Ethyltoluene**. See Methylstyrene.
- Ethyl-*o*-toluidine** (CHASE), 1886, A., 57.
- and its acetyl-derivative, preparation of (REINHARDT and STAEBEL), 1883, A., 578.
- p*-amido-. See Methylstyrylphenylenediamine.
- p*-nitroso- (FISCHER and HEPP), 1887, A., 244.
- Ethyl-*p*-toluidine** and its derivatives (GASCHER), 1885, A., 381; (GARTMANN), 1885, A., 975.
- m*-nitro- (NOLTING and STRICKER), 1886, A., 544; (NOLTING and ABT), 1888, A., 274.
- Ethyltoluidinephthalein** (PIATTI), 1884, A., 450.
- Ethyl-*m*-tolylenediamine** (NOLTING and STRICKER), 1886, A., 544.
- Ethyl-*o*-tolylenediamine** (KOCK), 1888, A., 469.
- "**Ethyltolylenediglycocine**" (ZIMMERMANN and KNYRIM), 1888, A., 797.
- Ethyltribenzylphosphonium chloride**, action of heat on (COLLIE), 1885, T., 725.
- Ethyltricarballic acid** (ATWERS), 1891, A., 546.
- $\alpha$ -Ethyltricarballic acids**, stereoisomeric (ATWERS, KOEHLER and V. MEYENBURG), 1892, A., 42.
- Ethyltrimethylenedisulphone sulphide** (CAMPS), 1892, A., 593.
- Ethyltrimethylenetrissulphone** (CAMPS), 1892, A., 591, 593.
- Ethylurethane**, influence of, on digestion (CHITTENDEN and STEWART), 1889, A., 533.
- Ethylurethanophenylacetic acid** (*carthagenamidophenylacetic acid*) (KOSSEL), 1892, A., 469.
- $\alpha$ -Ethylvalerolactone** (YOUNG), 1883, T., 172; A., 455.
- Ethylvinylcarbinol**, oxidation of (WAGNER), 1889, A., 231.
- Ethylvinylpyridine** (PRATONIZ), 1892, A., 1358.
- Ethylxylenes** and their derivatives (STAHL), 1890, A., 832.
- o*- and *m*-, and their sulphonic derivatives (JACOBSEN), 1887, A., 37.
- Ethyl-*m*-xylenes**, *as*- and *s*-, and their derivatives (TÖHL and GEYGER), 1892, A., 968, 969.
- Ethylxylenesulphonic acids** (TÖHL and GEYGER), 1892, A., 969.
- Ethylxylenol** (STAHL), 1890, A., 883.

- Ethyl-o-xylydine** and its derivatives (MENTON), 1891, A., 1204.
- Ethylxylydines** (TOHL and GUYER), 1892, A., 969.
- Etna**, products of the eruption of (RICCIARDI), 1886, A., 857.
- Eucairite** from the Argentine (OTERO), 1890, A., 948; (KLOCKMANN), 1891, A., 1435.
- Eucalyn**, identity of, with melibiose (SCHEIBLER and MITTELMEIER), 1890, A., 227.
- Eucalyptol**. See Cineol under Terpenes.
- Eucalyptus Globulus**, essence of (VOIRY), 1888, A., 961.
- Eucalyptus honey** (MAQUENNE), 1890, A., 122.  
manna, melitose from (TOLLEN), 1886, A., 527.  
oil. See Oil.
- Euchlorine** (BOLTZMANN), 1886, A., 418.
- Euchlorine** from Vesuvius (SCACCHI), 1886, A., 600.
- Euclease**, description of a crystal of (GUYOT), 1885, A., 228.  
from the Alps (BECKE), 1883, A., 34.
- Eucolite** from Magnet Cove, Arkansas (WILLIAMS), 1891, A., 529.
- Eucryptite** (BRUSH and DANA), 1883, A., 439.
- Eudialyte** from Arkansas (WILLIAMS), 1891, A., 529; (GENTH, PENFIELD and PIRNEXON), 1891, A., 1330.  
chemical nature of (RAMMELBERG), 1888, A., 234.
- Eudidymite** (v. NORDENSKIÖLD), 1889, A., 219.
- Eudiometer**, new form of (MARCEY), 1889, A., 301.
- Eudnophite** from Greenland (DES CLOIZEAUX), 1885, A., 641.
- Eugenol** (CIAMICIAN and SILBER), 1890, A., 966.  
presence of, in sassafras oil (POMERANZ), 1890, A., 1111.  
formation of, from coniferin (CHIOZZA), 1888, A., 941.  
constitution of (TIEMANN and KRAAZ), 1883, A., 200.  
action of bromine on (CHASANOWITZ and HELL), 1885, A., 779.  
brom-, derivatives of (v. BOYEN), 1888, A., 680.
- isoEugenol** (TIEMANN and KRAAZ), 1883, A., 201.  
and its derivatives (TIEMANN), 1892, A., 45.
- Eugenyl carbonate** (LÖWENBERG), 1886, A., 789.  
ethyl ether. See 3-Methoxy-4-ethoxyallylbenzene.
- Eugenyl glucoside** (MICHAEL), 1885, A., 521.  
phenylcarbamate (SNAPE), 1885, T., 777.
- Eulyte** (CIAMICIAN and ZAFFI), 1890, A., 872; (BASSNETT), 1891, T., 978; (ANGELI), 1891, A., 889.
- Eulytite** (WEINBACH), 1883, A., 433.
- Euonymin** (ROMM), 1886, A., 72.
- Eupatorin**, active principle of *Eupatorium perfoliatum* (SHAMEL), 1892, A., 1103.
- Euphorbiaceæ**, milky juice of certain (HENKE), 1887, A., 72.
- Euphorbium** and euphorbone (HENKE), 1887, A., 72.
- Eurhodines** (WITT), 1886, T., 391; P., 187; A., 473; 1887, A., 153; 1888, A., 1186.  
constitution of (KEHRMANN), 1890, A., 1265.  
formulae of (FISCHER and HEPP), 1890, A., 1444.  
formulae of eurhodoles and (NIETZKI and HASTBRLIK), 1891, A., 944.  
relations between indulines, safranines and (KEHRMANN and MESSINGER), 1891, A., 746, 1213.  
safranines and (WITT), 1888, A., 491.
- Eurhodole** (WITT), 1886, T., 397; A., 473; (ZINCKE), 1892, A., 859.
- Eurite**, Dumont's (RENARD), 1883, A., 958.
- Eusynchite**, analysis of (BAERWALD), 1883, A., 1063.
- Eutaxitic glasses** of the liparites (WENCKOFF), 1891, A., 649.
- Eutexia** (GUTHRIE), 1885, A., 329.
- Euxanthic acid** (*purraic acid*) (HERZIG), 1892, A., 1354.  
formation of, from euxanthone in the animal organism (v. KOSTANECKI), 1887, A., 272.  
constitution and properties of (GRAEBE), 1890, A., 505.  
action of hydroxylamine on (HERZIG), 1892, A., 1355.  
derivatives of (SPIEGEL), 1883, A., 219.
- Euxanthone** (SPIEGEL), 1883, A., 219; (KULZ), 1887, A., 498; (HERZIG), 1891, A., 1349; 1892, A., 1354.  
synthesis of (GRAEBE), 1889, A., 886; 1890, A., 506.  
formula of (SPIEGLER), 1884, A., 1132.  
constitution of (GRAEBE), 1889, A., 886; (v. KOSTANECKI and NESLER), 1892, A., 504.  
properties of (GRAEBE), 1890, A., 506.

*iso*Euxanthone (BETRZYCKI and V. KOSTANEKI, 1885, A., 1077; (V. KOSTANEKI and NESSLER), 1891, A., 1061.  
 constitution of (ARLENZ), 1890, A., 52.  
*β-iso*Euxanthone (GRAEBL), 1890, A., 506.  
 Euxanthone ethyl ether (HERZIG), 1891, A., 1319.  
 Euxanthone-group (SPIEGLER), 1884, A., 1182; (GRAEBE and FEER), 1887, A., 152; (GRAEBE), 1890, A., 504.  
 Euxanthone-series, compounds of (PHOMINA), 1890, A., 389.  
 Euxenite from N. Carolina (HIDDEN), 1883, A., 163, 1064.  
 Evaporation (RÖDZBROM), 1888, A., 1149.  
   considered as a process of diffusion (STEFAN), 1891, A., 384.  
   by aid of heat applied from above, apparatus for (HEMPFEL), 1890, A., 5.  
   rapid method of, in analysis (JONES), 1889, A., 1246.  
   at any desired temperature, vacuum desiccator for (BRÜHL), 1891, A., 1152.  
   under reduced pressure, apparatus for (SCHULZE and TOLLEN), 1892, A., 1386.  
   latent heat of, relation of specific inductive capacity to (OBACH), 1892, A., 258.  
   influence of temperature on (WINKELMANN), 1889, A., 461.  
   influence of physical and chemical properties of the soil on (ESER), 1885, A., 80.  
   rate of, determination of vapour pressure from (MÜLLER-ERZBACH), 1888, A., 1016.  
   experiment on (FISCHER), 1884, A., 510.  
   studies on (SORAUF), 1884, A., 627; (SCHALL and KOSAKOWSKY), 1891, A., 1316.  
   of liquids (HEMPFEL), 1888, A., 546.  
   of liquids, relation between molecular weight and velocity of (SCHALL), 1884, A., 551, 950; 1885, A., 112; (SCHALL and KOSAKOWSKY), 1891, A., 1317.  
   of water in a vacuum, and apparatus for (MCLEOD), 1883, T., 384.  
   relation between the theories of capillarity and (STEFAN), 1887, A., 323.  
   spheres of condensation and (BEYERINCK), 1892, A., 936; (LEHMANN), 1892, A., 1149.

Evaporation, dissociation and (RAMSAY and YOUNG), 1887, T., 755; 1888, A., 18.  
   dissociation and; a study of the thermal properties of acetic acid (RAMSAY and YOUNG), 1886, T., 790; P., 225.  
 Evigtokite. See Gearsutite.  
 Exalgine (GIRAUD), 1889, A., 704.  
 Excreta, human, utilisation of (ENGLER), 1884, A., 1418.  
 Excretion, cutaneous, of albumin by the horse (LEULERC), 1888, A., 1320.  
   of digestive ferments from the animal (BENDERSKY), 1891, A., 483.  
   of iron (GUMFRIED), 1891, A., 1128.  
   of nitrogen in kidney disease (KORNBLOT), 1892, A., 743; (GUMFRIED), 1892, A., 1504.  
   of nitrogen in the sweat (ARGUTINSKY), 1891, A., 350.  
   of nitrogen in urine (GUMFRIED), 1892, A., 1503.  
   of nitrogen, influence of water and sodium chloride on (DIEBELER), 1892, A., 904.  
   of nitrogen and uric acid in cases of leucæmia (BOHLAND and SCHURZ), 1891, A., 483.  
   of nitrogen and uric acid from the human system, influence of hot baths on (FORMÁNEK), 1892, A., 1503.  
   of uric acid, influence of drinking large quantities of water on (SCHONDOEFF), 1891, A., 348.  
 Expansion, cooling of carbonic anhydride on (NATANSON), 1887, A., 880.  
   thermal, of liquid bismuth (VICENTINI), 1891, A., 518; (CATTANEO), 1892, A., 259.  
   by heat, of salt solutions (BREMER), 1889, A., 329.  
   by heat, of sulphuric acid solutions (PICKERING), 1890, T., 114, 177.  
   of air (ANTHINE), 1889, A., 460.  
   of liquids (MENDELÉEFF), 1884, T., 126; (THORPE and RUCKER), 1884, A., 135; (DE HEEN), 1884, A., 408; (AMAGAR), 1888, A., 215.  
   of liquids, attempt to eliminate the change in volume of the vessel when measuring (V. BOGUSKI), 1888, A., 1237.  
   Mendeleeff's formula for, and Thorpe and Rucker's formula for determining the critical temperature of liquids from their coefficient of expansion (BARTOLI and STRACCIATI), 1885, A., 559.

- Expansion** of water (SCHIEL), 1892, A., 7; (MAREK), 1892, A., 106; (PICHHL), 1892, A., 1352.  
 of water and other liquids (PICKERING), 1891, A., 8.  
 of salt solutions (TSCHERNAI), 1889, A., 204, 330, 1101; 1890, A., 318.  
 of solutions of potassium and calcium chlorides (DRECKER), 1888, A., 1010.  
 of substances in gaseous, vaporous, and liquid states, relation of, to absolute temperature (SCHALL), 1885, A., 1179.
- Expiration** of carbonic anhydride, action of pulmonary tissue in (GARNIER), 1886, A., 1052.  
 of plants (KREUSLER), 1888, A., 742.
- Explosion**, occasioned by impurities in commercial ether (CLEVE), 1891, P., 15.  
 wave of (BERTHELOT and VIEILLE), 1888, A., 777.  
 of ammonium nitrate (LOBBY DE BRUYN), 1892, A., 683.  
 of electrolytic gas and volatile carbon compounds (PIZZARELLO), 1886, A., 762.  
 of gaseous mixtures, influence of temperature on the limits of (V. ROSZKOWSKI), 1891, A., 975.  
 of homogeneous gaseous mixtures (CLERK), 1886, A., 761.  
 of a mixture of carbonic oxide and oxygen with varying quantities of aqueous vapour, velocity of (DIXON), 1883, A., 12.  
 of a tube containing liquid carbonic anhydride (PFAUNDLER), 1883, A., 422.  
 of water-gas (V. OETTINGEN and V. GERNET), 1888, A., 549.
- Explosions**, theory of (THRELFALL), 1886, A., 761.  
 dust (ENGLER), 1886, A., 404.  
 gaseous, spectroscopic studies on (LIVEING and DEWAR), 1885, A., 465.  
 gaseous, imperfect combustion in (DIXON and SMITH), 1889, A., 337.
- Explosive alloys** of zinc with certain platinum metals (SAINT-CLAIRE DEVILLE and DEBRAY), 1883, A., 19.
- Explosive gaseous mixtures** (MEYER and SEUBERT), 1884, T., 583; (BERTHELOT and VIEILLE), 1884, A., 709.  
 influence of the density of, on the pressures which they develop (BERTHELOT and VIEILLE), 1884, A., 805.
- Explosive gaseous mixtures**, some relations between temperatures of combustion, specific heats, dissociation and pressure of (BERTHELOT), 1883, A., 771.  
 combustion of (MALLARD and LE CHATELIER), 1883, A., 844; 1884, A., 549.  
 combustion of, in various states of dilution (WITZ), 1884, A., 1247.  
 relative rapidity of combustion of (BERTHELOT and VIEILLE), 1884, A., 804.  
 "Explosive gelatin," spontaneous decomposition of (MUNROE), 1884, A., 947.
- Explosive mixture** of chlorine and hydrogen, action of light on; a lecture experiment (MEYER), 1884, A., 552.  
 of coal-gas and air, combustion of (WITZ), 1885, A., 867.  
 of sodium nitrate and hypophosphite (CAVAZZI), 1886, A., 950.
- Explosive pyrites**, so-called, cause of the decrepitations in samples of (BLOUNT), 1885, T., 593; P., 90.
- Explosives** (BERTHELOT), 1884, A., 540; (ANON.), 1884, A., 239, 1452; 1885, A., 852; (MATIGNON), 1892, A., 1141.  
 solid and liquid, rate of propagation of detonation in (BERTHELOT), 1885, A., 478.  
 analysis of (LUNGE), 1887, A., 86.
- Exsiccator**, error in the principle of the ordinary (HEMPFL), 1891, A., 259.  
 See also Drying apparatus.
- "Extract, dry"** (JAY), 1885, A., 602.
- Extract**, nitrogen free, constituents of (STONE), 1892, A., 653.  
 of meat, Liebig's, two new substances obtained from (KUTKENBERG and WAGNER), 1885, A., 921.  
 of Senega, liquid (ROSE), 1884, A., 540.
- Extraction apparatus** (KING), 1888, A., 1134; (KNÖFLER), 1890, A., 663; (WILLARD and FAIRLEY), 1892, A., 910.  
 of fat, apparatus for (FOERSTER), 1888, A., 760; (CRAWLEY), 1890, A., 304; (EDKINS), 1891, A., 625.  
 of solutions with liquids, apparatus for (NETMANN), 1886, A., 198.
- Eyster's scheme** for qualitative analysis (WARDER), 1886, A., 100.

## F.

*Fabia vulgaris*, composition of the seeds of (SCHULZE, STEIGER and MAXWELL), 1891, A., 1543.

**Fabrics**, bleaching (THOMPSON and RICHMAN), 1884, A., 1234.  
 dyed cotton, microscopic investigation of (MEYER), 1883, A., 751.  
 dyed, estimation of indigo in (RE-NARD), 1890, A., 931.  
**Fæces**, human, ferments in (JAKSCH), 1888, A., 150.  
 bacteria of, in suckling children (BAGINSKY), 1888, A., 865.  
 analysis of nitrogenous metabolites in (SIUTZER), 1887, A., 613.  
 estimation of nitrogen in (CAMERER), 1885, A., 303; (RILDEL), 1885, A., 414.  
 estimation of products of metabolism in (PEIFFER), 1886, A., 571.  
**Fagine** (HABERMANN), 1885, A., 676.  
**Fahlore**. See Tetrahydrite.  
**Fairfieldite** from Branchville (BRUSH and DANA), 1890, A., 1072.  
 from Rabenstein (v. SANDBERGER), 1885, A., 640.  
**"Fairy ring"** fungus, composition of the ash of one species of (LAWES, GILBERT and WARINGTON), 1883, T., 212.  
 soils, preparation and analysis of (LAWES, GILBERT and WARINGTON), 1883, T., 215.  
**"Fairy rings"** (v. THUMEN), 1885, A., 425.  
 chemistry of (LAWES, GILBERT and WARINGTON), 1883, T., 208.  
**Falkenhayite** from Joachimsthal (v. SANDBERGER), 1891, A., 1167.  
**Faraday lecture** (MENDELLEFF), 1889, T., 634; P., 93.  
**Farm and farming**. See Agricultural Chemistry.  
**Fassaite**, a new pseudomorph of (CATHREIN), 1889, A., 23.  
**"Fast red,"** description and measurement of the spectrum of (HARILEY), 1887, T., 197.  
**Fasting**, decomposition of albumin during (MUNK), 1891, A., 1524.  
**Fat** of *Ammitu pantherina* and *Boletus luridus* (OPITZ), 1891, A., 1285.  
 of *Bussia longifolia* (VALENTA), 1884, A., 919.  
 of the soja bean (MORAWSKI and STINGL), 1887, A., 687.  
 of hickory nuts (NOERDLINGER), 1886, A., 139.  
 of bone marrow (MOHR), 1890, A., 652.  
 of butter, nature of (BLYTH and ROBERTSON), 1889, P., 5.  
 of cochineal (LIEBERMANN), 1885, A., 1015; (RAIMANN), 1886, A., 441.

**Fat** of fodder, composition of (SIELL-WAAG), 1890, A., 657.  
 from Fungi (GERARD), 1891, A., 608.  
 of the horse (LENZ), 1889, A., 1076; (AMTHOR and ZINK), 1892, A., 1533.  
 from milk solids, extraction of (RICHMOND), 1890, A., 91; (STOKES), 1892, A., 391.  
 of the fruit of *Myristica surinamensis* (REIMER and WILL), 1885, A., 1197.  
 of palm nuts (v. WILM), 1885, A., 200.  
 of sabadilla seeds (OPITZ), 1891, A., 1234.  
 sawari (LWUKOWITZ), 1889, P., 69.  
 of the fruit of *Vateria indica* (v. HORNEL and WOLFAUER), 1886, A., 223.  
 extraction of, apparatus for (CHAWLEY), 1890, A., 304; (EDKINS), 1891, A., 625.  
 extraction of, in the cold, apparatus for (FOERSTER), 1888, A., 760.  
 extraction of, by Soxhlet's apparatus (MILNE), 1888, A., 95.  
 neutral, formation of, from fatty acid in the animal system (MUNK), 1884, A., 852.  
 formation of, from carbohydrates in animals (TACHIEWINSKY), 1884, A., 345, 912; (CHANIEWSKI), 1885, A., 280; (RUBNER), 1886, A., 482; (MUNK), 1887, A., 288; (PFLUGER), 1889, A., 175.  
 formation and migration of, in phosphorus poisoning (LEO), 1885, A., 1002.  
 formation, absorption and storage of, in animals (MUNK), 1885, A., 829.  
 pathological formation of (LEBEDEFF), 1884, A., 1392.  
 thermochemistry of (STOHMANN and LANGBEIN), 1891, A., 11.  
 specific gravity of (CRAMPTON), 1889, A., 801.  
 melting point of (REINHARDT), 1886, A., 495; (ANON.), 1888, A., 93.  
 melting and solidifying points of (TERREIL), 1890, A., 929.  
 drying (SONNENSCHN), 1886, A., 1083.  
 saponification of, by electricity (RO-TUNDI), 1885, A., 1274.  
 saponification of, formation of basic salts in the (DECHAN and MABEN), 1886, A., 186.  
 behaviour of, with glacial acetic acid (VALENTA), 1884, A., 1078.

**Fat**, decomposition of, by heating under pressure (ENGLER), 1889, A., 586.  
 behaviour of, in normal germination (MAXWELL), 1891, A., 489.  
 ferments which decompose, in plants (SIGMUND), 1890, A., 1455; 1892, A., 1261.  
 absorption of (MINKOWSKI), 1890, A., 1171; (MUNK and ROSENSTEIN), 1891, A., 755, 849.  
 absorption of, from the alimentary canal (ARNACHINK), 1890, A., 811.  
 absorption of, in the absence of bile (MUNK), 1891, A., 593.  
 absorption of, in the intestines of animals (TSCHIRWINSKY), 1884, A., 912; (GRUENHAGEN and KROHN), 1890, A., 183.  
 assimilation of (LANDWEHR), 1885, A., 999; (MUNK), 1885, A., 1148.  
 influence of bile on the digestion of (DASIRE), 1888, A., 618.  
 influence of, on the digestibility of proteids (KERN and WATTENBERG), 1891, A., 752.  
 relative nutritive value of carbohydrate and (KELLNER), 1888, A., 173.  
 nutrition by (LEBEDEFF), 1883, A., 740.  
 power of the liver to form sugar from (SELGEN), 1887, A., 67.  
 hydrolysis of (BENEDIKT), 1888, A., 1269.  
 transformation of, in the alimentary canal (WASSILIEFF), 1883, A., 744.  
 analysis of (ZULKOWSKI), 1883, A., 1036; (BENEDIKT and ULZER), 1887, A., 620; (ROSE), 1887, A., 621; (MUTER and DE KONINGH), 1890, A., 91; (NOERDLINGER), 1890, A., 929; (LEWKOWITZCH), 1891, A., 509; (BENEDIKT), 1891, A., 870.  
 optical analysis of butter-fat (ELLINGER), 1891, A., 1401.  
 revision of constants employed in the analysis of oil and (THOMSON and BALLANTYNE), 1892, A., 547.  
 examination of (DE SCHEPPER and GEIGEL), 1883, A., 125; (ZULKOWSKI), 1883, A., 936; (VALENTA), 1884, A., 504; (V. HUBL), 1884, A., 1435; (KINGZETT), 1885, A., 446; (DIETERICH), 1886, A., 1083; (LEWKOWITZCH), 1890, P., 72, 91; (WARREN), 1890, A., 1347; 1891, A., 248, 506; (KÖNIG and HART), 1891, A., 1301.  
 examination of, by the "iodine-addition method" (V. HUBL), 1884, A., 1436; (MOORE), 1885, A., 1014.

**Fat**, optical examination of (AMAGAT and JEAN), 1890, A., 91.  
 foreign, detection of, in butter (ERDÉLYI), 1892, A., 1532.  
 detection of cotton seed oil in (LEONE), 1890, A., 930.  
 detection of hydrocarbons in (NITSCHKE), 1886, A., 395.  
 detection of suint in (MEYER), 1883, A., 750.  
 estimation of (KRETZSCHMAR), 1887, A., 402; (WARREN), 1891, A., 505.  
 neutral, estimation of (GROGER), 1890, A., 200.  
 estimation of free acid in (ARCHBUTT), 1885, A., 446.  
 estimation of, in butter (GANTTER), 1888, A., 537.  
 estimation of, in cream, etc. (SCHMID), 1888, A., 1347; (LEZZI and ALLARD), 1892, A., 392.  
 estimation of, in feeding stuffs (WAGNER), 1884, A., 631; (BUHRING), 1888, A., 633; (PATTERSON), 1890, A., 930.  
 estimation of glycerol in (DAVID), 1883, A., 123.  
 estimation of beef-fat, in lard (WILSON), 1889, A., 659.  
 estimation of, in linseed cake (WRAMPFMEYER), 1889, A., 1251.  
 estimation of, in margarine (LEZZI and ALLARD), 1892, A., 392.  
 estimation of, in milk (EMMERICH), 1883, A., 246; (LIEBERMANN), 1884, A., 372; 1885, A., 695; (GEISLER), 1885, A., 1014; (CALDWELL and PARR), 1886, A., 233; (CRONANDER), 1887, A., 308; (FABER), 1887, A., 1144; (GANITER), 1888, A., 537; (SCHREIB), 1888, A., 1135; (SCHMID), 1888, A., 1347; (SHORT), 1889, A., 1037; (PATRICK), 1889, A., 1250; (PARSONS), 1890, A., 92; (STOKES), 1890, A., 304; (LEZZI), 1890, A., 387; (SJÖSTRÖM), 1891, A., 508; (BADCOCK), 1891, A., 509; (GORODETZKY), 1891, A., 625; (MOLINARI), 1891, A., 1299; (KUHN), 1891, A., 1402; (SHUTT), 1891, A., 1559; (GOTTLIEB), 1892, A., 549; (NILSON), 1892, A., 550; (PINETTE), 1892, A., 1134; (LEFFMANN and BEAM), 1892, A., 1532.  
 estimation of, in milk in dairies (LANGKOFF), 1890, A., 1346.  
 estimation of, in skim milk (FLEISCHMANN), 1884, A., 1435.  
 estimation of, in sour milk (KUHN), 1890, A., 304.

**Fat**, estimation of, in the products from milk (LEZÉ and ALLARD), 1892, A., 391.  
 percentage of, in the milk of cows of different breeds (ANON.), 1884, A., 94.  
 estimation of, in palm-nut meal (v. WILM), 1885, A., 1164.  
 estimation of, in poppy cake (BAEYLER), 1890, A., 306.  
 estimation of unsaponifiable matters in (MANSBRIDGE), 1892, A., 1533.  
 estimation of, in vaseline (VIZERN and NICOLAS), 1891, A., 1401.  
 estimation of, in yolk of eggs (BLIN), 1892, A., 1134.  
 separation of mineral oils from (GAWALOWSKI), 1887, A., 1001.  
 separation, quantitative, of, from rosin (GLADDING), 1885, A., 603.  
 See also Grease and Tallow.  
**Fats**, food, alterability of some (REITMAIN), 1891, A., 770.  
 natural (DUBOIS and PADE), 1885, A., 844; 1886, A., 495.  
 constitution of (WANKLYN and FOX), 1884, A., 35.  
 solid animal and vegetable, composition of (BENEDIKT and HAZURA), 1889, A., 1057.  
 vegetable (JACOBSON), 1889, A., 295.  
 cholesterol in (HECKEL and SCHLAGDENHAUFFEN), 1886, A., 829.  
 occurrence of the higher fatty acids in the free state in (SCHMIDT and ROEMER), 1884, A., 96.  
**Fatigue**, change of chemical composition of muscle by (MONARI), 1888, A., 174.  
**Fatty acids**. See Acids.  
 alcohols. See Alcohols.  
 compounds, conversion of benzene derivatives into (HANTZSCH), 1888, A., 180.  
 oils. See Oils.  
**Fatty series**, heats of combustion of compounds of (LUGININ), 1886, A., 192.  
 unsaturated compounds of (BEILSTEIN and WIEGAND), 1885, A., 740.  
**Fausserite** from Hodrúsbánya (LOCZKA), 1892, A., 1054.  
**Fayalite** (IDDINGS), 1886, A., 319.  
 artificial (FIRKET), 1890, A., 20.  
 from Colorado (HIDDEN), 1885, A., 878.  
 in the obsidian of Lipari (IDDINGS and PENFIELD), 1891, A., 158.  
**Febrifuges**, effect of, on hepatic glycogen (NEBELTHAU), 1891, A., 1527.

**Feeding and feeding stuffs**. See Agricultural Chemistry.  
**Fehling's solution**, modification in the use of (CAUSSE), 1889, A., 1036.  
 action of light on (AMATO), 1884, A., 1238; (EDER), 1885, A., 1173.  
 rapidity of separation of cuprous oxide by the action of invert-sugar on (URECH), 1883, A., 385; 1884, A., 574.  
 rate of reduction of, by sugars (URECH), 1884, A., 1112.  
 titration with (BECKMANN), 1887, A., 185.  
 titrations with, effect of pyrocatechol on (WOHL), 1888, A., 994.  
**Fellic acid** (SCHOTTEN), 1887, A., 606.  
**Felspar** (BECKER), 1884, A., 716.  
 in the Corsican diorite (SCHLUTTIG), 1887, A., 784.  
 sodium, from Kragerø, Norway (BINCHOF), 1887, A., 453.  
 potash. See Orthoclase.  
 triclinic, from Quatre Ribeiras (FORQUÉ), 1885, A., 642.  
 from Syria (DOSS), 1888, A., 432.  
 from Weiler, near Weissenberg, analysis of (LINCK), 1886, A., 212.  
 triclinic potash-soda- (*unorthoclase*; *microclase*) (WILK), 1884, A., 970.  
 crystallographic association of (BRÉON), 1886, A., 992.  
 with twinning striations on the brachypinacoid (PENFIELD), 1888, A., 350.  
 ground, as a potash manure (AITKEN), 1887, A., 996.  
 large porphyritic crystals of (HOLLAND), 1891, A., 276.  
 phosphoric anhydride in (LINDSTRÖM), 1887, A., 347.  
 change in colour in, due to the action of light (ERDMANN), 1883, A., 438; 1886, A., 27.  
 conversion of, into a scapolite (JÜDD), 1891, A., 277.  
**Felspars** from Elba (FUNARO), 1887, A., 560.  
 from Krakatoa ashes (REITGERS), 1886, A., 602.  
 from Pantelleria (FÜRSTNER), 1884, A., 1104.  
 artificial changes in (FÜRSTNER), 1886, A., 602.  
 barytic, from Sweden (IGELSTRÖM), 1890, A., 343.  
 potash-soda-, of Silesia (DETTELL), 1885, A., 31.  
**Fenchene** (WALLACH), 1891, A., 1082, 1088.

- Fencholenamine** (WALLACH and JENKEL), 1892, A., 1240.
- Fencholenic acid** and its derivatives (WALLACH and HARTMANN), 1891, A., 219; (WALLACH), 1892, A., 1237.
- Fenchone** (*fenchole*) (WALLACH and HARTMANN), 1891, A., 218; (WALLACH), 1891, A., 1082, 1086. and camphor series (WALLACH), 1892, A., 1236.
- Fenchoneoxime** (WALLACH and HARTMANN), 1891, A., 218; (WALLACH), 1891, A., 1087.
- iso***Fenchoneoxime** (WALLACH and HARTMANN), 1891, A., 219.
- β-iso***Fenchoneoxime** (WALLACH), 1892, A., 1237.
- Fenchonitrile** and its derivatives (WALLACH), 1892, A., 1236.
- Fenchylamine** (WALLACH), 1891, A., 1087. salt of (WALLACH and GRIEPENKERL), 1892, A., 1239.
- Fenchylbenzylideneamine** (WALLACH), 1891, A., 1087; (WALLACH and GRIEPENKERL), 1892, A., 1239.
- Fenchyl-carbamide**, and -phenylthio-carbamide (WALLACH and GRIEPENKERL), 1892, A., 1239.
- Fenchylic alcohol** and chloride (WALLACH), 1891, A., 1087, 1088.
- Fennugreek seeds**, alkaloids of (JAHNS), 1886, A., 85.
- Fergusonite** from Brindletown, Burke Co., N. Carolina (SEAMON), 1883, A., 32; (HIDDEN), 1883, A., 163, 1064. from Llano Co., Texas (HIDDEN and MCKINNON), 1890, A., 459. earths and niobic acid from (KRÜSS and NILSON), 1887, A., 706.
- Ferment**, presence in chyle of a, which destroys sugar (LEPINE), 1890, A., 810. in human feces, and in the contents of cysts (v. JAKSCH), 1888, A., 180. from human saliva (KRAWKOFF), 1888, A., 862. in the latex of plants (HANNEN), 1886, A., 1059. in pineapple juice (CHITTENDEN, JOSLIN and MEARA), 1892, A., 650. from purelactive bacteria, which dissolves fibrin (SALKOWSKI), 1888, A., 1326. of succinic acid and its action on cane sugar (TEIXEIRA-MENDES), 1885, A., 1152. in normal urine (STADELMANN), 1888, A., 308; (ROSENBERG), 1891, A., 760.
- Ferment**, method of obtaining, in pure aqueous infusions (KRAWKOFF), 1888, A., 862. acetic, which forms cellulose (BROWN), 1886, T., 432; P., 194. aerobic nitrate-reducing, in straw (BRÉAL), 1892, A., 1259. ammoniacal (LADUREAU) 1885, A., 181; 1886, A., 386. anaerobic, decomposition of albumin by (NENCKI), 1890, A., 78. decomposition of gelatin by (SELTRENNY), 1890, A., 543. reduction of calcium sulphate by (QUANTIN), 1886, A., 573. butyric, occurrence of (ZOFF), 1884, A., 476. in arable soils (DEHÉRAIN and MAQUENNE), 1883, A., 610. conversion of starch into dextrin by the (VILLIERS), 1891, A., 659, 1446. fermentation of starch by (VILLIERS), 1891, A., 660. diastatic, formation of, in the cells of the higher plants (DETMER), 1884, A., 917, 1063, 1402. of ungerminated wheat (LINTNER), 1890, A., 650. in saliva (GOLDSCHMIDT), 1886, A., 726. of the liver (KAUFMANN), 1890, A., 185. in urine (HOLOVOKSCHINER), 1886, A., 902; (ROSENBERG), 1891, A., 760. fibrin (PEKELHARING), 1892, A., 1112. origin of (WOOLDRIDGE), 1885, A., 571. nature of (HALLIBURTON), 1889, A., 63. action of (LEA and DICKINSON), 1890, A., 1175. fungoid, activity of (DIKONOFF), 1886, A., 1060. glycolytic, of the blood, isolation of (LEPINE and BARRAL), 1891, A., 755. gum (WIESNER), 1885, A., 1241; (REINTZGER), 1890, A., 998. inverting, of cane-sugar (LADUREAU), 1886, A., 169. in koji (KELLNER, MORI and NAGAOKA), 1890, A., 281. lactic, occurring in malt wort (LINDNER), 1888, A., 622. in milk (HUEPPE), 1885, A., 1170. nitric (MÜNTZ), 1887, A., 1135; P. F. and G. C. FRANKLAND), 1891, A., 352.

- Ferment**, nitric, distribution of, and its function in the disintegration of rocks (MÜNTZ), 1887, A., 1135.  
 oxalic (KÖHL), 1891, A., 857.  
 pancreatic, changes which proteid matters undergo by the action of (OFFO), 1884, A., 1036.  
 saccharific, localisation of (LÉPINE and BARRAL), 1892, A., 517.  
 soluble, of urea (MIQUEL), 1891, A., 100.  
     from *Torula ureæ* (LEA), 1886, A., 641.  
**Ferments**, glyco-gen in (ERRERA), 1885, A., 1254.  
     value of nitrates and ammonium salts as food for (LAURENT), 1891, A., 1135.  
     action of (TAMMANN), 1889, A., 566.  
     action of salicylic acid on (GRIFFITHS), 1886, A., 336.  
     reduction of nitrates by (SPRINGER), 1884, A., 350.  
     fate of certain, in the organism (HOFFMANN), 1889, A., 178.  
     digestive (VIGIER), 1885, A., 279.  
     in crustacean eggs (ABELOUS and HEIM), 1892, A., 362.  
     influence of temperature on (BIERNACKI), 1891, A., 1271.  
     action of uranium salts on (CHITTENDEN and HUTCHINSON), 1888, A., 78.  
     decomposition of (LANGLEY), 1883, A., 815.  
     excretion of (BENDERSEY), 1891, A., 483.  
     relations of carbohydrates in food to (STUTZER and ISBERT), 1888, A., 170.  
     relation of proteids to (STUTZER), 1887, A., 1129.  
     fat-decomposing, in plants (SIGMUND), 1890, A., 1455; 1892, A., 1261.  
     hydrolytic, terminology of (ARMSTRONG), 1890, T., 528.  
     proteolytic and other, in oats (ELLENBERGER and HOFMEISTER), 1888, A., 867.  
     unorganised (LOEW), 1888, A., 607; (KRAWKOFF), 1889, A., 515; (O'SULLIVAN and TOMPSON), 1890, T., 835; (TAMMANN; JACOBSON), 1892, A., 899.  
     behaviour of, at high temperatures (HUEPPE), 1883, A., 101.  
 See also *Bacillus*, *Bacterium*, *Enzymes*, *Fermentation*, *Microbe*, *Micrococcus*, and *Saccharomyces*.
- Ferment-action of bacteria** (BRUNTON and MACFADYEN), 1890, A., 916.  
**Fermentation** (BUCHNER), 1892, A., 820.  
     alleged elective (MAUMENÉ), 1885, A., 1085.  
     induced by the *Parameciums* of Fiedländer (FRANKLAND, STANLEY and FRIEW), 1891, T., 253.  
     aldehyde as the chief product of a (LISSIER and ROUX), 1890, A., 1180.  
     production of the higher alcohols in (LINDE), 1891, A., 411.  
     production of higher alcohols by, influence of temperature on (LINDE), 1888, A., 1263.  
     production of ethereal salts during (JAQUEMIN), 1890, A., 1454.  
     decomposition of proteids by, and formation of non-hydroxylated aromatic acids (SALKOWSKI), 1885, A., 998.  
     experiments with gluten instead of diastase in the mash (HEINZELMANN), 1884, A., 789.  
     influence of barley on (ANON.), 1883, A., 756.  
     influence of calomel on (WASSILIEFF), 1883, A., 743.  
     influence of carbonic anhydride on the products of (LINDET), 1890, A., 281.  
     action of fluorides on, conditions affecting the (EFFRONT), 1892, A., 906.  
     effects of thiocyanates on (MEUSEL), 1887, A., 519.  
     influence of oxygen on (HOPPESEYLER), 1883, A., 489; (BUCHNER), 1885, A., 1002.  
     abnormal, under unfavourable circumstances and its influence on the composition of the wine (BARTH), 1885, A., 942.  
     acetic (ROMEGIALLI), 1886, A., 732.  
     action of light on (GIUNTI), 1890, A., 1181.  
     influence of artificial gastric juice on (COHN), 1889, A., 1227; (HIRSCHFELD), 1891, A., 488.  
     acid, of glucose (BOUTROUX), 1886, A., 632.  
     alcoholic (TEIXEIRA-MENDES; HANSEN), 1885, A., 1168.  
     selective (BOURQUELOT), 1885, A., 1003.  
     by Champignon du muguet (LISSIER and ROUX), 1890, A., 1179; 1891, A., 854.  
     formation of amylic alcohol in (LEBEL), 1883, A., 908.

- Fermentation, alcoholic.** bases formed by (MORIN), 1885, A., 572; (TANRET), 1888, A., 573.  
 bases produced by, toxic action of (WUTZ), 1885, A., 622.  
 formation of glycerol in (THYLMANN and HILGER), 1889, A., 579; (V. UDRÁNSZKY), 1889, A., 1027.  
 formation of hydrogen sulphide during (SOSTEGNI and SANNINO), 1890, A., 1454.  
 reduction of copper sulphate during (QUANTIN), 1887, A., 171.  
 influence of the age of yeast on (REGNARD), 1888, A., 184.  
 influence of the hydrolytic action of yeast on its power of (O'SULLIVAN), 1892, T., 940.  
 influence of oxygen and concentration on (BROWN), 1892, T., 369; P., 33.  
 influence of salicylic acid on (HEINZELMANN), 1884, A., 764.  
 of dextrin and starch (GAYON and DUBOURG), 1887, A., 171.  
 of galactose (BOURQUELOT), 1888, A., 572.  
 of invert sugar (GAYON and DUBOURG), 1890, A., 950.  
 of the juice of the sugar cane (MARCANO), 1889, A., 915.  
 of milk (MARTINAND), 1889, A., 916.  
 of milk-sugar (VIETH), 1887, A., 1090.  
 ammoniacal, of uric acid (F. and L. SESTINI), 1890, A., 1399.  
 butyric, in the diffusion vessels of sugar factories (DEHÉRAIN), 1885, A., 464.  
 excited by garden-soil (DEHÉRAIN and MAQUENNE), 1884, A., 1063.  
 action of mineral acids on (EFFRONT), 1891, A., 488.  
 morphology of (GRUBER), 1887, A., 1135.  
 frothy (PAMPE), 1883, A., 892; (MÄCKER), 1885, A., 1168.  
 lactic (MARPMANN), 1886, A., 733.  
 influence of artificial gastric juice on (COHN), 1889, A., 1227; (HIRSCHFELD), 1891, A., 488.  
 action of mineral acids on (EFFRONT), 1891, A., 488.  
 marsh-gas (BERTHELOT), 1890, A., 855.  
 in the mud of ditches, swamps and sewers (TAPPEINER), 1883, A., 1177.
- Fermentation, marsh-gas, of acetic acid** (HOPPE-SEYLER), 1887, A., 1135; (BERTHELOT), 1890, A., 855.  
 mucous (KRAVER), 1890, A., 76.  
 panary, bacillus of (LAURENT), 1887, A., 70.  
 peptonic (MARCANO), 1885, A., 181.  
 of meat (MARCANO), 1888, A., 1318.  
 by protoplasm from recently-killed animals (FOKKER), 1887, A., 984.  
 by *Saccharomyces apiculatus* (AMTHOR), 1888, A., 1218.  
 schizomycetic (MARPMANN), 1883, A., 363; (FITZ), 1884, A., 1062.  
 secondary, method of preventing (GAYON and DUPETIT), 1887, A., 171.  
 selective, invert-sugar and (MAUMENÉ), 1886, A., 90.  
 urinary (MULLER), 1886, A., 276.  
 zymotic virus and (ARLOING), 1887, A., 292.  
 of arabinose with *Bacillus ethaceticus* (FRANKLAND and MACGREGOR), 1892, T., 737; P., 132.  
 of blood (BERTHELOT and ANDRÉ), 1892, A., 900.  
 of bread (BOUTROUX), 1891, A., 1532.  
 of calcium glycerate by *Bacillus ethaceticus* (FRANKLAND and FREW), 1890, P., 173; 1891, T., 81.  
 of cellulose (TAPPEINER), 1887, A., 1131.  
 of cherry and currant juice (KEIM), 1891, A., 1539.  
 of cranberry juice (MACH and PORTER), 1890, A., 1455.  
 of galactose, arabinose, sorbose and other sugars (STONE and TOLLENS), 1889, A., 480.  
 of grape juice (AUDOYNAUD), 1888, A., 989.  
 of glycerol and mannitol (FRANKLAND and FOX), 1890, A., 915.  
 of invert-sugar (BOURQUELOT), 1885, A., 1085; (LEPLAY), 1885, A., 1152.  
 of mannitol and dextrose with *Bacillus ethaceticus* (FRANKLAND and LUMSDEN), 1892, T., 432; P., 70.  
 of mannitol and dulcitol, a pure (FRANKLAND and FREW), 1892, T., 254; P., 11.  
 of farmyard manure (SCHLESING), 1892, A., 1123.  
 of manure in absence of oxygen (SCHLESING), 1890, A., 232.

- Fermentation** of nitrogenous matters.  
 loss of nitrogen in (V. KRAUSE, 1890, A., 1340.  
 of raffinose by beer yeast (LOUSLAT, 1890, A., 22.  
 of starch (SULAVO and GONIO), 1891, A., 1284.  
 of sugar, formation of paragalactic acid during (NENKI and SIEBER), 1890, A., 78.  
 See also Agricultural Chemistry.
- Ferment-organisms** in the alimentary canal (MILLER), 1887, A., 289.
- Fermented liquids**, bouquet of (JAQUEMIN), 1890, A., 1180.  
 estimation of glycerol in (LEGLER), 1887, A., 1142.
- Fern extract**, ethereal, poisonous constituent of (POULSON), 1892, A., 330.
- Ferns**, some epiphytic, inorganic constituents of (DIXON), 1883, A., 103.
- Ferrates**: a lecture experiment (BLUXAM), 1886, A., 843.
- Ferric compounds**. See under Iron.
- Ferricyanides** (MÜLLER), 1887, A., 649; (RAMMELSBURG), 1889, A., 950.  
 actions of (PRUD'HOMME), 1891, A., 410.  
 testing for (LONGI), 1883, A., 1172.  
 estimation of, by Field's method (WILLGERODT), 1886, A., 833.  
 estimation, volumetric, of (KASSNER), 1890, A., 834.
- Ferrinitroso-8-naphthol** (V. ILINSKI and V. KNORRE), 1886, A., 101.
- Ferrite** (HEIDLE), 1886, A., 130.
- Ferro-aluminium**, analysis of (ZIEGLER), 1890, A., 1471.
- Ferrocobalt**, malleable, preparation of (ANON.), 1885, A., 461.
- Ferrocyanides** (MÜLLER), 1887, A., 649.  
 green, or glaucoferrocyanides (ETARD and BÉMONT), 1885, A., 496.  
 of the alkaloids (BECKURTS), 1890, A., 1318.  
 preparation of (STERNBERG), 1886, A., 110.  
 preparation of, from trimethylamine (WILLM), 1884, A., 1276.  
 alkaline, and their compounds with ammonium chloride (ETARD and BÉMONT), 1885, A., 364.  
 testing for (LONGI), 1883, A., 1172.  
 estimation of (ZALOZIECKI), 1891, A., 247.  
 estimation of, by Field's method (WILLGERODT), 1886, A., 833.
- Ferrocyanides**, estimation of, in the bye-products of gas works (GASCH), 1890, A., 834; (ZALOZIECKI), 1891, A., 267.  
 estimation of, in gas-lime (KNUTH-LAUCH), 1890, A., 57.
- Ferro-goslarite**, a variety of zinc sulphate (WHEELER), 1891, A., 992.
- Ferromanganese**, crystalline (RATHEKE), 1891, A., 646.  
 electrical resistance of alloys of, with copper (NICHOLS), 1890, A., 1356.  
 estimation of manganese in (KALMAN and SMOLKA), 1885, A., 690.  
 ore from Portugal, analysis of (GRIFFITHS), 1883, A., 858.
- Ferronatrium** (MACKINOSH), 1890, A., 455; (ARZRUNI and FRENZEL), 1891, A., 649.  
 from Chili (GENTH and PENFIELD), 1891, A., 274.
- Ferronickel**, malleable, preparation of (ANON.), 1885, A., 461.
- Ferronitrososulphuric acid**, salts of (PAVEL), 1883, A., 297.
- Ferronitroso-8-naphthol** (V. ILINSKI and V. KNORRE), 1886, A., 101.
- Ferropentacarbonyl** (MOND and LANGER), 1891, T., 1091; P., 149.
- Ferrostibian** from Örebro (IGELSTRÖM), 1890, A., 1075.
- Ferrous compounds**. See under Iron.
- Fertilisers and fertility**. See Agricultural Chemistry.
- Ferulic aldehyde** (TIEMANN), 1886, A., 251.
- Ferulic methyl ketone** (TIEMANN), 1886, A., 251.
- Festuca heterophylla**, analyses of (WILSON), 1889, A., 1078.
- Fever**, elimination of urea in (WOOD and MARSHALL), 1891, A., 1530.  
 increased output of nitrogen in (RICHTER), 1891, A., 600.
- Fevers**, infectious, relation of ptomaines to (LUFF), 1889, A., 1026.
- Fibres**, specific gravity of (DE CHARDONNET), 1892, A., 1036.  
 crude, filtering of (OSBORNE), 1888, A., 1351.  
 estimation of (HÜNIC), 1891, A., 865.  
 elastic, action of digestive fluids on (EWALD), 1889, A., 912.  
 vegetable, bleaching of (THOMPSON and RICKMAN), 1886, A., 187.  
 method of imparting the appearance of silk to (ANON.), 1884, A., 799.  
 action of nitric acid on (CROSBY and BEVAN), 1891, A., 1001.

- Fibres, vegetable.** action of nitric and sulphuric acids on (LIEBOWITZ), 1891, A., 314.  
 method of distinguishing, from animal (MOLISCH), 1886, A., 1088.  
 detection of, in silk or woollen tissue (FURBINO), 1892, A., 667.  
 woody vegetable, the pentosans of (SCHULZE and TOLLENS), 1892, A., 1420.  
 test for (REICHL), 1884, A., 118.
- Fibrin, formation of** (HLAVA), 1884, A., 912.  
 heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.  
 coagulation of (KRUGER), 1888, A., 305.  
 solubility of (FERMI), 1892, A., 897.  
 action of saline solutions on (LIMBOURG), 1889, A., 787.  
 action of sodium chloride in dissolving (GREEN), 1888, A., 304.  
 action of superheated steam on (NEUMEISTER), 1889, A., 910.  
 decomposition of, in the human body (GRAFFENBERGER), 1892, A., 904.  
 cause of the evolution of oxygen from hydrogen peroxide by, and the influence of hydrocyanic acid in preventing the activity of (BÉCHAMP), 1883, A., 227.  
 digestion of, by trypsin (HERRMANN), 1887, A., 1130.  
 changes effected by digestion on (WOOLDRIDGE), 1888, A., 618.  
 formation of ammonia in the pancreatic digestion of (STADELMANN), 1888, A., 512.  
 ferment from putrefactive bacteria which dissolves (SALKOWSKI), 1888, A., 1326.
- Fibrin-ferment** (PEKELHARING), 1892, A., 1112.  
 origin of (WOOLDRIDGE), 1885, A., 571.  
 nature of (HALLIBURTON), 1889, A., 63.  
 action of (LEA and DICKINSON), 1890, A., 1175.
- Fibrin-peptone** (SCHÜTZENBERGER), 1892, A., 1500.
- Fibrinogen, tissue** (WRIGHT), 1891, A., 1524.  
 changes effected by digestion on (WOOLDRIDGE), 1888, A., 618.
- Fibroferrite (stypticite)** (DARAPSKY), 1890, A., 456.  
 from Chili (BRUN), 1883, A., 31.
- Fibroin** (KRUKENBERG), 1886, A., 481.  
 heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.  
 solubility of (LIDOFF), 1885, A., 406.
- Fichtelite** (HELL), 1889, A., 614;  
 (BAMBERGER), 1889, A., 714.  
 constitution of (SPIEGEL), 1890, A., 385.  
 properties of (BAMBERGER and STRASSER), 1890, A., 384.
- Ficus Carica**, the latex of (HANSEN), 1886, A., 1059; (MUSSE), 1892, A., 653.  
*Ficus rubiginosa* and *F. macrophylla*, resins of (RENNIE and GOYDEN), 1892, T., 916; P., 146.
- Field.** See Agricultural Chemistry.
- Fig wine** (CARLES), 1891, A., 1135.
- Filicic acid** (DACCOMO), 1889, A., 54;  
 (LUCK), 1889, A., 276; (POULSON), 1892, A., 880.  
 constitution of (PATERNO), 1889, A., 615; (SCHIFF), 1890, A., 162.  
 derivatives of (DACCOMO), 1889, A., 54.
- Filicin** (POULSON), 1892, A., 880.
- Fillowite** from Branchville (BRUSH and DANA), 1890, A., 1072.
- Films, metallic** (HARTLEY), 1890, A., 692.  
 colours and absorption spectra of (DUDLEY), 1892, A., 1037.  
 thin, discrimination of (LOVITON), 1886, A., 1076.  
 thin, table of properties of (RÜCKER), 1888, T., 260.
- Filter** yielding physiologically pure water (CHAMBERLAND), 1884, A., 1440.
- Filter-funnel** (RICHTER), 1884, A., 364.
- Filter-holder** for drying and weighing (REINHARDT), 1890, A., 193.
- Filter-paper**, presence of matter soluble in ether in (VIETH), 1886, A., 1083.  
 retention of lead salts by (O'SHEA), 1886, P., 206.  
 toughened (FRANCIS), 1885, T., 183; P., 19.
- Filters, asbestos**, preparation of (CASA-MAJOR), 1883, A., 506.  
 dried, weighing of (RÜDORFF), 1891, A., 613.  
 metallic felt (MUNROE), 1888, A., 1333.  
 plaster, use of, to sterilise liquids (CAZENEUVE), 1885, A., 288.  
 with greased edge (GAWALOWSKI), 1887, A., 295.  
 influence of, on water (SNIJDER), 1888, A., 866.
- Filtration apparatus** for (WITT), 1886, A., 592; (BORNTRÄGER), 1886, A., 917; (ALLIHN), 1888, A., 526.  
 in a vacuum or in a current of gas (ALLIHN), 1885, A., 631.  
 hot, apparatus for (PATL), 1892, A., 1150.

- Filtration**, a method of, by means of easily soluble and easily volatile filters (GOOCH), 1886, A., 96.  
 rapid, of organic liquids, use of liquefied carbonic anhydride for (D'ARSONVAL), 1891, A., 851.  
 use of asbestos in (BARDA), 1892, A., 751.
- Fiorin**, analyses of (WILSON), 1889, A., 1078.
- Fire damp** (FRANKE), 1888, A., 570; (WINKLER), 1888, A., 663.
- Fire extinguisher**, liquid carbonic anhydride as a (RAYDI), 1883, A., 408.
- Firwood**, dextrose from (LINDSEY and TOLLEN), 1892, A., 801.  
 so-called artificial peptic acid from (LINDSEY and TOLLEN), 1892, A., 827.  
 charcoal, composition of (RIMMAN), 1883, A., 533.
- Fisetin** (SCHMID), 1886, A., 894; (HERZIG), 1891, A., 1386.  
 hexethylic and hexamethylic oxides (SCHMID), 1886, A., 895.
- Fisetol** (HERZIG), 1891, A., 1387.  
 dimethyl and dimethyl ethyl ethers (HERZIG), 1891, A., 1387.  
 ethyl and triethyl ethers (HERZIG), 1891, A., 1386, 1387.
- Fish**, gases in the swimming bladder of (TRAUBE-MENGARINI), 1890, A., 183.  
 guanine in (EWALD and KRUKENBERG), 1884, A., 623.  
 ptomaines from (BOCKLISCH), 1885, A., 566, 1146.  
 comparative absorption of meat and, in the alimentary canal (ATWATER), 1887, A., 1130.  
 influence of cooking on the digestion of (POROFF), 1890, A., 1450.  
 relative digestibility of, in gastric juice (CHITTENDEN and CUMMINS), 1885, A., 569.  
 American, analysis of (ATWATER), 1883, A., 1179; 1888, A., 308, 732.
- Fish-oil**. See Oil.
- Flame**, experiments on (BURCH), 1885, A., 466; (ANSCHUTZ and KEKULE), 1885, A., 1035.  
 nature of (TECLÉ), 1891, A., 1309.  
 nature of the vibratory movements which accompany the propagation of, in mixtures of combustible gases (MALLARD and LE CHATELIER), 1883, A., 148.  
 velocity of propagation of (MALLARD and LE CHATELIER), 1883, A., 845.
- Flame**, optical proof of the existence of suspended matter in (STOKES), 1892, A., 111.  
 origin of acetylene in (LEWES), 1892, P., 47.  
 structure of (LEWES), 1892, T., 331.  
 structure and chemistry of (SMITHELLS and INGLE), 1891, P., 159; 1892, T., 204.  
 luminosity of (v. SIEMEN), 1883, A., 539; (HIRTORF), 1883, A., 697.  
 electricity of (ELSTER and GEIGEL), 1883, A., 441, 412; 1884, A., 1238; (KOLBERT), 1884, A., 651; 1885, A., 2.  
 interactions occurring in STOKES and ARMSTRONG, 1892, P., 22.  
 production of ozone by (CUNDALI), 1890, P., 26.  
 blue, produced by sodium chloride in a coal fire (LEONARD), 1889, A., 336; (SALEF), 1890, A., 560; (SMITH), 1890, A., 1202.  
 coal-gas, carbon deposited from (FORRELL), 1892, P., 46.  
 luminosity of (LEWES), 1892, T., 322; P., 2.  
 flat, temperature of various parts of (LEWES), 1892, T., 326.  
 gaseous, coloration of (SANTINI), 1885, A., 209, 465.  
 luminous, structure of (SMITHELLS), 1891, P., 164; 1892, T., 217.  
 theory of (BURCH), 1885, A., 467.  
 non-luminous, experiments on (SMITHELLS and INGLE), 1892, T., 205.
- Flame-coloration**, origin of (SMITHELLS), 1892, P., 8.
- Flameless combustion** (FLETCHER), 1883, A., 523; (FISCHER), 1883, A., 620.
- Flashing-point** of heavy mineral oils, determination of (GRAY), 1892, A., 542.  
 of mineral oils, causes influencing (NEWBURY and CUTTER), 1889, A., 82.  
 of petroleum, determination of (SRODARD), 1883, A., 517.
- Flask**, dropping (POOL), 1885, A., 930.  
 for distilling flouting liquids in a vacuum (LEWKOWITZ), 1889, T., 359.
- Flavaniline** (1-amido-2'-phenyl-3'-methylquinolic) (BESIHORN and FISCHER), 1883, A., 600; (ANON.), 1884, A., 1150; (FISCHER), 1886, A., 631.  
 constitution of (FISCHER and TAUBER), 1885, A., 400.
- ψ-Flavaniline** (WEIDEL and BAMBERGER), 1888, A., 966.

- Flavanthracenedisulphonic acid** and its salts (SCHULER), 1883, A., 74.
- Flavenol** (BESTHORN and FISCHER), 1883, A., 600.  
constitution of (FISCHER and TAUBER), 1885, A., 400.
- $\psi$ -**Flavenol** and its derivatives (WEIDEL and BAMBERGER), 1888, A., 966.
- Flavin**, preparation of (SOXHLEH), 1892, A., 503.  
thio- (TRAUTMANN), 1891, A., 195.
- Flavol** (*dihydroxyanthracene*), and some of its derivatives (SCHULER), 1883, A., 74.
- Flavoline** (BESTHORN and FISCHER), 1883, A., 600; (FISCHER and TAUBER), 1885, A., 400.  
synthesis and constitution of (FISCHER), 1886, A., 632.
- Flavopurpuranthanol** (LIEBERMANN), 1888, A., 493.
- Flavopurpurin**, conversion of anthraquinone- $\alpha$ - and - $\beta$ -sulphonic acids into (SCHMIDT), 1891, A., 934.  
purification of (JELLINEK), 1888, A., 1204.  
diethyl and ethyl ethers (LIEBERMANN and JELLINEK), 1888, A., 717.
- Flavopurpuryl phenylcarbamate** (TESMER), 1886, A., 50.
- Flavoquinoline** (FISCHER), 1886, A., 631.
- Flax**. See Agricultural Chemistry.
- Fleeces**, merino, composition of (CHLUDNISKY), 1886, A., 105.
- Flesh**, heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.  
blood and liver, composition of, under varying conditions (WEISKE), 1887, A., 855.
- Flesh-meal** (ROUSSEAU), 1885, A., 620.  
as food for horses (FINDEISEN), 1883, A., 102.
- Flesh-peptone**, nutritive value of (POLLITZER and ZUNTZ), 1886, A., 901.
- Flinkite** from Harstigen Mine, Sweden (HAMBERG), 1891, A., 20.
- Flour**. See Agricultural Chemistry.
- Flower petals**, absorption of water by (BURGERSTEIN), 1884, A., 1403.
- Flowers**, constituents of (UREAUX), 1884, A., 862.  
withering of (WIESNER), 1884, A., 918.
- Flue deposits**, manganiferous, estimation of zinc in (JENSCH), 1890, A., 294.
- Fluellite** (GROTH), 1884, A., 266.  
See also Aluminium fluoride.
- Fluid cavities** in Brazilian topaz (v. NORDENSKIÖLD), 1886, A., 674.
- Fluid crystals** (LEHMANN), 1890, A., 106.
- Fluids**, expansion of (NADESCHDIN), 1888, A., 775.  
highest boiling points of (PUSCHL), 1888, A., 17.  
pressure curves of, at their critical condition (v. WROBLEWSKI), 1886, A., 964.  
encysted, contribution to the chemistry of (HAMMARSTEN), 1883, A., 874.  
See also Liquids.
- Fluidity** and galvanic conductivity (STEPHAN), 1883, A., 769.
- $\alpha$ -**Fluoboracetone**, decomposition of, by water (LANDOLPH), 1883, A., 655.
- Fluocerite** from Osterby (WEIDULL), 1889, A., 765.
- Fluorammmonium molybdic anhydride** (MAURO), 1889, A., 106.
- Fluoran** (MEYER), 1891, A., 1029; (MEYER and HOFFMEYER), 1892, A., 970.  
constitution of (MEYER and HOFFMEYER), 1892, A., 1228.  
tribromo- (MEYER and HOFFMEYER), 1892, A., 970.
- m*-**Fluoranoliline** (WALLACH), 1887, A., 131.
- p*-**Fluoranoliline** (WALLACH), 1887, A., 131; (WALLACH and HEUSLER), 1888, A., 362.
- Fluorapatites**, preparation of (DITTE), 1885, A., 126.  
replacement of the phosphoric acid in, by arsenic or vanadic acid (DITTE), 1885, A., 225.
- Fluorarsenates** (DITTE), 1885, A., 225.
- Fluorazein** (BERNSTEIN and METTEGANG), 1887, A., 737.
- Fluorene** (HODGKINSON), 1885, P., 36.  
derivatives of (HODGKINSON and MATTHEWS), 1883, T., 163.  
oxidation of (HOLM), 1883, A., 921.  
hydrides (GUYE), 1891, A., 314.  
perhydride (LIEBERMANN and SPIEGEL), 1889, A., 720.
- Fluorene**, *p*-amido- (STRASBURGER), 1884, A., 329, 754.  
bromo- (HODGKINSON and MATTHEWS), 1883, T., 165; (HODGKINSON), 1885, P., 37.  
 $\alpha$ -dibromo- and fusion of, with potash (HODGKINSON and MATTHEWS), 1883, T., 161.  
*p*-dichloro- (HODGKINSON and MATTHEWS), 1883, T., 170.  
trichloro- (HOLM), 1883, A., 922.

- Fluorene**, *p*-nitro- (STRASBURGER), 1884, A., 754; (HODGKINSON), 1885, P., 37.
- o-Fluorene-carboxylic acid** (GRAEBE and AUBIN), 1889, A., 145.
- Fluorenedicarboxylic acid** (BAMBERGER and HOOKER), 1885, A., 906.
- Fluorenesulphonic acid**,  $\alpha$ -dibromo- (HODGKINSON and MATTHEWS), 1883, T., 172.
- Fluorescein** (MEYER and OPPELT), 1889, A., 246; (MEYER and HOFFMEYER), 1892, A., 970; (HERZIG), 1892, A., 1319.
- from maleic acid (LUNGE and BURCKHARDT), 1884, A., 1310; (BURCKHARDT), 1886, A., 51.
- constitution of (MEYER and HOFFMEYER), 1892, A., 1228.
- Fluorescein**, tetrabromo-. See Eosin.
- $\beta$ -chloro- (GRAEBE and REE), 1886, T., 530.
- dichloro- (LE ROYER), 1887, A., 832.
- tetrachloro- (GRAEBE), 1887, A., 833.
- dichlorotriodo- (LE ROYER), 1887, A., 832.
- thio- (GRAEBE and ZSCHOKKE), 1884, A., 1025.
- Fluorescein ethyl ether** (HERZIG), 1892, A., 1319.
- Fluorescein-group** (MEYER and HOFFMEYER), 1892, A., 1228.
- Fluoresceinsulphonic acid** (GRAEBE), 1885, A., 902.
- Fluorescence** (LOMMEL), 1883, A., 763; (LECOQ DE BOISBAUDRAN), 1890, A., 435.
- appearance of, in quinine salts (ARMSTRONG), 1892, T., 789; P., 143, 189; (HARTLEY), 1892, P., 189.
- with well defined spectra (LECOQ DE BOISBAUDRAN), 1887, A., 1008; 1888, A., 97; 1890, A., 435.
- change of, with concentration (WALTER), 1888, A., 881; 1889, A., 553.
- evidence afforded by, of the decomposition of molecular groups in solutions (WALTER), 1889, A., 554.
- Stokes's law of (HAGENBACH), 1883, A., 537.
- red, of alumina (LECOQ DE BOISBAUDRAN), 1887, A., 191, 409, 538, 625.
- of bismuth compounds (LECOQ DE BOISBAUDRAN), 1887, A., 4, 189, 873, 1006.
- of cupriferrous calcium oxide (LECOQ DE BOISBAUDRAN), 1888, A., 882.
- of rare earths (LECOQ DE BOISBAUDRAN), 1885, A., 1174.
- Fluorescence** of ferruginous calcium oxide (LECOQ DE BOISBAUDRAN), 1888, A., 1001.
- of manganese and bismuth (LECOQ DE BOISBAUDRAN), 1887, A., 189, 873, 1006.
- of manganese compounds (LECOQ DE BOISBAUDRAN), 1887, A., 3, 189, 873, 1006.
- of naphthalene-red (WESENDONCK), 1886, A., 585.
- of spinel (LECOQ DE BOISBAUDRAN), 1887, A., 1005.
- Fluorescent mixtures** (LECOQ DE BOISBAUDRAN), 1888, A., 544.
- chromium and manganese in (LECOQ DE BOISBAUDRAN), 1888, A., 329, 544, 1001, 1229; 1889, A., 2.
- Fluorindine** (FISCHER and HEPP), 1890, A., 1444.
- Fluorine**, discovery of, in the idocrase from Vesuvius (JANNASCH), 1883, A., 1067.
- free, probable occurrence of, in the fluorspar of Quincé (BEQUEREL and MOISSAN), 1891, A., 149.
- occurrence of, in recent and fossil bones (CARNOT), 1892, A., 1161.
- proportion of, in fossil bones of various ages (CARNOT), 1892, A., 1413.
- occurrence of, in the organism (TAMMANN), 1888, A., 732.
- occurrence of, in natural phosphates (CARNOT), 1892, A., 1055.
- isolation of (MOISSAN), 1886, A., 976.
- place of, in the classification of the elements (MOISSAN), 1892, A., 11.
- atomic weight of (CHRISTENSEN), 1886, A., 854; 1887, A., 892; (MOISSAN), 1891, A., 15.
- atomic refraction and dispersion of (J. H. and G. GLADSTONE), 1891, A., 774.
- refraction of (GLADSTONE), 1886, A., 497.
- colour and spectrum of (MOISSAN), 1890, A., 329.
- heat of combination of, with hydrogen (BERTHELOT and MOISSAN), 1889, A., 1096.
- density of (MOISSAN), 1890, A., 208.
- action of, on different forms of carbon (MOISSAN), 1890, A., 557.
- Fluorine compounds**, natural (GROTH), 1884, A., 265.
- thermochemical researches on (GUNTZ), 1884, A., 1245.
- of copper (BALBIANO), 1884, A., 1264.
- of uranium (SMITHELLS), 1883, T., 125.

- Fluorine compounds of vanadium** (PETERSEN), 1889, A., 107, 1123; 1890, A., 15; 1891, A., 884; (PICCINI and GIORGIS), 1889, A., 214.
- organic** (WALLACH and HEUSLER), 1888, A., 362.
- Hydrofluoric acid** (*hydrogen fluoride*), preparation of (THORPE and HAMBLY), 1889, T., 166.
- purification of (HAMILTON), 1890, A., 687.
- thermochemical study of (GUNTZ), 1884, A., 544.
- liquefaction and solidification of (OLSZEWSKI), 1886, A., 977.
- vapour density of (THORPE and HAMBLY), 1888, T., 765; P., 87; 1889, T., 163; P., 27.
- electrolysis of (BARTOLI and PAPA-SOGLI), 1883, A., 590; 1889, A., 559; (MOISSAN), 1886, A., 849, 976.
- action of, on silica and silicates (MACKINTOSH), 1886, A., 979.
- action of, on yeast (EFFRONT), 1891, A., 1532.
- and other acids, reciprocal displacements of (BERTHELOT and GUNTZ), 1884, A., 703.
- Fluorides, non-metallic** (GUNTZ), 1886, A., 850.
- heat of formation of (GUNTZ; TOMMASI; BERTHELOT), 1884, A., 545.
- heat of neutralisation of (PETERSEN), 1890, A., 1.
- action of boron on (MOISSAN), 1892, A., 1153.
- action of, on yeast (EFFRONT), 1891, A., 1532.
- influence of, on fermentation (EFFRONT), 1892, A., 906.
- of heavy metals, compounds of, with sodium, ammonium and potassium fluorides (WAGNER), 1886, A., 670.
- estimation of silicic acid in (HAMPE), 1892, A., 1127; (REGELSBERGER), 1892, A., 1128.
- Hydrofluogermanic acid** (KRUS and NILSON), 1887, A., 704; (WINKLER), 1887, A., 1083.
- Hydrofluosilicic acid**, titration of (FRESenius), 1890, A., 926.
- Silicofluorides**, investigation of (GUNTZ), 1884, A., 1246.
- alkaline, thermochemistry of (TRUCHOT), 1884, A., 884.
- of insoluble bases, hardening of soft calcareous rocks by means of (KESSLER), 1883, A., 940.
- Fluorine, detection and estimation:—**
- detection of (TAMMANN), 1886, A., 97.
- estimation of (TAMMANN), 1886, A., 97; (CHAPMAN), 1887, A., 295; (OFFERMANN), 1891, A., 615; (CARNOT), 1892, A., 911.
- estimation of, in substances decomposable by sulphuric acid and especially in natural phosphates (LASNE), 1889, A., 74.
- estimation, indirect, of (BEIN), 1886, A., 918; 1888, A., 527.
- estimation, volumetric, of (OETTEL), 1887, A., 179.
- Fluorobenzene** (PAIERNÒ and OLIVERI), 1884, A., 426.
- See also Benzene.
- Fluorobenzene-*p*-diazopiperidide** (WALLACH and HEUSLER), 1888, A., 362.
- Fluorobenzoic acid**, preparation of (GRIESS), 1885, A., 788.
- di*Fluorobenzoic acid and some of its salts (JACKSON and HARTSHORN), 1885, A., 1224.
- Fluorobenzoic acids**, transformation of, in the animal system (COPPOLA), 1884, A., 446.
- p*-Fluorobenzoic sulphinide (DE ROODE), 1891, A., 1227.
- p*-Fluorobromo-, *p*-fluorochloro- and *p*-fluoriodo-benzene (WALLACH and HEUSLER), 1888, A., 362.
- o*-Fluorocinnamic acid (GRIESS), 1885, A., 788.
- 6-Fluoro- $\psi$ -cumene (WALLACH and HEUSLER), 1888, A., 362; (TÜHL), 1892, A., 968.
- di*Fluorodiphenyl (WALLACH and HEUSLER), 1888, A., 362.
- Fluoroform** (MELANS), 1890, A., 724; (CHABRIÉ), 1892, A., 1316.
- Fluorohippuric acids** (COPPOLA), 1884, A., 446.
- Fluoroline** (HESSE), 1892, A., 1492.
- Fluoromesitylene** (TÜHL), 1892, A., 968.
- Fluoronaphthalenes**, 1- and 2- (EKBOM and MAUZELIUS), 1889, A., 999.
- 1:4'-Fluoronaphthalenesulphonic acid (MAUZELIUS), 1889, A., 1001.
- p*-Fluoronitrobenzene (WALLACH), 1887, A., 131; (WALLACH and HEUSLER), 1888, A., 362.
- Fluoronitro-*m*-xylene** (AHRENS), 1892, A., 1437.
- p*-Fluorophenol (WALLACH and HEUSLER), 1888, A., 362.
- Fluorophosphamide** (POULENC), 1891, A., 1418.
- Fluorophosphorous acid** (BERTHELOT), 1885, A., 328.

- Fluorosulphonic acid** (THORPE and KIRMAN), 1892, T., 921; P., 160.
- p*-Fluorotoluene** (PATERNO and OLIVERI), 1884, A., 426; (WALLACH), 1887, A., 130.
- 1:4-Fluorotoluene-2-sulphonic acid** (DE ROODE), 1891, A., 1226.
- Fluorovanadates** (DITIE), 1885, A., 225.
- Fluoro-vanadites, -oxyhypovanadates and -oxyvanadates** (PICINI and GIORGIS), 1892, A., 785.
- 4-Fluoro-*m*-xylene** (TOML), 1892, A., 968.
- Fluoroxypertitanic acid** (PICINI), 1888, A., 1255.
- Fluorspar**, association of, with Babel quartz (GONNARD), 1888, A., 561. obtained from Quincé (BEQUEREL and MOISSAN), 1891, A., 118. from St. Lawrence Co., New York (KINZ), 1890, A., 337. from Vesuvius (SCACCHI), 1887, A., 18. a peculiar kernel structure in (VAN CALKER), 1884, A., 403. refractive indices of (SARASIN), 1886, A., 22. utilisation of, for the production of opal glass (WEINREB), 1885, A., 1019. corrosion faces of (VAN CALKER), 1884, A., 403. See also Calcium fluoride.
- Fluoryl benzyl ketone** (PÄPCKE), 1888, A., 702.
- Fodders.** See Agricultural Chemistry.
- Fœtal tissues**, amount of iron in (BUNGE), 1889, A., 789; 1892, A., 516, 1502.
- "*Folia uve ursi*,"** behaviour of, in the animal organism (LEWIN), 1884, A., 915.
- Foliation**, study of "longrain" and measure of, in schistose rocks by means of their thermic properties (JANNETTAZ), 1888, A., 300.
- Food**, asparagine as a nourishing constituent of (WEISSE), 1888, A., 80. composition and digestibility of some foods (JORDAN, BARTLETT and MERRILL), 1889, A., 913. calorific value of constituents of (STOHMANN and LANGBEIN), 1892, A., 4. chemistry of (BELL), 1883, A., 1160. action of micro-organisms from the mouth and from faeces on (VIGNAL), 1887, A., 1059. assimilation of (HOFMEISTER), 1886, A., 728.
- Food**, influence of proteid on the digestion of, free from nitrogen (ROSENHEIM), 1891, A., 344. relation of carbohydrates in, to digestive ferments (STUTZER and LEBERT), 1888, A., 170. peptonised (HORTON-SMITH), 1891, A., 953. preserved, presence of tin in (UNGAR), 1884, A., 800. use of boric acid for preserving (FORSTER), 1883, A., 1178; 1884, A., 782. of larval bees (v. PLANTA), 1889, A., 1022. detection of benzoic acid in (MOHLER), 1890, A., 1031. detection of cochineal in (LAGORCE), 1889, A., 321. detection of Fahlberg's "saccharin" in (BORNSTEIN), 1888, A., 760. estimation of ash in (KWASNICK), 1890, A., 833. estimation of chromium and barium in (DE KONINGH), 1890, A., 195. estimation of manganese in (STEIN), 1889, A., 188. estimation of starch and glucose in (FAULENBACH), 1884, A., 930. See also Agricultural Chemistry.
- Footite** (KÖNIG), 1892, A., 415.
- Forage crops**, growth of, at Grignon in 1888 (DEHÉRAIN), 1889, A., 542.
- Forces**, electrical, change of refractive index of liquids by (QUINCKE), 1883, A., 948. molecular (PEARSON), 1888, A., 907. range of (RÜCKER), 1888, T., 222; P., 7. sphere of action of (GALITZIN), 1890, A., 105.
- Forest.** See Agricultural Chemistry.
- Form** of homogeneous solid substances, spontaneous change of, induced by internal energy (LEHMANN), 1885, A., 1033.
- Formaldehyde** (*methaldchylic*; *oxymethylene*) (TOLLENS), 1884, A., 293; 1886, A., 1006; (TOLLENS and MAYER), 1889, A., 369; (KRAUT, ESCHWEILER and GROSSMANN), 1890, A., 1092; (LÖWENANN), 1892, A., 423; (KEKULÉ), 1892, A., 1423. formation of, from ethylic nitrate (PRAESTI), 1885, A., 504. preparation of (LOEW), 1886, A., 609; (TISCHENKO), 1888, A., 804; (ESCHWEILER), 1890, A., 954. synthetical formation of (JAHN), 1889, A., 766.

**Formaldehyde** (*methylaldehyde*; *oxy-methylene*), molecular weight of (TOLLENS and MAYER), 1888, A., 809.  
 actions of (PLOCHE), 1888, A., 1051; (PULVERMACHER), 1892, A., 579.  
 condensation of (LOEW), 1886, A., 609, 864; 1888, A., 358.  
 action of amines on (KOLOTOFF), 1885, A., 647; 1886, A., 138.  
 action of, on *o*-diamines (FISCHER and WRESZINSKI), 1892, A., 1496.  
 condensation of, with ethylic malonate (PERKIN), 1886, A., 691.  
 action of halogen hydrides and of halogens on (TISTSCHENKO), 1888, A., 803, 804.  
 action of hydrogen sulphide on (BAUMANN), 1890, A., 477.  
 action of, on phenols (KLEEGER), 1891, A., 1199.  
 action of zinc organic compounds on (TISTSCHENKO), 1888, A., 804.  
 condensation products with (PULVERMACHER), 1892, A., 1450.  
 formation of acrole from (FISCHER and PASSMORE), 1889, A., 483.  
 nascent, bases produced by (TRÖGER), 1888, A., 286.  
 formation of nitrous and nitric acids from ammonia and, in the saliva (WURSTER), 1889, A., 1228.  
 formation of saccharoses from (LOEW), 1889, A., 581.  
 formation of starch from (BOKORNY), 1891, A., 1539.  
 sugars synthesised from, cryoscopic behaviour of (v. KLOBUKOFF), 1890, A., 465.  
 nutrition of green plant cells with (BOKORNY), 1892, A., 1259.  
 rôle of, in the assimilation of plants (LOEW), 1889, A., 640.  
 derivatives of (TOLLENS), 1884, A., 988; (WELLINGTON and TOLLENS), 1886, A., 330.  
 sodium hydrogen sulphite (KRAFT, ESCHWEILER and GROSSMANN), 1890, A., 1092.  
 test for, by ammoniacal alkaline silver solution (TOLLENS), 1883, A., 125.  
 estimation of (LEGLER), 1883, A., 1035; (LÖSEKANN), 1889, A., 1036; (ESCHWEILER), 1889, A., 1250.  
 estimation of, by titrating with ammonia (ESCHWEILER), 1889, A., 1250.  
**Formaldehyde**, thio-, polymeric (WOHL), 1887, A., 27; (BAUMANN and FROMM), 1891, A., 1011.  
 derivatives of (WOHL), 1887, A., 27.

**Formaldehyde**, trithio-, reactions of (PULVERMACHER), 1892, A., 579.  
**Paraformaldehyde** (*trioxymethylene*) (BARFOLI and PAPASOGLI), 1884, A., 170; (PRATESI), 1885, A., 240.  
 molecular weight of (TOLLENS and MAYER), 1889, A., 369.  
**Formamide**, preparation of (SCHULZE), 1888, A., 1088.  
 chloro- (GATTERMANN and SCHMIDT), 1887, A., 569.  
 synthesis with (GATTERMANN), 1888, A., 574; (GATTERMANN and ROSSOLYMO), 1890, A., 974.  
**Formamides**, aromatic, nitriles from (GASIOROWSKI and MERZ), 1885, A., 772.  
 substituted, action of phosphoric chloride on (WALLACH and LEHMANN), 1887, A., 384.  
**Form-amidine** and **-amidoxime**. See Methenyl-amidine and -amidoxime.  
**Form-mono-** and **-*o*-amidobenzamides** (KNAPE), 1891, A., 909.  
**Form-m-amidobenzoic acid** (PELLIZZARI), 1886, A., 548.  
**Form-p-amidobenzoic acid** (ZEHR), 1891, A., 304.  
**Form-o-amidobenzomethamide** (KNAPE), 1891, A., 909.  
**o-Formamido-p-toluic acid** (NIEMEN-TOWSKI), 1889, A., 1066.  
**Formanhydroisotolylenediamine**. See *iso*Tolylenemethenyldiamine.  
**Formanilide** and its homologues (TUBIAN), 1883, A., 325.  
 action of trimethylene chlorobromide on (PINKUS), 1892, A., 1491.  
 alkylation of (COMSTOCK), 1890, A., 1258.  
 silver derivative of (COMSTOCK and KLEEGER), 1890, A., 1414.  
**Formanilide**, *p*-iodo- (COMSTOCK and KLEEGER), 1890, A., 1415.  
*m*-nitro- (COMSTOCK and WHEELER), 1892, A., 706.  
*p*-nitro- (OSBORNE and MIXTER), 1887, A., 250.  
 thio-, and its homologues, action of heat in closed tubes on (SENIER), 1885, T., 768.  
*iso*Formanilide, iodo- (COMSTOCK and KLEEGER), 1890, A., 1414.  
**Formanilidoacetic acid** (PAAL and OTTEN), 1890, A., 1415.  
**Formanilidopropionic acid** (PAAL and OTTEN), 1890, A., 1415.  
**Formanthramine** (BOLLER), 1883, A., 1140.  
**Formic acid**, presence of, in plants (BURGMANN), 1883, A., 611.

- Formic acid**, preparation of concentrated (MAQUENNE), 1889, A., 955.  
 magnetic rotation of hydrated (PERKIN), 1886, T., 778.  
 electrical conductivity of solutions of, in water and in alcohols (HARTWIG), 1888, A., 399.  
 thermochemistry of (JAHN), 1890, A., 99; (BENTHELOT and MATHÉON), 1892, A., 1139.  
 vapour pressures of (RICHARDSON), 1886, T., 765, 774, 776.  
 electrochemistry of (JAHN), 1890, A., 99.  
 decomposition of, by the silent discharge (MAQUENNE), 1889, A., 457.  
 estimation of, in presence of acetic and butyric acids (SCALA), 1891, A., 248.  
 estimation of, in water (KLEIN), 1887, A., 1000.  
 separation of acetic acid from (MACNAIR), 1887, A., 751.
- Formic acid**, amido-. See Carbamic acid.
- thio- (DEMONT), 1892, A., 421.
- Formates**, metallic (LOSSEN and VOSS), 1892, A., 140.  
 ammonium, magnetic rotatory power of solutions of (PERKIN), 1891, T., 982.  
 barium and calcium, solubility of (V. KRASNIČKI), 1888, A., 359.  
 copper (LOSSEN and VOSS), 1892, A., 140.  
 sodium, magnetic rotatory power of solutions of (PERKIN), 1891, T., 986.  
 action of carbonyl chloride on (OTTO), 1888, A., 672.  
 action of ethylic chlorocarbonate on (R. and W. OTTO), 1891, A., 288.  
 in the organism (GRÉHANT and QUINQUARD), 1887, A., 513.
- o*-Formates, *trithio*- (LAVES), 1892, A., 611, 850.
- Formimidodiethylamide**. See Diethylformamidine.
- Formins** (HENNINGER), 1884, A., 897.
- Formobenzhydrylamine** (LEUCKART and BACH), 1886, A., 1023.
- Formobenzylamidobenzoic acid** (CLATS and GLYCKHERR), 1883, A., 1009.
- Formocarbamide**, thermochemistry of (MATHÉON), 1891, A., 1448.
- Formochloralimide** (MOSCHELER), 1891, A., 1003.
- Formocumidide** (SENIER), 1885, T., 767.  
 thio- (SENIER), 1885, T., 768.
- Formodibenzylamine** (LEUCKART and BACH), 1886, A., 1023.
- Formo-diphenylhydrazide** and *di-o*- and *p*-tolylhydrazides (GATTERMANN, JOHNSON and HÖLZLE), 1892, A., 843.
- Formofenchylamine** (WALLACH), 1891, A., 1087.
- Formoguanamine**, formation of (BAMBERGER and DIECKMANN), 1892, A., 736.
- Formo-*p*-hydroxydiphenylamine** (PHILIP and CALM), 1885, A., 156.
- Formo-*m*-hydroxyphenyl-*p*-tolylamine** (HATCHEK and ZEGA), 1886, A., 456.
- Formo-*p*-iodoanilide** (COMSTOCK), 1890, A., 1258.
- Formo-*o*-methylamidobenzamide** (KNAPP), 1891, A., 910.
- Formomethyl-*o*-amidochlorobenzoic acid** (LA COSE and BODEWIG), 1885, A., 792.
- Formonitrile**. See Hydrocyanic acid under Cyanogen.
- Formophenylcarbin** (FREUND and GOLDMITH), 1888, A., 1187.
- Formophenylhydrazide** (JUSI), 1886, A., 700; (PELLIZZARI), 1886, A., 1025; (RUEHMANN), 1889, T., 242, 248; P., 37.
- Formophenylhydrazide**, *p*-chloro- (HEWITT), 1891, T., 213; P., 3.
- Formopiperidide** (WALLACH and LEHMANN), 1887, A., 385.
- o*-Formotripiperidide (BUNZ and KÉKULÉ), 1888, A., 302.
- β*-Formosazone (LOEW), 1888, A., 359.
- Formose**. See Carbohydrates.
- Formo-*m*-toluidide**, and its derivatives (NIEMENTOWSKI), 1887, A., 935.
- Formo-*p*-toluidide** (BAMBERGER and WULZ), 1891, A., 1202.
- Formo-*o*- and -*p*-toluidides** (TOBIAS), 1883, A., 826; (SENIER), 1885, T., 763, 765.  
 action of trimethylenic chlorobromide on (PINKUS), 1892, A., 1491.  
 thio- (SENIER), 1885, T., 763, 765.
- Formo-*o*-tolylhydrazide** (GATTERMANN, JOHNSON and HÖLZLE), 1892, A., 843.
- Formoxime** and its polymerides (SCHOLL), 1891, A., 683.
- Formoxylidide**, thio- (GUDEMANN), 1888, A., 1282.
- Formyl compounds**, aromatic, derivatives of (COMSTOCK and CLAPP), 1892, A., 707.  
 and thioformyl compounds derived from aniline and homologous bases (SENIER), 1885, T., 762.

- Formylacetic acid**, oxime of (v. PECH-MANN), 1891, A., 1458.
- Formylanthranilic acid** (*formyl-o-aminobenzoic acid*) (v. MEYER and BELLMANN), 1886, A., 358.
- Formylecamphor**. See Camphoraldehyde.
- Formyldeoxybenzoin** (CLAISEN and MEYEROWITZ), 1890, A., 359.
- Formyldiethyl ketone** (CLAISEN and MEYEROWITZ), 1890, A., 357.
- Formylethylecamphor** (CLAISEN), 1891, A., 574.
- Formylhydroxamic acid** (MIOLATI), 1892, A., 699.
- Formylphenacylanthranilic acid** (BAMBERGER), 1888, A., 301.
- Formylpropyl phenyl ketone** (CLAISEN and MEYEROWITZ), 1890, A., 358.
- Forsythia suspensa***, glucoside from (EIJKMAN), 1886, A., 1040.
- Fossil resin** from the coal measures (MACADAM), 1889, A., 353.  
analysis of (BOUSSINGAULT), 1883, A., 941.
- Fouquéite** (LACROIX), 1892, A., 1056.
- Fowl**, tissue-waste in, during starvation (KUCKEIN), 1883, A., 603.
- Fowlerite** from New Jersey (PIRSSON), 1891, A., 530.
- Foyaite** from the Serra de Monchique, analysis of (JANNASCH), 1884, A., 970.
- Fozaita** from S. Vicente, Cape Verde Islands, analysis of (DOELTER), 1883, A., 720.
- Fracticornitannin** (VILLON), 1888, A., 77.
- Fractional distillation**. See Distillation.
- Fractionation**, chemical (CROOKES), 1886, A., 974.
- Francein** from 1,2,4-trichlorobenzene (ISTRATI), 1890, A., 51.  
from 1,3,4,5-tetrachlorobenzene (GEORGESCU and MINCU), 1889, A., 970.
- Franceins** (ISTRATI), 1888, A., 259, 591; 1890, A., 51.
- Frangulin**. See Glucosides.
- Frankincense**, oilbene from (WALLACH), 1889, A., 1072.
- Franklinite**, artificial formation of (GORGUEV), 1887, A., 557.  
analyses of (STONE), 1888, A., 791.  
ores from New Jersey, analyses of (RICKERTS), 1884, A., 27.
- Fraxetin** and **fraxin**, constitutions of (KORNER and BIGNELLI), 1892, A., 628.
- Fraxinus excelsior***, constituents of the leaves of (GINTL and REINITZER), 1883, A., 216.
- Fraxitannic acid**, and its derivatives (GINTL and REINITZER), 1883, A., 216.
- Freezing**, Raoult's law of (HENTSCHEL), 1888, A., 1143; (FABINYI), 1889, A., 565; (EIJKMAN), 1889, A., 566.  
of aqueous solutions of carbon compounds, law of (RAOULT), 1883, A., 7, 952.  
of colloidal solutions (PATERNO), 1890, A., 105; (LJUBAVIN), 1890, A., 685.  
of solvents, general law of (CHABOURS; BERTHELOT; DEBRAY), 1884, A., 254; (RAOULT), 1884, A., 952.  
apparatus (LOMMEL), 1885, A., 5; (CIAMICIAN), 1889, A., 336.  
mixture (BACHMAN), 1888, A., 643  
mixtures containing solid carbonic anhydride (CAILLETER and COLARDEAT), 1888, A., 1025.
- Freezing point**, adhesion at the (WALD), 1891, A., 969.  
determination of, with the platinum thermometer (GRIFFITHS), 1891, A., 251.  
of triple alloys of gold, cadmium and tin (HEYCOCK and NEVILLE), 1891, T., 936.  
of cadmium, bismuth and lead, lowering of the, when alloyed with other metals (HEYCOCK and NEVILLE), 1892, T., 888; P., 145.  
of gold containing aluminium or silver (ROBERTS-AUSTEN), 1891, A., 1161.  
of isomorphous mixtures (KUSIER), 1890, A., 1209; 1892, A., 396.  
of sodium, lowering of, by the addition of other metals (HEYCOCK and NEVILLE), 1889, T., 666; P., 127.  
of solutions, law of (PICKERING), 1889, P., 149; 1890, P., 9.  
See also Cryoscopy.
- Freiberg gneiss** (STELZNER), 1884, A., 829.
- Frenzelite** (*quanaquidite*) (GENTH), 1891, A., 1328.
- Friction**, influence of galvanic polarisation on (WALTZ), 1884, A., 139.  
and galvanic conduction, relations between coefficients of (WIEDEMANN), 1881, A., 139.  
internal, of liquids (GRAEIZ), 1888, A., 776.
- Friction constants**, internal, of organic liquids and their aqueous solutions (TRAUBE), 1886, A., 657.

- Friedel-Crafts' synthesis** (SCHÜPF), 1892, A., 337, 594.
- Friedelite** from Sweden (FLINK), 1892, A., 1405.
- Frigidite** (D'ACHARD), 1883, A., 428.
- Fritillaria Imperialis** (FRAGLER), 1889, A., 284.
- Frog**, common, chemical composition of the egg and its envelopes in (GIACONA), 1884, A., 198.  
 exhalation of carbonic acid by (AUBERT), 1884, A., 91.  
 muscle, excitability of, in salt solutions (TAMMANN), 1892, A., 515.  
 spawn, influence of inorganic salts on the development of (RINGER), 1890, A., 393.
- Frost**, irrigation as preventive of injury from (V. NEERGARD), 1884, A., 357.
- Fructose**. See Carbohydrates.
- Fructosecarboxylic acid** (FISCHER), 1890, A., 599.
- Fruit**, stone, ratio of flesh to stone in (WILHELM), 1884, A., 477.  
 from the Southern States (PARSONS), 1889, A., 434.  
 constituents of (URBAIN), 1884, A., 862.
- Fruit sugar**. See Levulose under Carbohydrates.
- Fruit syrup**, discrimination of beet syrup and (KÖNIG and WESENER), 1889, A., 1089.
- Fruit trees**, nourishment of (TSCHAPLOWITZ), 1886, A., 390.
- Fuchsia ovata**, chlorophyll in (TSCHIRCH), 1887, A., 1117.
- Fuchsine** from Canada (CHESTER), 1887, A., 782.
- Fucose**, an isomeride of rhamnose (GÜNTHER and TOLLENS), 1890, A., 1393.  
 thermochemistry of (STOEMANN and LANGBEIN), 1892, A., 763.
- Fucus**, sugar from (BIELER and TOLLENS), 1890, A., 1105.
- Fucus vesiculosus**, gases contained in the bladders of (WILLE), 1890, A., 916.  
 iodine in (VAN ITALIE), 1890, A., 402.
- Fucosol** (*fucusaldehyde*) (MAQUENNE), 1890, A., 33; (BIELER and TOLLENS), 1890, A., 238, 1105; (OLIVIERI and PERATONER), 1890, A., 1242.
- Fuel**, mineral, composition of (BOUSSINGAULT), 1883, A., 941; 1884, A., 521, 780.  
 consumption of, in blast furnaces (ANON.), 1885, A., 200.
- Fuel**, consumption of, for heating boilers (SCHEFFER-KETNER), 1884, A., 780.  
 to produce electricity (BEARD), 1883, A., 626.  
 estimation of, calorimetric (SCHWAB-HOFER), 1885, A., 691.  
 See also Coal.
- Fulgarite**, from Mt. Thielson, Oregon (DILLER), 1885, A., 493.
- Fulminates** (WARREN), 1888, A., 1047.  
 constitution of (DIVERS and KAWAKITA), 1884, T., 13; (DIVERS), 1884, T., 19; 1885, T., 77; (ARMSTRONG), 1884, T., 25; (DIVERS and SHIMIDZU), 1886, T., 582.  
 conversion of, into hydroxylamine (STEINER), 1883, A., 1074; 1884, A., 277.
- Fulminic acid** and its derivatives (SCHOLVIEN), 1886, A., 137.  
 constitution of (SCHOLL), 1891, A., 282; (HOLLEMAN), 1891, A., 446.  
 copper salt of, attempts to form (DIVERS and KAWAKITA), 1884, T., 30.  
 mercury salt of, preparation of (BECKMANN), 1886, A., 606; (LOBY DE BRUYN), 1886, A., 680.  
 constitution of (HOLLEMAN), 1892, A., 25.  
 decomposition of (DIVERS and KAWAKITA), 1885, T., 72, 76; (EHRENBURG), 1885, A., 38; (SCHOLVIEN), 1885, A., 39.
- oxalic acid** not a product of the decomposition of (DIVERS and KAWAKITA), 1884, T., 18; 1885, T., 77.
- action of benzoic chloride on** (HOLLEMAN), 1891, A., 64.
- action of bromine and of hydrogen sulphide on** (DIVERS), 1884, T., 24, 22.
- action of chlorine on** (DIVERS), 1884, T., 24; (HOLLEMAN), 1892, A., 26.
- action of thiocyanic acid and of ammonium thiocyanate on** (EHRENBURG), 1884, A., 419; 1885, A., 39.
- as a source of hydroxylamine free from ammonia** (DIVERS and KAWAKITA), 1884, T., 13.
- analysis of** (DIVERS and KAWAKITA), 1884, T., 17.
- silver salt of, preparation of** (DIVERS and KAWAKITA), 1884, T., 29.
- Liebig's production of, without the use of nitric acid** (DIVERS and KAWAKITA), 1884, T., 27, 76.

- Fulminic acid**, silver salt of, decomposition of, by hydrochloric acid (DIVERS and KAWAKITA), 1884, T., 75; 1885, T., 69.  
 action of primary alcoholic iodides on (CALMEIN), 1885, A., 133.
- Fulminuramide** (SEIDEL), 1892, A., 1417.
- Fulminurates**, action of hydrochloric acid on (DIVERS and KAWAKITA), 1885, T., 77.
- Fulminuric acid** and its derivatives (EHRENBERG), 1885, A., 1192; (SEIDEL), 1892, A., 690, 1417.  
 chloro-, bromo- and iodo- (EHRENBERG), 1885, A., 1192.
- iso*Fulminuric acid (EHRENBERG), 1885, A., 39.
- β-iso*Fulminuric acid (SCHOLVIEN), 1886, A., 137.
- Fumaric acid** (CURTIUS and KOCH), 1887, A., 34; (ANSCHUTZ), 1891, A., 177.
- Fumaramide** (CURTIUS and KOCH), 1885, A., 885.
- Fumarilic acid** (ANSCHUTZ and WIRTZ), 1887, A., 934; (ANSCHUTZ), 1891, A., 177.
- Fumarilic chloride** (ANSCHUTZ), 1891, A., 176.
- Fumarates**, aromatic, decomposition of, by heat (ANSCHUTZ and WIRTZ), 1885, A., 1064.  
 ethereal, action of sodic alcoholates on (PURDIE), 1885, T., 855.  
 action of *Penicillium glaucum* and *Aspergillus niger* on maleates and (BUCHNER), 1892, A., 820.
- Fumaric acid**, conversion of maleic acid into (SKRAUP), 1890, A., 1397; 1891, A., 1338; (TANATAR), 1892, A., 1305.  
 molecular weight of (PATERNO and NASINI), 1888, A., 1059.  
 preparation of, from succinic chloride (KAUDER), 1885, A., 652.  
 synthesis of (KLEBER), 1890, A., 594.  
 constitution of (ANSCHUTZ), 1887, A., 916; (WISLICENUS), 1888, A., 1058.  
 geometrical formula of, deduced from its products of oxidation (LE BEL), 1888, A., 44.  
 molecular refraction of (KNOP), 1888, A., 938; 1889, A., 198.  
 heat of combustion of (LUGININ), 1888, A., 893.  
 thermochemistry of (GAL and WERNER), 1887, A., 205; (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (STOHMANN and KLEBER), 1892, A., 1041.
- Fumaric acid**, conversion of, into asparagine (KORNER and MENOZZI), 1887, A., 1100.  
 conversion of, into aspartic acid (ENGEL), 1887, A., 917; (KORNER and MENOZZI), 1887, A., 1100.  
 conversion of, into maleic acid (SEMENOFF), 1889, A., 1146; (TANATAR), 1892, A., 1308.  
 isomerism of, with maleic acid (PEFRIEFF), 1884, A., 1301; (ANSCHUTZ), 1887, A., 916; 1888, A., 448; 1890, A., 363; (OSIPOFF), 1889, A., 124.  
 ethereal salts of (OSIPOFF), 1889, A., 237.  
 decomposition of aromatic (ANSCHUTZ and WIRTZ), 1885, T., 899.
- Fumaric acid**, amido-, diamide of (PERKIN), 1888, T., 703.  
 bromo- (v. BANDROWSKI), 1883, A., 313.  
 chloro- [m.p. 191°] (KAUDER), 1885, A., 652; (PERKIN), 1888, T., 697; P., 25.  
 ammonium and potassium salts of (PERKIN), 1888, T., 698.  
 chloro-, action of aniline on (MICHAEL), 1886, A., 698.  
 chloro- [m.p. 178°] and its salts (v. BANDROWSKI), 1883, A., 313.  
 iodo-, and some of its salts (v. BANDROWSKI), 1883, A., 313.  
 sulpho- (HILL and PALMER), 1889, A., 386.
- Fumaric chloride**, magnetic rotatory power of (PERKIN), 1888, T., 575, 593.  
 chloro- (PERKIN), 1888, T., 696.  
 molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
 dianilide (ANSCHUTZ and WIRTZ), 1887, A., 934; (BISCHOFF), 1891, A., 1220.  
 α-dinaphthalide (BISCHOFF), 1891, A., 1220.  
 di-*p*-toluidide (BISCHOFF and NASTVOGEL), 1890, A., 1163.
- Fumarimide**, *mono*- and *di*-chloro- (CIAMICIAN and SILBER), 1884, A., 293.
- Fumarine** (REICHWALD), 1890, A., 272.
- Fungi**, sugars present in (BOURQUELOT), 1889, A., 740; 1891, A., 103; (FERRY), 1891, A., 954.  
 colouring matters of (ZOFF), 1889, A., 919.  
 fluorescence of pigments of (WEISS), 1887, A., 314.

**Fungi**, accumulation and consumption of glycogen by (ERBEKA, 1888, A., 950.  
 formation and physiological significance of oxalic acid in (WEHMER, 1892, A., 230.  
 chemical and toxicological relations of some (BOHM, 1885, A., 1008.  
 See also Agricultural Chemistry and Mushrooms.  
**Fungoid ferment**, activity of (DIAKONOFF, 1886, A., 1060.  
**Fungus**, larch, constituents of (JAHNS), 1884, A., 353.  
 of the lily of the valley, alcoholic fermentation and conversion of alcohol into aldehyde by (LINOSSIER and ROUX), 1890, A., 1179; 1891, A., 854.  
 parasitic (*Phoma Gentianae*) (KILN), 1883, A., 1025.  
**Fungus-symbiosis** of the Leguminosae (FRANK), 1890, A., 1020; 1891, A., 353.  
**Funnel** for collecting carbon in iron analysis (DROWN), 1888, A., 1129.  
 for protecting liquids from dust, during evaporation on the water-bath (MEYER), 1884, A., 552.  
**Funnels**, support for, while drying (MEURER), 1888, A., 192.  
**Furane**. See Furfuran.  
**Furazancarboxylic acid** (SÖDERBAUM), 1891, A., 827; 1154; (WOLFF and GANS), 1891, A., 896.  
**Furazanpropionic acid** and amidoxime and anhydride of (WOLFF), 1891, A., 418.  
**Furfuraldehyde** (*furfural*) (GUYARD), 1884, A., 1304; (SCHIFF), 1887, A., 571; (OLIVERI and PERATTNER), 1890, A., 1242.  
 occurrence of, in pyroligneous acid (GUYARD), 1884, A., 1304.  
 presence of, in commercial alcohols (LINDER), 1890, A., 1400.  
 formation and significance of (NICKEL), 1891, A., 867.  
 formation of, from glyceronic acid derivatives and from albumin (GÜNTHER, DE CHALMOT and TOLLENS), 1892, A., 1433.  
 preparation of, from jute fibre (CROSS and BEVAN), 1889, T., 209.  
 constitution of (PAWLINOFF and WAGNER), 1884, A., 1304.  
 colour bases from (SCHIFF), 1886, A., 612, 1013.  
 colour reactions of (v. UDRÁNSZKY), 1888, A., 863, 878; 1889, A., 449.  
 condensation of, with acetoacetic ether (MATTHEWS), 1883, T., 204.

**Furfuraldehyde** (*furfural*), condensation products of, with bases (DE CHALMOT), 1892, A., 1451, 1452.  
 action of ammonia and, on benzil (JAPP and HOOKER), 1884, T., 684.  
 condensation of, with chloraldehyde (MEHNE), 1888, A., 453.  
 action of 2-methylquinoline on (SRPEK), 1887, A., 976.  
 action of, on animals (GIBBS and REICHERT), 1891, A., 1393.  
 behaviour of, in the animal organism (JAFFÉ and COHN), 1887, A., 1032.  
 metabolism of, in fowls (JAFFÉ and COHN), 1889, A., 239.  
 derivatives of (ODERNHEIMER), 1884, A., 585.  
 oximes of (GOLDSCHMIDT and ZANOLI), 1892, A., 1433.  
 estimation of (GÜNTHER and TOLLENS), 1890, A., 1352; (GÜNTHER, DE CHALMOT and TOLLENS), 1892, A., 383.  
 estimation of, in spirits (ALLEN and CHATTAWAY), 1892, A., 245.  
**Furfuraldehyde**, thio-, Cahours' polymeride of (BAUMANN and FROMM), 1892, A., 301.  
 $\alpha$ - and  $\beta$ -trithio- (BAUMANN and FROMM), 1892, A., 301.  
**Furfuraldehyde group**, action of hydroxylamine on compounds of (ODERNHEIMER), 1884, A., 585.  
**Furfuraldehydediphenylhydrazone** (STAHEL), 1890, A., 1260.  
**Furfuraldehydedithioglycollic acid** (BONGARTZ), 1888, A., 479.  
**Furfuraldoxime**, and its hydrochloride (ODERNHEIMER), 1884, A., 585.  
 two stereochemically isomeric derivatives of (WERNER), 1890, A., 1266.  
**Furfur-anti- and -syn-aldoximes** (GOLDSCHMIDT and ZANOLI), 1892, A., 1434, 1433.  
**Furfursynaldoxime**, compound of, with phenylic cyanate (GOLDSCHMIDT and ZANOLI), 1892, A., 1434.  
**Furfuramidine hydrochloride** (PINNER), 1892, A., 1006.  
**Furfuran** (*furane*), formation of (PRZYBYTEK), 1886, A., 449.  
 formation of, from acetophenone acetone (ERLENMEYER), 1885, A., 753.  
 constitution of (CANZONERI and OLIVERI), 1887, A., 470.  
 transformation of, into pyrrole (CANZONERI and OLIVERI), 1887, A., 470.

- Furfuran derivatives** (HILL and HARTSHORN), 1885, A., 762; (NUTH), 1887, A., 803; (MARCKWALD), 1888, A., 135, 677; (PINNER), 1892, A., 1006.  
 of the naphthalene series (HANTZSCH), 1886, A., 707.  
 of the phenanthrene series (HANTZSCH and PFEIFFER), 1886, A., 716.  
 synthesis of, from ethylic diacetyl-succinate (KNORR), 1885, A., 247.  
 from phloroglucinol (LANG), 1887, A., 262.  
 from resorcinol (HANTZSCH), 1887, A., 262.  
 action of phosphoric sulphide on (HANTZSCH), 1886, A., 1014.  
 relation between, and sugars (MAQUENNE), 1890, A., 33.  
**Furfuran,  $\beta$ -bromo-** (CANZONERI and OLIVERI), 1887, A., 658.  
*di-* and *tetra*-bromo- (HILL), 1888, A., 912.  
*di*-bromo-, *tetra*-bromide of (HILL), 1888, A., 912.  
*trichlorobromo-* (HILL and JACKSON), 1890, A., 601.  
 nitro-derivatives of (PRIEBE), 1885, A., 971.  
**Furfuran-group** (OLIVERI and PERATONER), 1890, A., 1242.  
**Furfurancarboximidoethyl ether** (PINNER), 1892, A., 1006.  
**Furfuran- $\alpha$ -carboxylic acid.** See Pyromucic acid.  
**"Furfuraniline"** (DE CHALMOT), 1892, A., 1452.  
**Furfuran- $\beta$ -sulphonic acid, *aa-di*-bromo-** (HILL and PALMER), 1889, A., 386.  
**Furfurine**, reduction of (GROSSMANN), 1889, A., 1192.  
 derivatives of (BAHRMANN), 1889, A., 799.  
**Furfural.** See Furfuraldehyde.  
**Furfuronitrile** (DOUGLAS), 1892, A., 831; (PINNER), 1892, A., 1006.  
**Furfuropicramic acid**, ammonium salt of (SCHIFF), 1886, A., 612.  
**Furfuryl grouping**, reciprocal transformation of, into the pyttrole and thiophen groupings (CANZONERI and OLIVERI), 1885, A., 1144.  
**Furfurylacetaldehyde**, chloro-, and its derivatives (MEHNE), 1888, A., 453.  
**Furfurylacrylamide** (GIBSON and KAHNWEILER), 1890, A., 960.  
**Furfurylacrylylglycoccine** (JAFFÉ and COHN), 1887, A., 1033.  
**Furfurylacrylic acid** (HILL), 1888, A., 256.  
**Furfurylacrylic acid**, derivatives of (GIBSON and KAHNWEILER), 1890, A., 959.  
 ethereal salts of, preparation of (CLAISEN), 1891, A., 427.  
**Furfurylacrylic acid**, bromo- (GIBSON and KAHNWEILER), 1890, A., 960.  
 $\gamma$ -chloro- (MEHNE), 1888, A., 453.  
**Furfuryl-bromacrylic and -*di*-bromopropionic acids**, bromo- (GIBSON and KAHNWEILER), 1890, A., 960.  
**Furfurylbromethylene**, bromo- (GIBSON and KAHNWEILER), 1890, A., 960.  
**Furfurylbutylene**, action of nitrous acid on (TÖNNIES and STAUB), 1884, A., 1129.  
**Furfurylbutylenic oxide** (TÖNNIES and STAUB), 1884, A., 1129.  
**Furfurylcarbiny-allyl- and -amylthiocarbamides** (DEUTZMANN), 1892, A., 43.  
**Furfurylcarbinyllamine** and its salts (TAFEL), 1887, A., 470; (GOLD-SCHMIDT), 1887, A., 568; (DEUTZMANN), 1892, A., 43.  
 action of methylic iodide on (ZENONT), 1891, A., 294.  
 nitro- (DEUTZMANN), 1892, A., 43.  
**Furfurylcarbiny-carbamide and -thiocarbamide** (DEUTZMANN), 1892, A., 43.  
**Furfurylcarbinyldiphenylguanidine** (DEUTZMANN), 1892, A., 43.  
**Furfurylcarbinylethyl-carbamide and -thiocarbamide** (DEUTZMANN), 1892, A., 43.  
**Furfurylcarbinylguanidine salts** (DEUTZMANN), 1892, A., 43.  
**Furfurylcarbinylmaleonic acid** (MARCKWALD), 1888, A., 679.  
**Furfurylcarbinylmethylthiocarbamide** (DEUTZMANN), 1892, A., 43.  
**Furfurylcarbinyltrimethylammonium iodide** (DEUTZMANN), 1892, A., 43.  
 **$\alpha$ -Furfurylcinchonic acid** (DOEBNER), 1888, A., 299.  
**Furfuryldiphenylhydrazoin** (CORNELIUS and HOMOLKA), 1886, A., 1026.  
**Furfuryl-ethylpiperidine and -vinylpyridine** (MERCK), 1888, A., 1314, 1315.  
**2-Furfuryl-6-hydroxy-5-benzyl-4-methyl- and 2-furfuryl-6-hydroxy-4-phenyl-*m*-diazines** (PINNER), 1892, A., 1007.  
**2-Furfuryl-6-hydroxy-*m*-diazine-4-carboxylic acid** (PINNER), 1892, A., 1007.  
**2-Furfuryl-6-hydroxy-4:5-dimethyl-*m*-diazine** (PINNER), 1892, A., 1007.

- 2-Furfurylhydroxyethylpyridine (*piculifurphyllin*) (KLEIN), 1890, A., 1437.
- 2-Furfuryl-6-hydroxy-4 methyl-*m*-diazine (PINNEL), 1892, A., 1006.
- Furfurylmethylenebenzylideneacetone (LALIN and PONDER), 1884, A., 1167.
- Furfurylmethylenelevulinic acid (LUDWIG and KEHRER), 1891, A., 1456; (ERDMANN), 1892, A., 117.
- Furfurylmethylenemalonie acid, and its amide (MARCKWALD), 1888, A., 678.
- $\beta$ -Furfurylmethylenenaphthylamine (SCHIFF), 1886, A., 612.
- Furfurylmethylenepinylamine (WALLACH and LORENZ), 1892, A., 997.
- Furfurylpentic acid,  $\gamma$ -chloro- (MEHNE), 1888, A., 453.
- Furfurylphenyldihydro- $\beta$ -naphthatriazine (GOLD-SCHMIDT and POLTZER), 1891, A., 841.
- $\gamma$ -Furfuryl- $\beta$ -phenylpropylamine (FREUND and IMMERWAHR), 1890, A., 1407.
- $\gamma$ -Furfuryl- $\beta$ -phenyl-propylcarbamide and -propylic alcohol (FREUND and IMMERWAHR), 1890, A., 1407, 1408.
- Furfurylisophthalic acid (DOEBNER), 1891, A., 1065.
- Furfurylpropionamide (MARCKWALD), 1888, A., 136.
- $\alpha$ -Furfurylquinoline (DOEBNER), 1888, A., 300.
- Furil, action of potassium cyanide on (JOURDAN), 1883, A., 805.
- Furiloximes,  $\alpha$ - and  $\beta$ - (MACNAIR), 1890, A., 1245.
- Furilphenyl-hydrazone and -osazone (MACNAIR), 1890, A., 1245.
- Furnace, combustion- (FUCHS), 1892, A., 1514.  
a modified Glaser's (ANSCHUTZ and KEKULÉ), 1885, A., 1035.  
electrical (E. H. and A. H. COWLES and MABERY), 1886, A., 401.  
Cowles' electrical, products from (MABERY), 1887, A., 551.  
smelting (ANON.), 1885, A., 1272.  
"sulphate" (LARKIN), 1885, A., 1268.
- Furnace gases, obtaining sulphur from (HANSEN and SCHROEDER), 1886, A., 288.  
absorption and utilisation of sulphurous anhydride contained in (ANON.), 1883, A., 248.
- Furoin-oxime and -phenylhydrazine (MACNAIR), 1890, A., 1245.
- Furze (*Ulex europæus*), composition of (TLOSKET), 1885, A., 684.
- Fusain, analysis of (BOUSSINGAULT), 1883, A., 941.
- Fusel oil, American (LONG and LINDBERGH), 1890, A., 859.  
removal of, from spirit (JUNG, MEYER and SCHULZ), 1885, A., 708.  
detection of, in spirituous liquors (ROSE), 1885, A., 600.  
estimation of, in beer (HAMLEI), 1888, A., 1263.  
estimation of, in spirits (TRAUB), 1886, A., 743; 1888, A., 91; 1889, A., 654; 1892, A., 543; (UFFELMANN), 1886, A., 1079; (EKMAN), 1889, A., 190; (STIGER and REHMAIR), 1891, A., 622; (SCALA), 1891, A., 1550; (ALLEN and CHAFFWAY), 1892, A., 211.  
Otto's method for the estimation of, in brandy (KRACH), 1888, A., 123.
- Fusibility, relation of, to solubility (CARNELL and THOMSON), 1888, T., 783; P., 80.
- Fusion (ROOZBOOM), 1888, A., 1150.  
point of, and point of transition (VAN DER HOFF), 1888, A., 404.
- Fusion salt, a simple (HOLTHOF), 1885, A., 687.
- Fustet wood, colouring matter of (SCHMID), 1886, A., 894.
- "Fustin" and tannide of (SCHMID), 1886, A., 894.

## G.

- Ga, G $\beta$ , etc., evidence as to nature of (CROOKES), 1887, A., 1069.
- Gadenum (PRINGLE), 1887, A., 107.
- Gadolinite (EAKIN), 1886, A., 779; (RAMMELSBERG), 1889, A., 219; (PETERSON), 1891, A., 1168; 1892, A., 1410; (BLUMSTRAND), 1892, A., 1410.  
from Hitter (RAMMELSBERG), 1888, A., 112.  
from Texas (GENIE; HIDDEN and MACKINOSH), 1890, A., 457.  
from Ytterby (ATTE VON WELSBACH), 1884, A., 717; (RAMMELSBERG), 1888, A., 112.  
new elements in samarskite and (CROOKES), 1887, A., 334.
- Gadolinium, the Y $\alpha$  of Murignac (LECOQ DE BOISBAUDRAN), 1886, A., 667; 1889, A., 455; 1891, A., 17.  
chloride, spark spectrum of (LECOQ DE BOISBAUDRAN), 1891, A., 2.

- Gadolinium**, oxide, equivalent of (V. NORDENSKIÖLD), 1887, A., 109.
- Gadolinium earths** (BRATNER), 1888, T., 288; (BEFFENDORFF), 1892, A., 1400.
- separation of (KRÜSS), 1891, A., 1426.
- Gaduin** (GAUTIER and MOURGUES), 1889, A., 170.
- Gaduinic acid** (GAUTIER and MOURGUES), 1888, A., 1315.
- Gahnite** (GENTH), 1884, A., 268.
- from Delaware Co., Pennsylvania (GENTH), 1891, A., 1168.
- from Rowe, Massachusetts (DANA), 1886, A., 23.
- Galactan**. See Carbohydrates.
- Galactangeddide acid** (O'SULLIVAN), 1891, T., 1057.
- Galacto- $\gamma$ -diamidobenzoic acid** (GRIESS and HARROW), 1888, A., 268.
- Galacto-arabane** (SCHULZ), 1891, A., 1179.
- Galactonic acid** (KILIANI), 1885, A., 967.
- polarisation phenomena of (SCHNELLE and TOLLENS), 1892, A., 1432.
- rotatory power of (WELD, LINDSEY, SCHNELLE and TOLLENS), 1891, A., 43.
- phenylhydrazide (FISCHER and PASSMORE), 1890, A., 154.
- Galactonic acids**, *i*- and *l*- (FISCHER and HERTZ), 1892, A., 825, 826.
- Galactonolactone** (FISCHER), 1890, A., 598.
- polarisation phenomena of (SCHNELLE and TOLLENS), 1892, A., 1432.
- Galacto-*o*-phenylenediamine** (GRIESS and HARROW), 1888, A., 268.
- Galactose**. See Carbohydrates.
- Galactose-anilide** (SOROKIN), 1886, A., 683; 1888, A., 808.
- Galactosecarboxylic acid** (MAQUENNE), 1888, A., 580; (KILIANI), 1888, A., 581.
- oxidation of (KILIANI), 1889, A., 589.
- lactone (FISCHER), 1890, A., 599.
- Galactosedi-phenylhydrazone** (STAHEL), 1890, A., 1260.
- Galactoseoxime** (RINCHBIETH), 1888, A., 40; (JACOBI), 1891, A., 665.
- Galactosephenylhydrazine** (FISCHER), 1887, A., 567.
- Galactosone** (FISCHER), 1889, A., 484.
- Galaseptose** (FISCHER), 1890, A., 599.
- Galga officinalis** (MUNRO), 1886, A., 829.
- Galena** with octahedral cleavage (BRUN), 1883, A., 428; (SÖGREN), 1886, A., 21.
- separation of lead, silver and zinc in (AUBIN), 1892, A., 1378.
- See also Lead sulphide.
- Galenobismuthite** containing selenium from Falun (WEIBULL), 1887, A., 343.
- Galic acid** (BOTTINGER), 1891, A., 713.
- Galipeine**, and its salts (KORNER and BOHRINGER), 1884, A., 341.
- Galipidine** and **galipine** (BECKURTS and NEHRING), 1892, A., 642.
- Gall bladder**, secretion of the (BIRCH and SPONG), 1888, A., 307.
- Gallamide** (SCHIFF), 1883, A., 335.
- and its derivatives (SCHIFF and PONS), 1885, A., 796.
- Gallanilide** (SCHIFF), 1883, A., 335.
- Gallein** as an indicator (DECHAN), 1885, A., 1012.
- preparation of (GURKE), 1885, A., 850.
- acetyl-derivatives of (HERZIG), 1892, A., 1319.
- tetrachloro-** (GRAEBE), 1887, A., 833.
- Gallic acid** (*pyrogallolcarboxylic acid*; 3:4:5-*trihydroxybenzoic acid*) (BOTTINGER), 1891, A., 70.
- and tannin (BOTTINGER), 1888, A., 1090.
- molecular weight of (SABANÉEFF), 1891, A., 145.
- heat of solution of (BERTHELOT), 1885, A., 1178.
- thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.
- condensation of cinnamic acid with (JACOBSEN and JULIUS), 1888, A., 56.
- action of formaldehyde on (KLEBERG), 1891, A., 1199.
- fusion of, with soda (BARTH and SCHREDER), 1883, A., 59.
- acetylation of (BOTTINGER), 1884, A., 1178.
- oxidation of (BOTTINGER), 1890, A., 1130; 1891, A., 713.
- conversion of, into benzoic acid (GUIGNET), 1891, A., 1481.
- conversion of, into pyrogallol (CAZENEUVE), 1892, A., 1314.
- derivatives of (SCHIFFER), 1892, A., 715.
- amide of (SCHIFF and PONS), 1885, A., 796.
- phenylhydrazide of (FISCHER and PASSMORE), 1890, A., 155.
- physiological action of (MÖRNER), 1892, A., 904.

- Gallic acid** (*pyrogallol-carboxylic acid*; 3:4:5-trihydroxybenzoic acid), reaction of (BOILINGER), 1890, A., 1275.  
 tests for (YOUNG), 1884, A., 119;  
 (RAWSON), 1889, A., 447.  
 estimation of, in barks (HINDALE), 1892, A., 390.  
 estimation of, in urine (MORSEL), 1892, A., 924.
- isoGallic acid** phenylhydrazide (DUTTINGER), 1891, A., 202.
- Gallisin**, the unferrimentable part of commercial glucose, and its derivatives (SCHMIDT and COHEN), 1884, A., 981.  
 preparation and properties of (SCHEIBLER and MITTELMEIER), 1891, A., 536.  
 conversion of, into grape-sugar (SCHMIDT and COHEN), 1884, A., 982.  
 estimation of, in commercial glucose (SCHMIDT and ROSENHEIM), 1885, A., 134.
- Gallium** (LECOQ DE BOISBAUDRAN), 1887, A., 1081.  
 molecular weight of (RAMSAY), 1889, T., 531, 533.  
 spectrum of (LECOQ DE BOISBAUDRAN), 1892, A., 930.  
 chromiferous, red fluorescence of (LECOQ DE BOISBAUDRAN), 1887, A., 755.  
 fluorescence of, spectra of (LECOQ DE BOISBAUDRAN), 1888, A., 97.  
 as a halogen carrier (WILLGERODT), 1887, A., 326.
- Gallium dichloride**, vapour density of (NILSON and PETERSON), 1888, T., 825.  
*trichloride*, vapour density of (NILSON and PETERSON), 1888, T., 823; (FRIEDEL and CRAFTS), 1888, A., 1250.  
 oxide, fluorescence of (LECOQ DE BOISBAUDRAN), 1887, A., 409.  
 action of magnesium on (WINKLER), 1890, A., 694.
- Gallium**, separation of (LECOQ DE BOISBAUDRAN), 1888, A., 21, 153, 156, 293, 715, 1054; 1884, A., 17, 158.  
 separation of, from boric acid (LECOQ DE BOISBAUDRAN), 1884, A., 822.
- Gallnuts**, Austrian, tannin in (COUNCLER), 1885, A., 947.
- Gallocyanin** and its derivatives (NIETZKI and OTTO), 1888, A., 949.
- Gallocyanins** (PARSE), 1883, A., 70; (KOEHLIN), 1883, A., 796.
- Galloflavin** and its derivatives (BOHN and GRABBE), 1887, A., 1107.
- Gallotannic acid**, estimation of, in barks (HINDALE), 1892, A., 390.
- Galvanic**. See Electrochemistry.
- Galvanometer**, mercury LIPPMAN'S, 1884, A., 551; (CALPNER), 1884, A., 949.  
 for the determination of the magnetic rotatory polarisation of compounds (PERKIN), 1884, T., 431.
- Gambier**, analysis of (PROUTIER), 1892, A., 928.
- Gamoose**, milk of the (PAPPEL and RICHMOND), 1890, T., 754; P., 114.
- Gamsigradite** (LACROIX), 1887, A., 351.
- Gannister** from Sheffield, analyses of (SEAD), 1884, A., 518.
- Ganomalite**, and analysis of (SIGNEN), 1884, A., 972.
- Ganophyllite** from Harstigen mine, Sweden (HAMBERG), 1892, A., 1412.
- Garcinia Mangostana**, rind of (LIECHT), 1892, A., 205.
- Garnet** (NIKOLAEFF), 1886, A., 601.  
*(var. spessartite)* from Amelia Co., Virginia (BRADLEY), 1885, A., 227.  
 in the amphibole schists of the Tyrol, alterations of (CATHREIN), 1886, A., 29.  
 from Canada (KUNZ), 1884, A., 828; (HARRINGTON), 1891, A., 647.  
 from Csiklova (LOZKA), 1886, A., 513.  
 in the trachytes of Hungary (SZABO DE ST. MIKLOS), 1883, A., 66.  
 from Kedabek in Caucasus (MULLER), 1891, A., 1169.  
 in rhyolite (CROSS), 1886, A., 991.  
 from the South African diamond fields (COHEN), 1890, A., 1076.  
 strata containing, from the Ural Mts. (KARPINSKY), 1888, A., 115.  
 chromium (SCHUBERT), 1883, A., 35.  
 white. See Leucite.  
 artificial production of (DOELTER and HUSSAK; BOURGEON), 1884, A., 565.  
 decomposition-products of (DOELTER and HUSSAK), 1884, A., 565.  
 pseudomorphs of (PENFIELD and SPERRY), 1887, A., 117.
- Garnet group**, minerals of the (BROGGER and BACKSTROM), 1891, A., 24.
- Garnet rock** (SCHUBERT), 1883, A., 35.
- Garnet rocks** of the Bastogne region (REYARD), 1883, A., 958.
- Garnierite** from Norway (MUNSTER), 1892, A., 1409.

**Gas evolved during the solution of iron** in acids (BACKSTROM and PALM-KULLI), 1888, A., 420.  
**movement of, in "vacuum discharges"** (SPOLISHWOODE and MOULTON), 1883, A., 5.  
**heating by** (MEYER), 1889, A., 751.  
**coal-**. See Coal-gas.  
**compressed, products from the residue of** (COLSON), 1887, A., 787.  
**pyrogenic hydrocarbons in** (BROCHET), 1892, A., 797.  
**terpene in the oil from** (EFARD and LAMBERT), 1891, A., 1085.  
**pressure of** (MARGULES), 1891, A., 520.  
**generator-, composition of** (FISCHER), 1887, A., 1078.  
**illuminating-, preparation of, use of limed coal in** (WANKLYN), 1884, A., 223.  
**physiological action of the products of incomplete combustion of** (GRÉHANT), 1888, A., 517.  
**and gas-engines** (FISCHER), 1884, A., 508.  
**examination of** (V. THAN), 1883, A., 629.  
**detection of sulphur not combined with hydrogen in** (LOSVAY), 1891, A., 862.  
 See also Coal-gas.  
**natural** (ANON.), 1885, A., 1020.  
**of Pennsylvania** (SORGE), 1888, A., 30.  
**petroleum, compressed, liquid hydrocarbons from** (WILLIAMS), 1884, A., 879.  
**action of sulphuric and hydrochloric acids on** (JONATSCHESKI-PETRUNIAKA), 1889, A., 187.  
**water-** (NAUMANN and PISTON), 1885, A., 1036.  
**composition of** (FISCHER), 1887, A., 1078.  
**explosion of** (V. OETTINGEN and V. GERNET), 1888, A., 549.  
**reactions occurring in the preparation of** (LANG), 1888, A., 1029.  
**action of, on iron** (ROSCOE and SCUDDER), 1891, P., 126.  
**water-generator and carbonic anhydride-generator, reconversion of heat into chemical energy by production of** (NAUMANN), 1892, A., 673.  
**Gas-absorption, capillary** (BUNSEN), 1885, A., 867.  
**Gas-analyses** (FISCHER), 1886, A., 107; (DREHSCHMIDT), 1889, A., 185.  
**calculation of** (MEYER), 1884, T., 601.

**Gas-analysis, technical** (WINKLER), 1889, A., 924.  
**source of error in** (HEMPER), 1887, A., 1062.  
**apparatus for** (JEPPER), 1883, A., 378; (LADENBURG), 1883, A., 1048; (BRENNEMAN), 1884, A., 213; (ELLIOT), 1884, A., 214; (LUX), 1886, A., 412; (KEISER), 1886, A., 647; (PETERSSON), 1887, A., 179; (MACKINTOSH), 1887, A., 1137; (WILLARD), 1888, A., 750; (ADENEY), 1891, A., 240.  
**for collecting and analysing gases dissolved in water** (THORNER), 1885, A., 691.  
**clamps for** (LUNGE), 1892, A., 524.  
**removal of exhausted solutions from** (HERTZOG), 1890, A., 557.  
**by Bunsen's method, kaolin balls for** (BUNGE), 1889, A., 544.  
**by combustion** (EHRENBERG), 1885, A., 1261.  
**under greatly diminished pressure** (MEYER and SEIBERT), 1884, T., 581.  
**use of aniline as an absorbent of cyanogen in** (LOEB), 1888, T., 812; P., 87.  
**Gas-balance** (LUX), 1890, A., 823.  
**Gas-battery**. See Cell under Electrochemistry.  
**Gas-burette** (FRANKE), 1887, A., 687; (HEMPER), 1887, A., 1062.  
**Gas-burners** (GRÖGER), 1890, A., 106.  
**Gas-carbon, behaviour of, in chromic acid** (FROMME), 1883, A., 699.  
**Gas-engines, illuminating gas and** (FISCHER), 1884, A., 508.  
**Gaseous exchanges in plants, blood pigment as a gauge of** (ENGELMANN), 1889, A., 182.  
**explosions, spectroscopic studies on** (LIVING and DEWAR), 1885, A., 465.  
**imperfect combustion in** (DIXON and SMITH), 1889, A., 337.  
**mixtures, slow combustion of** (ASKENASY and MEYER), 1892, A., 938.  
**explosive** (BERTHELOT and VIEILLE), 1884, A., 709.  
**combustion of** (MALLARD and LE CHATELIER), 1883, A., 844; 1884, A., 549; (WITZ), 1884, A., 1247.  
**relative rapidity of combustion of** (BERTHELOT and VIEILLE), 1884, A., 804.

**Gaseous** mixtures, explosive, some relations between temperatures of combustion, specific heats, dissociation and pressure of (BERTHELOT), 1883, A., 771.  
 influence of the density of, on the pressures which they develop (BERTHELOT and VIELLE), 1884, A., 805.  
 explosiveness of, under diminished pressure (MEYER and SEIBERT), 1884, T., 583.  
 homogeneous, explosion of (CLERK), 1886, A., 761.  
 influence of temperature on the limits of the explosion of (V. ROSZKOWSKI), 1891, A., 975.  
 systems, homogeneous, influence of molecular configuity on the chemical equilibrium of (SARRAU and VIELLE), 1888, A., 339.  
 and liquid states of matter, representation of the connection between, by isopycnics (V. WROBLEWSKI), 1887, A., 432.  
**Gases** from petroleum (ARMSTRONG and MILLER), 1885, P., 77; 1886, T., 74.  
 Hue-, from vitriol chambers, determination of total acidity of (YOUNGER), 1888, A., 193.  
 evolution of, from homogeneous liquids (VELEY), 1889, A., 94.  
 evolution of, from liquids, automatic apparatus for (THIELE), 1890, A., 6.  
 evolved in the fermentation of mannitol and dulcitol (FRANKLAND and FREW), 1892, T., 259.  
 dissolved in water, extraction of (HOPPE-SEYLER), 1892, A., 1526.  
 in plants, variation of (PEYROT), 1886, A., 273; 1889, A., 641.  
 evolved during the conversion of grass into hay (FRANKLAND and JORDAN), 1883, T., 294.  
 exchange of, between lichens and the atmosphere (BONNIER and MANGIN), 1885, A., 580.  
 evolution of, by plants, influence of acids on (MANGIN), 1890, A., 190.  
 contained in the bladders of *Fucus vesiculosus* and *Cochellia nolosca* (WILLE), 1890, A., 916.  
 evolved in the putrefaction of serum albumin (NENCKI and STEBER), 1890, A., 78.  
 in vegetable tissues, nature of (BOHM), 1884, A., 670.  
 inflammable, in the animal organism (TACKE), 1884, A., 1395.

**Gases** in the swimming bladder of fishes (TRAUBE-MENGARINI), 1890, A., 153.  
 of the alimentary canal of Herbivora (TAPPINER), 1884, A., 852.  
 of parotid saliva (KVLZ), 1887, A., 287.  
 of peptone blood (BLACHSTEIN), 1892, A., 363.  
 relation between solids, liquids and (SPRING), 1884, A., 256.  
 osmotic pressure in the analogy between solutions and (VAN T HOFF), 1888, A., 775.  
 kinetic theory of, and osmotic pressure (BOLZMANN), 1891, A., 389, 638.  
 simple and rapid preparation of (BOHNHAGEN), 1890, A., 849; 1891, A., 11.  
 apparatus for preparing (V. KROTKOFF), 1883, A., 1244; (BURGMAYER), 1890, A., 556.  
 apparatus for the constant production of (TISANDIER), 1885, A., 722.  
 composition of, lecture experiments on (HAWKING), 1889, A., 336; (ALEXANDER), 1889, A., 567.  
 composition of, produced in the combustion of pyrites (SCHEUREN-KESTNER), 1885, A., 199, 706; (LUNGE), 1891, A., 496.  
 constitution of (BRUHL), 1891, A., 629.  
 refraction of (BRUHL), 1891, A., 629.  
 refractive indices of (DALE), 1890, A., 201.  
 non-luminosity of, at high temperatures (HITTOFF), 1883, A., 697.  
 spectra of, at low temperatures (SUNDELL), 1887, A., 1066; (KOCH), 1890, A., 313.  
 electric luminosity of, and heat of dissociation of the water molecule (WIEDEMANN), 1883, A., 547.  
 electrical conductivity of (SIENGER), 1888, A., 1028; (LEVINE), 1887, A., 4; (BUCHANAN), 1887, A., 1071.  
 electrical resistance of, influence of a magnetic field on (WITZ), 1890, A., 1359.  
 dielectric constants of vapours and (KLEMENCIC), 1885, A., 1030.  
 molecular heats of (LE CHATELIER), 1888, A., 213, 772.  
 heat of combination of, direct estimation of (RAVAT), 1883, A., 274.  
 heat of solution of (PAGLIANI), 1890, A., 846; (PICKERING), 1892, A., 1042.

**Gases**, specific heats of, at high temperatures (VIEILLE), 1883, A., 771, 898; (BERTHELOT), 1884, A., 804; (BERTHELOT and VIEILLE), 1885, A., 7.  
 specific heats of, at constant volume (JOLY), 1889, A., 459.  
 relation of the conductive capacity of, to temperature (WINKELMANN), 1887, A., 5.  
 determination of the densities of (LUX), 1886, A., 412; (COOK), 1890, A., 321; (MOISSAN and GAUTIER), 1892, A., 1267.  
 density of, determination of the absolute (JOLY), 1891, A., 379.  
 compressibility of solutions of (LAMBERR), 1888, A., 20.  
 compressibility of (JAMIN), 1884, A., 5; (AMAGAT), 1884, A., 145; 1889, A., 8; 1891, A., 378; (ANDREWS), 1889, A., 95.  
 condensation of, on the surface of glass (BOUOMLEY), 1885, A., 477.  
 critical point of (ANSDALL), 1883, A., 277; (JAMIN), 1883, A., 898.  
 diffusion of vapours and (WINKELMANN), 1885, A., 10.  
 diffusion of, lecture experiment on (BILTZ), 1892, A., 562.  
 diffusion of, through a porous septum (HANSEMAN), 1884, A., 1251.  
 effusion of (TIMOFFEFF), 1891, A., 351; (FREER), 1892, A., 1150.  
 expansion of elementary (CHAPPE), 1884, A., 889.  
 coefficient of expansion of, demonstration of the, as a lecture experiment (SCHIFF), 1887, A., 1013.  
 phenomena which accompany the evaporation of permanent, in a vacuum (v. WROBLEWSKI), 1885, A., 861.  
 behaviour of mixed, at high pressures (ANDREWS), 1889, A., 96.  
 liquefaction of (JAMIN), 1884, A., 5; (ANDREWS), 1889, A., 97.  
 liquefaction of, electrolytic method of (WARREN), 1889, A., 7.  
 liquefied, indices of refraction of (BLEEKRODE), 1885, A., 467; (DECHANT), 1885, A., 621.  
 measurement of the latent heat of vaporisation of (CHAPPE), 1887, A., 627; 1888, A., 773; (MATHIAS), 1888, A., 773.  
 determination of the density of, and of their saturated vapours (AMAGAT), 1892, A., 934, 1043.  
 solubility of (WUKOLOFF), 1889, A., 670.

**Gases**, solubility of, in water (WINKLER), 1891, A., 384; 1892, A., 271; (BOHR and BOCK), 1892, A., 107.  
 viscosity of, at high temperatures (BARON), 1888, A., 1014.  
 volume change of, on mixture (BRAUN), 1888, A., 1015.  
 volumes of, apparatus for correcting (HARCOURT), 1883, A., 378; (KREUSLER), 1884, A., 775; (WINKLER), 1886, A., 96; (LUNGE), 1890, A., 660; 1891, P., 168, 171.  
 volumes of, apparatus for the correct reading of, over water (MORE), 1885, A., 1010.  
 weight of, determination of, from their volume (JAPP), 1891, T., 894; 1891, P., 68; (LUNGE), 1891, A., 1135.  
 relation of, to the laws of Mariotte and Gay Lussac (PUSCHL), 1888, A., 16.  
 relation of, to Mariotte's law at high temperatures (PUSCHL), 1888, A., 547.  
 behaviour of, in relation to Boyle's law at low pressures (FUCHS), 1889, A., 98.  
 slow combustion of mixed (KRATCHE and MEYER), 1891, A., 1153.  
 impermeability of glass to (BARTOLI), 1885, A., 869.  
 preservation of, over mercury (DIXON), 1887, A., 105.  
 influence of the chemical nature and pressure of, on the generation of electricity by an induction machine (HEMPFEL), 1884, A., 701; 1885, A., 1098.  
 furnace, obtaining sulphur from (HANUSCH and SCHROEDER), 1886, A., 288.  
 absorption and utilisation of sulphurous anhydride contained in (ANON.), 1883, A., 248.  
 absorbing and washing, bottle for (KUHNLENZ), 1890, A., 288.  
 absorption of, by carbon (BAKER), 1887, T., 249; P., 7.  
 absorbed, effect of, on the electrical conductivity of carbon (PROBERT and SOWARD), 1883, A., 769.  
 absorption of, by grey vulcanised caoutchouc (HUFNER), 1888, A., 783.  
 absorption coefficients of (HENRICH), 1892, A., 1043.  
 absorption of, by liquids (WINKLER), 1892, A., 556.  
 absorption of, by liquids under high pressure (v. WROBLEWSKI), 1883, A., 418.

**Gases**, alteration in the volume and density of liquids, produced by the absorption of (ÅNGSTRÖM), 1888, A., 401.  
 absorption of, by mixtures of alcohol and water (LEBARSCH), 1890, A., 103.  
 absorption of, by petroleum (GNIEWOZ and WALFISZ), 1888, A., 342.  
 absorptive power of water for (PETERSSON and SONDÉN), 1889, A., 935.  
 occluded by coke (STORER and LEWIS), 1884, A., 377.  
 occluded by electrolytic copper (SOKER), 1889, A., 946.  
 occluded, effect of, on the thermoelectric properties of compounds (MONCKMAN), 1889, A., 92.  
 rate of the chemical absorption of (HOOD), 1885, A., 341.  
 condition of chemical change in (DIXON), 1885, A., 479.  
 combustible, nature of the vibratory movements which accompany the propagation of flame in mixtures of (MALLARD and LE CHATELIER), 1883, A., 148.  
 action of the electric arc on, and its employment for demonstrations (LEPSITS), 1890, A., 1047.  
 electrification of, by a glowing platinum wire (NAHRWOLD), 1888, A., 1231.  
 passage of electricity through (SCHUSTER), 1888, A., 396; (NARR), 1888, A., 397; (NAHRWOLD), 1888, A., 769; (THOMSON), 1890, A., 1037.  
 electric discharge in rarefied (GOLDSTEIN), 1883, A., 266.  
 electricity developed in the disengagement of (HANKEL), 1885, A., 2.  
 dissociating, laws of (SWART), 1891, A., 780.  
 dissociation of, by the silent discharge (v. HOFMANN), 1891, A., 143.  
 dessication of (VAN DER PLAATS), 1888, A., 409.  
 moisture remaining in, after drying by phosphoric anhydride (MORLEY), 1888, A., 192.  
 quantity of moisture remaining in after drying by sulphuric acid (MORLEY), 1886, A., 278.  
 dried, combustion in (BAKER), 1885, T., 349.  
 action of, on the development of micro-organisms (FRANKLAND), 1889, A., 738.  
 behaviour of vegetable tissues, starch, and charcoal towards (BÜHM), 1884, A., 1250.

**Gases**, respiratory exchange of (MARQUET), 1891, A., 1270.  
 influence of some organic and inorganic substances on gas-metabolism (CHITTENDEN and CUMMINS), 1888, A., 77.  
 combination of (THOMSON), 1885, A., 341.  
 hydrates of (DE FORCRAND and VIL-LARD), 1888, A., 644; (ROOZEBOOM), 1888, A., 897; (VIL-LARD), 1888, A., 1020; 1890, A., 1386.  
 chlorination of combustible, influence of mass on the (RÖMER), 1886, A., 845.  
 chlorinated organic, properties of (BERTHELOT), 1883, A., 394.  
 examination of, from a boiler furnace (FISCHER), 1883, A., 942.  
 chamber exit, testing (LUNGE), 1891, A., 497.  
 sampling and testing, apparatus for (SREAN), 1890, A., 411.  
 detection of small amounts of (ROUN-LEL), 1888, A., 88.  
 reducing, ferric ferricyanide as a reagent for detecting traces of (BROWN), 1888, A., 627.  
 estimation of the amount of, disappearing in a reaction, apparatus for (CROSS and BEVAN), 1889, A., 300.  
 estimation, volumetric, of, dissolved in water (PETERSSON), 1889, A., 1034.  
 estimation of the quantities of, dissolved in watery liquids (LONGI), 1884, A., 364.  
 titration of small quantities of, in mixtures (BEHREND and KAST), 1890, A., 290.  
**Gas-regenerative furnaces**, utilisation of coal-dust for (ANON.), 1885, A., 1272.  
**Gas-generator**, constant (SLEENBUCH), 1887, A., 634.  
 regulator constructed without metal (SCHIFF), 1886, A., 15.  
 self-regulating (HILLYER), 1890, A., 847.  
 with constant removal of the exhausted solutions (BREYER), 1889, A., 1048.  
**Gas-generators**, water-vapour in (SCHMIDT), 1885, A., 705.  
**Gasholder**, universal (EICHBOEN), 1891, A., 1414.  
**Gasholders**, special form of (DE SAINT-MARTIN), 1883, A., 847.

- Gasholders**, zinc, storage of oxygen in (LOEWE), 1888, A., 619.  
 containing oxygen, explosion of (PFAUNDLER), 1888, A., 524.  
 use of lime-water in (LOEWE), 1885, A., 835.
- Gas-lime**, analysis of (MAYER and CLAUSNITZER), 1888, A., 506.  
 estimation of ferrocyanide in (KNUBLAUCH), 1890, A., 87.
- Gas-liquor**, purification of (ANON.), 1884, A., 1221.  
 working up gas purification residues and (ANON.), 1884, A., 1221.  
 examination of (DANON), 1884, A., 928.  
 estimation of pyridine bases in (KINZEL), 1890, A., 1840.
- Gasometer**. See Gasholders.
- Gasometric** assaying, comparative (BARNES), 1887, A., 80.  
 investigations, levelling instrument for (LUNGE), 1892, A., 400.
- Gasometry**, graduation of tubes for (BERTHELOT), 1889, A., 301.  
 use of potassium ferriyanide in (QUINCKE), 1892, A., 526.
- Gas-pipette**, improved (GILL), 1892, A., 1124, 1874.
- Gas-receiver** for absorption analyses (WILBER), 1888, A., 320.
- Gas-refuse**, estimation of ferrocyanides in (GASCH), 1890, A., 834; (ZALOZIEKI), 1891, A., 367.
- Gastric juice** of clayfish (SIAMATI), 1889, A., 534.  
 of the pig (ELLENBERGER and HOFMEISIER), 1886, A., 271.  
 in acute phosphorus poisoning (CAHN), 1886, A., 1053.  
 composition of, influence of chlorides on (GIRARD), 1889, A., 1227.  
 nitrogenous substances insoluble in (STUIZER), 1885, A., 827.  
 relative digestibility of fish in (CHIR-TENDEN and CUMMINS), 1885, A., 569.  
 influence of the secretion of, on the quantity of chlorine in the urine (STICKER), 1888, A., 620.  
 artificial, influence of, on the acetic and lactic fermentations (COHN), 1889, A., 1227; (HIEBHEFELD), 1891, A., 458.  
 a pepsin in (CHARPILLAT), 1883, A., 103.  
 free hydrochloric acid in (LANDWEHR), 1887, A., 287; (BOAS), 1889, A., 734.  
 detection of hydrochloric acid in (KOST), 1888, A., 996; (FAWITZKY), 1891, A., 767.
- Gastric juice**, estimation of hydrochloric acid in (SJOQUIST), 1889, A., 302; (V. JAKSCH), 1889, A., 1242; (SALKOWSKI and KUMAGAWA), 1891, A., 593; (JOLLES), 1891, A., 613; (FAWITZKY), 1891, A., 767; (BOAS), 1892, A., 97.
- Gastric mucous membrane** of the pig, histology of (ELLENBERGER and HOFMEISIER), 1886, A., 271.
- Gas-volumetric analysis** (BAUMANN; LUNGE), 1892, A., 538.
- Gas-works**, examination of water for contamination by (DICKMANN), 1891, A., 117.
- Gaylussite**, artificial and natural (ARZRUINI), 1888, A., 430.
- Gearksutite** (*erigolite*) (FLIGHT), 1883, T., 140; (GLOIN), 1884, A., 265.  
 from Colorado (CROSS and HILLENBRAND), 1884, A., 22.  
 from Greenland (CROSS and HILLENBRAND), 1884, A., 22; (V. NORDENSKIÖLD), 1887, A., 344.
- Gedda gums** (O'SULLIVAN), 1891, T., 1029; P., 181.
- Geddic acids** (O'SULLIVAN), 1890, T., 59; 1891, T., 1029; P., 181.
- Geddinosic and  $\beta$ -geddinosic acids** (O'SULLIVAN), 1891, T., 1041, 1054.
- Gedrite**, occurrence of, as an essential constituent of certain rocks (SJOGREN), 1884, A., 274.  
 from Fiskernas, Greenland (USSING), 1890, A., 19.  
 in the gneiss of Beaunan, near Lyons (GONNARD), 1883, A., 444.
- Gehlenite** in a furnace slag (DILLER), 1889, A., 681.  
 artificial production of (BOURGEOIS), 1884, A., 564.  
 pseudomorphs of grossular after (CATHREIN), 1889, A., 24.
- Geierite** from Breitenbrunn (McCAY), 1884, A., 1100.
- Gelatin** (WEISKE), 1884, A., 619; (SCHUTZENBERGER), 1886, A., 813; (BULNER and CURTIUS), 1886, A., 635.  
 absorption spectrum of (HARTLEY), 1887, T., 59.  
 electrical conductivity of solutions of zinc sulphate containing (LUNDKING), 1889, A., 809.  
 decomposition of, by anaerobic ferments (SEITZMANN), 1890, A., 543.  
 liquefaction of, by bacteria (BLUNION and MACFADYEN), 1890, A., 916.  
 nitrification of, by soil (MUNRO), 1886, T., 641.

- Gelatin**, oxidation of, with potassium permanganate (MALY), 1889, A., 629.  
 digestion of (CHITTENDEN and SOLLEY), 1891, A., 949.  
 decomposition of, in the human body (GRAFFENBERGER), 1892, A., 904.  
 albuminoids and peptones, capillarmetric distinction between (BODLÄNDER and TRAUBE), 1886, A., 1087.  
 compounds of, with tannin (BÖTTINGER), 1888, A., 614.  
 compounds of, with metaphosphoric acid (LORENZ), 1891, A., 477.  
 estimation of sulphur in (HAMMARSTEN), 1885, A., 915.  
 valuation of (PROMIUS), 1884, A., 647.  
**Gelatin-peptone** (TAFARINOFF), 1884, A., 344; (CHITTENDEN and SOLLEY), 1891, A., 950.  
**Gelatin plates**, isochromatic (LOHSE), 1885, A., 612.  
 oxalate developer for (LORD), 1886, A., 106.  
**Gelsemium root**, alkaloids of (THOMPSON), 1887, A., 981.  
**Gems**, ancient process for rendering, fluorescent (BERTHELOT), 1888, A., 552.  
**Generator-gas**, composition of (FISCHER), 1887, A., 1078.  
*Genipa brasiliensis*, crystalline constituent of (KWASNICK), 1892, A., 1509.  
*Genista pilosa* (broom), analysis of, and of its ash (PETERMANN), 1884, A., 207.  
**Genthite** (WALKER), 1888, A., 660.  
*Gentiana verna*, substances contained in the petals of (GOLDSCHMIEDT and JAHODA), 1892, A., 205.  
**Gentianose** (MEYER), 1883, A., 810.  
**Gentiol** (GOLDSCHMIEDT and JAHODA), 1892, A., 205.  
**Gentisein** and **gentisin** (v. KOSTANECKI), 1891, A., 1244, 1386; (v. KOSTANECKI and SCHMIDT), 1891, A., 1386.  
**Geology** of the district of Rikan (KATZEN), 1889, A., 357.  
 application of thermochemistry to (DIEHLAUF), 1886, A., 35, 132.  
**Geranialdehyde** (SEMMLER), 1891, A., 323, 539.  
*Geranibromide* (SEMMLER), 1891, A., 539.  
**Geranic acid** (SEMMLER), 1891, A., 323.  
**Geraniol**, oxidation of (SEMMLER), 1891, A., 30.  
**Geranium essence**, Turkish, detection of, in oil of roses (PANAJOTOW), 1891, A., 1555.  
 oil, Indian (SEMMLER), 1890, A., 951; 1891, A., 30, 323; (DODGE), 1891, A., 237.  
**Gerhardite** (WELLS and PENFIELD), 1886, A., 315.  
 crystallised basic copper nitrate identical with (BOURGEON), 1890, A., 714.  
**German silver**. See Nickel.  
**Germanium** (WINKLER), 1886, P., 161, 197; A., 421, 985; 1887, A., 1081.  
 source of (KRUS), 1888, A., 345.  
 atomic weight of (LEMOY DE BOISEAUBRAN), 1886, A., 768.  
 extraction of, from its ores (WINKLER), 1887, A., 1082.  
 spectrum of (LEMOY DE BOISEAUBRAN), 1886, A., 768; (KORR), 1887, A., 313.  
 volatility of (MEYER), 1887, A., 445.  
 and its compounds, physical constants of (NILSON and PETERSSON), 1887, A., 778.  
**Germanium tetrachloride** (WINKLER), 1887, A., 1032.  
*dichloride* (WINKLER), 1886, A., 986.  
*tetrachloride* (WINKLER), 1886, A., 421, 986; (HAMPE), 1888, A., 891.  
 oxychloride and chloroform (WINKLER), 1887, A., 1082.  
*tetrafluoride* (WINKLER), 1887, A., 1083.  
 hydroxide and iodide (WINKLER), 1886, A., 986, 987.  
 oxide (WINKLER), 1886, A., 421, 986; (VAN BEMMELEN), 1888, A., 1041.  
 action of magnesium on (WINKLER), 1891, A., 802.  
*dioxide* (WINKLER), 1886, A., 986.  
*disulphide* (WINKLER), 1886, A., 421, 986.  
 ultramarine (WINKLER), 1887, A., 1083.  
 ethide (WINKLER), 1887, A., 1083.  
 detection of small quantities of (v. HAUSHOFFER), 1889, A., 78.  
**Germination**. See Agricultural Chemistry.  
**Germs**, existence of, in the air at great heights (GLAVONA), 1884, A., 225.  
**Gerontine** (GRANDIS), 1891, A., 588.  
 See also Pentamethylenediamine.  
**Geyser waters** and deposits, analyses of (LEFFMANN), 1884, A., 30.  
**Gibbsite** from Brazil (EVEN), 1884, A., 23.  
 so-called, from Pennsylvania (GENTH), 1891, A., 275.

- Gilding** earthenware goods (ANON.), 1885, A., 459.
- Gismondite** from Westphalia (RINNE), 1892, A., 1056.
- Githagosegetum** (*Agrostemma Githago*), poison of the seeds of (LEHMANN and MORI), 1890, A., 1458.
- sapotoxin from (KRUSKAL; KOBERT), 1892, A., 350.
- metabolism in pigs fed on (KORNAUTH and ARHE), 1892, A., 1018.
- Glaciale or cristalline** (" *Muscembryanthum crystallinum* ") (MANGON), 1883, A., 499; (HECKEL), 1883, A., 680.
- Glacialin and glacialin-salt** (BESANA), 1884, A., 378.
- Glairin** (*barcejin*) (JOLY), 1883, A., 302.
- Glanders**, bacilli of (ISRAEL; WANSILIEFF), 1884, A., 914.
- ptomaine of (GRIFFITHS), 1892, A., 1258.
- Glaserite** from Douglasshall (BUCKING), 1890, A., 18.
- See also Potassium sulphate.
- Glass** (WAGENER), 1883, A., 397.
- arsenic in (FRESNIUS), 1884, A., 220; (MARSHALL and POTT), 1889, A., 341.
- graphical chemistry of (NICKEL), 1892, A., 1158.
- composition of, suitable for chemical purposes (WEBER and SATER), 1892, A., 410, 1052; (MYLIUS), 1892, A., 411.
- composition of slides and cover-glasses, influence of, on the durability of microscopic objects (WEBER), 1892, A., 1276.
- gradual alteration in, produced by slight alteration of temperature (PICKERING), 1890, A., 440.
- ancient method for rendering fluorescent (BERTHELOT), 1888, A., 552.
- electric qualities of (T. and A. GRAY and DOBBIE), 1885, A., 470.
- electrical resistance of, influence of temper on the (FOUSSEREAU), 1883, A., 701.
- impermeability of, to gases (BARTOLI), 1885, A., 869.
- penetrability of, by water (SCHURZENBERGER; BERTHELOT), 1890, A., 691, 692.
- solubility of (BOHLIG), 1885, A., 688.
- solubility of, in hot and cold water (MYLIUS and FOERSTER), 1889, A., 828.
- solubility of, in cold water (KOHLEHAUSCH), 1892, A., 277.
- Glass**, solvent action of hot water on (BARTS), 1891, A., 634.
- action of superheated water and solutions of alkalis and of salts on (FOERSTER), 1892, A., 1401.
- action of water on (PFEIFFER), 1892, A., 120.
- electrolysis of solid (WARBURG), 1884, A., 1241.
- action of compressed carbonic anhydride on (PFAUNDLER), 1885, A., 868.
- decomposition of, by carbonic anhydride condensed on its surface (BUNNEN), 1887, A., 13.
- catalytic action of, in vapour density determinations (ALEXIEFF), 1886, A., 591.
- alkaline reactions of (WARIHA), 1885, A., 838.
- alkaline reaction of, as a source of error in analysis (KREUTLER and HENZOLD), 1884, A., 775.
- adhesion of mercury to, in presence of halogens (SHENSTONE), 1892, T., 452; P., 70.
- cracking with certainty (BECKMANN), 1887, A., 105.
- silvering of (BOTTGER), 1885, A., 847; (HERZOG), 1885, A., 1020.
- toughened (LUBINCH), 1883, A., 399.
- analysis of (TSCHEBACHNER), 1885, A., 937; (LINDO), 1889, A., 1246.
- testing, by colour reactions (MYLIUS), 1889, A., 549.
- beakers, toughened, action of strong sulphuric acid on (FRISWELL), 1885, P., 86.
- bottle-, action of dilute acids on (EGGER), 1885, A., 459.
- an English, analysis of (GORTSTEIN), 1884, A., 1443.
- laboratory vessels, cleansing of (MULLER), 1883, A., 395.
- stoppers, fixed, removal of (ANON.), 1883, A., 524.
- surfaces, influence of, on the velocity of reaction (SPERANSKI), 1890, A., 1208.
- wool, presence of lead in (BLUM), 1892, A., 1375.
- Glauber's salt**. See Mirabilite and Sodium sulphate.
- Glauaine** (BATTANDIER), 1892, A., 893.
- Glaucoferrocyanides** (ELIARD and BÉMONT), 1885, A., 496.
- Glauconite** (v. GUMBEL), 1888, A., 119.
- from Chester Co., Pa. (SMITH), 1885, A., 960.

- Glaucophane** (KUTO), 1887, A., 1086.  
 from Brittany (SCHLITTING), 1887, A., 784.  
 from Zermatt, analysis of (BELWERTH), 1886, A., 29.  
 schists of the island of Groix (BALBOIS), 1884, A., 412.
- Glazes**, experiments on (ANON.), 1883, A., 890.  
 porcelain (LAUTH and DRIAILLY), 1885, A., 307.
- Gleditschin triacanthos**, nitrogen assimilation of (NOBEE, SCHMID, HILTNER and HOFFER), 1891, A., 1333.
- Globularetin and paraglobularetin** (HEIKEL and SCHLADENHAFFEN), 1883, A., 1025.
- Globularia**, chemistry of (HEIKEL and SCHLADENHAFFEN), 1883, A., 1025.
- Globulin** (KUHNE and CHIFFENDEN), 1886, A., 818.  
 from protein matters by the action of pancreatic ferment (OHL), 1884, A., 1056.  
 which kills bacteria (HANKIN), 1891, A., 352.  
 estimation of (POHL), 1888, A., 873.  
 separation of, from albumin in urine (OHL), 1887, A., 406.  
 separation and estimation of serum-albumin and, by means of magnesium sulphate (HAMMARSTEN), 1885, A., 611.
- Cell- and myo-globulins** (HALLIBURTON), 1887, A., 984; 1888, A., 974.
- Globulins**, vegetable (MARTIN), 1887, A., 507.  
 detection of, in urine (MARTIN), 1888, A., 763.  
 separation of, from albumins (MICHAILOFF), 1886, A., 164.
- Globuloses** (KUHNE and CHIFFENDEN), 1886, A., 819.
- Glover tower**, influence of, in the manufacture of sulphuric acid (SCHREIBER-KERNER), 1885, A., 706.
- Glow and glow discharge**. See Electrochemistry.
- Glucina**. See Beryllium oxide.
- Glucinum**. See Beryllium.
- Glucobiose**, synthesis of a (FISCHER), 1891, A., 412.
- Glucos-*o*-diamidobenzene** (GRIESS and HARROW), 1887, A., 931.
- Glucos- $\gamma$ -diamidobenzoic acid**, and *m*-*p*-diamidotoluene (GRIESS and HARROW), 1887, A., 931.
- Glucos-*o*-coumaraldehyde**, and its derivatives (TIEMANN and KEEN), 1885, A., 1073.
- Glucos-*o*-coumaraldoxime**, and coumarylic alcohol (TIEMANN and KEEN), 1885, A., 1073.
- Glucoferulic aldehyde and glucoferulic methyl ketone** (TIEMANN), 1886, A., 250, 251.
- $\alpha$ -Glucoseptitol** (FISCHER), 1892, A., 1167.
- Glucoseptonic acids**,  $\alpha$ - and  $\beta$ - (FISCHER), 1892, A., 1166, 1168.
- $\beta$ -Glucoseptonic lactone** (FISCHER), 1892, A., 1168.
- Glucoseptose** (FISCHER), 1890, A., 599.
- Glucoseptoses**,  $\alpha$ - and  $\beta$ - (FISCHER), 1892, A., 1166, 1168.
- $\alpha$ -Glucoseptose-osazone and glucoheptosephenylhydrazones**,  $\alpha$ - and  $\beta$ - (FISCHER), 1892, A., 1165, 1167.
- $\gamma$ -Glucolactone** (FISCHER), 1890, A., 1398.
- Gluconic acid** (KILIANI and KLEEMANN), 1884, A., 730; (VOLPELT), 1887, A., 127; (BOURLOT), 1887, A., 468.  
 optical isomerides of (FISCHER), 1890, A., 1389.  
 preparation of (HEFFIER), 1889, A., 857.  
 polarisation phenomena of (SCHNELLE and TOLLEN), 1892, A., 1432.  
 rotatory power of (WELD, LINDSEY, SCHNELLE, and TOLLEN), 1891, A., 43.  
 oxidation of, with Fehling's solution (TIEMANN), 1891, A., 426.  
 reduction of (FISCHER), 1889, A., 1149.  
 conversion of, into  $\alpha$ -caprolactone (KILIANI and KLEEMANN), 1884, A., 993.  
 anilide and phenylhydrazide (FISCHER and PASMORE), 1890, A., 155, 153.
- Gluconic acids** from different sources, and their calcium and barium salts (HERZFELD), 1884, A., 423.  
 isomeric (HERZFELD), 1883, A., 652; (FISCHER), 1890, A., 1391, 1389.
- Gluconolactone**, polarisation phenomena of (SCHNELLE and TOLLEN), 1892, A., 1432.
- Glucononic acid and glucononose** (FISCHER), 1892, A., 1170.
- Glucononitol and  $\alpha$ -gluco-octitol** (FISCHER), 1892, A., 1170.
- Glucos-*o*-tonic acid** (FISCHER), 1890, A., 599.
- Glucos-*o*-tonic acids**,  $\alpha$ - and  $\beta$ - (FISCHER), 1892, A., 1169, 1170.
- $\alpha$ -Glucos-*o*-tose and its phenylhydrazones** (FISCHER), 1892, A., 1169.

**Glucoprotein** (SCHUTZENBERGER), 1886, A., 270.

hydroxide (GAUTIER and ETARD), 1884, A., 90.

**Glucosalicyl-carbamide and -tolylene-diamine** (SCHIFF), 1883, A., 347, 348.

**Glucosamine** (*glycosamine*) and hydrobromide of (TIEMANN), 1886, A., 329.

tetrabenzoate (BAUMANN), 1887, A., 229.

benzoyl-derivatives of (KUENY), 1890, A., 578; (PURN), 1892, A., 134.

hydrochloride (TIEMANN), 1884, A., 724; 1886, A., 329.

*iso*Glucosamine and its salts (FISCHER), 1886, A., 933.

levulose from (FISCHER and TAFEL), 1888, A., 39.

**Glucose.** See Carbohydrates.

**Glucosodiphenylhydrazones** (STAHL), 1890, A., 1260.

**Glucosodiphenylhydrazones, i- and l-** (FISCHER), 1890, A., 1392, 1391.

**Glucoseoxime** (JACOBI), 1891, A., 664; (WOHL), 1891, A., 813.

**Glucoside** (SCHIFF), 1883, A., 347.

allied to coniferin (TIEMANN), 1886, A., 250.

from *Boldoa fragrans* (CHAPOTEAUT), 1884, A., 845.

of calamus root (THOM), 1886, A., 895; 1888, A., 984; (KUNZ), 1888, A., 1221.

from *Camellia oleifera* seeds (MCCALLUM), 1883, A., 1166.

from *Forsythia suspensa* (EIJKMAN), 1886, A., 1040.

from the bark of *Gonolobus Condu-rango* (CARRARA), 1891, A., 1387.

from helicin (TIEMANN and KEES), 1885, A., 1073.

from *Herniaria hirsuta* (BARTH and HERZIG), 1889, A., 1003.

from Japanese Oleaceae (EIJKMAN), 1886, A., 1040.

from *Millettia atropurpurea* (GRESHOFF), 1891, A., 335.

of rhamnetin (HERZIG), 1890, A., 61.

from *Strychnos Nux vomica* (DUNSTON and SHORT), 1885, A., 395.

benzoyl-derivatives of (KUENY), 1890, A., 578.

**Glucoside group**, synthetical researches in (MICHAEL), 1884, A., 439; 1885, A., 521.

**GLUCOSIDES—**

**Acorin** (THOM), 1886, A., 895; 1888, A., 984.

**Adonidin**, from *Adonis vernalis* (MORDAGNE), 1886, A., 94.

**GLUCOSIDES—**

**Adonin** from *Adonis amurensis* (MORDAGNE), 1886, A., 94; (TAHARA), 1891, A., 1501.

**Æsculin**, diathermancy of (WENEDONCK), 1885, A., 213.

reactions for (RABY), 1885, A., 302.

**Amygdalin** in leaves of *Gymnema latifolium* (GRESHOFF), 1891, A., 338.

in *Pygeum parviflorum* and *P. latifolium* (GRESHOFF), 1891, A., 338.

distribution of, in almonds (JOHANSEN), 1888, A., 869.

action of emulsin on (TAMMANN), 1889, A., 566.

**Anhydrosalicilic glucoside**, synthesis of (MICHAEL), 1883, A., 76.

**Arbutin** (SCHIFF), 1883, A., 347; 1884, A., 432; (HABERMANN), 1884, A., 175; (DALMON), 1885, A., 1096.

behaviour of, in the animal organism (LEWIN), 1884, A., 915.

**"Asclepiadin"** (GRAM), 1887, A., 377.

**"Asebotoxin"** (EIJKMAN), 1883, A., 215, 348.

**Benzylarbutin** (SCHIFF), 1884, A., 432.

**Catalpin** (CLAASSEN), 1888, A., 1309.

**Cathartic acid** (STOCKMAN), 1885, A., 991.

**Chitin** (HALLIBURTON), 1885, A., 991, 1251.

occurrence of, in the Cephalopoda (KLUKENBERG), 1885, A., 826.

heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.

solubility of (KLUKENBERG), 1886, A., 808.

**Colocynthin** (HENKE), 1884, A., 181.

**Condurangin** (CARRARA), 1892, A., 1352.

**Coniferin** in asparagus (v. LIPPMAN), 1886, A., 387.

occurrence of, in the woody structures of beet-root (v. LIPPMAN), 1883, A., 611.

glucoside allied to (TIEMANN), 1886, A., 250.

formation of eugenol from (CHIOZZI), 1888, A., 941.

test for (MOLISCH), 1887, A., 692.

**Convallamarin** and **convallarfin** (LANGLEBERT), 1885, A., 271.

**Convolvulin**, physiological action of (DRAGENDORFF), 1887, A., 291.

**Crocine** and **crocetin** (KAYSER), 1885, A., 59, 60.

- ILGER and MUTSCHLER), 366; (MICHAEL), 1885, 1886, A., 173.  
(HOLDAS), 1892, A., 222; VI), 1892, A., 501, 1482.  
on and separation of, from lin and digitin (PALM), A., 507.
- Digitin** (ARNAUD), 1890, A., 65, 171; (KILIANI), 1891, A., 576, 1482.  
reaction for (LAFON), 1885, A., 1014; (FERREIRA DA SILVA), 1891, A., 1562.
- Digitonin** (KILIANI), 1890, A., 996; 1892, A., 501, 1482.  
preparation of (KILIANI), 1891, A., 576.
- Euonymin** (ROMM), 1886, A., 72.
- Frangulin** (THORPE and ROBINSON), 1889, P., 165; 1890, T., 33; (SCHWABE), 1889, A., 69; (THORPE and MILLER), 1892, T., 1.  
preparation of (THORPE and ROBINSON), 1890, T., 41; (THORPE and MILLER), 1892, T., 1.  
composition of (THORPE and MILLER), 1891, P., 158; 1892, T., 3.  
hydrolysis of (THORPE and ROBINSON), 1890, T., 45; (THORPE and MILLER), 1892, T., 4.
- Fraxin**, constitution of (KÖRNER and BIGINELLI), 1892, A., 628.
- "Fustin"** (SCHMID), 1886, A., 894.
- Globularin** (HECKEL and SCHLAGDENHAUFFEN), 1883, A., 1025.
- Glucovanillin** (HAARMANN and REIMER), 1884, A., 1343; (TIEMANN), 1885, A., 980.  
phenylhydrazine derivative of (TIEMANN and KEES), 1885, A., 1072.
- Guaiacol glucoside** (MICHAEL), 1885, A., 521.
- Hederagluco-side** (BLOCK), 1889, A., 294.
- Helicin**, constitution of (SCHIFF), 1883, A., 347.  
actions of (TIEMANN and KEES), 1885, A., 1072.  
glucosides prepared from (TIEMANN and KEES), 1885, A., 1073.  
phenylhydrazine derivative of (TIEMANN and KEES), 1885, A., 1072.
- Hesperidin** and **isohesperidin** (TANRET), 1888, A., 963.  
sugar from (WILL), 1887, A., 715.

GLUCOSIDES—

- Indican**, modification of Jaffé's test for (OBERMAYER), 1891, A., 245.  
detection, spectroscopic, of (MAY-MANN), 1884, A., 198.  
detection and estimation of, and of its homologues, in urine (MICHAILOFF), 1885, A., 840.
- Jalapin** (POLECK and SAMELSON), 1885, A., 669.  
physiological action of (DRAGENDORFF), 1887, A., 291.
- Linamarin** (JØRISSEN and HAIRES), 1892, A., 502.
- Loganin** (DUNNAN and SHORT), 1885, A., 396.
- "Lupiniin"** (BAUMER), 1883, A., 1222.
- Menyanthin** (LENDRICH), 1892, A., 1262.
- Methylarbutin** (SCHIFF), 1883, A., 60, 317; 1884, A., 432.  
synthetical (MICHAEL), 1884, A., 439; 1885, A., 521.  
separation of, from arbutin (SCHIFF), 1884, A., 432.
- Methylhesperidin** (WILL), 1885, A., 906.
- Morindin** (THORPE and GREENALL), 1886, P., 256; 1887, T., 52.
- Naringin** (WILL), 1887, A., 497.  
and its derivatives (WILL), 1885, A., 906.  
sugar from (WILL), 1887, A., 715.
- Neritin** (PRESZCZEK), 1890, A., 1316.
- Onabain**, poisonous glucoside from (ARNAUD), 1888, A., 848; (GLEY), 1888, A., 1326.
- Phlorizin** (RENNIE), 1887, T., 634.  
dextrose from (RENNIE), 1887, T., 636.
- Quercitrin**, in Virginia creeper (*Cissus quinquefolia*) (PHIPSON), 1885, A., 1255.  
supposed identity of, with rutin (SCHUNCK), 1888, T., 262; P., 12.  
derivatives (HERZIG), 1888, A., 1309.
- Rhinanthin** (PHIPSON), 1888, A., 1310.
- "Rosaginin"** (PRESZCZEK), 1890, A., 1316.
- Salicin** (MICHAEL), 1883, A., 76.  
synthesis of (MICHAEL), 1883, A., 76; 1884, A., 439.  
solubility of (DOTT), 1886, A., 366.
- Saponin** (*senegalia*) (MCCALLUM), 1883, A., 1166; (STÜTZ), 1884, A., 463; (HILGER and MUTSCHLER), 1886, A., 367; (HENSE), 1891, A., 933.

## GLUCOSIDES—

- Saponin** (*s. negin*) from *Polygala Senega* (FURNARI), 1890, A., 262.  
 from "*Saponaria officinalis*" (SCHIAPARELLI), 1884, A., 332.  
 position of, in the roots of certain plants (ROSOLI), 1884, A., 847.  
 products of decomposition of (SCHIAPARELLI), 1884, A., 334.  
 acetyl-derivatives of (STUTZ), 1884, A., 463.  
 reaction for (FERREIRA DA SILVA), 1891, A., 1562.  
**Saponins** (KOBERT), 1891, A., 1531; 1892, A., 350; (KRUCKAL), 1892, A., 350.  
**Sapotin** (MICAUD), 1892, A., 724.  
**Scopolin** (EIJKMAN), 1885, A., 404.  
**Skimmin** (EIJKMAN), 1885, A., 553.  
**Strophanthin** (GERRARD), 1887, A., 970; (FRASER), 1887, A., 1115; 1888, A., 606; (MERCCK; EL-BORNE), 1887, A., 1116; (ARNAUD), 1888, A., 1310.  
 properties of (FRASER), 1890, A., 262.  
 toxic action of (GLEY), 1888, A., 1326.  
 reaction for (HELBING), 1887, A., 1001.  
**Syringin** (KÖRNER), 1889, A., 159.  
**Tartaric glucoside**, synthesis of (GUYARD), 1884, A., 1304.  
**Teucrin**, action of nitric acid on (GULLALORO-TODARO), 1884, A., 332.  
**Viola-quercitrin** (MANDELIN), 1884, A., 1191.  
**Glucosine**, constitution of (JAFF and LEMINSHAW), 1887, T., 552; P., 33.  
**Glucosines**,  $\alpha$ - and  $\beta$ - (TANRET), 1885, A., 1048.  
**Glucosometer**, percentage (GERRARD), 1890, A., 300.  
**Glucosonephenylmethylhydrazone** (FISCHER), 1889, A., 484.  
**Glucososalicylthiocarbamide** (SCHIFF), 1883, A., 348.  
**Glucos-syringic acid** and -syringin-aldehyde (KÖRNER), 1889, A., 159.  
**Glucovanillic acid** (TIEMANN), 1885, A., 980.  
**Glucovanillin** (HAARMANN and REIMER), 1884, A., 1343; (TIEMANN), 1885, A., 980.  
 phenylhydrazine derivative of (TIEMANN and KEES), 1885, A., 1072.  
**Glucovanillinaldoxime** (TIEMANN and KEES), 1885, A., 1073.  
**Glucovanillyl alcohol** (TIEMANN), 1885, A., 980.

- Glue**, products of the art of (KLUG), 1891, A., 2.  
**Glutaconic acid** (BUCHN 737.  
 $\beta$ -chloro- (BURTON and V 1887, A., 467.  
 tetrachloro- (ZINCKE 1892, A., 1463.  
**Glutamic acid** (*amidogluta* its rotatory power (1884, A., 1308.  
 condensation of, with phos-  
 phonic chloride (HEDIN), 1891, A., 202.  
 and its derivatives (MENOZZI and APPIANI), 1892, A., 298.  
 $\gamma$ -Glutamic acid (WOLFF), 1891, A., 420.  
 solubility of (SCHULZE), 1885, A., 916.  
**Glutamine** (SCHULZE and BOSSHARD), 1883, A., 658.  
 presence of, in sugar-beet (SCHULZE and BOSSHARD), 1885, A., 759; 1886, A., 105.  
 optical behaviour of (SCHULZE and BOSSHARD), 1885, A., 759.  
 detection of, in vegetable juices and extracts (SCHULZE), 1884, A., 373.  
 quantitative estimation of (SCHULZE), 1885, A., 935.  
**Glutaramide and glutaramidine salts** (PINNER), 1891, A., 62.  
**Glutaramidylisobutyl, ethyl and methyl ethers**, hydrochlorides of (PINNER), 1891, A., 62, 61.  
**Glutaramidylic acetate** (PINNER), 1891, A., 62.  
**Glutarene-diamidoxime and -imidodioxime** (BIEDERMANN), 1890, A., 126.  
**Glutarenediazoximediethenyl** (BIEDERMANN), 1890, A., 126.  
**Glutaric acid** (*n-pyrotartaric acid*).  
 preparation of (PERKIN and PRENTICE), 1891, T., 993.  
 magnetic rotatory power of (PERKIN), 1888, T., 566, 589.  
 specific heat of (HENS), 1889, A., 93.  
 thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (STOHMANN and KLEBER), 1892, A., 1041; (MASSOL), 1892, A., 1141.  
 action of heat on (KRAFFT and NOERDLINGER), 1889, A., 690; (WISBAH), 1891, A., 1011.  
 action of hydroxylamine on derivatives of (GARNY), 1892, A., 136.  
 decomposition of, at a high temperature (CLAUS), 1892, A., 40; (LUSSEN), 1892, A., 297.

- Glutaric acid** (*n-productaria acid*).  
decomposition of, by sunlight in presence of an uranium salt WISBACH, 1891, A., 1013.  
bromination of (ATWERN and IMHAUSER), 1891, A., 1191.  
alkyl substitution products of, electrical conductivity of (BRUNHOFF and WALDEN), 1890, A., 1038.  
dialkyl substitution products of, synthesis of (GUTHZEIT), 1890, A., 877; (GUTHZEIT and DRENNEL), 1891, A., 178.  
**Glutaric acid, amido-**. See **Glutamic acid**.  
*di*bromo- (ATWERN and BERNHARDT), 1891, A., 1191.  
*pentachloro-* (ZINK, 1892, A., 1186.  
*α*-nitroso- (WOLFF), 1891, A., 119.  
**Glutarimide** (WOLFFENSTEIN), 1892, A., 1484.  
**Glutarimidozime** (GARNY), 1892, A., 138.  
**Glutaronitrile**. See **Trimethylene cyanide**.  
**Glutazine** (2 6-dihydro-4-amidopyridine), constitution of (V. PECHMANN), 1888, A., 67.  
and the action of phosphorus pentachloride on (V. PECHMANN and STOKES), 1885, A., 1202.  
and its derivatives (STOKES and V. PECHMANN), 1887, A., 153.  
nitronitrosamine (V. PECHMANN), 1888, A., 68.  
**Glutazine, 3 5-dichloro-** (STOKES and V. PECHMANN), 1887, A., 156.  
*mono-* and *di*-nitro- (V. PECHMANN), 1888, A., 67, 68.  
**Gluten** and its presence in wheat grain (JOHANNSEN), 1889, A., 296.  
wheat, as a food (CONSTANTINIDI), 1887, A., 511.  
heat of combustion of (BERTHELOT and ANDRE), 1890, A., 938.  
fermentation experiments with, instead of diastase, in the mash (HEINZELMANN), 1884, A., 789.  
chemistry of (KRUGER), 1889, A., 910.  
action of sulphurous and other acids on (BALLAND), 1891, A., 95.  
estimation of, time element in (FREAR), 1885, A., 1014.  
estimation of, in flour (REED), 1884, A., 122.  
estimation of, in wheat (STUMPF), 1883, A., 236; (GATELLIER and L'HÔTE), 1889, A., 740, 919.  
**Gluten-bread**, estimation of starch in (RICHARD), 1885, A., 229; (MALLAT), 1885, A., 445.  
**Gluten-casein**, digestion products of (CHIFFARDEN and SMITH), 1891, A., 342.  
**Glutic acid** BURTON and V. PECHMANN, 1887, A., 467.  
**Glutimide** (MENOZZI and APPIANI), 1892, A., 298.  
**Glutin**, peptone salts from (PAAL), 1892, A., 895; (BUTTINGER), 1892, A., 1016.  
*apo*Glutin (KLUG), 1891, A., 232.  
**Glutino fibrin** (MARTIN), 1886, A., 1065.  
**Glutino peptone** (KLUG), 1891, A., 233.  
**Glutonic acid** (CONRAD and GUTHZEIT), 1883, A., 312.  
**Glucose** (KLUG), 1891, A., 232.  
**Glyceraldehyde** (GRIMAUD), 1887, A., 794.  
fermentation of (GRIMAUD), 1888, A., 247.  
*Glycerin fluitans*, analyses of (WILSON), 1889, A., 1078.  
**Glyceric acid** (*αβ-dichloropropionic acid*), optically active (LEWKOWITSCH), 1884, A., 296; (FRANKLAND and FREW), 1890, P., 174; 1891, T., 96.  
preparation of (BORNSTEIN), 1886, A., 327; (LEWKOWITSCH), 1889, P., 14.  
heat of neutralisation of (GAL and WERNER), 1887, A., 205.  
calcium salt of fermentation of, by the *Bacillus ethaceticus* (FRANKLAND and FREW), 1890, P., 173; 1891, T., 81.  
(active) calcium salt of, crystalline form of (TUTTON), 1891, T., 233; P., 29.  
**Glyceride pyroracemate** (ERHART), 1885, A., 1201.  
**Glyceride-hydrolyst** (ARMSTRONG), 1890, T., 531.  
of butter fat (BLYTH and ROBERTSON), 1889, P., 5.  
fatty, stability of (WARREN), 1889, A., 1130.  
**Glycerol** (*glycerin*), formation of, in alcoholic fermentation (THYLMANN and HILGER), 1889, A., 579; (V. UDRINSKY), 1889, A., 1027.  
synthesis of, by means of hypochlorous acid (REFORMATSKY), 1890, A., 121.  
formed in wines, influence of salicylic acid on the proportions of alcohol and (WEIGERT), 1889, A., 433.  
purification of (MOLDENHATER and HEINZELING), 1884, A., 938.  
molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
thermochemistry of (STUHMANN and LANGBEIN), 1892, A., 764.

**Glycerol** (*gly + root*), vapour pressures of (RICHARDSON, 1886, T., 764.  
 volatility of, at 100 (NESSLER and BALTH, 1881, A., 1431.  
 non-volatility of, with aqueous vapour (HINNEL, 1887, A., 1113.  
 specific gravity of aqueous solutions of (NICOL, 1888, A., 437.  
 specific gravity, boiling-point, and vapour-tension of aqueous solutions of (GERLACH), 1885, A., 499.  
 isotonic coefficient of (DE VRIJF), 1889, A., 9.  
 action of *Bacterium acti* on (BROWN), 1887, T., 639.  
 fermentation of (FRANKLAND and FOX), 1890, A., 915.  
 fermentation of, with the bacteria from ammonium tartrate (VIGNA), 1884, A., 170.  
 electrolysis of, with electrodes of carbon and platinum (BARTOLI and PAPASOGGI), 1884, A., 170.  
 action of ammonia salts on (STORCH), 1886, A., 1044.  
 action of ammonium salts on, bases formed by the (SROEHR), 1891, A., 591.  
 action of arsenious anhydride on (JACKSON), 1884, A., 806.  
 action of hydrogen chloride on (FAUCONNIER and SANSON), 1888, A., 244.  
 action of nitrous anhydride on (MASON), 1883, T., 348.  
 action of sulphur on (KEULEN), 1890, A., 577.  
 oxidation of (BORNSTEIN), 1886, A., 327; (FISCHER and TAFEL), 1887, A., 651; 1888, A., 1261; 1889, A., 473.  
 oxidation of, with lead peroxide in alkaline solution (GLASER and MORAWSKI), 1890, A., 20.  
 action of, on egg-albumin (GRANDIS), 1891, A., 589.  
 action of, in diabetes (RANSOM), 1887, A., 985.  
 influence of, on gaseous metabolism (MUNK), 1891, A., 345.  
 nutritive value of (ARNSTINK), 1887, A., 509; (v. TORRING), 1889, A., 736.  
 derivatives of (SEELIG), 1892, A., 288.  
 fluorhydric from (MESLANS), 1892, A., 799.  
 formation of propylene from (CLAUS), 1888, A., 186.  
**Glycerol dibenzoate** (BAUMANN), 1887, A., 229.

**Glycerol**, trioleate and tricinoleate, action of sulphuric acid on (LIECHT and SVIDA), 1884, A., 238.  
**Glycerol, detection and estimation:**—  
 test for (RECHT), 1884, A., 118; (KOHN), 1890, A., 1473.  
 crude, analysis of (FELSINGER), 1892, A., 544.  
 examination of (ENDEMAN), 1885, A., 443.  
 estimation of (FOX and WANKLYN), 1886, A., 395; (DIEZ), 1887, A., 750; (LEGGER), 1887, A., 1142; (HEHNER), 1887, A., 1143; (FELSINGER), 1888, A., 1133; (GRUNWALD), 1890, A., 198; (MORAWSKI), 1890, A., 299.  
 estimation of, by alkaline permanganate (JOHNSTONE), 1892, A., 544.  
 estimation of, by oxidation (PLANCHON), 1888, A., 1345.  
 estimation of, in aqueous solution by means of its refractive power (STROHMER), 1884, A., 877.  
 estimation of, in beer (AMTHOR), 1883, A., 385.  
 estimation of, in fatty matters (DAVID), 1883, A., 123.  
 estimation of, in crude glycerol (BENEDIKT and CANTOR), 1888, A., 1345; (FELSINGER), 1889, A., 748; (LEWKOWITSCH), 1889, A., 748; 1890, A., 300; (VIZEK), 1890, A., 835; (HEHNER), 1890, A., 425.  
 estimation of, in the residuary liquors of brandy distillation (v. TORRING), 1889, A., 735.  
 estimation of, in soap lyes (HEHNER), 1890, A., 425.  
 estimation of, in sweet wines (LECCO), 1892, A., 1263.  
 estimation of, in wine (BENEMANN), 1886, A., 1080; (SAMPLSON), 1887, A., 86; (BARTH), 1887, A., 184; (WEIGERT), 1889, A., 446; (OLIVERI and SPICA), 1891, A., 369; (JEAN), 1892, A., 246; (BAUMERT), 1892, A., 1529.  
 estimation of, in wine and beer (SKALWEIT), 1887, A., 306; (v. TORRING), 1890, A., 426.  
 nitro-. See *Glyceryl trinitrate*.  
**Glycerol-borin** (DUNSTAN), 1884, A., 279.  
**Glycerolphosphoric acid** (FLEMMING), 1883, A., 682.  
 estimation of, in urine (EYMONNET), 1884, A., 1058.  
**Glycosazone** (FISCHER and TAFEL), 1888, A., 355.

**Glycerose**, preparation of (FISCHER and TAFEL), 1898, A., 1264.

**Glyceroxide** potassium, heat of formation of (DE FORCRAND, 1887, A., 320.

alcoholates of (DE FORCRAND), 1887, A., 427.

sodium, heat of solution of (DE FORCRAND), 1887, A., 8.

alcoholates of (DE FORCRAND), 1887, A., 426.

**Glyceroxides**, thermochemistry of dibasic (DE FORCRAND), 1888, A., 642.

polybasic (DE FORCRAND), 1888, A., 1264.

**Glyceryl acetate distearate** (HUNDESHAGEN), 1884, A., 281.

*n*-chloro- (SEELIG), 1892, A., 289.

diacetate, chloro- (SEELIG), 1892, A., 289.

carbamate (GATTERMANN), 1888, A., 575.

chloriodide. See Chloriodohydrin.

formate *n*-chloride (PFUNGER), 1885, A., 1197.

trinitrate (*nitroglycerol*), elementary composition of (HAY and MASSON), 1885, A., 742.

magnetic rotatory power of (PERKIN), 1889, T., 685, 726.

chemistry of (HAY), 1885, A., 742.

action of alkaline solutions on (MIXTER), 1892, A., 692.

reconversion of, into glycerol (BLOXAM), 1883, A., 788.

physiological action of (HAY), 1885, A., 681.

trinitrite (MASSON), 1883, T., 349.

phosphate (HUNDESHAGEN), 1884, A., 282.

pyruvate (BÜTTINGER), 1891, A., 1018.

distearate, compound of, with ammonia (HUNDESHAGEN), 1884, A., 280.

sulphate hydroxyoleate, and trihydroxyoleate and their salts (LIECHTI and SCIDA), 1884, A., 238, 239.

**Glycerithritol** (BALLA), 1884, A., 766.

**Glycidic acid**, homologues of (MELIKOFF), 1884, A., 1301; 1885, A., 650.

**Glycidic pyruvate** (LOWANOWITSCH), 1885, A., 1125.

**Glycines**, anhydrides of, substituted (ERLENMEYER), 1889, A., 708.

lactones derived from (ABENIUS), 1888, A., 825; 1890, A., 245.

**Glycolic acid**, preparation of (MARSHALL), 1887, A., 390.

**Glycocine** (*glycin*; *aminoacetic acid*) (EHRLEH), 1883, A., 593; (MATHNER and SCIDA), 1891, A., 38;

(GOLDBERG, KUNZ and KRAUT), 1892, A., 294.

formation of, from chloroacetic acid (KRAUT), 1890, A., 1395.

preparation of (CURTIUS), 1883, A., 337; (NENKI), 1884, A., 583;

(GABRIEL and KROEBERG), 1889, A., 590; (MATHNER and SCIDA), 1891, A., 38.

molecular weight of (CURTIUS and SCHULZ), 1891, A., 38.

action of benzoic chloride on (CURTIUS), 1883, A., 338.

action of hydrochloric acid on (CURTIUS), 1883, A., 1087.

derivatives (MATHNER and SCIDA), 1889, A., 143; (GOLDBERG, KUNZ and KRAUT), 1892, A., 294.

derivative of  $\alpha$ -thiophenic acid and (JAFFE and LEVY), 1889, A., 239.

etheral derivatives of (CURTIUS and GOEBEL), 1888, A., 576.

anhydride (CURTIUS and GOEBEL), 1888, A., 576.

molecular weight of (CURTIUS and SCHULZ), 1891, A., 38.

ethers (EHRLEH), 1883, A., 593.

pyromucate (JAFFE and COHN), 1887, A., 1032.

amido- (CURTIUS), 1891, A., 56.

**Glycocineimide-anhydride** (CURTIUS), 1883, A., 1087.

**Glycocinephthalic acid** (GABRIEL and KROEBERG), 1889, A., 590.

salts of (RESE), 1888, A., 149.

**Glycogen**. See Carbohydrates.

**Glycogenesis** in icterus (DABIRE and ARTHUR), 1889, A., 1233.

**Glycol**, an aromatic, from  $\beta$ -naphthol and its derivatives (ROUSSEAU), 1884, A., 180.

formation of, in the fermentation of sugar (HENNINGER and SANSON), 1888, A., 571.

See also Ethylenic glycol.

**Glycolaldehyde**, preparation and properties of (FISCHER and LANDSTEINER), 1892, A., 1424.

**Glycoline** (STOEHR), 1892, A., 507; (DENNSTEDT), 1892, A., 633.

**Glycollamidobenzoic acid** (PELLIZZARI), 1886, A., 548.

**Glycollamine**, heats of combustion and formation of (BERTHELOT and ANDRE), 1890, A., 936.

**Glycollic acid** in suint (A. and P. BUSINEL), 1889, A., 178.

- Glycollic acid**, preparation of (KIHNT), 1884, A., 295; (HOLZER), 1884, A., 583; (COLMAN), 1892, P., 72.  
direct synthesis of (HENRY), 1890, A., 739.  
transformation of glyoxal into (DE FORCRAND), 1884, A., 898.  
crystallography of (COLMAN), 1892, P., 72.  
pyrogenic decomposition of (HAN-RIOT), 1886, A., 224.  
salts of, thermochemistry of (DE FORCRAND), 1883, A., 644, 708, 774, 775; (TOMMASI), 1883, A., 708, 775.  
etheral salts of, boiling points of (FOISSIN), 1884, A., 897.  
calcium salt of (HOLZER), 1884, A., 583.  
lead salt of, chloride of (ENGEL), 1886, A., 335.  
sodium salt of (DE FORCRAND), 1883, A., 1055; 1884, A., 548.  
disulphide (GINSBURG and BONDZYN-SKI), 1886, A., 323.  
thio-, compounds of aldehydes, ketones and ketonic acids with (BONGARTZ), 1886, A., 937; 1888, A., 478.  
**Glycollic anilide** (COLMAN), 1892, P., 72.  
nitrile (HENRY), 1890, A., 739.  
oxides, distinct types of (HENRY), 1884, A., 739.  
toluolide (BISCHOFF and NANTWELL), 1890, A., 1161.  
**Glycollide**, preparation and heat of hydration of (DE FORCRAND), 1884, A., 547.  
**Glycoluril**, constitution of (WIDMAN), 1887, A., 34.  
dinitro- (FLANCKMONT and KLOBME), 1888, A., 1150.  
**Glycolyldibromo-o-toluidide** (ABENIUS and WIDMAN), 1889, A., 135.  
**Glycolylcarbamide**. See Hydantoin.  
**Glycolyldiethoxyanilide** (BISCHOFF and NANTWELL), 1889, A., 1012.  
**Glycolylphenylglycocine** and its anilide (ABENIUS), 1890, A., 245.  
**Glycolyl-o-tolylglycocine** (ABENIUS), 1888, A., 825.  
anide of (ABENIUS), 1890, A., 245.  
**Glycolysis**, hematic (LÉPINE and BARRAL), 1892, A., 89.  
in blood (ARTHUR), 1891, A., 1528; 1892, A., 900.  
**Glycolytic ferment of the blood**, isolation of (LÉPINE and BARRAL), 1891, A., 755.  
**Glycosamine**. See Glucosamine.
- Glycosuria**, chemical detection of (JOLLE), 1891, A., 369.  
**Glycosuric acid** (MARSHALL), 1887, A., 1047.  
**Glycuronic acid** (THIERFELDER), 1887, A., 285, 717; (KULZ), 1887, A., 498.  
formation of, during inanition (THIERFELDER), 1886, A., 572; (NEBLTHAT), 1891, A., 1529.  
synthesis of (FISCHER and PILORY), 1891, A., 677.  
reduction of, by sodium amalgam (THIERFELDER), 1891, A., 294.  
derivatives of (THIERFELDER), 1889, A., 377; (KULZ), 1890, A., 1286.  
formation of furfuraldehyde from (GUTHRIE, DE CHALMOT and TOLLENS), 1892, A., 1433.  
**Glycuronic anhydride** (SPIEGEL), 1883, A., 219; (THIERFELDER), 1887, A., 718; 1889, A., 378.  
"Glycuric acid," so-called, Böttlinger's (EHRHART), 1895, A., 1201.  
**Glycyphyllin** (RENNIE), 1886, T., 857; P., 239.  
**Glycyrrhizin**, existence of, in several vegetable families GUYNET, 1885, A., 395.  
in *Murich odorata* (SCHROEDER), 1886, A., 172.  
**Glyoxal**, action of, on aromatic amines (HINBELG), 1888, A., 372.  
action of ammonium cyanate on (LEHMAN), 1883, A., 178.  
action of hydroxylamine on (WITTEBERG and MEYER), 1883, A., 504.  
condensation of, with ethylic malonate and ethylic acetoacetate (POLONOWSKY), 1888, A., 1067.  
condensation products of, with some mercaptans (STIFFER), 1891, A., 186.  
transformation of, into glycollic acid (DE FORCRAND), 1884, A., 898.  
derivatives, preparation of, from trichlorolactic acid (PINNER), 1884, A., 1298.  
**Glyoxal ammonium hydrogen sulphit** (DE FORCRAND), 1885, A., 648.  
heat of formation of (DE FORCRAND), 1885, A., 627.  
barium and potassium hydrogen sulphites, preparation and heats of formation of (DE FORCRAND), 1884, A., 859.  
**Glyoxalisoamyline**. See isoButylglyoxaline.  
**Glyoxalbispheylmethylhydrazone** (KOHLETSCH), 1890, A., 24.

- Glyoxal-*n*- and -*iso*-butyline.** See *n*- and *iso*-Propylglyoxalines.
- Glyoxaldiphenyldihydrazone** (PICKEL), 1886, A., 546.
- Glyoxalethylenemercaptole** (FASBENDER), 1888, A., 803.
- Glyoxalethylene.** See Methylglyoxalim.
- Glyoxaline** (RUNG and BEHREND), 1892, A., 1493.  
constitution of (JAPP), 1883, T., 16; (MARCKWALD), 1892, A., 1326.  
action of ethylic chloracetate on (RUNG and BEHREND), 1892, A., 1493.  
isomeric of (BUCHNER), 1889, A., 1214.  
and its homologues (RADZI-ZEW-SKI), 1883, A., 308.  
nitro- (RUNG and BEHREND), 1892, A., 1493.  
See also Imidazoles.
- Glyoxalinedicarboxylic acid** (MAQUENET), 1890, A., 1439.
- Glyoxalines** (*acutius*) (WALLACH), 1883, A., 910.  
synthesis of (RADZI-ZEWSKI), 1883, A., 728.  
general formula of (JAPP), 1883, T., 198.  
oxidation of, by means of hydroxyl (RADZI-ZEWSKI), 1884, A., 986.
- Glyoxal-*n*- and -*iso*-cenanthyline.** See *n*- and *iso*-Hexylglyoxalines.
- Glyoxalosotetrazone** (v. PECHMANN), 1888, A., 1288.
- Glyoxalsulphonic acid**, action of amido-bases on the sodium salt of (HINSBERG), 1892, A., 1458.
- Glyoxalylamidiformic acid** phenylhydrazone (KUHNING), 1892, A., 442.
- Glyoxime** (WITTENBERG and MEYER), 1883, A., 804.  
peroxide (SCHOLL), 1891, A., 282.  
phenylhydrazine (POLONOWSKY), 1888, A., 366.
- Glyoxime-mono- and -di-carboxylic acids**, dissociation constants of (HANTZSCH and MIOLATI), 1892, A., 1268.
- Glyoximes** (WITTENBERG and MEYER), 1883, A., 805.  
aliphatic stereoisomeric (HANTZSCH), 1892, A., 693.  
action of nitric peroxide on (SCHOLL), 1891, A., 315.  
chloro-, *amphi*- and *anti*- (HANTZSCH), 1892, A., 693.
- Glyoxylicyanide-bisphenylhydrazone and -osotetrazone** (v. PECHMANN and WEHSENG), 1889, A., 47, 48.
- Glyoxylicyanide- $\alpha$ -phenylhydrazone and - $\alpha$ -hydrazoxime** (v. PECHMANN and WEHSENG), 1889, A., 47, 48.
- Glyoxylicyanidephenyl- $\alpha$ -methylhydrazone** (v. PECHMANN and WEHSENG), 1889, A., 49.
- Glyoxylic acid in grapes** (BRUNNER and CHARD), 1886, A., 376.  
thermochemistry of (DE FOLCRAND), 1886, A., 297.  
calcium salt of, action of tolylenediamine on (HINSBERG), 1885, A., 910.  
phenylhydrazone (FISCHER), 1884, A., 1151; (EISELER), 1885, A., 535.
- Glyoxylic acids of the thiophen series** (RUFF), 1887, A., 804.
- Glyoxylpropionic acid and its derivatives** (WOLFF), 1891, A., 416.
- Gmelinite** from Nova Scotia (PIERSON), 1892, A., 21.
- Gneiss of Buia Spezia**, 1883, A., 960.
- Freiberg** (STILLNER), 1884, A., 829.
- Göthite** from Nova Scotia (HARRINGTON), 1891, A., 647.  
from Pitkananta in Finland (WEBULL), 1886, A., 24.  
from Saône-et-Loire (LACROIX), 1888, A., 503.
- Gold** (LEIBUR), 1886, A., 774.  
alluvial, genesis of (COHEN), 1889, A., 835.  
bismuthic (MACIVOR), 1887, A., 707.  
from Brazil (DERBY), 1885, A., 356.  
from Burmah (ROMANIS), 1887, T., 221.  
in calcite, native (DILLER), 1890, A., 569.  
Chaldean (BERTHELOT), 1887, A., 443.  
in turquoise, from New Mexico (GENTH), 1891, A., 155.  
from New South Wales (LIVERSIDGE), 1886, A., 774; (MACIVOR), 1888, A., 560.  
from Thibet, native (KALESHINSKY), 1887, A., 780.  
from Vorospatak (LOCZKA), 1886, A., 513.  
natural solutions of (BECKER), 1887, A., 555.  
atomic weight of (THORPE and LATRIE), 1887, T., 565, 866; P., 57, 106; (KRUS), 1887, A., 340, 778, 1019; 1888, A., 345; (MALLER), 1890, A., 708; (SEIBER), 1891, A., 885.  
molecular weight of (RAMSAY), 1889, T., 522, 533; P., 39.  
allotropic states of (PIERSEN), 1892, A., 405.

**Gold**, metal, extraction of (GOLZ), 1888, A., 1042.  
 extraction, electrolytic, of (CASSIDY), 1886, A., 109.  
 extraction, use of bromine in (BURLING), 1885, A., 1344.  
 extraction of, from ores by means of sodium thiosulphate (ANON.), 1884, A., 1084.  
 preparation of pure (KRUS), 1887, A., 554.  
 spectrum of (DEMARAY), 1888, A., 765.  
 spark spectrum of (KRUS), 1887, A., 555.  
 crystallisation of (DANA), 1886, A., 988.  
 crystallised, in prismatic forms (BLAKE), 1885, A., 487.  
 cooling of, containing aluminium (ROBERT-AUSIEN), 1891, A., 1161.  
 freezing point of, containing aluminium or silver (ROBERT-AUSIEN), 1891, A., 1161.  
 absorption of oxygen by (NEUMANN), 1892, A., 943.  
 occlusion of hydrogen by (NEUMANN and SREINIZ), 1892, A., 567.  
 action of (CARNOT), 1884, A., 115.  
 action of chlorine on (LINDER), 1888, A., 919.  
 behaviour of, in chromic and nitric acids (FROMME), 1883, A., 699, 700.  
 action of nitro-yl chloride on (SCHROBBERGH), 1891, T., 662.  
 action of silicon on (WALKER), 1889, A., 1125.  
 demercuring (FISHER), 1886, A., 109.  
 removal of, from suspension and solution by fungal growths (LIVERIDGE), 1891, A., 401.  
 toughening, in the melting crucible (BOOTH), 1884, A., 1445; 1885, A., 462.  
 Reynold's process for parting, from bars (GRIZKOW), 1885, A., 708.  
 effect of, on the freezing point of sodium (HEYCOCK and NEVILLE), 1889, T., 668.  
 effect of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 378.  
 lowering of the freezing points of bismuth, cadmium and lead by (HEYCOCK and NEVILLE), 1892, T., 897, 902, 909; P., 145.

#### Gold alloys:—

alloy with cadmium (HEYCOCK and NEVILLE), 1892, T., 914; P., 146.

#### Gold alloys:—

alloy with lead, analysis of (HEYCOCK and NEVILLE), 1892, T., 912.  
 alloys with cadmium and tin, freezing point of (HEYCOCK and NEVILLE), 1891, T., 936.  
 alloys with platinum, liquation of (MATHEW), 1890, A., 947.  
 alloys with sodium, properties of (HEYCOCK and NEVILLE), 1889, T., 670.  
**Gold**, compounds of, with nitrogen (RASCHE), 1887, A., 112.  
 fulminating (RASCHE), 1887, A., 112.  
 purple (*purpl. of Cassius*) (DEBRAY), 1885, A., 875.  
 preparation of (MULLER), 1885, A., 352.  
**Gold salts** (SCHOTTLANDER), 1883, A., 853.  
 potassium aurobromate, preparation of pure (THORPE and LAURIE), 1887, T., 868.  
 potassium bromide (SCHOTTLANDER), 1883, A., 854.  
 crystalline form of (SCHOTTLANDER), 1887, A., 1079.  
 potassium chloride, anhydrous (LATNER), 1890, A., 1217.  
 chlorides of the alkali metals, solubility of (ROSENBLADT), 1887, A., 16.  
 phosphobromides and phosphochlorobromides (LINDER), 1885, A., 1115.  
 "purple oxide" of, non-existence of (KRUS), 1887, A., 16.  
 oxides, hydrated (SCHOTTLANDER), 1883, A., 855.  
 hydrosulphide (LINDER and PRIGON), 1892, T., 135.  
 sulphide, natural (ATHERTON), 1892, A., 283.  
 tellurides, roasting of (KISTEL), 1883, A., 691.  
**Auric acid**, non-existence of (KRUS), 1887, A., 16.  
**Auric bromide and chloride** (KRUS and SCHMIDT), 1888, A., 28, 1256.  
 chloride, anhydrous (LINDER), 1886, A., 430.  
 sublimed (KRUS), 1887, A., 341.  
 action of hydrogen on (KRUS), 1887, A., 450.  
 action of phosphine on (CAVAZZI), 1885, A., 875.  
 decomposition of, in solution (FOUSSEREAU), 1886, A., 975.  
 compound of, with sulphur and selenium *nitrochlorides* (LINDER), 1886, A., 310.

**Gold salts:—**

- Auric** iodide chloride (RASHIG), 1887, A., 112.  
 phosphoric chloride (LINDER), 1884, A., 968.  
 oxide (KRUSS), 1887, A., 16, 450.  
 sulphide (HOFFMANN and KRUSS), 1887, A., 1019; 1888, A., 29;  
 (ANTONY and LICHTENFELDER), 1891, A., 526.  
 properties and reactions of (ANTONY and LICHTENFELDER), 1892, A., 280.

**Auro-auric** chloride, preparation of (THOMSEN), 1888, A., 359.

non-existence of (KRUSS and SCHMIDT), 1888, A., 28.

oxide (KRUSS), 1887, A., 15, 450.

sulphide (HOFFMANN and KRUSS), 1888, A., 29.

colloidal (SCHNEIDER), 1891, A., 1162.

actions of (ANTONY and LICHTENFELDER), 1890, A., 1217.

solution of, in ethylic alcohol (SCHNEIDER), 1892, A., 775.

**Aurous** phosphorous chloride (LINDER), 1884, A., 968.

action of alcohols on (LINDER), 1887, A., 227.

oxide (KRUSS), 1887, A., 15, 450;  
 (RASHIG), 1887, A., 112.

salts of (CARNOT), 1884, A., 17.

sulphide (HOFFMANN and KRUSS), 1887, A., 1020.

colloidal (SCHNEIDER), 1891, A., 1162.

solution of, in ethylic alcohol (SCHNEIDER), 1892, A., 775.

**Auryl** nitrate and sulphate (SCHOTT LINDER), 1883, A., 355.**Gold, detection, estimation and separation:—**

detection, electrolytic, of (KOHN), 1892, A., 541.

assay of, in bar copper (WESTMORELAND), 1887, A., 81.

assay of fine, errors in the (CHARPENTIER), 1889, A., 798.

assaying, use of cadmium in (WHITEHEAD), 1892, A., 919.

estimation of minute quantities of (GOZDORF), 1887, A., 184; (TATE), 1890, A., 830.

estimation of small quantities of, in base metals (WHITEHEAD), 1892, A., 1525.

estimation of cadmium, tin and, in alloys (FRENCH), 1892, A., 1030.

**Gold, estimation and separation:—**

estimation of silver and, in potassium and solutions (CHIFFOLEAU), 1889, A., 189.

estimation of, by means of hydroxylamine hydrochloride (LAINEL), 1892, A., 662.

estimation, colorimetric, of (CARNOT), 1884, A., 17, 115.

estimation, electrolytic, of (SMITH), 1891, A., 1140; (SMITH and MURR), 1891, A., 1296, 1396.

estimation, volumetric, of (FRANCKEN), 1892, A., 1526.

separation of, by Gutzkow's process in California (ANON.), 1883, A., 251.

separation of, from other metals (KRUSS), 1887, A., 555.

separation of, from arsenic, antimony and tin (DR KONINK and LICHTENFELDER), 1888, A., 1344.

separation of, from the platinum metals (BLATT), 1887, A., 1084.

separation of, from sulphides by alkaline (ANON.), 1883, A., 400.

separation, electrolytic, of, from arsenic, molybdenum, tungsten and osmium (SMITH and WATSON), 1892, A., 920.

separation, electrolytic, of, from cobalt (SMITH), 1891, A., 1141;

(SMITH and MURR), 1891, A., 1296, 1396.

separation, electrolytic, of, from cobalt, copper, nickel, palladium and platinum (SMITH and MURR), 1891, A., 1396.

separation, electrolytic, of, from zinc (SMITH), 1891, A., 1140.

separation, quantitative, of platinum and, from tin, antimony and arsenic (FRIESEN), 1886, A., 651.

**Gold-bearing** hot spring deposit (WERNER), 1892, A., 24.

**Gold-beds** of Mount Morgan, Queensland (JACK), 1886, A., 21.

**Gold-coloured** surface on brass, production of (PUSHER), 1884, A., 128.

**Gold-quartz** from the Transvaal (HOLLAND), 1888, A., 428.

**Gombo**, cultivation of (GREGG), 1883, A., 613.

**Gonolobus Cundurungo**, constituents of the bark of (FARRAR), 1891, A., 1887.

**Goose fat** (LEFFENBERG), 1883, A., 741.

**Gordaites** (ALZERI and FERRARI), 1891, A., 649.

**Goslarite** from Montana (PEARSON), 1887, A., 346.

See also Zinc sulphate.

- Gossypose.** See Carbohydrates.
- Gourds.** See Agricultural Chemistry.
- Gout,** latent, Pfeiffer's test for (ROBERTS), 1890, A., 401.
- Goyazite** (DAMOUR), 1885, A., 640.
- Grains and Gramineæ.** See Agricultural Chemistry.
- Graminin** (EKSTRAND and JOHANSSON), 1888, A., 246, 439.  
molecular weight of (EKSTRAND and MAUZELIUS), 1890, A., 227.
- Grammatite.** See Tremolite.
- Grandiflorine** (FREIRE), 1888, A., 166.
- Grangesite** (LACHOIX), 1887, A., 351.
- Granite,** Greifenstein, rutile and cassiterite in (V. MIKLECH-MACLAY), 1885, A., 1185.  
Rapakiwi, from Finland (V. UNGER-STERNBERG), 1883, A., 447.  
vein, near Tryberg in the Black Forest (WILLIAMS), 1883, A., 724.  
weathering of (HILGER and LAMPERT), 1886, A., 995.
- Granites** from Ričan (KATZER), 1889, A., 357.  
on the banks of the Saône (GONNARD), 1883, A., 36.  
soda, so-called (GERHARD), 1888, A., 236.
- Granite district** of the Black Forest (KLOOS), 1884, A., 1273.
- Granite hills** of Königshain, in Oberlausitz, with especial regard to the minerals found therein (WORTSCHACH), 1883, A., 446.
- Granitic rocks** of the Ural (ARZTUN), 1886, A., 995.
- Granitite,** "Tryberg" (WILLIAMS), 1883, A., 723.
- Granuline** (SQUACCHI), 1883, A., 1065.
- Granulite,** minerals from (SAUER), 1888, A., 34.
- Grapes.** See Agricultural Chemistry.
- Grape-juice,** rapid fermentation of (AUDOYNARD), 1888, A., 989.  
solubility of the colouring matter of wine in the various constituents of (GANTER), 1883, A., 1141.
- Grape-seed oil,** preparation and utilisation of (V. JOST), 1885, A., 710.
- Grape-stones,** nuclein of (AMTHOR), 1885, A., 823.
- Grape-sugar.** See Dextrose under Carbohydrates.
- Graphite** from the Bagoutal Mts., Siberia (COLLINS), 1888, A., 428.  
from Ceylon (V. SANDBERGER), 1887, A., 901.  
from Dakota (HRADEN), 1891, A., 1328.
- Graphite** from Kaison, analysis of (BOUSSINGAULT), 1883, A., 941.  
New Zealand (MACVOR), 1887, A., 555.  
from various metals (WARREN), 1889, A., 313.  
in pig iron (JORDAN and TURNER), 1886, T., 220.  
celestial (ANSDALL and DEWAR), 1887, A., 351.  
metamorphic (KARPINSKY), 1888, A., 115.  
varieties of (LUZI), 1892, A., 565.  
different forms of, and their derivatives (BERTHELOT and PETIT), 1890, A., 448.  
formation of, by contact metamorphosis (BECK and LUZI), 1891, A., 989.  
artificial formation of (LUZI), 1892, A., 407.  
corundum in (WICHMANN), 1886, A., 23.  
physical properties of (SÖGREN), 1886, A., 774.  
action of nitric acid on (LUZI), 1892, A., 406.  
estimation of carbon in (WIDMER), 1890, A., 923.  
estimation of, in minerals (MACKINTOSH), 1885, A., 689: 1890, A., 923.  
See also Carbon.
- Graphite-crucibles** (BOOTH), 1885, A., 616.
- Graphitic acid** (BARTOLI and PAPA-SOGLI), 1883, A., 593.
- Graphitic carbon.** See Carbon.
- Graphitic oxide.** See Carbon hydroxide.
- Graphitoid** (*amorphous carbon*) in the Saxon Erzgebirge (SAUER), 1887, A., 341.  
allotropy of (LUZI), 1892, A., 945.
- Grass,** China, preparation and dyeing of (ANON.), 1884, A., 797.  
See also Agricultural Chemistry.
- Grass-oils,** Indian (DODGE), 1890, A., 231; 1891, A., 285.
- Gravimetric analysis.** See Analysis.
- Gravitation and atomic weight** (DULK), 1885, A., 722; 1886, A., 591.
- Gravitational forces** (PEARSON), 1888, A., 909.
- Gravity,** specific. See Specific gravity.
- Gravivolumeter** (JAPP), 1891, T., 894; P., 68; (LUNGE), 1891, P., 168, 171; 1891, A., 1135.
- Grease,** analysis of (ARCHBUTT), 1889, A., 321.  
estimation of (GADD and LEES), 1891, A., 1144.  
See also Fat.

- Greenockite**, synthesis of (LORENZ), 1891, A., 990.  
See also Cadmium sulphide.
- Gregarinæ**, amylaceous granules in (MAYPAS), 1886, A., 333.  
composition of the granules of the entoplasm of (BUENIL), 1886, A., 87.
- Grevillea gum** (FLEURY), 1885, A., 238.
- Grigulandite** (HEPBURN), 1887, A., 709; (BROUGH), 1888, A., 236.
- Groddeckite**, a zeolite (ANZUNZI), 1885, A., 32.
- Grossular**, pseudomorphs of, after gehlenite (CATHREIN), 1889, A., 24.
- Grossularite**, pink, from Mexico (DE LANDERO), 1891, A., 993.
- Growth of plants**, effect of artificial influences on (WOLLNY), 1884, A., 624.  
loss of nitrogen by plants during (ATWATER and ROCKWOOD), 1887, A., 292.  
See also Agricultural Chemistry.
- Grünerite** from Michigan (LANE, KELLER and SHARPLESS), 1892, A., 793.
- Guaiaacol**, action of nitrous acid on (HERZIG), 1883, A., 464.  
physiological action of (MARFORI), 1891, A., 99.  
glucoside (MICHAEL), 1885, A., 521.
- Guaiaacol diamido-**, *dä*mido-, and *di*-nitro- (HERZIG), 1884, A., 464.  
*p*-nitroso- (BEST), 1890, A., 608.
- Guaiaacolphthalein** (v. BÄYER and KOCHENDOERFER), 1889, A., 1153.
- Guaiaconic acid** (HERZIG), 1883, A., 470.
- Guaiaacum resin**, action of ozone on (KOWALEWSKY), 1889, A., 900.  
distinguishing purified from natural (HAGER), 1887, A., 752.
- Guaiaretic acid** (HERZIG), 1883, A., 470.
- Guanajuatite**. See Frenzelite.
- Guanamine**, synthesis of (BAMBERGER and DIECKMANN), 1892, A., 786.
- Guanamines** (HAAF), 1891, A., 416.
- Guanidine** (EMICH), 1891, A., 1180.  
occurrence of, in plants (SCHULZE), 1892, A., 908.  
constitution of (EMICH), 1883, A., 973.  
thermochemistry of (MATIGNON), 1892, A., 1142.  
condensation of, with ethereal salts of  $\beta$ -ketonic acids (JAEGER), 1891, A., 1007.  
compounds of, with diketones (WENSE), 1886, A., 556.
- Guanidine**, derivatives, action of ethyl-oxalic chloride on (v. STOENTIN), 1885, A., 1195.
- Guanidine salts** (MATIGNON), 1892, A., 1142.  
cyanurate (BAMBERGER), 1887, A., 358.  
nitrite (LOSSEN), 1892, A., 53.  
picrate (EMICH), 1891, A., 1180.  
platinothiocyanate (GUARESCHI), 1892, A., 287.  
thiocyanate (ENGEL), 1886, A., 330.
- Guanidine**, test for (SCHULZE), 1892, A., 926.  
picric acid as a reagent for (PRELINGER), 1892, A., 950.
- Guanidine**, amido-, and its derivatives (THIELE), 1892, A., 1295.  
bromo- (HIRSCH), 1888, A., 947.  
nitro- (PELLIZZARI), 1892, A., 579; (FRANCHIMONT), 1892, A., 961; (THIELE), 1892, A., 1295.  
thermochemistry of (MATIGNON), 1892, A., 1142.
- Guanidobutyric acid**, hydrochloride of (DÜVILLIER), 1883, A., 1154.
- Guanine**, occurrence of (BAGINSKY), 1885, A., 286.  
in fish (EWALD and KRUCKENBERG), 1884, A., 623.  
in the excrement of spiders (WEINLAND), 1889, A., 430.  
as a plant-constituent (SCHULZE; BOSSHARD), 1885, A., 1007.  
colour reaction of (v. BRÜCKE), 1887, A., 280.  
estimation of (SCHINDLER), 1889, A., 790.  
estimation of, in various organs, and in fresh and fermented yeast (SCHINDLER), 1889, A., 791.  
separation of, from hypoxanthine (KOSSEL), 1885, A., 286.  
bromo- (FISCHER and REER), 1884, A., 467.
- Guano**. See Agricultural Chemistry.
- Guanylcaramide**, preparation of (SMOLKA and FRIEDREICH), 1889, A., 951.  
synthesis of (BAMBERGER), 1887, A., 357.  
salts (BAMBERGER), 1887, A., 358.
- Guanylthiocaramide** (BAMBERGER), 1883, A., 1090.
- Guarana**, estimation of caffeine in (FEEMSTER), 1883, A., 232; (KREMBEL), 1888, A., 876.
- Guejarite** from Bolivia (v. SANDBERGER), 1886, A., 431.
- Guitermanite** from Colorado (HILDEBRAND), 1885, A., 879.

*d*-Gulonic acid, preparation of (FISCHER and PILOTT), 1891, A., 678.  
*l*-Gulonic acid (FISCHER and STAHEL), 1891, A., 667.  
 Gulonic acids, *i*- and *l*- (FISCHER and CURTISS), 1892, A., 822.  
*i*-Gulonolactone (FISCHER and STAHEL), 1891, A., 668.  
 Gulonolactones, *α*- and *l*- (FISCHER and CURTISS), 1892, A., 822.  
 Gulose. See Carbohydrates.  
 Gum from Araucarias (HECKEL and SCHLAGDENHAUFFEN), 1889, A., 1236.  
   from the sugar-beet (v. LIPPMANN), 1891, A., 284.  
   from urushi (*lacquer*), examination of (YOSHIDA), 1883, T., 481.  
   formation and physiological significance of (FRANK), 1885, A., 684.  
   animal (LANDWEHR), 1887, A., 26; 1888, A., 175.  
     in normal urine (WEDENSKI), 1889, A., 293.  
   gedda (O'SULLIVAN), 1891, T., 1029; P., 131.  
   Grevillea (FLEURY), 1885, A., 238.  
   peach-, carbohydrates in (STONE), 1890, A., 1022.  
     saccharine matter in (BAUER), 1888, A., 744.  
   plum-, galactose from (BAUER), 1888, A., 1329.  
   straw- (HEBERT), 1890, A., 1460.  
   wood-. See Xylan.  
 Gums of the arabin group (O'SULLIVAN), 1884, T., 41; 1891, T., 1029; P., 131.  
   which yield xylose, occurrence of (VONWINKEL), 1892, A., 380; (HEBERT), 1892, A., 1371.  
   colour reactions of (IHL), 1887, A., 534.  
   examination of (WILLIAMS), 1889, A., 322.  
 Gum-arabic (LIEBERMANN), 1891, A., 866.  
   casein-glue, a substitute for (KAYSER), 1885, A., 1024.  
   adulteration of, with gum-senegal (LIEBERMANN), 1891, A., 866.  
   solution, improved (ANON.), 1886, A., 188.  
   estimation of, in syrup (ANDOUARD), 1885, A., 299.  
 Gum-ferment (WIESNER), 1885, A., 1241.  
 Gum-ferments, nature of (REINITZER), 1890, A., 998.  
 Gummites and similar minerals, analyses of (v. FOULLON), 1885, A., 223.

Gum-senegal (LIEBERMANN), 1891, A., 866.  
 Gum-tragacanth (OGLE), 1890, A., 228.  
 Gun-cotton, compressed, experiments with (v. FORTNER), 1884, A., 948.  
   sodium nitrate in (NETTEFOLD), 1887, A., 715.  
   regeneration of acid residues in the manufacture of (ALLARY), 1887, A., 770.  
   estimation of calcium and magnesium in (SCHJERNING), 1889, A., 1032; 1892, A., 1520.  
   See also Cellulose nitrates and Pyroxylin.  
 Gunpowder, chemical theory of (DEBUS), 1883, A., 258.  
   flashing test for (MUNROE), 1884, A., 927.  
 Gutta-percha from *Bassia Parkii* (HECKEL and SCHLAGDENHAUFFEN), 1886, A., 249.  
 Guvacine (JAHNS), 1891, A., 1520; 1892, A., 740.  
   nitroso- (JAHNS), 1892, A., 740.  
*Gymnema latifolium*, amygdalin in the leaves of (GRESHOFF), 1891, A., 338.  
 Gymnemic acid (HOOPER), 1889, A., 723.  
*Gymcardia odorata* (HECKEL and SCHLAGDENHAUFFEN), 1885, A., 927.  
 Gypsum. See Calcium sulphate.  
 Gyrolite from California (CLARKE), 1890, A., 343.

## H.

Hæmafibrin (SJOGREN), 1885, A., 959; (BERTRAND), 1886, A., 601.  
 Hæmatein (ERDMANN and SCHULTZ), 1883, A., 349.  
 Hæmatic acid (STRUYVE), 1885, A., 71.  
 Hæmatin (NENCKI and SIEBER), 1885, A., 69.  
   and bile pigments (MACMUNN), 1886, A., 638.  
   spectrum, sensitiveness of (JANEČEK), 1892, A., 1369.  
   action of reducing agents on (LE NOBEL), 1887, A., 1127.  
   reduction products of, in pathological urine (LE NOBEL), 1887, A., 1127.  
   compounds of (HARRIS), 1886, A., 1052.  
   compound of, with nitric oxide (LINOSSIER), 1887, A., 854.  
 Myohæmatin (MACMUNN), 1886, A., 568; 1887, A., 983; 1889, A., 1024; 1890, A., 652; (COPEMAN), 1891, A., 478.

**Hæmatite** from the Hargita Mountains (SCHMIDT), 1884, A., 405; (LOCZKA), 1892, A., 1054.

regular polyhedral cavities in (CLAUSEN), 1888, A., 1066.

See also Ferric oxide under Iron.

**Hæmatococcus**, assimilation by (ENGELMANN), 1883, A., 611.

**Hæmatoidin**, origin of, in extravasations and thrombi (NEUMANN), 1888, A., 864.

**Hæmatolin** (NENCKI and SIEBER), 1885, A., 70.

**Hæmatolite**. See Diadelphite.

**Hæmatoporphyrin** (NENCKI and SIEBER), 1885, A., 70; 1888, A., 971; (MACMUNN), 1886, A., 638; 1888, A., 304; (LE NOBEL), 1887, A., 1127. in molluscs (MACMUNN), 1887, A., 613. molecular weight of (NENCKI and ROTSCHY), 1890, A., 76.

detection of, in urine (SALKOWSKI), 1891, A., 601, 1130; (HALLIBURTON), 1891, A., 1279; (HAMMARSTEN), 1892, A., 649, 1136.

*iso* **Hæmatoporphyrin** (LE NOBEL), 1887, A., 1127; (MACMUNN), 1888, A., 615.

**Hæmatoporphyrinuria** (HARLEY and TORUP), 1891, A., 601; (HALLIBURTON), 1891, A., 1279; (SOBERNHEIM), 1892, A., 1118; (GARROD), 1892, A., 1506.

**Hæmatoporphyrinoidin** (LE NOBEL), 1887, A., 1127.

**Hæmatoscope** (HÉNOQUE), 1887, A., 312. use of (HÉNOQUE), 1888, A., 204.

**Hæmatoscopy**, a method of blood analysis (HÉNOQUE), 1887, A., 312.

**Hæmatosin**, action of hydrogen peroxide on (BÉCHAMP), 1883, A., 103.

**Hæmatostibiite** from Örebro (IGELSTRÖM), 1887, A., 645.

**Hæmatoxylin** (ERDMANN and SCHULTZ), 1883, A., 349; (LINOSTER), 1891, A., 751; (PHIPSON), 1891, A., 845. action of chlorine on (MACFARLANE and CLARKSON), 1890, A., 905. use of, in alkalimetry (GUYARD), 1884, A., 638.

derivatives of (DRALLE; v. BUCHKA), 1884, A., 1043.

**Hæmic acid** (STRUBE), 1885, A., 72.

**Hæmidin crystals** (AMTHOR), 1887, A., 408.

**Hæmin**, crystallographic form of (LAGORIO), 1885, A., 567; (BIKFALVI), 1887, A., 165.

preparation of (NENCKI and SIEBER), 1885, A., 69; (SCHALFÉEFF), 1885, A., 566; (HOPPE-SEYLER), 1885, A., 826.

**Hæmin**, action of ammonia on (SCHALFÉEFF), 1886, A., 165.

iodo-, formation of, as a method for detecting blood stains (BUFALINI), 1886, A., 184.

**Hæmochromogen** (MACMUNN), 1884, A., 196; 1886, A., 568.

**Hæmocyanin** (GRIFFITHS; HEIM), 1892, A., 898; (FREDERICQ; CUÉNOT), 1892, A., 1370.

preservation of (FREDERICQ), 1891, A., 591.

respiratory value of (CUÉNOT), 1892, A., 1370.

**Hæmoglobin** (SIEGFRIED), 1891, A., 845.

of dog's blood (JAQUET), 1888, A., 731; 1890, A., 273.

of hen (JAQUET), 1890, A., 274.

is it present in the free state in the blood plasma of the splenic vein? (SCHIFFER), 1890, A., 1016.

in blood, increase of, at great altitudes (MÜNTZ), 1891, A., 754.

cutaneous pigment as an antecedent of (DELEPINE), 1891, A., 480.

preparation of (ZINOFFSKY), 1886, A., 165.

molecule (ZINOFFSKY), 1886, A., 165.

heat of combustion of (BEITHELOT and ANDRÉ), 1890, A., 938.

colloidal solutions of (PITON and LINDER), 1892, T., 157, 162.

crystallisation of (MAXET), 1889, A., 1223; (COPEMAN), 1891, A., 343.

crystals in septic diseases (BOND), 1888, A., 181.

crystals, method of obtaining (v. STRIN), 1885, A., 406; (JÄDERHOLM), 1885, A., 407.

crystals of rodents (HALLIBURTON), 1886, A., 637.

crystals, venous (NENCKI and SIEBER), 1886, A., 374, 482.

poisons and drugs which act on, especially those which convert it into methæmoglobin (HAYEM), 1884, A., 764.

reciprocal action between protoplasm and (SCHWARTZ), 1889, A., 629.

resistance of, towards different decomposing agents (KRÜGER), 1888, A., 510.

transformation of, in the bile (FILHNE), 1891, A., 482.

conversion of, into methæmoglobin (HAYEM), 1886, A., 637.

decomposition products of (HOPPE-SEYLER), 1886, A., 726.

decomposition of, into albumin and hæmatin, amount of oxygen taken up in the (LEBENSBAUM), 1887, A., 854.

**Hæmoglobin**, reduced (HERMANN), 1889, A., 530.

compounds of, with oxygen (BOHR), 1890, A., 1450; 1892, A., 1369.

carbonic-oxide- (*carboxyhaemoglobin*) (SALFELD), 1884, A., 313; (LACHOWICZ and NENCKI), 1885, A., 1251; (BOHR), 1891, A., 343.

behaviour of (HOPPE-SEYLER), 1889, A., 788.

solutions of (PITON and LINDER), 1892, T., 159.

conversion of, into methæmoglobin (BERTIN-SANS and MOITTESSIER), 1891, A., 1522.

detection of (WETZEL), 1890, A., 432, 1200.

Hoppe-Seyler's soda test for (SALKOWSKI), 1888, A., 510.

reaction of (V. ZALEWSKI), 1885, A., 825.

detection of, in urine (ROSENTHAL), 1886, A., 956.

estimation of, in blood by optical means (BRANLEY), 1883, A., 394.

estimation of, in blood passing to and from the liver and spleen (V. MIDDENDOFF), 1889, A., 1023.

estimation of, in the blood during inanition (GROLL and HERMANN), 1889, A., 531.

estimation, colorimetric, of (HOPPE-SEYLER), 1892, A., 1264.

ψ-Hæmoglobin (SIEGFRIED), 1891, A., 845.

**Hæmoglobins**, conditions of absorption of various (JULIN), 1890, A., 182.

**Cholomethæmoglobin** (WERTHEIMER and MEYER), 1889, A., 637.

**Methæmoglobin** (HOPPE-SEYLER), 1883, A., 814; (OTTO), 1884, A., 911; (LACHOWICZ and NENCKI), 1885, A., 1251; (ARAKI), 1890, A., 1012.

conversion of carboxyhaemoglobin into (BERTIN-SANS and MOITTESSIER), 1891, A., 1522.

conversion of hemoglobin into (HAYEM), 1886, A., 637.

formation of, in blood by the action of alloxantin (KOWALEWSKY), 1887, A., 508.

acid, spectrum of (BERTIN-SANS), 1888, A., 858.

crystalline, from the dog (HUFNER), 1885, A., 276; (JÄDERHOLM), 1885, A., 407.

crystals of rodents (HALLIBURTON), 1886, A., 637.

study of (JÄDERHOLM), 1885, A., 407.

**Hæmoglobins** :—

**Methæmoglobin**, estimation of, in presence of oxyhaemoglobin (LAMBLING), 1889, A., 660.

sulphur- (ARAKI), 1890, A., 1013.

cyano- (KOBERT), 1892, A., 361.

**Oxyhaemoglobin** in the bile (WERTHEIMER and MEYER), 1889, A., 636; (STERN), 1891, A., 599.

of the dog (HUFNER), 1883, A., 678.

of the horse (HUFNER and BUCHLER), 1885, A., 277.

formation of, from hæmatin and a proteid (BERTIN-SANS and MOITTESSIER), 1892, A., 1017.

crystals, oxygen in (BOHR and TORUP), 1892, A., 1017.

absorption of light by (KRUGER), 1887, A., 1126.

solutions of (PITON and LINDER), 1892, T., 158.

tension of oxygen in (HUFNER), 1888, A., 1214.

stability of (YEO), 1890, A., 1012.

influence of temperature on the tension of dissociation of (BRASSE), 1889, A., 630.

does water free from oxygen act on? (HUFNER), 1886, A., 567.

reducing action of indigo-white on (LAMBLING), 1889, A., 530.

reduction of, in the heart (HANDLER), 1889, A., 1225.

reduction of, in typhoid fever (HÉNOCQUE and BAUDOUIN), 1888, A., 865.

activity of reduction of (HÉNOCQUE), 1888, A., 512.

preservation of (FREDERICQ), 1891, A., 591.

estimation of methæmoglobin in presence of (LAMBLING), 1889, A., 660.

**Parahæmoglobin** (NENCKI and SIFBER), 1885, A., 826; (LACHOWICZ and NENCKI), 1885, A., 1251.

**Hæmosiderin** (ABEL), 1890, A., 1452.

origin of, in extravasations and thrombi (NEUMANN), 1888, A., 864.

**Hagemannite** (GROTH), 1884, A., 265.

**Hailstones**, temperature of (BOUSSINGAULT), 1885, A., 685.

**Hailstorms** and their origin (RINICKER; DÖSEKEL), 1883, A., 234.

forests as a protection against (GLASER), 1884, A., 632.

**Halloysite** from California, analysis of (CLARKE and CHATARD), 1885, A., 492.

**Halogen acids**, actions of (BAILEY and FOWLER), 1888, T., 755; P., 79.

- Halogen acids**, action of light on, in presence of oxygen (RICHARDSON), 1887, T., 801.  
 estimation of, in presence of hydrogen sulphide (CLASSEN and BAUER), 1883, A., 931.  
 mercuric acids (NEUMANN), 1889, A., 1049.  
 oxy-acids, products and rate of decomposition of the salts of, by heat (POTILIZIN), 1888, A., 219; 1889, A., 338.
- Halogen carriers** (WILLGERODT), 1885, A., 1034; 1887, A., 130, 326; (MEYER), 1887, A., 326.  
 carriers in the natural groups of the elements (WILLGERODT), 1887, A., 806.  
 compounds, electrolytic conductivity of (HAMPE), 1888, A., 211, 887.  
 magnetic rotation of (PERKIN), 1890, P., 142.  
 ethers of the benzene series, saponification of, by neutral substances (COLSON), 1885, A., 146.
- Halogen salts**, thermochemistry of (BERTHELOT), 1884, A., 656.  
 melting points of, in relation to the contraction occurring during their formation from their elements (MÜLLER-ERZBACH), 1884, A., 709.  
 solubilities of (ÉTARD), 1884, A., 960.  
 of the alkalis, action of, on oxides of the heavy metals (BERSCH), 1891, A., 1413.  
 action of sulphuric acid on, in presence of some metallic salts (VITALI), 1890, A., 289.  
 double (REMSEN; HERTY), 1892, A., 779.  
 constitution of (REMSEN), 1889, A., 934.  
 compounds of, with oxy-salts of the same metal (LE CHATELIER), 1884, A., 1261.  
 quinine test for (DIVERS), 1885, T., 210.
- Halogens**, refraction equivalents of (GLADSTONE), 1884, T., 256.  
 density of, at high temperatures (BERTHELOT), 1884, A., 804.  
 specific volumes of, in carbon compounds (SCHALFKEFF), 1885, A., 717.  
 surface tension of (TRUSSEWITSCH), 1891, A., 257.  
 reaction aptitudes of, in mixed haloid ethers (HENRY), 1883, A., 787.
- Halogens**, action of, on aromatic compounds in presence of light (SCHRAMM), 1885, A., 767; 1886, A., 151; 1887, A., 507; 1889, A., 210; 1891, A., 898.  
 action between metals and, velocity of (STCHUKAREFF), 1891, A., 1149.  
 mutual displacement of (BERTHELOT), 1883, A., 8; (LASAREVA), 1892, A., 1270.  
 mutual displacement of, in their compounds with oxygen (THORPE and RODGER), 1888, P., 20; (POTILIZIN), 1888, A., 220.  
 displacement of, by the amido-group (SEELIG), 1891, A., 36.  
 reciprocal displacement of oxygen and (BERTHELOT), 1890, A., 6.  
 reactions for distinguishing, when mixed together (HAGER), 1885, A., 1010.  
 estimation of free, in presence of chlorides and bromides (LEBEAU), 1890, A., 825.  
 estimation of, in the side-chains of aromatic compounds (SCHULZE), 1884, A., 1422; (KINNICUTT and SWEETNER), 1885, A., 1010.  
 estimation of, in carbon compounds (MULDER and HAMBURGER), 1883, A., 379; (ZULKOWSKI and LEPÉZ), 1885, A., 591; (ZULKOWSKI), 1885, A., 1162; (KLASON), 1886, A., 918.  
 estimation of, in volatile organic compounds (PLIMPTON and GRAVES), 1883, T., 119.  
 separation, quantitative, of (WEISS), 1886, A., 97.  
 See also Bromine, Chlorine, Fluorine and Iodine.
- Halotrichite** from Colorado (BAILEY), 1891, A., 993.  
 from the Falu Mine (WEIBULL), 1886, A., 25.  
 from New Mexico, analysis of (CLARKE and CHATARD), 1885, A., 492.  
 from the Tyrol (HOCKATF), 1888, A., 923.
- Hamathionic acid** (SPIEGEL), 1883, A., 219.
- Hambergite** (BRÖGGER), 1890, A., 1078.
- Hamlinite** (HIDDEN and PENFIELD), 1891, A., 20.
- Hanksite** (DANA and PENFIELD), 1886, A., 315.  
 in California (HANKS), 1889, A., 471.
- Hannayite** (MACIVOR), 1887, A., 709.  
 "Hardhead," estimation of tin in (PRESENTUS and HINTZ), 1886, A., 180.

- Haricot beans**, cooked, composition of (WILLIAMS), 1892, T., 227.
- Harmaline**, **harmalol** and **harmine** (FISCHER and TÄUBER), 1885, A., 820; (FISCHER), 1889, A., 730.
- apoHarmine* (FISCHER), 1889, A., 731.
- Harminic acid** and **harmol** (FISCHER and TÄUBER), 1885, A., 820.
- Harmolic acid** (FISCHER), 1889, A., 731.
- Harmotome** in Wicklow (JOLY), 1888, A., 116.
- Harstigit** (FLINK), 1888, A., 232.
- Hatchettite** from Seraing (DEWALQUE), 1885, A., 220.
- Hauerite**, artificial production of (DÜRLTER), 1886, A., 208.
- Hausmannite**, artificial (GORGEU), 1883, A., 859, 1062.  
See also Trimanganese tetroxide under Manganese.
- Hay**. See Agricultural Chemistry.
- Haydenite** (MOHSE and BAYLEY), 1884, A., 1271.
- Hayesine**. See Ulexite.
- Hazel pollen**, chemical composition of (V. PLANTA), 1885, A., 182.
- Heart**, action of nicotine on (COLAS), 1891, A., 96.  
effect of carbohydrates on the action of the (ALBERTON), 1889, A., 1023.  
reduction of oxyhæmoglobin in the (HANDLER), 1889, A., 1225.
- Heart-disease**, nature of the effusions in (HALLIBURTON), 1890, A., 1174.
- Heat** liberated by the compression of solid bodies (SPRING), 1884, A., 949.  
distribution of, in the ultra-red region of the solar spectrum (DESAINS), 1883, A., 143.  
phosphorescence of minerals under the influence of (BEUGEREL), 1891, A., 776.  
effect of, on the optical properties of vesuvian, apatite and tourmaline (DOELTER), 1885, A., 26.  
development of, in electrolytes (PLANCK), 1890, A., 677.  
changes at the poles of a voltmeter (EDLUND), 1883, A., 767.  
animal (BERTHELOT and PETIT), 1890, A., 206.  
relation of the production of, to the destruction of glucose (CHAUVEAU and KAUFMANN), 1887, A., 289.  
production of, in animals, calorimetric investigations on (ROSENTHAL), 1890, A., 182.
- Heat**, production of, in nerves during excitation (STEWART), 1892, A., 365.  
action of, on the animal system (SENATOR), 1884, A., 1393.  
the theory of, and living motors (LEZÉ), 1890, A., 807.  
radiation of, from the earth (TYNDALL), 1884, A., 486.  
radiation of, and solar radiation, comparative action of (DUCLAUX), 1887, A., 411.  
solar, measurement of (FRÜHLICH), 1885, A., 326.  
See also Thermochemistry.
- Heather** (*Erica vulgaris*) and its ash, analysis of (PETERMANN), 1884, A., 207.
- Heating** by gas (MEYER), 1889, A., 751.  
apparatus for drying and (MEYER), 1886, A., 278.
- Heating power** of coal, formulæ for calculating (SCHEURER-KESTNER), 1892, A., 1143.
- Heavy-spar**. See Barium sulphate and Barytes.
- Helera Helix*, constituents of (BLOCK), 1889, A., 294.
- Hederaglycoside** (BLOCK), 1889, A., 294.
- Helychium spicatum*, proximate constituents of (THRESH), 1885, A., 582.
- Heintzite** (*hintzeite*) (MILCH), 1891, A., 528; (LUEDECKE), 1891, A., 528; 1892, A., 791; (FEIT), 1892, A., 791.
- Helianthin** (*methyl-orange*) (MÜHLAU), 1884, A., 1149; (BERNTSEN and GONKE), 1887, A., 666.  
as an indicator (THOMSON), 1883, A., 682, 824, 827; 1884, A., 691, 869.  
description and measurement of the spectrum of (HANTLEY), 1887, T., 192.
- Helichrysin** (ROSOLL), 1884, A., 817.
- Helicin**. See Glucosides.
- Helicinaldoxime** (HEMANN and KEES), 1885, A., 1073.
- Heliophyllite**. See Eklundite.
- Helix pomatia*, the so-called liver of (LEVY), 1891, A., 235.
- Helvite**, an American locality for (LEWIS), 1885, A., 227.  
from Hungary (KALECSINSZKY), 1892, A., 1412.  
from Virginia (HAINES), 1883, A., 437.
- Hemato-alkalimetry**, method of (DROVIN), 1891, A., 848.
- Hemellithene**. See Hemimellitene.
- Hemialbumose** (KUHNE and CHITTENDEN), 1884, A., 849; 1886, A., 819; (HERTH), 1884, A., 1388; 1886, A., 567; (AXENFELD), 1887, A., 1127.

- Hemialbumose** in urine (KUHNE), 1884, A., 854.  
 preparation of, from vegetable albumin (SZYMANSKI), 1885, A., 997.
- Hemialbumosuria** (TER-GRIGORIANZ), 1883, A., 1162.
- Hemicelluloses** (SCHULZE), 1891, A., 1179; 1892, A., 907.
- Hemielastin** (HORBACZEWSKI), 1883, A., 927; 1886, A., 270.
- Hemihydroxyimidosulphonic acid**, lead salt of (DIVERS and HAGA), 1892, T., 970.
- Hemilactine** (HORBACZEWSKI), 1883, A., 927.
- Hemimelli-benzaldehyde** and **-benzylamine** (KROMER), 1891, A., 1353, 1352.
- Hemimellibenzyl alcohol** (KRÜMER), 1891, A., 1352.
- Hemimellithene** (*hemellithene*) (JACOBSEN), 1883, A., 53; 1887, A., 36.  
 synthesis of (JACOBSEN and DEIKE), 1887, A., 659.  
 derivatives (JACOBSEN), 1883, A., 53.  
*tribromo-* and *trinitro-* derivatives (JACOBSEN), 1887, A., 36.
- Hemimellithenesulphonic acid** (JACOBSEN), 1883, A., 53.
- Hemimellithenol** (JACOBSEN), 1887, A., 36.
- Hemimellithylic acid** (2:3-*dimethylbenzoic acid*) (JACOBSEN), 1887, A., 36.
- Hemipeptone** (KUHNE and CHITTENDEN), 1884, A., 849.
- Hemipinethylimide** (LIEBERMANN), 1887, A., 46.
- Hemipinic acid** (WEGSCHEIDER), 1883, A., 996; (GOLDSCHMIEDT), 1889, A., 167.  
 amido-, sodium salt of (GRÜNE), 1887, A., 49.  
 nitro- (LIEBERMANN), 1887, A., 46.
- Metahemipinic acid** (*dimethoxy-ophthalic acid*) (GOLDSCHMIEDT and OSTERETZER; GOLDSCHMIEDT), 1889, A., 167; (ROSSIN), 1892, A., 180.
- Hemipinic anhydride** (PERKIN), 1890, T., 1094.  
*o*-amido- (LIEBERMANN), 1886, A., 468; 1887, A., 257; (GRÜNE), 1887, A., 48.  
 nitro- (GRÜNE), 1887, A., 49.
- Hemipinimide** (LIEBERMANN), 1887, A., 46.  
 isomeride of (LIEBERMANN), 1887, A., 258.  
 bromo- (TUST), 1892, A., 1210.
- Hemipinisoimide** (GOLDSCHMIEDT), 1888, A., 302.
- Hemipinimidine** (SALOMON), 1887, A., 585.
- Hemipinphenylhydrazide**, *o*-amido- (LIEBERMANN), 1887, A., 45.
- Hemlock**, caffeic acid in (v. HOFMANN), 1884, A., 1353.
- Hemlock-red**, and its derivatives (BÜTTINGER), 1884, A., 1025.
- Hemp fibres**, discrimination of jute fibres from (LENZ), 1890, A., 928.
- Hemp seed oil**, acids from (HAZURA), 1887, A., 799; (HAZURA and GRÜSSNER), 1888, A., 817.
- Hemp tissues**, bleaching (ANON.), 1884, A., 793.
- Hen**, haemoglobin of the (JAQUET), 1890, A., 274.
- Henbane seed**, constituents of (RANSOM), 1892, A., 231.
- Hendecenoic acid**. See Undecylenic acid.
- Hentriacontane** and **heptacosane** from bees-wax (SCHWALB), 1887, A., 124.
- Hepatin** (v. ZALESKI), 1886, A., 1054.
- Heptacetyl- $\alpha$ -glucoheptitol** (FISCHER), 1892, A., 1168.
- Heptadecyl *p*-tolyl ketone** (KRAFFT), 1888, A., 1087.
- Heptadecylamine** and its derivatives (TURPIN), 1888, A., 1174.
- Heptadecylcarbamide** (TURPIN), 1888, A., 1175.
- Heptadecylene** (MAX), 1889, A., 1126.
- Heptadecyl-phenylcarbamide**, **-phenylthiocarbamide**, **-thiocarbamide**, **-thiocarbimide** and **-urethane** (TURPIN), 1888, A., 1175.
- Heptamethylaniline** (v. HOFMANN), 1885, A., 1129.
- Heptamethyldihydropyridine** (ANDERLINI), 1890, A., 1432.
- Heptamethylene** and its amido-derivative (MARKOWNIKOFF), 1890, A., 728, 729.  
 derivatives, experiments on the synthesis of (FRERER and PERKIN), 1887, P., 96; 1888, T., 215.
- Heptanaphtheneamine** (ASCHAN), 1891, A., 1452.
- Heptanaphthene-carboxylic acid** and its derivatives (ASCHAN), 1891, A., 1452.
- Heptane** of *Pinus Sabiniana*, derivatives of (SCHORLEMMER and THORPE), 1883, A., 651.  
 molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
 refractive power of, at different temperatures (PERKIN), 1892, T., 294.  
 flame, experiments on (SMITHELLS and INGLE), 1892, T., 210.  
 critical temperature of (THORPE and RÜCKER), 1884, T., 165.

- Heptane**, bromination of (VENABLE), 1888, A., 929.
- Heptanesulphonic acid**, chloro-derivatives (SPRING and WINNSINGER), 1888, A., 939.
- Heptarabinan-tri-, tetra- and penta-galactangeddic acids** (O'SULLIVAN), 1891, T., 1065, 1071, 1074.
- Heptenoic acid**. See Heptylenic acid.
- Heptic acid** (PAWLOFF), 1884, A., 41.
- Heptinene** (*amylacetylene*; *heptine*; *ananthylidene*) (BÉHAL and DESGREZ), 1892, A., 1064.  
conversion of, into an isomeric hydrocarbon (BÉHAL), 1888, A., 929.  
synthesis of a ketone from (BÉHAL), 1886, A., 45.  
(*methylbutylacetylene*) (BÉHAL), 1888, A., 929; (BÉHAL and DESGREZ), 1892, A., 1064.  
[b.p. 104°] (MAQUENNE), 1892, A., 1235.  
from perseitol (MAQUENNE), 1889, A., 361.  
nature of (MAQUENNE), 1892, A., 1065, 1235.  
action of heat on (RENARD), 1887, A., 565.  
action of sulphuric acid on (MAQUENNE), 1892, A., 967.  
nitroschloride (MAQUENNE), 1892, A., 1235.
- Heptinenebenzidine** (SCHIFF and VANNI), 1890, A., 1299.
- Heptinoic acid** (*butylacetylenecarboxylic acid*) (FAWORSKY), 1888, A., 1169.
- Heptynylic alcohol**. See Diallylcarbinol.
- Heptitol**. See Perseitol under Carbohydrates.
- Hepto-diethylamide, -dimethylamide and -ethylamide** (FRANCHIMONT and KLOBBE), 1888, A., 1063.
- n*-**Heptoic acid** (*heptylic acid*; *ananthic acid*) (PERKIN), 1883, T., 48, 59, 69.  
 $\gamma$ -bromo- (FITTIG and SCHMIDT), 1890, A., 589.  
chloro-derivatives of (SPRING and WINNSINGER), 1888, A., 939.
- Heptoic acid** (*isoamylacetic acid*) (POETSCH), 1883, A., 729; (PAUL and HOFFMANN), 1890, A., 1100.
- Heptoic acid** (*methylbutylacetic acid*) (KILLIAN), 1886, A., 438, 441.
- iso***Heptoic acid**,  $\gamma$ -bromo- (FITTIG and ZANNER), 1890, A., 590.
- Heptoic aldehyde** (*ananthaldehyde*; *ananthol*), condensation of, with aniline (v. MILLER and PLÜCHL), 1892, A., 1194.
- Heptoic aldehyde** (*ananthaldehyde*; *ananthol*), action of *ns*-dialkylcarbamides on (VAN DER ZANDE), 1889, A., 963.  
action of glycol on (LOCHERT), 1888, A., 670.  
action of heptylic chloride and, on dimethylaniline in presence of zinc chloride (AUGER), 1887, A., 814.  
action of nascent hydrogen on (PERKIN), 1883, T., 67.  
condensation of, with methylsuccinic acid (FITTIG and RIECHELMANN), 1890, A., 593.  
action of potash and of zinc chloride on (PERKIN), 1883, T., 47, 50.  
action of zinc and ethylic chloracetate on (REFORMATSKY), 1892, A., 1300.  
condensation products of (PERKIN), 1883, T., 45, 67.  
polymerisation of (PERKIN), 1883, T., 79.  
polymerised, action of nascent hydrogen on (PERKIN), 1883, T., 86.  
polymeride of, decomposition-products of (PERKIN), 1883, T., 81.  
oxime of, and its ethylic salt (WESTENBERGER), 1884, A., 581.  
oximes of (GOLDSCHMIDT and ZANOLI), 1892, A., 1436.
- Heptolactone** (YOUNG), 1883, T., 172; A., 455.  
[b.p. 235°] (FITTIG and SCHMIDT), 1890, A., 589.  
from dextrose (KILLIAN), 1886, A., 526.  
[b.p. 220°], from levulose (KILLIAN), 1886, A., 220.
- iso***Heptolactone** ( $\beta$ -*dimethylvalerolactone*) (FITTIG and ZANNER), 1890, A., 590.
- Heptomethylamide** (FRANCHIMONT and KLOBBE), 1888, A., 1063.
- Heptose** (FISCHER), 1890, A., 598.
- Heptoylsodacetaldehyde** (CLAISEN and STYLOS), 1883, A., 671.
- Heptylamine** (*ananthylamine*) (TAFEL), 1886, A., 940.
- Heptylbenzene** (KLAFFT), 1887, A., 253; (BALLY), 1888, A., 65.  
amido- and nitro- (AUGER), 1887, A., 816.
- Heptylbenzyl cyanide** (ROSSOLYMO), 1889, A., 862.
- $\psi$ -**Heptylene** (*methylbutylethylene*) (SCHORLEMMER and THORPE), 1883, A., 652.  
action of chlorous anhydride on (GRISOM), 1888, A., 929.

- Heptylenic acid** (*heptenoic acid*) (FITTING), 1888, A., 252; (FITTING and SCHMIDT), 1890, A., 589.
- Heptylenic acid** ( $\beta$ -*diethylacrylic acid*) (REFORMATSKY), 1891, A., 170.
- isoHeptylenic acid** (FITTING and ZANNER), 1890, A., 590.
- sec.-Heptylic acetate** (BÉHAL and DESGREZ), 1892, A., 1162.
- Heptylic acid.** See Heptoic acid.
- n-Heptylic alcohol**, preparation of (SORABJI), 1885, T., 40.
- sec.-Heptylic alcohol** [b.p. 150°] (*diisopropylcarbinol*) (USTINOFF and SAYTZEFF), 1887, A., 353.
- [b.p. 131°] (*diisopropylcarbinol*), properties of (POLEJEFF), 1889, A., 477; 1891, A., 889.
- tert.-Heptylic alcohol** (*triethylcarbinol*) (BARATAEFF and SAYTZEFF), 1887, A., 353.
- (*methyl ethyl propyl carbinol*) (SOKOLOFF), 1888, A., 1170.
- Heptylic diphenylic tricyanide** (KRAFFT and KOENIG), 1890, A., 1252.
- nitrite (BERTONI), 1890, A., 853.
- salts of normal fatty acids, boiling points and specific volumes of (GARTENMEISTER), 1886, A., 966.
- Herbivora.** See Agricultural Chemistry.
- Herderite** (DES CLOIXEAUX), 1884, A., 827; (WEISBACH), 1884, A., 1102; (GENTH), 1885, A., 448; (DES CLOIXEAUX and DAMOUR), 1887, A., 19.
- from Oxford Co., Maine (HIDDEN and MACKINTOSH), 1885, A., 359.
- composition of (PENFIELD and HANPER), 1886, A., 989.
- remarkable crystal of (HIDDEN), 1887, A., 117.
- Hernandia sonora**, and **H. ovigera**, alkaloid from (GIESHOFF), 1891, A., 338.
- Herniaria hirsuta**, constituents of (BARTH and HERZIG), 1889, A., 1003.
- Herniaria** (BARTH and HERZIG), 1889, A., 1003.
- Herrengrundite** (*uvoolgyte*) (SZABÓ DE ST. MIKLOS), 1886, A., 517.
- Herring offal as manure** (HECQUET D'ORVAL; PAGOUL), 1884, A., 866.
- Hesperidene.** See Limonene under Terpenes.
- isonitroso-.** See Carvoxime.
- Hesperidin**, sugar from (WILL), 1887, A., 715; (TANRET), 1888, A., 963.
- isoHesperidin** (TANRET), 1886, A., 577; 1888, A., 963.
- Hesperisium** (PRINGLE), 1887, A., 107.
- Hessite** from Arizona (GENTH), 1888, A., 564.
- from Botes (LOUZA), 1892, A., 1054.
- from Mexico (GENTH and PENFIELD), 1892, A., 793.
- Heteroalbumose** (KUHNE and CHITTENDEN), 1884, A., 1889; 1885, A., 277; 1886, A., 819; (NEUMEISTER), 1887, A., 285.
- Heterocaseose** (CHITTENDEN and PAINTER), 1888, A., 76.
- Heulandite** (JANNASCH), 1887, A., 903.
- from Lancaster Co., Pa. (SMITH), 1885, A., 960.
- occurrence of strontia in (JANNASCH), 1887, A., 453.
- action of heat on (MALLARD), 1884, A., 828.
- analysis of (JANNASCH), 1883, A., 442.
- Heulandite group**, relations between minerals of the stilbite group and (RINNE), 1892, A., 417.
- Hexabenzoyl- $\beta$ -inosite** (MAQUENNE), 1890, A., 355.
- Hexabenzoylmannitol** (SKRAUP), 1889, A., 1152.
- Hexacetylasetin** (SCHMIDT), 1886, A., 895.
- Hexacetyl- $\alpha$ -glucoheptose** (FISCHER), 1892, A., 1167.
- Hexacetyl- $\beta$ -inosite** (MAQUENNE), 1890, A., 355.
- Hexacresotide** (BARGIONI and SCHIFF), 1888, A., 838.
- n-Hexadecane** (*dioctyl*) (LACHOWICZ), 1884, A., 166; (KRAFFT), 1886, A., 998.
- Hexadecane** (*cetane*) from cetyl iodide (SORABJI), 1885, T., 38.
- Hexadecanedicarboxylic acid** (BROWN and WALKER), 1891, A., 1193.
- Hexadecoic acid.** See Dioctoic acid.
- Hexadecylacetylene** (KRAFFT and REUTER), 1892, A., 1164.
- Hexadecylamine.** See Dioctylamine.
- Hexadecylbenzene** and its derivatives (KRAFFT), 1887, A., 252.
- Hexadecyldeoxybenzoïn** (SUDBOROUGH), 1892, A., 1224.
- Hexadecylene** (*celene*), preparation of (KRAFFT), 1884, A., 571.
- derivatives (KRAFFT and GROSJEAN), 1890, A., 1218.
- bromide (KRAFFT), 1884, A., 1108.
- bromo- (KRAFFT and REUTER), 1892, A., 1163.
- Hexadecylenedicarboxylic acid** and anhydride (KRAFFT and GROSJEAN), 1890, A., 1219.
- Hexadecylenic glycol** (KRAFFT and GROSJEAN), 1890, A., 1219.

- Hexadecylic alcohol** (*etyllic alcohol*) (KRAFFT), 1884, A., 1280.  
 preparation of (KRAFFT), 1883, A., 1075.  
 conductivity of (BARTOLI), 1885, A., 855.  
 oxidation of (CLAUS and v. DREDEN), 1891, A., 535.
- Hexadecylic allophanate** (GATTERMANN), 1888, A., 574.  
 iodide, complete chlorination of (HARTMANN), 1891, A., 811.  
 reduction of, with sodium amalgam (LEBEDEFF), 1885, A., 736.
- Hexadecylidene** (KRAFFT), 1884, A., 1108.
- Hexadecyl-malonamic and -malonic acids** (HELL and SADOWSKY), 1891, A., 1451.
- Hexadecylmalonic acid** (KRAFFT), 1884, A., 1280.
- Hexadecylphenetol** (KRAFFT and GOTTIG), 1889, A., 129.
- Hexadecylphenol** (KRAFFT), 1887, A., 252.
- Hexadecyltoluene.** See Methylhexadecylbenzene.
- Hexahydroanthracenecarboxylic acid** (BORNSTEIN), 1884, A., 330.
- Hexahydrobenzoic acid** and its derivatives (ASCHAN), 1891, A., 1481.  
 properties of (MARKOWNIKOFF), 1892, A., 714.
- Hexahydro- $\psi$ -cumene** (KONOWALOFF), 1891, A., 185.  
 and its relation to nononaphthene (KONOWALOFF), 1888, A., 679.
- Hexahydrodimethyldiazine** (STOEHR), 1892, A., 507.
- Hexahydrohaematoporphyrin** (NENCKI and SIEBER), 1885, A., 70.
- Hexahydromellitic acid**, thermochemistry of (STOHLMANN and KLEBER), 1891, A., 1147.
- Hexahydronaphthalene** (AGRESTINI), 1883, A., 345; (GRAEBE and GUYE), 1884, A., 608.
- Hexahydronaphthalenesulphonic acids** and their potassium salts (AGRESTINI), 1883, A., 345.
- Hexahydronicotine** (BLAU), 1891, A., 583; 1892, A., 1365.
- Hexahydronicotinic acid** (*nipicotinic acid*) and its derivatives (LADENBURG), 1891, A., 735; 1892, A., 1485, 1486.
- Hexahydroisonicotinic acid** (*isonipicotinic acid*) (LADENBURG and KARAU; LADENBURG), 1892, A., 1486.
- Hexahydrophloroglucinol**, trichloro- (HAZURA and BENEDIKT), 1886, A., 52.
- trans-Hexahydrophthalic acid**, dibromo- (v. BAeyer), 1892, A., 1216.
- Hexahydrophthalic acids**, fumaroid and maleinoid (v. BAeyer), 1890, A., 1232.  
 constitution of (v. BAeyer), 1890, A., 1277.
- Hexahydrophthalic anhydrides**, fumaroid and maleinoid (v. BAeyer), 1890, A., 1282, 1283.
- Hexahydropicolinic acid** (ONT), 1883, A., 794.
- Hexahydropyridine.** See Piperidine.
- Hexahydropyridinecarboxylic acid** (MARINO-ZUCO), 1892, A., 85.
- Hexahydroquinoline** (BAMBERGER and LENGFELD), 1890, A., 1320.
- Hexahydroterephthalic acid** and 2:3-dibromo- (v. BAeyer), 1887, A., 370.  
 tribromo-, lactone ether of (v. BAeyer), 1888, A., 1073.
- cis-Hexahydroterephthalic acid**, derivatives of (v. BAeyer), 1888, A., 1074.
- cistrans-Hexahydroterephthalic acid**, synthesis of (MACKENZIE and PERKIN), 1892, T., 172; P., 12.
- Hexahydroterephthalic acids**, *cis*- and *cistrans*- (v. BAeyer), 1888, A., 1074; 1889, A., 1176.  
 thermochemistry of (STOHLMANN and KLEBER), 1891, A., 376; 1892, A., 1041.
- Hexahydroxyanthraquinone** (SCHMIDT; GATTERMANN), 1891, A., 935.
- 1:2:3:2':3':4'-Hexahydroxyanthraquinone.** See Rufigallol.
- Hexahydroxyaurin** (CARO), 1892, A., 1470.
- Hexahydroxybenzene** (NIEZKI and BENCKISER), 1885, A., 780.  
 derivatives and their relation to croconic and rhodizonic acids (NIEZKI and BENCKISER), 1885, A., 779.
- 6-Hexahydroxydiphenyl** (BARTH and SCHREDER), 1885, A., 520.
- Hexahydro-xylene** from Caucasian petroleum (MARKOWNIKOFF and SPADY), 1887, A., 922.
- Hexahydroxy-methylenediamine** and -methylenic peroxide (LEGLER), 1886, A., 327.
- Hexamethoxy-benzil** and -benzilic acid (MARX), 1891, A., 1219.
- Hexamethoxy-deoxybenzoin** and -hydrobenzoin (MARX), 1891, A., 1219.
- Hexamethyltriamidodinaaphthylphenylmethane** (FRIEDLANDER and WELMANS), 1889, A., 151.

- Hexamethyltriimidodiphenyltolylmethane** (NOLTING), 1892, A., 190.
- Hexamethyltriimidophenylditolylmethane** (NOLTING), 1891, A., 728.
- Hexamethyltriimidotriphenylamine methochloride** (HEYDRICH), 1886, A., 553.
- Hexamethyltriimidotriphenylarsine** (MICHAELIS and RABINERSON), 1892, A., 1321.
- Hexamethyltriimidotriphenylcarbinol** (WICHELHAUS), 1886, A., 362.
- Hexamethyltriimidotriphenylethane** (HEUMANN and WIERNIK), 1887, A., 1039.
- Hexamethyltriimidotriphenylphosphine** (SCHENK and MICHAELIS), 1888, A., 835.
- Hexamethyltriimidotriphenylsulphine hydroxide** (MICHAELIS and GODCHAUX), 1891, A., 715.
- salts (MICHAELIS and GODCHAUX), 1891, A., 714.
- Hexamethyltriimido-tritolylmethane and -trixylmethane** (NOLTING), 1891, A., 729.
- Hexamethylaniline** (v. HOFMANN), 1885, A., 1129.
- Hexamethylanthracene** (FRIEDEL and CRAFTS), 1887, A., 1102.
- Hexamethylbenzene** (FRIEDEL and CRAFTS), 1887, A., 1101.
- heats of combustion and formation of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1042.
- derivatives (COLSON), 1886, A., 1016.
- hexachloro-* (COLSON), 1886, A., 1016.
- Hexamethyldiphenol.** See Di- $\psi$ -cumenol.
- Hexamethylene molecule, configuration of** (HERRMANN), 1890, A., 1105.
- derivatives, geometrical isomerides of (SACHSE), 1890, A., 1386.
- synthesis of (FREER and PERKIN), 1887, P., 96; (PERKIN), 1891, T., 798.
- p*-diamido- (v. BAEYER and NOYES), 1889, A., 1147.
- Hexamethyleneamine.** See Hexamethylenetetramine.
- Hexamethylenecarboxylic acid** (ASCHAN), 1890, A., 738.
- Hexamethylene-*m*-dicarboxylic acids, *cis*- and *cis-trans*-** (PERKIN), 1891, T., 808, 814.
- synthesis of (PERKIN and PRENTICE), 1891, T., 990.
- conversion of one form into the other (PERKIN), 1891, T., 813.
- cis*-Hexamethylenedicarboxylic anhydride (PERKIN), 1891, T., 812.
- Hexamethylenedicyanhydrin** (v. BAEYER and NOYES), 1889, A., 1148.
- Hexamethylene-1:1:3:3-tetracarboxylic acid, formation of** (PERKIN), 1891, T., 804; (PERKIN and PRENTICE), 1891, T., 994.
- dissociation constant of (WALKER), 1892, T., 706.
- Hexamethylenetetramine** (*hexamethylenecamine*) (PRATESI), 1884, A., 287; (TOLLENS), 1884, A., 998; (GRIESS and HARROW), 1888, A., 1268.
- action of ethylic acetoacetate on (GRIESS and HARROW), 1888, A., 1313.
- action of ethylic chloracetate on (HARTUNG), 1892, A., 1173.
- action of nitrous acid on (MAYER), 1889, A., 33.
- action of sulphurous anhydride on (HARTUNG), 1892, A., 1173.
- behaviour of, with various reagents (HARTUNG), 1891, A., 1179.
- additive products of (MOSCHER and TOLLENS), 1891, A., 663.
- derivatives of (FREER and PERKIN), 1888, T., 202; (HORIOW), 1888, A., 1051; (HARTUNG), 1892, A., 1173.
- Hexamethylenetetramine benzochloride** (HARTUNG), 1892, A., 1173.
- dibromide* (LEGLER), 1889, A., 579.
- ethiodide* and *methiodide* (WOHL), 1886, A., 863.
- tetra*silver bromide (SCHWARTZ), 1891, A., 318.
- Hexamethylmalonamide** (FRANCHIMONT), 1886, A., 449.
- Hexamethylparaleucaniline** (RATHEKE), 1886, A., 460.
- synthesis of (FISCHER and KÖRNER), 1884, A., 749.
- Hexamethylpararosanilinehydrochloride** (v. HOFMANN), 1885, A., 791.
- Hexamethylphloroglucinol** (MARGULIES), 1889, A., 1153; (SPIZZER), 1890, A., 1110.
- Hexamethylquercetin, and its diacetyl-derivative** (HERZIG), 1884, A., 847.
- isoHexamide** (*isobutylacetamide*) (JACOBY), 1886, A., 785; (TIEMANN), 1891, A., 538.
- n*-Hexane (*dipropyl; ethylbutane*), heats of combustion and formation of (STOHMANN and KLEBER), 1891, A., 376.
- diamido*-, and its derivatives (TAFEL), 1889, A., 976; (TAFEL and NEUGEBAUER), 1890, A., 1000.
- nitro- (KUNOWALOFF), 1892, A., 575.

- sec.*-Hexane (*methyldiethylmethane*) (WIELICENUS), 1883, A., 966.
- Hexanedicarboxylic acid. See Tetramethylsuccinic acid.
- Hexa-oxymethylene peroxide and -oxymethylenediamine (LEGLER), 1889, A., 579.
- Hexa-oxystearic acid. See Linusic acid.
- Hexaphenylmelamine (v. HOFMANN), 1886, A., 41, 233.
- Hexaphenylrosaniline and its salts (HEYDRICH), 1886, A., 553.
- Hexapropyltrimethylenetrissulphone (CAMPS), 1892, A., 592.
- Hexarabinan-tri- and -penta-galactan-geddies acids (O'SULLIVAN), 1891, T., 1065, 1074.
- Hexazobenzene. See Azo.
- Hexenoic acid (*hydrosorbic acid*) (FITTIG), 1888, A., 595; (FITTIG and HILLER), 1892, A., 959.
- (*methylethylacrylic acid*) and its salts (LIEBEN and ZEISEL), 1883, A., 571.
- (*ψ-pyrotrobie acid*) (ERDMANN), 1885, A., 964.
- (*α-cytlcrotonic acid*), oxidation of (FITTIG), 1888, A., 595; (FITTIG and RUER), 1892, A., 958.
- Hexenoic acids, thio- (*β-cytl-n* and -*iso-crotonic acids*, thio-) (AUTENRIETH), 1890, A., 361.
- Hexenoaldehyde. See Methylethylacetaldehyde.
- Hexenylamidoxime and its derivatives (JACOBY), 1886, A., 785.
- Hexenylglycerol. See Trihydroxyhexane.
- Hexenylsulphuric acid (LUDWIG), 1892, A., 951.
- iso*Hexeric acid (FITTIG and RUER), 1892, A., 958.
- Hexethylbenzene (GALLÉ), 1883, A., 1091; (JACOBSEN), 1889, A., 41.
- Hexethyl dimalonylemaleate (PUM), 1888, A., 1059.
- Hexethylphloroglucinol (HERZIG and ZEISEL), 1888, A., 822.
- Hexethylquercetin (HERZIG), 1884, A., 846.
- Hexethyltriketohexamethylene (HERZIG and ZEISEL), 1889, A., 247.
- Hexethyltrimethylenetrissulphone (CAMPS), 1892, A., 591.
- Hexic acid, so-called (FITTIG), 1883, A., 1085.
- Hexinene [b.p. 70°—73°] (RENARD), 1887, A., 565.  
See also Diallyl.
- Hexitamalic acid. See *β*-Hydroxyheptylsuccinic acid.
- Hexo-cyamidine and -cyamine, *α*-amido- (DUVILLIER), 1887, A., 850.
- n*-Hexoic acid (*caproic acid*) (PERKIN), 1883, T., 59; (VAN ROMBURGH), 1888, A., 447.
- electrolysis of (DRECHSEL), 1886, A., 1008.
- silver salt of, action of iodine on (SIMONINI), 1892, A., 1301.
- solubility of salts of (KEPPICH), 1889, A., 122.
- δ-lactone of (WOLFF), 1883, A., 455.
- n*-Hexoic acid, *α*-amido-. See Leucine.
- dibromo-, decomposition of (FITTIG and HILLER), 1892, A., 960.
- sulpho- (LUDWIG), 1889, A., 121.
- Hexoic acid (*diethylacetic acid*), solubility of salts of (KEPPICH), 1889, A., 122.
- amide, anilide, anhydride and chloride of (FREUND and HERRMANN), 1890, A., 473.
- Hexoic acid (*ββ-methylethylpropionic acid*) (VAN ROMBURGH), 1887, A., 228; 1888, A., 447.
- Hexoic acid (*methylpropylacetic acid*) (LIEBEN and ZEISEL), 1883, A., 570; (LIEBERMANN and KLEMMANN), 1884, A., 1120.
- preparation of, from ethylic acetate and from diethylic malonate (SIASSNY), 1892, A., 581.
- solubility of salts of (SIASSNY), 1892, A., 581.
- Hexoic acid (*methylisopropylacetic acid*) (VAN ROMBURGH), 1887, A., 232.
- iso*Hexoic acid (*isobutylacetic acid*) (KASNER), 1888, A., 673.
- Hexoic aldehyde sulphonic acid (LUDWIG), 1889, A., 121.
- amidine hydrochloride and platinum-chloride (PINNEN), 1884, A., 723.
- imido-ether and its hydrochloride (PINNEN), 1884, A., 732.
- Hexolactone (CHANLAROFF), 1885, A., 374.
- Hexonitrile, action of hydroxylamine on (JACOBY), 1886, A., 785.
- Hexophenylhydrazide (AUTENRIETH), 1888, A., 251.
- Hexoylhexenylamidoxime (JACOBY), 1886, A., 785; (TIEMANN), 1891, A., 538.
- Hexunene. See Dipropargyl.
- Hexyl dimethylamidophenyl ketone (KRAFFT), 1887, A., 253; (AUGER), 1887, A., 815.
- Hexyl phenyl ketone (KRAFFT), 1887, A., 253; (AUGER), 1887, A., 816.
- Hexylacetylene (*actinene*) (BÉHAL and DESGLEZ), 1892, A., 1064.

- Hexylacetylene** (*octinon*), formation of, from methylvalerylacetylene (BÉHAL), 1889, A., 950.
- Hexylamine** and  $\psi$ -**hexylamine** (FREUND and HERRMANN), 1890, A., 473, 474.
- Hexylammoniumhexylthiocarbamate** (FRENTZEL), 1883, A., 1075.
- Hexylbenzene** (SCHRAMM), 1883, A., 977.
- Hexylbenzyl cyanide** (ROSSOLIMO), 1889, A., 862.
- Hexylbutylene** (*decylene*) (FITZIG and RIECHELMANN), 1890, A., 594.
- Hexylbutyrolactone** (SCHNEEGANS), 1885, A., 650.
- $\psi$ -**Hexylcarbamide** (FREUND and HERRMANN), 1890, A., 474.
- Hexyldioxybenzoin** (BISCHOFF), 1889, A., 512.
- Hexyldiphenyl tricyanide** (KRAFFT and v. HANSEN), 1889, A., 697.
- Hexylene** ( $\beta$ -*dipropylene*) (COUTURIER), 1891, A., 282.  
( $\alpha$ -*methyl ethyl propylene*) (WISLICENUS), 1883, A., 967.  
(*tetramethyl ethylene*), action of chlorine on (CHUPOTSKY), 1885, A., 645; (CHUPOTSKY and MANUTZA), 1890, A., 727.
- Hexylenic derivatives** (HENRY), 1884, A., 33.  
*dibromide* obtained from diallyl (DEMCHANOFF), 1891, A., 160.  
 $\delta$ -glycol (*dihydroxyhexane*) (LIPP), 1886, A., 219; (PERKIN), 1887, T., 722.  
oxide (*tetramethyl ethylenic oxide*) (ELTEKOFF), 1883, A., 567.  
oxide [b.p. 93°] (BÉHAL), 1888, A., 241; 1889, A., 839.  
 $\delta$ -oxide (LIPP), 1886, A., 218.
- Hexylerythritols** (WAGNER), 1889, A., 226.
- Hexylglyoxaline** (*glyoxaleneanthyline*) and its derivatives (KARCZY), 1887, A., 911.
- iso*-**Hexylglyoxaline** (*glyoxalisoananthyline*) (RADZISZEWSKI), 1883, A., 1087.
- Hexylhexonitrile**, imido- (WACHE), 1889, A., 684.
- n*-**Hexylic alcohol**, and its derivatives (FRENTZEL), 1883, A., 1075.  
sulphonic acid of (LUDWIG), 1889, A., 121.  
(*methyl diethyl carbinol*) (REFORMATSKY), 1888, A., 244.  
(*methyl ethyl propyl alcohol*), from essence of chamomile (VAN ROMBURGH), 1887, A., 228.  
(*methyl isobutyl carbinol*) (KUWSCHINOFF), 1888, A., 125.
- sec*-**Hexylic alcohol** (*methyl- $\beta$ -butyl carbinol*) (WISLICENUS), 1883, A., 966.
- Hexylic alcohol**, glycide of (KABLUKOFF), 1888, A., 1172.
- $\psi$ -**Hexylic alcohol** (FREUND and HERRMANN), 1890, A., 474.
- Hexylic glycerol**. See **Trihydroxyhexane**.
- Hexylic salts** of normal fatty acids, boiling-points and specific volumes of (GARTENMEISTER), 1886, A., 966.  
benzoate, chloride and formate (FRENTZEL), 1883, A., 1075.  
hexoate (LIEBEN and ZEISEL), 1883, A., 570.  
iodide, from sorbite (HITZEMANN and TOLLENS), 1889, A., 841.  
sulphide, occurrence of, in Ohio petroleum (MABERY and SMITH), 1891, A., 1173.
- Hexylnitrous acid** (CHANCEL), 1885, A., 646.
- Hexylparaconic acid**, and its salts (SCHNEEGANS), 1885, A., 650.
- Hexyl-thiocarbamide** and -**thiocarbimide** (FRENTZEL), 1883, A., 1075.
- Hiddenite**, an emerald-green variety of spodumene (SMITH; DANA), 1883, A., 440.  
from Alexander Co. (HIDDEN), 1885, A., 878.
- Hieratite** (COSSA), 1883, A., 955.
- Hintzeite**. See **Heintzeite**.
- Hipparaffin**. See **Dibenzoylmethylendiamine**.
- Hippuramide** (PELLIZZARI), 1889, A., 286.
- Hippuramidacetic acid** and its salts (CURTIUS), 1883, A., 339.
- Hippuric acid** (*benzamidacetic acid*), source of, in the urine (SCHOTTEN), 1884, A., 1057.  
formation of (TAPPEINER), 1886, A., 482.  
simple method for preparing (BAUM), 1885, A., 981.  
synthesis of (CURTIUS), 1883, A., 337; 1884, A., 1347.  
heats of combustion and formation of (BERTHELOT and ANDRÉ), 1890, A., 936.  
condensation of, with aldehydes (REBUFFAT), 1886, A., 547.  
action of phenol and sulphuric acid on (ZEHENTER), 1885, A., 55, 1235.  
action of phosphoric chloride on (RÜGHEIMER), 1886, A., 702.  
action of phthalic anhydride on (ERLENMEYER), 1889, A., 708.  
condensation of, with salicylaldehyde (PLÖCHL and WOLFRUM), 1885, A., 898.

- Hippuric acid** (*benzamidooxetic acid*), action of sodium hypophosphite on (DENIGES), 1889, A., 139.  
relation of tyrosine to (BAAS), 1887, A., 1133.  
compound of, with pyruvic acid (HOFFMANN), 1887, A., 44.  
estimation of, in urine (VOLKER), 1887, A., 535, 1001.  
fluoro- (COPPOLA), 1884, A., 446.  
nitrosohydrazone of (CURTIUS), 1891, A., 57.
- Hippuroflavin** (RUGHEIMER), 1889, A., 252.
- Hippurophosphates** (GAUDE), 1891, A., 98.
- Hippurybenzylidenesulphazone** (CURTIUS), 1891, A., 57.
- Hippurycarbamide** (CURTIUS), 1883, A., 1038.
- Hippuryglycollamide** and its hydrochloride (CURTIUS), 1883, A., 339.
- Hippuryhydrazine**, and nitroso- (CURTIUS), 1891, A., 56, 57.
- Histochematins** (MACMUNN), 1886, A., 568.
- Histological chemistry** in relation to the physiology of the kidney (DRESE), 1885, A., 923.  
"Histon" (KOSSEL), 1885, A., 572.
- Hjelmit** (WEIBULL), 1889, A., 219.
- van t'Hoff hypothesis**, investigation of the second (AUWERS and MEYER), 1883, A., 597.  
theory, deductions from (PAGLIANI), 1890, A., 845, 1205.
- Hofmann's violet**, description and measurement of the spectrum of (HARTLEY), 1887, T., 171.
- Hohmannite** (FRENZEL), 1888, A., 923, 924; (DARAFSKY), 1890, A., 456.
- Holcus Sorghum**. See *Sorghum*.
- Holmium**, or Soret's X (LECOQ DE BOISBAUDRAN), 1886, A., 667.
- Homarus vulgaris**, blood of (GRIFFITHS), 1892, A., 648.
- Homatropine** (*mandelic tropine*), salts of (LADENBURG), 1883, A., 671.
- $\psi$ -**Homatropine** (*mandelic  $\psi$ -tropine*) (LIEBERMANN and LIMPACH), 1892, A., 391.
- Homilite** (PETERSSON), 1891, A., 1168.
- m-Homoanthranilic acid**. See *m*-Amido-p-toluic acid.
- Homobenzoyl**. See Tolenyl.
- Homobenzhydriolcarbamide**. See Phenyltolylcarbinylcarbamide.
- Homobenzoyl**. See Toluoyl.
- Homobetaines**,  $\alpha$ - and  $\beta$ - (WEISS), 1890, A., 747.
- $\gamma$ -**Homochelidonine** (KÖNIG), 1891, A., 844.
- Homochelidonines**,  $\alpha$ - and  $\beta$ - (SELLE), 1891, A., 229.
- Homoprocinechene** and its derivatives (COMSTOCK and KOENIGS), 1888, A., 72.
- $\beta$ -Homocinchonidine** (HENSE), 1890, A., 1166.
- Homoconic acid and anhydride** (BAUM), 1886, A., 562.
- p-Homocuminic acid** (*p-cumylacetic acid*), and its derivatives (FILETI and BASSO), 1891, A., 1057.  
*di*bromo- (FILETI and BASSO), 1891, A., 1057; (FILETI and BONINCONTRO), 1892, A., 604.
- Homofenulic acid** (TIEMANN and KRAAZ), 1883, A., 201.  
derivatives of (TIEMANN and KRAAZ), 1883, A., 198.
- Homofluorescein** (GRIMAU), 1890, A., 1111.
- Homofluorindine** (LEICESTER), 1890, A., 1445.
- Homogentisic acid** (WOLKOW and BAUMANN), 1891, A., 1129.  
estimation of, in urine (BAUMANN), 1892, A., 925.
- Homohydrocinchonic acid** and its salts (WEIDEL and HAZURA), 1885, A., 561.
- o-Homo-p-hydroxybenzaldehyde**. See *p*-Hydroxytolualdehyde.
- Homohydroxybenzenyl**. See *p*-Hydroxytoluenyl.
- o-Homo-p-hydroxybenzophenylhydrazones**. See *p*-Hydroxytoluophenylhydrazones.
- Homolevulinic acid**. See Propionylacetic acid.
- Homologous compounds**, specific volume of (WEGER), 1884, A., 11.  
vapour tension of (SCHMIDT), 1891, A., 969; 1892, A., 396.
- Homology**, alicyclic (DAMBERGER), 1891, A., 1097.
- Homomethylsalicylonitrile**. See Hydroxytoluonitrile.
- Homonapelline** (DUNSTAN and UMNEY), 1892, T., 393.
- Homoniocitric acid**. See 4-Methylpyridine-3-carboxylic acid.
- Homoo-phthalaminic acid**. See *o*-Carboxyphenylacetic acid, amic acid of.
- Homoo-phthaleneamidoimidoxime** (EICHELEBURN), 1890, A., 146.
- Homoo-phthalethylimidoazobenzene** (PULVERMACHER), 1887, A., 1111.
- Homophthalic acid**. See *o*-Carboxyphenylacetic acid.
- Homoo-phthalimide**. See *o*-Carboxyphenylacetic acid, imide of.
- Homoo-phthalimidoazobenzene** (GABRIEL), 1887, A., 726.

- Homopiperidic acid**, derivatives of (ASCHMAN), 1891, A., 466, 1246.  
hydrochloride (SCHOTTEN), 1885, A., 176.
- $\alpha$ -Homopiperonic acid** (TIEMANN), 1892, A., 47.
- Homopterocarpin** from red sandal wood (CAZENEUVE and HUGOUNENQ), 1887, A., 971; 1889, A., 160.
- Homopyrocatechol**. See *Methylpyrocatechol*.
- Homosalicic acid** (HESSE), 1884, A., 1384; 1886, A., 83; 1890, A., 1166; (PATL and COWNLEY), 1885, A., 563, 997.  
synthesis of (HESSE), 1885, A., 276.  
salts of (HESSE), 1884, A., 1384.
- Homosalicenyl-**. See *Hydroxytolenyl-*.
- Homosalicyl-**. See *Hydroxytolu-*.
- p*-Homosalicyclic acid**. See *o*-Hydroxy-*m*-toluic acid.
- "Homosalol"** (WEBER), 1892, A., 1092.
- Homoterephthalenediamidoxime** and its derivatives (EICHELBaum), 1890, A., 147.
- Homoterephthalenediazo-**. See under *Azo-*.
- Homoterephthalic acid**. See *p*-Carboxy-phenylacetic acid.
- Homoubelliferone** (v. PECHMANN and WELSH), 1884, A., 1346.
- Honey**, eucalyptus (MAQUENNE), 1890, A., 122.  
pine tree (WILEY), 1891, A., 412.  
unfermentable dextrorotatory constituent of (v. RAUMER), 1890, A., 356.  
composition and adulteration of (SIEBEN), 1885, A., 693.  
adulteration of, with sugars (HAGER), 1886, A., 282.  
harvest, correct time for (ZWILLING), 1885, A., 590.  
analysis of (HEINER; DISHOP), 1885, A., 414.  
estimation of water in (WILEY and BROADBENT), 1886, A., 282.
- Honey-dew**, pine tree (WILEY), 1891, A., 412.
- Hoofs**, analysis of (HUGHES), 1887, A., 403.
- Hop-bitter**, precipitation of, by lead acetate (ARNOLD; ALLEN; JOHNSTONE), 1888, A., 763.
- "Hop-bitter acid"** (HAYDUCK), 1888, A., 187.
- Hop** culture in peat soils (FLEISCHER), 1885, A., 185.  
extract, process for preparing (FORSTER), 1884, A., 800.  
foliage, feeding value of (WEIN), 1886, A., 577.
- Hop** mildew, nature of, and means of counteracting it (SCHWARZ), 1884, A., 629.  
substitutes, detection of, in beer (ALLEN), 1887, A., 1146; 1888, A., 763; (ARNOLD), 1888, A., 763.
- Hopeine** (ANON.), 1886, A., 269; (LADENBURG), 1886, A., 563; (WILLIAMSON), 1886, A., 724.
- Hops** and their constituents (HAYDUCK), 1888, A., 187.  
asparagine in (BUNGENER), 1886, A., 387.  
choline in (GRIENS and HARROW), 1885, T., 298; P., 35.  
bitter principle of (BUNGENER), 1884, A., 1366; 1886, A., 809.  
behaviour of tannin in, towards the albuminoids in malt (MORITZ and LEE), 1884, A., 527.  
antiseptic action of (ANON.), 1885, A., 1169.  
manuring of (POTT), 1884, A., 1422; (KRATZ), 1888, A., 319.  
sulphurel, testing (ANON.), 1884, A., 1439.  
estimation of lupulin in (REINITZER), 1890, A., 431; (STOCKBRIDGE), 1890, A., 658.  
estimation of tannin in (KOKOSINSKI), 1891, A., 870.
- Hornbeam**, spring sap of the (HORNBERGER), 1888, A., 313.
- Hornblende** (*amphibole*) of secondary origin (CROSS), 1890, A., 1081.  
from the Aranyer Mountain (FRANZENAU), 1885, A., 226.  
from Finland, calculation of analyses of (KENNIGOTT), 1883, A., 1065.  
from Franklin, containing manganese and zinc (KLOOS), 1886, A., 678.  
from the Lizard (TEALL), 1891, A., 276.  
from Nordmarken (FLINK), 1889, A., 221.  
from Porthalla Cove, Cornwall (COLLINS), 1887, A., 1022.  
of St. Lawrence Co., New York (WILLIAMS), 1886, A., 128; 1890, A., 1073.  
artificial (v. CHRUSTSCHOFF), 1891, A., 887, 1439.  
basaltic (SCHNEIDER), 1891, A., 649.  
pseudomorphs of, after olivine (BECKE), 1883, A., 444; (v. KOLENKO), 1885, A., 1188.  
fragments, enlargement of (VAN HINE), 1886, A., 318.  
chemical composition of (BERWERTH), 1886, A., 28.  
constitution of, containing alumina (SCHANIZER), 1885, A., 32.

- Hornblende** (*amphibole*), relation between the optical properties and chemical composition of (WILK), 1883, A., 560; 1884, A., 971.  
solubility of, in sea water (THOULET), 1889, A., 682.
- Hornblende-anthophyllite** from Baltimore (WILLIAMS), 1886, A., 128.
- Hornblende-diabase** from Graveneck (STRENG), 1884, A., 275.
- Hornblende-granite**, biotite-holding, from Syene (STELZNER), 1884, A., 413.
- Hornblende-rocks** of the Bastogne region (RENARD), 1883, A., 958.
- Hornblende-schists** near Glatz in Lower Silesia (TRAUPE), 1890, A., 1076.  
of the Tyrol, alterations of the garnets in (CATHREIN), 1886, A., 29.
- Horns**, analysis of (HUGHES), 1887, A., 408.
- Hornstone**, occurrence of, in the porphyry district of Teplitz (LAUBE), 1886, A., 24.
- Horse and horse-chestnut**. See Agricultural Chemistry.
- Howlite** (PENFIELD and SPERRY), 1888, A., 116.
- Hübnerite** (GENTH and PENFIELD), 1892, A., 793.  
from Colorado (HILLEBRAND), 1884, A., 827.  
from Nevada, optical properties of (DEN CLOIZEAUX), 1884, A., 407.  
from the Pyrenees (BERTRAND), 1884, A., 406.
- Human** subject, excretion of caramide in (GENTH), 1885, A., 830.  
system, influence of hot baths on the excretion of nitrogen and uric acid from the (FORMANEK), 1892, A., 1503.
- Humic acid** (HOPPE-SEYLER), 1889, A., 285; (BERTHELOT and ANDRÉ), 1891, A., 1089.  
properties of (RODZIANKO), 1892, A., 1373.  
thermochemistry of, from sugar (BERTHELOT and ANDRÉ), 1891, A., 1456.  
spontaneous oxidation of (BERTHELOT and ANDRÉ), 1892, A., 655.
- Humic compounds** (BERTHELOT and ANDRÉ), 1891, A., 1089.
- Humins**, properties of (RODZIANKO), 1892, A., 1373.
- Humite**, green, from Monte Somma (FREDA), 1884, A., 272.  
Vesuvian, from Ladugrufran, analysis of (v. WINGARD), 1886, A., 29.  
composition of (SÜGGREN), 1883, A., 436; (KÄNNGOTT), 1883, A., 1068.
- Humus**. See Agricultural Chemistry.
- Hunger**, influence of, on the exhalation of carbonic anhydride (GRANDIS), 1890, A., 1334.  
See also Starvation.
- Hunteria corymbosa**, alkaloid from (GRESHOFF), 1891, A., 336.
- Hureaulite** from Branchville (BRUSH and DANA), 1890, A., 1072.
- Huronite** (HARRINGTON), 1888, A., 431.
- Hyacinthus orientalis**, analysis of (TSCHIRCH), 1885, A., 1254.
- Hyaline cartilage**, microchemical observations on (MÜRNER), 1888, A., 860.
- Hyalite**, artificial production of, at the ordinary temperature (MEUNIER), 1891, A., 991.
- Hyalogens** (KRUKENBERG), 1886, A., 481.
- Hyalophane** from Jakobsberg (IGELSTRÖM), 1885, A., 227; 1886, A., 212.
- Hyalotekite** from Långban (LINDSTRÖM), 1889, A., 219.
- Hydantoic acid** (*carbamidoacetic acid*), thio- (KLASON), 1891, A., 180.  
action of phenylhydrazine on (PROBST), 1892, A., 966.
- Hydantoin** (*glycolylcarbamide*), formation of (ANSCHÜTZ), 1890, A., 365.  
nitro- (FRANCHIMONT and KLOBBIE), 1888, A., 1179.  
action of water on (FRANCHIMONT and KLOBBIE), 1889, A., 125.  
thio-, and its derivatives (ANDREASCH), 1886, A., 226; 1888, A., 47; (KLASON), 1891, A., 179.
- Hydantoins** (PINNER), 1888, A., 1102; (PINNER and SPILKER), 1889, A., 704.  
and bases derived from them (MARCKWALD, NEUMARK and STELZNER), 1892, A., 149.  
 $\gamma$ -substituted (GUARESCHI), 1892, A., 827; (QUENDA), 1892, A., 828.
- Hydnocarpus**, hydrocyanic acid in (GRESHOFF), 1891, A., 338.
- Hydra**, digestion in (GREENWOOD), 1889, A., 287.
- Hydracetone**, *p*-alkyloxy-derivatives of (ALINCHILL), 1892, A., 1080.
- Hydracrylic acid** (*ethylacetic acid*;  $\beta$ -hydroxypropionic acid;  $\beta$ -lactic acid) (SIEGFRIED), 1890, A., 128; (KLIMENKO), 1891, A., 170.  
from flesh extract (KLIMENKO), 1890, A., 235.  
thio- (LOVÉN), 1884, A., 1299.
- Hydrargillite** (v. NORDENSKIÖLD), 1889, A., 220.

- Hydrargyrene** (TANRET), 1887, A., 676.
- Hydrastaldehyde** (FREUND), 1889, A., 1221.
- Hydrastine**, constitution of (FREUND and ROSENBERG), 1890, A., 531.
- Hydrastic acid** (FREUND and LACHMANN), 1889, A., 1220; (PERKIN), 1890, T., 1095.
- Hydrastine and its compounds**. See under Alkaloids.
- Hydrastinic acid** (FREUND and WILL), 1887, A., 384; (FREUND), 1889, A., 908; (FREUND and LACHMANN), 1889, A., 1220.
- Hydrastinine**. See Alkaloids.
- Hydrastis canadensis*, substances contained in the root of (FREUND and WILL), 1887, A., 174.  
fluorescent principle of (POWER), 1886, A., 1041.
- Hydrastophthalimidine** (FREUND and PHILIPS), 1891, A., 91.
- "**Hydrate of carbon**" from cast iron (ZABUDSKY), 1885, A., 42.
- Hydrated salts**. See Salts.
- Hydrates in solution** (PICKERING), 1886, T., 275.  
definite, method of obtaining (MATHENÉ and LIMB), 1888, A., 644.
- Hydration versus electrolytic dissociation** (ARRHENIUS), 1889, A., 1099.
- Hydratropic acid**. See  $\alpha$ -Phenylpropionic acid.
- Hydrazides**, acid (TAFEL), 1892, A., 710; (GATTERMANN, JOHNSON and HÖZLE), 1892, A., 843; (BÜLSING and TAFEL), 1892, A., 981.  
action of carbonyl chloride on (FREUND and GOLDSMITH), 1888, A., 686.  
relation between azo-compounds and (BERNTSEN), 1888, A., 469.
- Hydrazidoacetic acid** (CURTIUS), 1891, A., 56.
- Hydrazidoamidodiphenyldisulphonic acid** (LIMPRICHT), 1891, A., 930.
- Hydrazidoamidoditolylidisulphonic acid** (HALLE), 1892, A., 1468.
- o*-Hydrazidoanisole**, and its derivatives (REINENEGGER), 1884, A., 440.
- Hydrazidobenzenesulphonic acids**. See Phenylhydrazinesulphonic acids.
- Hydrazidobenzoylpyruvic acid** (RODER), 1887, A., 150.
- Hydrazidocinnamic acid** (FISCHER and KUZEL), 1884, A., 441; (FISCHER and TAFEL), 1885, A., 540.
- o*-Hydrazidocinnamic anhydride** (FISCHER and KUZEL), 1884, A., 441.
- Hydrazido- $\beta$ -phenylpropionic anhydride** (FISCHER and KUZEL), 1884, A., 441.
- Hydrazidophenylpyrazole derivatives**, action of ethylic acetate on (KNORR), 1884, A., 1153.
- Hydrazidouracil hydrochloride** (BEHREND and ERNERT), 1890, A., 1241.
- Hydrazidouracilcarboxylic acid** (BEHREND and ERNERT), 1890, A., 1240.
- Hydrazine** (*diamide*; *diamidogen*) (CURTIUS), 1887, A., 715; (CURTIUS and SCHULZ), 1891, A., 263.  
preparation of, from aldehyde ammonia (CURTIUS and JAY), 1890, A., 734.  
thermochemistry of (BERTHELOT and MATIGNON), 1892, A., 261; (THOMSEN), 1892, A., 1143.  
residue, displacement of, by halogens (GATTERMANN and HOLZLE), 1892, A., 842.  
physiological action of (LOEW), 1891, A., 239.  
poisonous action of (LOEW), 1891, A., 239.  
compounds (LIMPRICHT), 1885, A., 1216.  
compounds of phenol and anisole (FISCHER and KUZEL), 1884, A., 440.  
thermochemistry of (BACH), 1892, A., 933.  
halogen compounds (CURTIUS and SCHULZ), 1891, A., 263.
- Hydrazine hydrate** (CURTIUS and JAY), 1889, A., 340; (CURTIUS and SCHULZ), 1891, A., 263.  
constitution of (CURTIUS), 1889, A., 587.  
molecular refraction of (BACH), 1892, A., 934.  
action of, on benzophenone (CURTIUS and RAUTERBERG), 1891, A., 1358.  
action of, on isatin and phenols (CURTIUS and THUN), 1891, A., 1860.  
action of, on ketones and *o*-diketones (CURTIUS and THUN), 1891, A., 1855.
- $\alpha$ -hydrazopropionate** (CURTIUS), 1891, A., 39.
- hydriodide and hydrobromide** (CURTIUS and SCHULZ), 1891, A., 264.
- di*-hydrobromide, -hydrofluoride and -hydriodide** (CURTIUS and SCHULZ), 1891, A., 264.
- hydrochlorides** (CURTIUS and JAY), 1889, A., 340.
- nitride** (CURTIUS), 1892, A., 113.

- Hydrazine sulphate** (CURTIUS), 1887, A., 715; (CURTIUS and JAY), 1889, A., 340; (CURTIUS and SCHULZ), 1891, A., 263.  
semisulphate (CURTIUS), 1891, A., 1321.
- Hydrazine salts** (*diammonium salts*) (CURTIUS and JAY), 1889, A., 340.
- Hydrazines** (FISCHER), 1887, A., 932; (WILLGERODT), 1888, A., 949; (FREUND), 1890, A., 148.  
constitution of (FISCHER), 1885, A., 257.  
condensation of, with aldehydes (CURTIUS and JAY), 1889, A., 393.  
aromatic, action of the chlorides of phosphorus, arsenic, boron and silicon on (MICHAELIS and OSTER), 1892, A., 1324.  
action of chloroform and alcoholic potash on (RUHEMANN), 1889, T., 242; P., 27, 168; 1890, T., 50.  
physiological action of (GIBBS and REICHERT), 1891, A., 1280.  
compounds of, with the ketones (REISENEGGER), 1883, A., 798.  
compounds of, with ketonic and aldehydic acids (ELBERS), 1885, A., 534.  
compounds of, with quinoline (DUFTON), 1892, T., 782; P., 142.
- as-Hydrazines*, secondary (PHILIPS), 1887, A., 1104; (CURTIUS and PFLUG), 1892, A., 456.  
aromatic, containing unsaturated alcohol radicles (MICHAELIS and CLAESSEN), 1889, A., 1161.
- Hydrazinesulphonic acid**, *dibromo-* (LIMPRICHT), 1889, A., 398.
- Hydrazo-compounds**, molecular changes of (SCHULTZ), 1884, A., 902.
- Hydrazoaniline**. See *s*-Diphenylhydrazine, *N*-amido-.
- Hydrazobenzene**. See *s*-Diphenylhydrazine.
- Hydrazobenzoic acid**. See *s*-Diphenylhydrazinedicarboxylic acid.
- Hydrazocamphenes**, action of hydrogen on (TANREFF), 1887, A., 675.  
oxidation of (TANREFF), 1888, A., 719.
- p*-**Hydrazo-*o*-dichlorodibenzyl alcohol** (WITT), 1892, A., 444.
- Hydrazocumene** (POSPECHOFF), 1886, A., 459.
- Hydrazocuminic acid** (ALEXÉEFF), 1885, A., 390; (MOLTSCHANOWSKI), 1888, A., 277.
- Hydrazodicarbonamide**, preparation of (THIELE), 1892, A., 1298, 1429.
- Hydrazodicarbonamidine nitrate** (THIELE), 1892, A., 1298.
- Hydrazodimethylquinol** (BAESSLER), 1887, A., 364.
- Hydrazoic acid**. See Azoimide.
- Hydrazoimido-compounds** (ZINCKE and LAWSON), 1886, A., 795; 1887, A., 731; 1888, A., 159.
- Hydrazoines** (CORNELIUS and HOMOLKA), 1886, A., 1026.
- Hydrazoisatin** (CURTIUS and THUN), 1891, A., 1360.
- Hydrazomethylethylisooxazole** (HANNIOT), 1892, A., 79.
- Hydrazonaphthalene**. See *s*-Dinaphthylhydrazine.
- Hydrazonehippuric acid**, nitroso- (CURTIUS), 1891, A., 57.
- Hydrazonopyruvic acid hydrazide** (MESSENGER and ENGELS), 1889, A., 36.
- Hydrazones** (FISCHER), 1888, A., 590.  
isomeric (HANTZSCH), 1892, A., 1083.  
of  $\alpha$ -ketonic acids, formation of (JAPP and KLINGEMANN), 1888, T., 532.  
action of carbamide on (PINNER), 1888, A., 687, 1084.  
action of carbon disulphide on (JACOBSON and SCHENCKE), 1890, A., 248.  
action of hydrocyanic acid on (v. MILLER and PLOCH), 1892, A., 1195.  
reduction of (TAFEL), 1889, A., 975.  
aromatic, and thionyl-derivatives of (MICHAELIS and RUHL), 1892, A., 1324.
- Hydrazophenetol** (BUCHSTAD), 1884, A., 1147.
- p*-**Hydrazophenetol** (KINZEL), 1892, A., 159.
- Hydrazo-*o*-phenoxyacetic acid**, and its salts (THAIE), 1884, A., 1171.
- Hydrazopropionylhydrazine** (CURTIUS and LANG), 1892, A., 452.
- Hydrazoterephthalic acid** (HOMOLKA and LOW), 1886, A., 702.
- Hydrazotoluene**. See *s*-Ditolylhydrazine.
- Hydrazoximes** (v. PECHMANN and WEHARG), 1889, A., 47.
- Hydrazoxylene**. See *s*-Dixilylhydrazine.
- Hydrindene** (*hydrindonaphthene*) (KRAMER and SPILKER), 1891, A., 206.  
derivatives (v. BAEYER and PERKIN), 1884, A., 752; (PERKIN), 1887, P., 92; 1888, T., 1.  
conversion of, into substituted acetophenonecarboxylic acids (ZINCKE and GERLAND), 1888, A., 1192.  
trioxime (WILLICENS and KOTZLE), 1889, A., 1067.

- Hydrindenecarboxylic acid** (v. BAER and PERKIN), 1884, A., 753; (SCHERK), 1885, A., 533; (PERKIN), 1887, P., 93; 1888, T., 9.
- Hydrindenecarboxylic acid** (v. BAER and PERKIN), 1884, A., 753; (PERKIN), 1887, P., 93; 1888, T., 7.
- Hydrindone** (GABRIEL and HAUSMANN; HAUSMANN), 1889, A., 1172.
- o*- and *m*-bromo- (MIERSCH), 1892, A., 1222.
- m*- and *p*-bromo- (v. MILLER and ROHDE), 1890, A., 1139.
- d*i-bromo- (HAUSMANN), 1889, A., 1173.
- t*etra-bromo- (ROSER and HASELHOFF), 1888, A., 1304.
- m*-chloro- (v. MILLER and ROHDE), 1890, A., 1139.
- p*-chloro-, and *p*-iodo- (MIERSCH), 1892, A., 1222.
- See also Ketohydrindene.
- Hydrindonecarboxylic acid**. See Hydroxyindenecarboxylic acid.
- α*-Hydrindoneoxime (HAUSMANN), 1889, A., 1172.
- Hydriodic acid**. See under Iodine.
- Hydroiodocinchonine**, and its salts (LIPPMANN and FLEISSNER), 1891, A., 1517; 1892, A., 1363.
- Hydroiodoquinidine**, and its salts (SKRAUP), 1892, A., 83; (LIPPMANN and FLEISSNER), 1892, A., 1364.
- Hydroiodoquinine** (LIPPMANN and FLEISSNER), 1892, A., 82; (SCHUBERT and SKRAUP), 1892, A., 640.
- Hydroiodoquinine** (LIPPMANN and FLEISSNER), 1892, A., 82.
- Hydroacridine** (BERNTSEN and BENDEK), 1883, A., 1134.
- syntheses of derivatives of (JOURDAN), 1885, A., 987.
- Hydroacridine ketone**, *d*i-amido-, and its derivatives (JOURDAN), 1885, A., 988.
- Hydroacridylacrylic acid** (BERNTSEN and MÜHLEIT), 1887, A., 850.
- Hydroacridylbenzoic acid** (BERNTSEN and TRAUBE), 1884, A., 1183.
- Hydroanemonin** (HANRIOT), 1887, A., 843.
- Hydroantipyrine** (KNORR and DUDEN), 1892, A., 731.
- Hydrobenzamide**, action of amines on (LACHOWICZ), 1889, A., 132.
- reduction of (FISCHER), 1886, A., 546.
- Hydrobenzamidetrialdhyde** (OPPENHEIMER), 1886, A., 547.
- Hydrobenzamidotricarboxylic acid** (OPPENHEIMER), 1886, A., 547; (RACINE), 1887, A., 951.
- Hydrobenzoic acids** (MARKOWNIKOFF), 1892, A., 714; (ASCHAN), 1892, A., 847.
- Hydrobenzoin**, preparation of (JULLIARD and TISSOT), 1891, A., 1492.
- di*acetate (PAAL), 1883, A., 806.
- d*i-benzoate (PAAL), 1884, A., 1164; (KLINGER and STANDKE), 1891, A., 931.
- iso*Hydrobenzoin *d*i-benzoate (PAAL), 1884, A., 1164.
- Hydrobenzoin** and *isohydrobenzoin* carbonates (WALLACH), 1885, A., 254.
- Hydrobenzoins** and their anhydrides (AUWERS), 1891, A., 1069.
- Hydrobenzoindicarboxylic acid** (OPPENHEIMER), 1886, A., 877.
- Hydrobenzylcinnamic acid** (MICHAEL and PALMER), 1885, A., 987; (BINCHOFF and v. KÜHLBERG), 1890, A., 1135.
- nitrile of (SCHNEIDEWIND), 1888, A., 705.
- Hydroberberine** and its compounds. See under Alkaloids.
- Hydrobilirubin**, molecular weight of (ABEL), 1890, A., 914.
- and stereobilin, identity of (MACMUNN), 1883, A., 1159.
- Hydrobromanhydroeogonine hydrobromide** (EICHENGRUN and EINHORN), 1891, A., 94.
- Hydrobromic acid**. See under Bromine.
- Hydrobromo-cinchonine and cinchonine** (COMSTOCK and KOENIGS), 1887, A., 1124.
- Hydrobromocinchonine chloride** (COMSTOCK and KOENIGS), 1892, A., 1011.
- Hydrobromodehydrocinchonine** (COMSTOCK and KOENIGS), 1887, A., 1125.
- Hydrobromoquinine** (COMSTOCK and KOENIGS), 1887, A., 1123.
- Hydrobromopopquinine**, and its salts (JULIUS), 1886, A., 83.
- Hydrobromostannic acid** (PREIS and RAYMAN), 1883, A., 425; (SEUBERT and SCHÜRMANN), 1887, A., 554.
- Hydrobromoxycinchonine hydrobromide** (KOENIGS), 1890, A., 1433.
- Hydrobutylacridine** (BERNTSEN and TRAUBE), 1884, A., 1183.
- Hydrocaffuric acid** (FISCHER), 1883, A., 356.
- Hydrocamphoryl-acetic and -malonic acids** (WINZER), 1890, A., 1151.
- Hydrocarbon** (C<sub>8</sub>H<sub>11</sub>)<sub>n</sub> (EMMERT and FRIEDRICH), 1883, A., 39.
- C<sub>8</sub>H<sub>14</sub>, prepared from allyldiethylcarbinol (REFORMATSKY), 1885, A., 232.
- C<sub>8</sub>H<sub>16</sub>, from methylpropylcarbinol (SOKOLOFF), 1888, A., 1168.
- action of hypochlorous acid on (PRZYBYTEK), 1888, A., 123.

- Hydrocarbon**  $C_9H_{18}$ , from ethyldipropylcarbinol (SOKOLOFF), 1888, A., 1168.
- $C_{10}H_{18}$ , prepared from allyldipropylcarbinol (REFORMATSKY), 1883, A., 1073.
- $C_{12}H_{20}$ , prepared from allyldimethylcarbinol (NIKOLSKY and SAYTZEFF), 1883, A., 1074.
- refractive power of (ALBITZKY), 1885, A., 211.
- non-volatile product of the oxidation of (ALBITZKY and NIKOLSKY), 1886, A., 141.
- $C_{16}H_{32}$ , from styrolene alcohol (ZINCKE and BREUER), 1885, A., 269.
- $C_{60}H_{122}$  (HELL and HAGELE), 1889, A., 575.
- from isobutyl-*o*-toluidine (EFFRENT), 1885, A., 152.
- obtained from carminic acid, constitution of (BISCHOFF), 1890, A., 1145.
- from distilled Japanese petroleum (DIVERS and NAKAMURA), 1885, T., 924.
- derived from perseitol (MAQUENNE), 1892, A., 1065.
- compounds of aluminium chloride and bromide with a (GUSTAVSON), 1886, A., 999.
- Hydrocarbons** from peat (DURIN), 1883, A., 652.
- from American petroleum and their derivatives (LEMOINE), 1884, A., 1106.
- from Caucasian petroleum, chlorination of (MARKOWNIKOFF and OGLOBIN), 1883, A., 564.
- from Pennsylvania petroleum, critical temperatures and specific volumes of (BARTOLI and STRACCIATI), 1885, A., 859.
- from compressed petroleum gas (WILLIAMS), 1884, A., 879.
- from tar oils boiling between  $170^\circ$  and  $200^\circ$  (JACOBSEN), 1887, A., 35.
- pyrogenic, in compressed gas (BROCHER), 1892, A., 797.
- solid, in plants (ABBOT and TRIMBLE), 1888, A., 1329; (GUTZERT), 1889, A., 68.
- natural synthesis of vegetable (MAQUENNE), 1892, A., 1234.
- genesis and decomposition of, at high temperatures (ARMSTRONG and MILLER), 1885, P., 77; 1886, T., 74.
- formation of, by the reversal of Friedel and Crafts' reaction (JACOBSEN), 1885, A., 516.
- method for preparing (HEUNSER), 1884, A., 788.
- Hydrocarbons**, synthesis of (HEISE), 1891, A., 685.
- of the formula  $(C_3H_8)_n$  (TILDEN), 1883, A., 75.
- constitution of (THOMSEN), 1891, A., 632.
- structure of cycloid (ARMSTRONG), 1890, P., 101.
- spectra of (LIVEING and DEWAR), 1883, A., 641; (DESLANDRES), 1891, A., 773.
- illuminating power of (FRANKLAND), 1885, T., 235; P., 81.
- flames of (SMITHELLS and INGLE), 1892, T., 204, 210, 212.
- heat of combustion and constitution of (THOMSEN), 1891, A., 632.
- heats of combustion and formation of solid (BERTHELOT and VIRILLE), 1886, A., 756.
- relation of the heats of combustion of solid dibasic acids to those of gaseous (SPORMANN), 1891, A., 252.
- melting points of binary mixtures of (VIGON), 1891, A., 1495.
- spontaneous polymerisation of volatile, at the ordinary atmospheric temperature (ROSCOE), 1885, T., 669.
- action of aluminium chloride on (FRIEDEL and CRAFTS), 1885, A., 654.
- action of aluminium chloride and bromide on (GUSTAVSON), 1883, A., 577.
- action of ozone on (MAQUENNE), 1883, A., 37.
- action of sulphuric acid on closed-chain (MAQUENNE), 1892, A., 967.
- decomposition of, with steam (COQUILLION and HENRIEUX), 1892, 288.
- conversion of, into aldehydes, the action of chromyl dichloride (ETARD), 1884, A., 312.
- preparation of acids from (SCHAAL), 1886, A., 290.
- and their oxides and chlorides, combustion of, with mixtures of chlorine and oxygen (SCHLEGEL), 1885, A., 214.
- products of the combustion of, in air, presence of hydrogen peroxide and ammonium nitrite and absence of ozone in the (LEEDS), 1884, A., 818.
- compounds of aluminium bromide with, thermic data for (GUSTAVSON), 1885, A., 472.

**Hydrocarbons**, addition products of nitro-derivatives with (HEPP), 1883, A., 317.

velocity of the halogenisation of fatty (WILDERMAN), 1891, A., 145.

**Hydrocarbons**, aromatic, in Caucasian petroleum (DOROSHENKO), 1886, A., 142.

method of preparing (ANSCHÜTZ), 1885, T., 898; A., 1064.

ring and nucleus structure of (VAUBEL), 1891, A., 1343.

action of aluminium chloride on (HEISE and TÜHL), 1892, A., 1309.

action of bromine on (SCHRAMM), 1883, A., 977.

action of bromine on, spectrum researches on the energy of the (SCHRAMM and ZAKRZEWSKI), 1888, A., 9.

action of chlorocarbonylamide on (HARRIS), 1890, A., 158.

action of ethylic diazoacetate on (BUCHNER and CURTIUS), 1885, A., 1207.

chlorinated and brominated, preparation of, from aromatic amines (GASIOROWSKI and WALJSS), 1885, A., 1060.

hydrogenation of (BAMBERGER and LODTER), 1888, A., 292.

substitution in (SRPEK), 1891, A., 44.

substitutions of halogens in (ERRERA), 1891, A., 1020; (LASAREVA), 1892, A., 1310.

substitution-products of, oxidation of (REMSEN and COMSTOCK), 1884, A., 319; (REMSEN and DAY), 1884, A., 456; (REMSEN and KEISER), 1884, A., 457.

additive compounds of, coefficients of expansion and specific volumes of (LOSSEN and ZANDER), 1884, A., 1252.

higher, perhydrides of (LIEBERMANN and SPIEGEL), 1889, A., 719.

of the benzene series, separation of mixtures of (FRIEDEL and CRAFTS), 1886, A., 229.

**Hydrocarbons** of the methane series, nitration of (KONJWALOFF), 1892, A., 575.

**Hydrocarbons**, unsaturated, isomeric change in (FAWORSKY), 1891, A., 1330.

constitution of saturated and (WILDERMANN), 1892, A., 285.

specific volumes of saturated and (WEGER), 1884, A., 8.

**Hydrocarbons**, unsaturated, condensation of, with phenols (KOENIGS), 1891, A., 208, 571; (KOENIGS and CARL), 1892, A., 446; (KOENIGS and MAT), 1892, A., 1443.

of the acetylene series (BÉHAL), 1889, A., 889.

isomerism of (FAWORSKY), 1885, A., 736.

isomeric change of, by heating with potash (FAWORSKY), 1888, A., 798.

action of, on mercuric oxide and its salts (KUTSCHEROFF), 1883, A., 172; 1884, A., 572, 719.

action of organic acids on (BÉHAL and DESGREZ), 1892, A., 1064.

alcoholic silver nitrate as a reagent for (BÉHAL), 1888, A., 930.

higher members of (KRAFFT), 1884, A., 1108; (KRAFFT and REUTER), 1892, A., 1163.

**Hydrocarbons**, analysis of, gaseous halogenated (SEUDERT), 1886, A., 181.

detection of, in alcohols (WARREN), 1887, A., 1088.

detection of, in oil and fat (NITSCHKE), 1886, A., 395.

estimation of heavy (WINKLER), 1889, A., 924.

estimation, volumetric, of volatile (HEMPEL and DENNIS), 1891, A., 1141.

See also Olefines and Paraffins.

**Hydrocarbostyryl** (*2'-hydroxydihydroquinoline*; *2'-oxydihydroquinoline*), constitution of (FRIEDLÄNDER and WEINBERG), 1883, A., 204.

amido- (FISCHER and KUZEL), 1884, A., 441.

**Hydrocarbostyryl-2-carboxylic acid** (WIDMAN), 1889, A., 1182.

**Hydrocarbostyrylsulphonic acid** (*o-amidosulphohydrocinnumic anhydride*) (FISCHER and KUZEL), 1883, A., 1132.

**Hydrocarotene** (REINITZER), 1887, A., 265.

**Hydrocellulose**, action of phenylhydrazine on (CROSS and BEVAN), 1884, A., 897.

**Hydrocerussite** (*plumbonacrite*) (HEDDLE), 1891, A., 275.

artificial production and composition of (BOURGEOIS), 1889, A., 21.

**Hydrochelidon-amic and -anilic acids** (VOLHARD), 1892, A., 432, 433.

**Hydrochelidon-bismethylimide and -imide** (VOLHARD), 1892, A., 433.

**Hydrochelidonic acid** (HAITINGER and LIEBEN), 1885, A., 47; (VOLHARD), 1890, A., 30; 1892, A., 432.

- Hydrochelidonic acid** dioxime (VOL-HARD), 1892, A., 431.
- Hydrochloric acid.** See under Chlorine.
- Hydrochlorides of chlorides** (ENGEL), 1890, A., 106.
- Hydrochlorobutylalyl-carbindimethylamine, -methylcarbinamine and -methylcarbindimethylamine** (MERLING), 1891, A., 1506, 1507, 1508.
- Hydrochlorocarvoxime and its benzoyl-derivative** (GOLDSCHMIDT and ZURER), 1885, A., 1210.
- Hydrochlorocinchonine** (COMSTOCK and KOENIGS), 1887, A., 1121.
- Hydrochloropocinchonine**, specific rotatory power of, under the influence of acids (OUDEMANS), 1883, A., 359.
- Hydrochlorodimethylpyrone** (FEIST), 1892, A., 811.
- Hydrochlorodipentenitrobenzylamine** (WALLACH), 1892, A., 1349.
- Hydrochlorofurfuran- $\alpha\alpha'$ -dicarboxylic acid** (TIEMANN and HAARMANN), 1886, A., 690.
- Hydrochloro- $\alpha$ -methyltropidine** (MERLING), 1892, A., 358.
- Hydrochloropentallylcarbindimethylamine salts** (MERLING), 1891, A., 1508.
- Hydrochloroquinine** (COMSTOCK and KOENIGS), 1887, A., 1123.
- Hydrochlorostannic acid** (SEUBERT), 1887, A., 554.
- Hydrocinchonnic acid**, derivatives of (WEIDEL and HAZURA), 1885, A., 561.
- Hydrocinchonidine**, and its salts (HESSE), 1883, A., 97.
- Hydrocinnamaldehyde** (v. MILLER and RAHDE), 1890, A., 979.
- Hydrocinnamanilide** (HUGHES), 1891, P., 71.
- Hydrocinnamylacrylic acid.** See Hydrostyrylacrylic acid.
- Hydrocinnamic acid.** See  $\beta$ -Phenylpropionic acid.
- Hydrocinnamide** (PEINE), 1884, A., 1311.
- Hydrocollidine** from the putrefaction of albuminoids (GAUTIER), 1885, A., 678.
- platinochloride of (GAUTIER and ETARD), 1884, A., 89.
- Hydroconquinine.** See Hydroquinidine.
- Hydrocotarnine**, physiological action of (STOCKMAN and DOTT), 1891, A., 762.
- Hydrocotoin**, a constituent of coto bark (CIAMICIAN and SILBER), 1891, A., 578.
- Hydrocotoin**, reactions of (CIAMICIAN and SILBER), 1892, A., 62.
- "**Hydrocoton**," nature of (CIAMICIAN and SILBER), 1892, A., 873.
- Hydrocoumaric acid** (*o*-hydroxy- $\beta$ -phenylpropionic acid; *melilotic acid*) (HOCHSTETTER), 1885, A., 390; (DYSON), 1887, T., 70.
- anhydride of (HOCHSTETTER), 1885, A., 390.
- Hydro-*m*-coumaric acid** (*m*-hydroxy- $\beta$ -phenylpropionic acid) (TIEMANN and LUDWIG), 1883, A., 189.
- Hydro-*p*-coumaric acid** (*p*-hydroxy- $\beta$ -phenylpropionic acid) and its derivatives (STOEHR), 1884, A., 1349.
- Hydrocoumarilic acid**, and its salts (FITTIG and EBERT), 1883, A., 474.
- Hydrocoumarin** (DYSON), 1887, T., 71.
- Hydrocoumarone** (ALEXANDER), 1892, A., 1318.
- Hydrocuminamide** (UEBEL), 1888, A., 1079.
- Hydrocupreine** (HESSE), 1888, A., 71.
- Hydrocyanic acid.** See under Cyanogen.
- Hydrodesylphenol** (JAPP and WADSWORTH), 1890, T., 970.
- Hydrodicoumaric acid** and its salts (DYSON), 1887, T., 65.
- Hydrodicoumarin** (DYSON), 1887, T., 66.
- bromo- (DYSON), 1887, T., 67.
- Hydrodiffusion**, theory of (WIEDERBURG), 1891, A., 383; (PLANCK), 1892, A., 935.
- Hydrodimethylamarine** methylic chloride (CLAUS), 1883, A., 203.
- Hydrodimethyl- $\beta$ -naphthindole** (STECHE), 1888, A., 285.
- Hydrodimethylquinolines** (DOERNIER and v. MILLER), 1884, A., 184.
- Hydrodiphtalyl** (WISLICENUS), 1885, A., 57; (HASSELBACH), 1888, A., 485.
- Hydrodiphtalyllactonic acid** (WISLICENUS), 1885, A., 57; (GHAEBE and SCHMALZGUTH), 1885, A., 798; (HASSELBACH), 1888, A., 485.
- Hydrodiquinoline** (LELLMANN), 1889, A., 904.
- Hydroethylquinoline**, ethoxy-derivatives of (FISCHER and RENOUF), 1884, A., 1049.
- Hydroferrocyanic acid**, and its derivatives (ETARD and BÉMONT), 1885, A., 233.
- Hydrofluogermanic acid.** See under Fluorine.

**Hydrofluoric acid** (MEYER and HOFFMEYER), 1892, A., 1228.

**Hydrofluoric acid and hydrofluosilicic acid.** See under Fluorine.

**Hydrofurfuran**, constitution of (GRIMAUZ and CLOEZ), 1890, A., 730.

**Hydrgels** (VAN BEMMELLEN), 1888, A., 985.

**Hydrogen** in the meteoric iron of Lenarto (WILLIAMS), 1885, A., 634.

atomic weight of (AMAGAT), 1885, A., 631.

atomic weight of, carbon as an impurity affecting the estimation of the (MORLEY), 1890, A., 1369.

relative values of the atomic weights of oxygen and (COOKE and RICHARDS), 1888, A., 647, 910.

atomic volume of (AMAGAT), 1885, A., 631.

nascent (TOMMASI), 1883, A., 7.

preparation of (HEMBERT and HENRY), 1886, A., 184; (HABERMANN), 1889, A., 465.

preparation of, apparatus for (CLOEZ; AMAGAT), 1885, A., 631.

preparation of, by the aid of zinc dust (SCHWARZ), 1886, A., 660.

structure of (GRÜNWARD), 1892, A., 1381.

chemical structure and dissociation of, in the sun's atmosphere (GRÜNWARD), 1887, A., 1070.

dispersion equivalent of (GLADSTONE), 1888, A., 389.

refraction equivalent of (GLADSTONE), 1884, T., 251; (BRÜHL), 1887, A., 193.

spectrum of. See under Photochemistry.

flame, coloration of (SANTINI), 1885, A., 209, 465.

experiments on (SMITHIELLS and INGLE), 1892, T., 215.

relation between potential difference and striking distance in, at different pressures (PASCHEN), 1889, A., 806.

critical temperature of (v. WROBLEWSKI), 1889, A., 564.

critical-density, -pressure and -volume of (v. WROBLEWSKI), 1889, A., 564.

relation of, to Mariotte's law (PUSCHL), 1888, A., 18.

compressibility of (AMAGAT), 1884, A., 146; 1889, A., 8; 1891, A., 378; (v. WROBLEWSKI), 1889, A., 563.

compressibility of mixtures of air and (LALA), 1891, A., 634.

**Hydrogen**, heat of combination of, with fluorine (BERTHELOT and MOISSAN), 1889, A., 1096.

heat of combination of, with oxygen (BOILLOT), 1885, A., 8.

density of (AMAGAT), 1885, A., 631; (RAYLEIGH), 1890, A., 330;

(COOKE), 1890, A., 322; (LEDUC), 1891, A., 1416.

relative densities of oxygen and (RAYLEIGH), 1888, A., 643.

maximum tension with which, is set free from solutions by metals (TAMMANN and NERNST), 1892, A., 561.

liquefaction of (v. WROBLEWSKI), 1884, A., 888; 1889, A., 565; (OLSZEWSKI), 1884, A., 889.

liquid, temperature of (v. WROBLEWSKI), 1885, A., 861.

occlusion of (BERLINER), 1889, A., 206.

occlusion of, by metals (THOMA), 1889, A., 568; (NETMANN and STREINTZ), 1892, A., 567.

occlusion of, by lead (SHIELDS), 1892, A., 942.

occlusion of, by palladium, lecture experiments (SCHIFF), 1885, A., 1035; (WILM), 1892, A., 568.

occlusion of, by zinc-dust (WILLIAMS), 1885, A., 634; 1886, A., 15.

passivity of (WANKLYN and COOPER), 1891, A., 892.

action of light on an explosive mixture of chlorine and (PRINGSHEIM), 1888, A., 205.

action of the electric spark on mixtures of nitric oxide and (COOKE), 1889, A., 15.

action of induction sparks on carbon dioxide and (DIXON), 1886, T., 104.

action of, with chlorine and oxygen (HARKE), 1892, A., 1147.

action of, on oxygen (DIXON), 1886, T., 107.

action of nascent, in increasing the activity of oxygen (HOPPE-SEYLER), 1886, A., 120.

action of platinum and palladium on (TRAUBE), 1883, A., 422.

behaviour of, towards lead and other metals (NEUMANN and STREINTZ), 1892, A., 567.

oxidation of, to hydrogen peroxide (TRAUBE), 1889, A., 937.

influence of moisture on the oxidation of (MÜLLER-ERZBACH), 1886, A., 199.

**Hydrogen**, reducing action of, in presence of platinum (COOKE), 1888, A., 1245.  
 reduction of inorganic thio-salts by (KRUSS and SOLEREDER), 1887, A., 111.  
 absorption coefficient of, in alcohol (HENRICH), 1892, A., 1043.  
 solubility of, in alcohol (TIMOFÉEFF), 1891, A., 15.  
 solubility of, in water (TIMOFÉEFF), 1891, A., 15; (WINKLER), 1891, A., 384; (BOHR and BOCK), 1892, A., 108.  
 solubility of, in mixtures of alcohol and water (LUBARSCH), 1890, A., 103.  
 combustion of weighed amounts of (KEISER), 1887, A., 1078.  
 combustion of, in air, presence of hydrogen peroxide and ammonium nitrite and absence of ozone in the products of the (LEEDS), 1884, A., 818.  
 combustion of carbonic oxide and (DIXON), 1885, P., 128; 1886, T., 94.  
 combustion of, in nitric acid (HODGKINSON and LOWNDES), 1888, A., 1244.  
 explosion of oxygen and, under diminished pressure (MEYER and SEUBERT), 1884, T., 586.  
 slow combustion of a mixture of oxygen and (KRAUSE and MEYER), 1891, A., 1153; (MEYER), 1892, A., 562; (ASKENASY and MEYER), 1892, A., 938.  
 direct union of nitrogen with (BAKER), 1884, A., 152.  
 equilibrium between chlorine, oxygen and (LE CHATELIER), 1890, A., 8.  
 "Hydrogen acid," an antiseptic (SCHRODT), 1885, A., 612.  
**Hydrogen compounds**, heats of formation of (TOMMASI), 1885, A., 716.  
 correlation of, with oxygen compounds (FLAWITZKY), 1892, A., 1270.  
**Hydrogen bromide**. See Hydrobromic acid under Bromine.  
 perbromide, formation of (BERTHELOT), 1890, A., 6.  
 carbonates, electrolysis of (ASLANOGLOU), 1890, A., 1204.  
 chloride. See Hydrochloric acid under Chlorine.  
 gold chloride (SCHOTTLÄNDER), 1883, A., 853; (THOMSEN), 1883, A., 1054.  
 cyanide. See Hydrocyanic acid under Cyanogen.  
 fluoride. See Hydrofluoric acid under Fluorine.

**Hydrogen iodide**. See Hydriodic acid under Iodine.

potassium fluoride. See Potassium nitride. See Azoimide.

**Hydrogen peroxide** (HANRIOT), 1885, A., 344.

probable existence of, in natural waters (RAMSAY), 1886, P., 225.

supposed presence of, in animal and vegetable juices (BOKORNY), 1888, A., 751.

presence of, in saliva (WURSTER), 1887, A., 298; 1888, A., 863.

molecular weight of (TAMMANN), 1890, A., 106.

formation of (KAPPEL), 1888, A., 282.

formation of, at the anode during the electrolysis of dilute sulphuric acid (RICHARZ), 1888, A., 12, 769; (TRAUBE), 1888, A., 210.

formation of, during the combustion of carbonic oxide and of hydrogen (TRAUBE), 1885, A., 1108.

formation of, from moist ether (RICHARDSON), 1889, P., 134.

conditions of the formation of, from ether (DUNSTAN and DYMOND), 1890, T., 574, 988; P., 69.

influence of temperature on the formation of, from ether (RICHARDSON), 1891, T., 56.

formation of, from persulphuric acid (TRAUBE), 1889, A., 940.

formation of, on exposure of water to light (RICHARDSON), 1889, P., 184.

formation of, by the oxidation of water by active oxygen (TRAUBE), 1885, A., 1107.

oxidation of hydrogen to (TRAUBE), 1889, A., 937.

preparation of chemically pure (MANN), 1889, A., 101; (CRISMAR), 1892, A., 270.

constitution of (TRAUBE), 1886, A., 660.

evaporation of (TRAUBE), 1889, A., 941.

decomposition of, by certain organised bodies (BÉCHAMP), 1883, A., 103.

spontaneous decomposition of (TAMMANN), 1890, A., 106.

decomposition of, explanation of the (DEBUS), 1888, T., 326.

formation of dyes by means of (WURSTER), 1888, A., 141.

action of, on chromic acid (BERTHELOT), 1889, A., 350, 468, 571.

action of, on the rare earths (CLEVE), 1885, A., 635.

**Hydrogen peroxide**, action of, on hydriodic acid, catalytic influence of acids on the velocity of (MAGNANINI), 1892, A., 110.  
 action of iodine and its oxy-acids on (BAUMANN), 1892, A., 539.  
 action of, on magnesium (GIORGIS), 1892, A., 17.  
 action of, on the oxides of chromium (MARTINON), 1886, A., 984.  
 action of, on manganese oxides (GORGEV), 1890, A., 946.  
 action of, on the hydrated oxides of zinc, cadmium and magnesium (KURLOFF), 1892, A., 1278.  
 action of, on permanganic acid and the permanganates (GORGEV), 1890, A., 1062.  
 action of, on potassium permanganate solutions (ENGEL), 1892, A., 277.  
 action of, on phenols (MARTINON), 1885, A., 668.  
 influence of, on the solution of zinc in dilute sulphuric acid (PULLINGER), 1890, T., 822.  
 reducing action of (MARTINON), 1885, A., 1036.  
 oxidations by (RADZISZEWSKI), 1885, A., 496.  
 oxidation of ammonia by (TRAUBE), 1889, A., 939.  
 bleaching of cotton by (PRUD'HOMME), 1891, A., 1447.  
 bleaching wool with (LÖBNER), 1886, A., 292.  
 in medicine (SONNERAT), 1884, A., 1082.  
 action of, on the red colouring matter of the blood and on hæmotosin (BÉCHAMP), 1883, A., 103.  
 cause of the evolution of oxygen from, by fibrin (BÉCHAMP), 1883, A., 227.  
 supposed connection of, with the liberation of silver by living cells (BOKORNY), 1888, A., 980.  
 as a beer preservative (WEINGÄRTNER), 1884, A., 1447.  
 use of, in analysis (CLASSEN and BAUER), 1883, A., 934; (DUNNINGTON), 1889, A., 546; (HIEFE), 1890, A., 419; (DONATH), 1892, A., 1031.  
 use of, in volumetric analysis (ELIASBERG), 1886, A., 488.  
 separation of metals in alkaline solution by (JANNASCH and NIEDERHOFHEIM), 1892, A., 537.  
 test for (TRAUBE), 1884, A., 1073; (WURSTER), 1887, A., 296; (DENIGES), 1890, A., 1185; 1891, A., 1549; 1892, A., 1124; (CRISMER), 1892, A., 381.

**Hydrogen peroxide**, detection of minute quantities of (FAIRLEY), 1891, A., 360.  
 naphthylamine as a reagent for, in the presence of sodium chloride (WURSTER), 1889, A., 1242.  
 estimation of (HANKIOT), 1885, A., 344; (CARPENTER and NICHOLSON), 1885, A., 430; (MARTINON), 1885, A., 1036; (DE THIERRY), 1886, A., 579; (THOMS), 1887, A., 862; (CONTAMINE), 1888, A., 751; (KINGZETT), 1889, A., 301; (QUINCKE), 1892, A., 526.  
 estimation, rapid, of, apparatus for (MARTINON), 1885, A., 430; (DE THIERRY), 1886, A., 579.  
 estimation of the oxygen value of commercial (SONNERAT), 1884, A., 1082.  
**Hydrogen phosphide**, spontaneously inflammable (GATTERMANN and HAUSKNECHT), 1890, A., 942.  
 preparation of (MESSINGER and ENGELS), 1888, A., 441; (LÜPKE), 1891, A., 397.  
 liquefaction and solidification of (OLSZEWSKI), 1886, A., 977.  
 actions of (CAVAZZI), 1884, A., 155.  
 action of, on an ethereal solution of bismuth tribromide (CAVAZZI and TIVOLI), 1892, A., 279.  
 action of, on the halogen compounds of arsenic (BESSON), 1890, A., 1052.  
 action of, on solutions of metallic salts (KULISCH), 1886, A., 200.  
 action of phosphorous chloride on (LÜPKE; BESSON), 1891, A., 398.  
 action of, on zinc ethyl (GAL), 1883, A., 653.  
 reduction of sulphurous acid by (CAVAZZI), 1886, A., 978.  
 combination of, with boron chloride and silicon sesquichloride (BESSON), 1890, A., 690.  
 combination of, with boron fluoride and silicon fluoride (BESSON), 1890, A., 448.  
 compounds of, with mercury salts (ASCHAN), 1886, A., 428.  
 combination of, with silicon bromide and chloride (BESSON), 1890, A., 559.  
 hydrobromide, dissociation of (ISAMBERT), 1883, A., 646.  
**Hydrogen phosphide**, liquid (GATTERMANN and HAUSKNECHT), 1890, A., 942.  
 action of light on (AMATO), 1884, A., 1237.  
 solid, hydroxylated (FRANKE), 1887, A., 635.

**Hydrogen selenide**, preparation of, from iron selenide (DIVERS and SHIMIDZU), 1885, T., 443.  
 heat of formation of (FABRE), 1886, A., 961.  
 action of sulphur on (DIVERS and SHIMIDZU), 1885, T., 444.  
 action of sulphurous acid with (DIVERS and SHIMIDZU), 1885, T., 441; P., 52.  
 compounds of, with ethers (DE FORC-RAND), 1883, A., 961.  
**Hydrogen sulphide**, occurrence of, in the Stassfurt salt deposits (PFER-FER), 1890, A., 336.  
 presence of, in urine (MULLER), 1888, A., 178; (SALKOWSKI), 1889, A., 432.  
 biogenesis of (DEBAYE and LE-GRAIN), 1891, A., 102.  
 formation of, during alcoholic fer-mentation (SUSRENI and SAN-NINO), 1890, A., 1451.  
 preparation of (DRAPER), 1885, A., 346.  
 preparation of, from coal-gas (TAY-LOR), 1883, A., 821.  
 preparation of, free from arsenic (FRESSENIUS), 1887, A., 885; (WINKLER), 1888, A., 220.  
 preparation of pure, from magnesium hydrosulphide solution (DIVERS and SHIMIDZU), 1884, T., 699.  
 apparatus for preparing (DAGGER), 1889, A., 14.  
 apparatus, Kipp's, modification of (REINHARDT), 1885, A., 1261.  
 recovery of, from alkali waste (v. MILLER and OPI), 1884, A., 1442.  
 purification of (LENZ), 1881, A., 215, 776; (OIRO), 1884, A., 638.  
 purification of, from hydrogen arsen-ide (v. DER PFORDFEN), 1885, A., 317; (JACOBSEN), 1887, A., 885.  
 purification of, by means of hydro-chloric acid (LENZ), 1884, A., 776.  
 flame, experiments on (SMITHELLS and INGLE), 1892, T., 216.  
 absorption coefficient of, in water (HENRICH), 1892, A., 1044.  
 absorption of small quantities of, in gaseous mixtures (OSMOND), 1885, A., 688.  
 action of, on calcium carbonate and calcium polysulphides (DIVERS and SHIMIDZU), 1884, T., 282, 283.  
 action of dry, on metals (LORENZ), 1891, A., 990.  
 distribution of, between the metals of two dissolved salts (CHESNEAU), 1890, A., 1367.

**Hydrogen sulphide**, influence of, on the interaction of zinc and sulphuric acid (PULLINGER), 1890, T., 821.  
 explosion of, with air or oxygen (PEDLER), 1890, T., 625; P., 66.  
 preservation of solutions of (LINDO), 1888, A., 750.  
 rhombic sulphur from (AHRENS), 1890, A., 1371.  
 recovery of sulphur from (CLAUS), 1885, A., 304; (ANON.), 1885, A., 937.  
 recovery of sulphur from, by means of nitrohydrochloric acid in pre-sence of air (LUNGE), 1885, A., 454.  
 poisoning by (BROUARDEL and LOYE), 1885, A., 1151; (BELKY), 1887, A., 392.  
 compounds of, with ethers (DE FORC-RAND), 1883, A., 961.  
 hydrate of (DE FORC-RAND and VIL-LARD), 1888, A., 897.  
 hydrate of, vapour tension of (DE FORC-RAND and VILLARD), 1888, A., 644.  
 formation of methylene-blue as a reaction for (FISCHER), 1884, A., 109.  
 estimation of (CLASSEN and BAUER), 1883, A., 934; (DE KONINCK), 1889, A., 437.  
 estimation of, in aqueous solution (FAUSER), 1889, A., 1031.  
 estimation of, in coal-gas (WRIGHT), 1883, T., 267; 1887, A., 86.  
 estimation of small quantities of, in gaseous mixtures (OSMOND), 1885, A., 688.  
 estimation of, in admixture with sulphurous anhydride (LUNGE), 1891, A., 498.  
 estimation, volumetric, of (BEHREND and KASR), 1890, A., 290.  
**Hydrogen persulphide**, composition of (SABATIER), 1885, A., 952; (LEBS), 1888, A., 1155.  
 stability of (SABATIER), 1885, A., 1037.  
**Hydrogen telluride** (BERTHELOT and FABRE), 1889, A., 210.  
 per-telluride (DIVERS and SHIMIDZU), 1883, T., 330.  
**Hydrogen organic compounds**:—  
 diphenyl cyanide (KRAFFT and KOENIG), 1890, A., 1252.  
 ethylic salts. See Ethylic hydrogen salts.  
 methylic salts. See Methylic hydrogen salts.  
 potassium tartrate (*cream of tartar*). See Tartaric acid, potassium hy-drogen salt of.

**Hydrogen, estimation of:—**

estimation of, in presence of methane, apparatus for (HOPPE-SEYLER), 1887, A., 618.

estimation of carbon and, by means of copper-oxide asbestos (LIPPMANN and FLEISSNER), 1886, A., 580.

estimation, simultaneous, of nitrogen and (GEHRENBEC), 1889, A., 1031.

**Hydrogen thermometer, comparison of mercurial thermometers with (CRAFTS), 1883, A., 144.**

the limit to the use of (V. WROBLEWSKI), 1885, A., 861.

**Hydrogenation of closed chains (STOHMANN and KLEBER), 1891, A., 376, 1146.**

process, characteristics of (BAMBERGER and LENGELD), 1890, A., 1304.

**Hydrogiobertite (SCACCHI), 1887, A., 17.****Hydrohomoferulic acid and its methoxy-derivative (TIEMANN and KRAAZ), 1883, A., 198.****Hydrohydrastine (POWER), 1885, A., 675.****Hydrohydrastinine. See under Alkaloids.****Hydroisindilencine (ENGLER and HASENKAMP), 1885, A., 1223.****Hydrojuglones,  $\alpha$ - and  $\beta$ -, relations of (MYLIUS), 1886, A., 69, and their derivatives (MYLIUS), 1885, A., 169.****Hydrolapachol, dibromo- (HOOKER), 1892, T., 643.**

chloro- (HOOKER), 1892, T., 631.

**Hydrolysis, terminology of (ARMSTRONG), 1890, T., 528.****Hydrolysts and hydrolyte (ARMSTRONG), 1890, T., 531.****Hydromellitic acid (BARTOLI and PAPAIOGLI), 1883, A., 593.****"Hydrometer" (NEUMANN), 1888, A., 1332.**

for demonstrating alterations in weight in chemical changes (GRÖGER), 1884, A., 1253.

**Hydromethylacridine (BERNTSEN and BENDER), 1883, A., 1134.****Hydromethylbenzylamine (CLAUS), 1883, A., 203.****Hydro-*m*-methylcinnamic acid. See *m*-Tolylpropionic acid.****Hydromethylindole [b.p. 232°] and its derivatives (WENZING), 1887, A., 957.**

actions of (BAMBERGER), 1891, A., 1097.

**Hydro- $\alpha$ -methylindole, action of methylic iodide on (ZATTI and FER-RATINI), 1891, A., 311.****Hydromethylindoles [b.p.s. 216° and 228°] (WENZING), 1887, A., 957.****Hydromethyl- $\beta$ -naphthindole (SCHLIEPER), 1887, A., 151.****Hydromethylpyrroline and its derivatives (CIAMICIAN and MAGNAGHI), 1885, A., 809.****Hydro-2'-methylquinoline, colouring matters from (V. MILLER and PLOCHL), 1891, A., 1102.****Hydromucic acid (*ucypentic acid*) (GORBOFF), 1888, A., 1179; (BISCHOFF), 1891, A., 1221.****Hydromucic acid (RUHEMANN and BLACKMAN), 1890, T., 371; P. 38; (RUHEMANN), 1890, T., 937; P., 139.**

bromo- (V. BAEYER and RUPE), 1890, A., 876.

**Hydromucic acids,  $\Delta\beta\gamma$ - and  $\Delta\alpha\beta$ - (V. BAEYER and RUPE), 1890, A., 875, 876.****Hydronaphthaquinone. See Naphthaquinol.** **$\alpha$ -Hydronaphthindole (SCHLIEPER), 1887, A., 964.****Hydronaphthoic acids (V. BAEYER, SCHODER and BESENFELDER), 1892, A., 191.****Hydronaphthylcarbinyamines (BAMBERGER and HELWIG), 1889, A., 1198.****Hydronephelite from Litchfield, Maine (CLARKE), 1886, A., 677.****Hydronicotine (ETARD), 1884, A., 464.****Hydro-oxytetraphenylfurfuran (*videsylihydro-oxytylepiden*) (KNOEVENAGEL), 1888, A., 706; (FEHRLIN), 1889, A., 623.****Hydrophane from Colorado (KUNZ), 1888, A., 346.****Hydrophenanilide (DRECHSEL), 1888, A., 1277.****Hydrophenylacridine and its derivatives (BERNTSEN and BENDER), 1883, A., 1134, 1135.****Hydro-2'-phenylindole (FISCHER and SCHMIDT), 1888, A., 699.****Hydrophite (*iron gymnite*) from Styria (HATLE and TAUS), 1891, A., 21.****Hydrophobia, experiments on (GIBIER), 1884, A., 914; (PASTEUR), 1885, A., 74.****Hydrophthalacetic acid and its ethyl salt (GABRIEL), 1884, A., 1177.****Hydrophthalic acids (V. BAEYER), 1888, A., 1090; 1890, A., 1276; 1892, A., 1211.**

- Hydrophenoketone** (DRECHSEL), 1888, A., 1277.
- $\alpha$ -Hydropiperic acid** (BURI), 1883, A., 485.
- Hydropiperic acids,  $\alpha$ - and  $\beta$ -, and their derivatives** (WEINSTEIN), 1885, A., 664.
- Hydroplumbite** (HEDDLE), 1891, A., 275.
- Hydroisopropylindole** (TRENKLER), 1889, A., 260.
- Hydroptyalin** (BENDERSKY), 1891, A., 483.
- Hydropyridine bases, synthesis of** (A. and C. COMBES), 1889, A., 1073.
- Hydropyridine-derivatives, synthetical, constitution of** (HANTZSCH), 1886, A., 77.
- Hydropyrocinchonic acid.** See *p-s*-Dimethylsuccinic acid.
- Hydropyrogallolbenzein** (DOEBNER and FOERSTER), 1890, A., 899.
- Hydropyromellitic acid** (BARTOLI and PAPASOGLI), 1883, A., 593.
- Hydropyrroline, action of hydriodic acid and phosphorus on** (CLAMICIAN and MAGNAGHI), 1885, A., 809.
- Hydroquercic and hydroquergalic acids** (BÜTTINGER), 1891, A., 1061, 1062.
- Hydroquinicaine** (HESSE), 1888, A., 70.
- Hydroquinidine and its sulphate** (HESSE), 1883, A., 602.  
separation of quinidine from (HESSE), 1883, A., 602.
- Hydroquinine and its compounds.** See under Alkaloids.
- Hydroquinoline, derivatives of** (SERPEK), 1890, A., 177.  
ethoxy-derivatives of (FISCHER and RENOUF), 1884, A., 1049.
- Hydroquinolines, conversion of indoles into** (FISCHER and STRECHE), 1888, A., 208.
- Hydroquinoline-1-, -3-, and -4-sulphonic acids** (CLAUS), 1890, A., 266.
- Hydroquinone.** See Quinol.
- Hydrosorufin** (NIETZKI, DIETZE and MABOKLER), 1890, A., 157.
- Hydrosorbic acid.** See Hexenoic acid.
- Hydrostyrylacrylic acid** (FITTIG and STERN), 1892, A., 988.  
oxidation of (FITTIG and MAYER), 1892, A., 986.
- Hydrosulphides** (LINDER and PICTON), 1890, P., 49; 1891, P., 176; 1892, T., 114.
- o*-Hydrosulphobenzoic acid** (DELISLE), 1889, A., 1183.
- Hydrotannic acid and isohydrotannic acid** (BÜTTINGER), 1892, A., 181, 182.
- Hydroterephthalic acids** (V. BAYER), 1889, A., 1176.  
thermochemistry of (STOHMANN and KLEBER), 1891, A., 1147.
- Hydrothiazole derivatives, attempts to prepare** (SCHATZMANN), 1891, A., 744.
- Hydrothiocinnamic acid** (GINSBURG and BONDZYŃSKI), 1886, A., 326.  
derivatives of (BONDZYŃSKI), 1887, A., 1108.  
amido- and nitro- (BONDZYŃSKI), 1887, A., 1109.
- Hydrotoluquinone.** See Toluquinol.
- Hydrotriethyladaphnetic acid** (WILL and JUNG), 1884, A., 1043; (JUNG), 1886, A., 558.
- Hydrotrimellitic acid.** See Hydroxymellitic acid.
- Hydrotrimethylamarine** (CLAUS), 1883, A., 203.
- Hydrotropidine and its salts** (LADENBURG), 1883, A., 1155.
- Hydrotropine iodide** (LADENBURG), 1883, A., 672.
- Hydroxamic acid derivatives, isomeric** (LOSSEN), 1892, A., 711.
- Hydroxamic acids, aliphatic, preparation of** (HOFFMANN), 1890, A., 127; (MIOLATI), 1892, A., 698; (CRISMER), 1892, A., 828.  
constitution of (TIEMANN), 1892, A., 300, 461; (LOSSEN), 1892, A., 461.
- Hydroxanthochelidonic acid** (HAITINGER and LIEBEN), 1885, A., 48.
- Hydroxides, alkaline, magnetic rotation of** (PERKIN), 1890, P., 143.  
detection of traces of (KISLING), 1891, A., 364.  
detection and estimation of, in presence of alkaline carbonates (DOBBIN), 1890, A., 293.  
estimation of (QUINCKE), 1892, A., 526.  
estimation of, in presence of carbonates (ISBERT and VENATOR), 1888, A., 1130.
- metallic, dehydration of, by heat** (CARNELLEY and WALKER), 1887, P., 110; 1888, T., 59.  
solubility of, in Rochelle salt (WARREN), 1888, A., 1131.
- Hydroximic acids** (WERNER), 1892, A., 462.
- Hydroximido-.** See Hydroxyimido-.
- o*-Hydroxyacetophenone and its derivatives** (TAHARA), 1892, A., 845.
- p*-Hydroxyacetophenone** (KLINGEL), 1886, A., 61; (MICHAEL and PALMER), 1886, A., 239.

- Hydroxy-acids** derived from  $\psi$ -cumenol (JACOBSEN and MEYER), 1883, A., 589.  
 action of alkali hydrosulphides on (FUCHS), 1899, A., 496; 1891, A., 46.  
 action of hydrobromic acid on the ethereal salts of (FÜLSING), 1884, A., 897.  
 reciprocal transformations of lactones and (HENRY), 1892, A., 1303.  
 velocity of lactone formation in the case of (HJELT), 1891, A., 822.  
 detection and estimation of, in urine (BAUMANN), 1883, A., 885.
- $\alpha$ -Hydroxy-acids**, action of phenylhydrazine on (REISSERT and KAYSER), 1890, A., 155; 1891, A., 438.  
 decomposition products of (V. PETERMANN), 1891, A., 1457.  
 oxidation products of (ARNTOFF and DEMIANOFF), 1888, A., 251.  
 constitution of the compounds obtained from *o*-diamines and (HINSBERG), 1892, A., 1359.  
 ethereal salts of, action of phenylhydrazine on (REISSERT and KAYSER), 1890, A., 155; 1891, A., 438.
- Hydroxyacridine and hydroxyacridylbenzoic acid** (BESTHORN and CURTIUS), 1891, A., 1233, 1234.
- Hydroxyacrylic acid**, chlorobromo- (MAHERY and SMITH), 1890, A., 27.
- o*-Hydroxyaldehydes**, action of acetic chloride on (BRADLEY and DAINS), 1892, A., 1458.
- Hydroxyalizarin-blue**, and its sulphonic acid (SCHMIDT and GATTERMANN), 1891, A., 1383.
- Hydroxyallyldiamines** (REBOUL), 1884, A., 578.
- Hydroxyamidobenzophenone** (GHAEBE and EICHENGRUN), 1892, A., 1227.
- Hydroxyamidocarbidocarbocarbamidobenzoic acid** (GRIESS), 1885, A., 1226.
- Hydroxydiamidodiphenyl** (*hydroxybenzidine*) (WEINBERG), 1888, A., 285; (GRIESS and DUISBERG), 1890, A., 59.
- Hydroxyamidohydroxyquinoneoxime**, chloro- (KEHRMANN and TIESLER), 1890, A., 493.
- Hydroxyamidophenyl tolyl ketone** (LIEBERMANN), 1883, A., 1097.
- Hydroxyamidophenylacridine** (FISCHER and KÖRNER), 1884, A., 748.
- p*-Hydroxy- $\alpha$ -amidophenylpropionic acid**. See Tyrosine.
- Hydroxyamidosulphonic acid**, barium salt of (DIVER and HAGA), 1889, T. 763.
- Hydroxyamidothymoquinone** (KOWALSKI), 1892, A., 1098.
- Hydroxyammonium benichloride**, constitution of (DIVERS), 1884, T., 20.  
 nitranilate (NEP), 1889, A., 497.
- Hydroxyamylenedicarboxylic acid** and its silver and ethylic salts (HILSEBRIN), 1885, A., 1203.
- Hydroxyamyleneaphthaquinone**. See Lapachol.
- Hydroxyamylphosphinic acid** and its salts (FOSSEK), 1885, A., 504.
- Hydroxyanisylbutyric acid**, salts of (FITTEG and POLIFIS), 1890, A., 771.
- m*-Hydroxyanthracoumarin** (V. KOSTANECKI), 1888, A., 292.
- Hydroxyanthranol** (LINDBARGER), 1892, A., 346.  
 and its ethyl-derivative, constitution of (LIEBERMANN), 1885, A., 1240.
- $\beta$ -Hydroxyanthranol** and its derivatives (SCHULZ), 1886, A., 247.
- m*-Hydroxyanthraquinone** (A. G. and W. H. PERKIN), 1885, T., 630.
- Hydroxyanthraquinone**, methyl-derivatives of, spectra of (LIEBERMANN and V. KOSTANECKI), 1887, A., 1.  
 salts, reactions of (LIEBERMANN and HAGEN), 1883, A., 73.  
 ethylate, nitro- and amido- (LIEBERMANN and HAGEN), 1883, A., 73.
- Hydroxyanthraquinone dyes** (LIEBERMANN and WENSE), 1887, A., 593.
- Hydroxyanthraquinones**, syntheses of (LIEBERMANN and V. KOSTANECKI), 1886, A., 474.  
 ethyl-derivatives of (LIEBERMANN and JELLINEK), 1888, A., 715.
- Hydroxy-aurins and -aurincarboxylic acids** (CARO), 1892, A., 855, 1469.
- Hydroxyazelaic acid** (BIJARD and HELL), 1889, A., 376.
- Hydroxyazo-**. See Azo.
- Hydroxyazophenine** (FISCHER and HEPP), 1887, A., 1105; (KÖHLER), 1888, A., 587.
- m*-Hydroxybenzaldehyde** and some of its derivatives (TIEMANN and LUDWIG), 1883, A., 188; (LUDWIG), 1885, A., 663; (CLEMM), 1891, A., 699.  
 $\alpha$ -,  $\beta$ - and  $\gamma$ -nitro- (TIEMANN and LUDWIG), 1883, A., 189, 586.
- o*-Hydroxybenzaldehyde**. See Salicylaldehyde.
- p*-Hydroxybenzaldehyde**, heat of solution of (BERTHELOT), 1885, A., 1177.

- p*-Hydroxybenzaldehyde, action of zinc chloride on (BOURQUIN), 1884, A., 1164.  
*m*-nitro- (SCHÖPFF), 1892, A., 336.  
 Hydroxybenzaldehydes, nitro-, and their methyl-derivatives (TIEMANN), 1889, A., 1168.  
*o*-Hydroxybenzaldehydeacetic acid, dithio- (BONGARTZ), 1886, A., 937.  
 Hydroxybenzaldehydophenylhydrazones, *m*- and *p*- (RUDOLPH), 1889, A., 251, 252.  
*p*-Hydroxybenzaldoxime (LACH), 1883, A., 1104.  
*p*-Hydroxybenzamide, reduction of (HUTCHINSON), 1890, T., 957.  
 Hydroxybenzenes, heat equivalent of (STOHMANN), 1886, A., 655.  
 heat equivalent of the hydroxyl-groups in (STOHMANN), 1886, A., 656.  
 condensation of, with nitrobenzaldehydes (SIBONI), 1892, A., 621.  
*m*-Hydroxybenzenylamidoxime (CLEMM), 1891, A., 699.  
*p*-Hydroxybenzenylamidoxime (KRONE), 1891, A., 700.  
 Hydroxybenzenylazo-. See Azo-.  
*m*-Hydroxybenzenylphenylhydrazone (CLEMM), 1891, A., 699.  
*o*-Hydroxybenzhydrazoines (CORNELIUS and HOMOLKA), 1886, A., 1026.  
*p*-Hydroxybenzide and its derivatives (KLEPL), 1884, A., 446.  
 Hydroxybenzidine. See Hydroxydi-amidodiphenyl.  
*o*-Hydroxybenzoic acid. See Salicylic acid.  
*m*-Hydroxybenzoic acid, absorption spectrum of (HARTLEY), 1888, T., 658.  
 action of baryta on (KLEPL), 1883, A., 664.  
 action of phosphoric chloride on (ANSCHUTZ and MOORE), 1887, A., 947.  
 sodium salt of, action of phosphorus oxychloride on (RICHTER), 1884, A., 325.  
*m*-Hydroxybenzoic acid, 4-amido- (LIMPRICHT), 1891, A., 1037.  
*tri*- and *tetra*-chloro- (ZINCKE and WALBAUM), 1891, A., 709.  
 iodo- (LIMPRICHT), 1891, A., 1037.  
 nitro-derivatives (GRIESS), 1887, A., 485.  
 2-nitro- (THIEME), 1891, A., 917.  
*p*-Hydroxybenzoic acid, absorption spectrum of (HARTLEY), 1888, T., 661.  
 dry distillation of (KLEPL), 1884, A., 446.  
*p*-Hydroxybenzoic acid, action of phosphoric chloride on (ANSCHUTZ and MOORE), 1887, A., 947.  
 calcium salt of, products of the distillation of (GOLD-SCHMIEDT), 1883, A., 664.  
 sodium salt of, action of phosphorus oxychloride on (RICHTER), 1884, A., 325.  
*p*-Hydroxybenzoic acid, dihalo- (BALDIANO), 1883, A., 1125.  
 constitution of (ALESSI), 1886, A., 65.  
 dichloro- (CLAUS and RIEMANN), 1883, A., 1112; (ZINCKE and WALBAUM), 1891, A., 710.  
 nitro-derivatives (GRIESS), 1887, A., 485.  
 Hydroxybenzoic acids, electrical conductivity of (BERTHELOT), 1890, A., 677.  
 heats of combustion and formation of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.  
 heats of formation and transformation of (BERTHELOT and WERNER), 1885, A., 1103.  
 heats of neutralisation and solution of (BERTHELOT and WERNER), 1885, A., 1032.  
 action of heat on (GRAEBE and EICHENGRUN), 1892, A., 1208.  
 action of aniline on substitution derivatives of (LIMPRICHT), 1890, A., 158; (SEIFERT), 1890, A., 490.  
 action of chlorine on (ZINCKE and WALBAUM), 1891, A., 708.  
 action of diazo-compounds with (ZIBELL), 1891, A., 1473.  
 action of iodine on, in alkaline solution (MESSINGER and VORTMANN), 1889, A., 1151.  
 nitration of, with nitrous acid (DENINGER), 1891, A., 307.  
 inversion of cane sugar by (KORAL), 1886, A., 932.  
 azo-dyes from (v. KOSTANECKI and ZIBELL), 1891, A., 1038.  
 ammonium and aniline salts of, electrical conductivities of the (BERTHELOT), 1890, A., 1039.  
 ethylene ethers of (WAGNER), 1884, A., 433.  
*o*-Hydroxybenzonitrile (MEYER), 1888, A., 266; (TIEMANN), 1888, A., 276.  
*p*-Hydroxybenzonitrile (KLEPL), 1884, A., 447.  
*o*-Hydroxybenzophenone (HEIBER), 1892, A., 309.  
 Hydroxybenzophenones, *m*- and *p*-, and their oximes (SMITH), 1892, A., 489, 490.

- Hydroxybenzotropeine and its salts (LADENBURG), 1883, A., 671.
- p*-Hydroxybenzoyl-*p*-hydroxybenzoic acid (KLEPL), 1884, A., 447.
- p*-Hydroxybenzoylpiperidine (SCHOT-  
TEN), 1888, A., 1106.
- o*-Hydroxybenzylacetamide (GOLD-  
SCHMIDT and ERNST), 1890, A.,  
1411.
- o*-Hydroxybenzylamine (*salicylamine*)  
(GOLDSCHMIDT and ERNST), 1890, A.,  
1411; (TIEMANN), 1891, A., 50.
- p*-Hydroxybenzylamine (SALKOWSKI),  
1889, A., 1173.
- Hydroxybenzylanilines, *o*- and *p*-  
(EMMERICH), 1888, A., 50, 51.
- Hydroxy-*m*-benzylbenzoic acid (*m*-  
*benzhydrylbenzoic acid*) and its salts  
(SENF), 1884, A., 428.
- o*-Hydroxybenzylcarbamide (GOLD-  
SCHMIDT and ERNST), 1890, A., 1411.
- 4-Hydroxy-6-benzyl-*m*-diazine-2-carb-  
oxylic acid (PINNER), 1889, A., 1008.
- 6-Hydroxy-2-benzyl-4:5-dimethyl-*m*-  
diazine (PINNER), 1889, A., 1008.
- 8-Hydroxy- $\gamma$ -benzylhexoic acid, lactone  
of (FITTIG and CHRIST), 1892, A.,  
963.
- 2-Hydroxybenzyl-6-hydroxy-4-methyl-  
*m*-diazine (PINNER), 1891, A., 63.
- 2-Hydroxybenzyl-6-hydroxy-4-methyl-  
5-ethyl-*m*-diazine (PINNER), 1891, A.,  
63.
- o*-Hydroxybenzylic alcohol. See Sali-  
genin.
- p*-Hydroxybenzylic alcohol (BIEDE-  
MANN), 1887, A., 38.  
cyanide (SALKOWSKI), 1884, A., 1175;  
1889, A., 1173.
- Hydroxybenzylidene compounds (EM-  
MERICH), 1888, A., 50.
- o*-Hydroxybenzylidenesamidobenzamide  
(SCHIFF), 1884, A., 455.
- Hydroxybenzylidenesamidodimethyl-  
anilines, *o*- and *p*- (NUTH), 1885, A.,  
784.
- o*-Hydroxybenzylidene-*p*-amidodi-  
phenylamine (HENCKE), 1890, A., 609.
- Hydroxybenzylidene-*o*- and -*p*-amido-  
phenols (HAEGELE), 1892, A., 1451.
- o*-Hydroxybenzylidenesazine (CURTIUS  
and JAY), 1889, A., 393.
- o*-Hydroxybenzylidenesbisthioglycollic  
acid (BONGARTZ), 1888, A., 478.
- p*-Hydroxybenzylidenesdiacetanamine  
oxalate (ANFRIK), 1885, A., 503.
- Hydroxybenzylidenediphenylmaleide  
(COHN), 1892, A., 483.
- Hydroxybenzylidenefenchylamine  
(WALLACH and GRIEPENKERL), 1892,  
A., 1239.
- m*-Hydroxybenzylidene-4'-methyl-  
quinoline (HEYMANN and KOENIGS),  
1888, A., 1114.
- p*-Hydroxybenzylidene-4'-methyl-  
quinoline (HEYMANN and KOENIGS),  
1888, A., 852.
- p*-Hydroxybenzylidene-2'-methyl-  
quinoline (BULACH), 1889, A.,  
528.
- p*-Hydroxybenzylidenepinylamine  
(WALLACH and LORENTZ), 1892, A.,  
997.
- 6-Hydroxy-2-benzyl-4-methyl-*m*-diaz-  
ine (PINNER), 1889, A., 1007.
- 6-Hydroxy-2-benzyl-4-methyl-5-ethyl-  
*m*-diazine (PINNER), 1889, A.,  
1008.
- o*-Hydroxybenzyl-4'-methylquinoline  
(HEYMANN and KOENIGS), 1888, A.,  
852, 1113.
- p*-Hydroxybenzyl-4'-methylquinoline  
(HEYMANN and KOENIGS), 1888, A.,  
852.
- Hydroxybenzyl- $\beta$ -naphthylamines and  
- $\beta$ -naphthylnitrosamines, *o*- and *p*-  
(EMMERICH), 1888, A., 51.
- o*-Hydroxybenzylphenylcarbamide  
(GOLDSCHMIDT and ERNST), 1890, A.,  
1412.
- Hydroxybenzylphosphinic acid (FOS-  
SEEK), 1886, A., 530.
- Hydroxybenzylphosphinous acid  
(VILLE), 1890, A., 618.
- p*-Hydroxybenzylphthalimidine (HAF-  
NER), 1889, A., 983; 1890, A.,  
487.
- Hydroxybenzylphthalimidine, nitro-  
(GABRIEL), 1885, A., 1230.
- Hydroxybenzylpyrotartaric acid  
(*phenylhomotartaric acid*), calcium  
salt of (PENFIELD), 1883, A., 473.
- p*-Hydroxybenzylsulphonic acid  
(MOHR), 1884, A., 69.
- p*-Hydroxybenzylthiocarbimide (SAL-  
KOWSKI), 1889, A., 1174.
- o*-Hydroxybenzyl-*p*-toluidine (EMMER-  
ICH), 1888, A., 50.
- p*-Hydroxybenzyltoluidine (EMMER-  
ICH), 1888, A., 51.
- Hydroxybenzyltrimethylenecarboxylic  
acid (MARSHALL and PERKIN), 1891,  
T., 884.
- $\gamma$ -Hydroxy- $\beta$ -benzylvaleric acid (ERD-  
MANN), 1890, A., 377.
- Hydroxy- $\beta$ -bromobenzylidenepheryl-  
hydrazine (RÜSSING), 1885, A.,  
389.
- $\alpha$ -Hydroxybromocarmine (WILL and  
LEYMANN), 1886, A., 252.
- Hydroxybromophenylpyrazoline. See  
1-Phenyl-3-pyrazolone, 4-bromo-.

- $\beta$ -Hydroxybutaldehyde**, formation of, from acetaldehyde (MICHAEL and KOPF), 1884, A., 420.
- Hydroxybutanedisulphonic acid** (HAUBNER), 1892, A., 424.
- Hydroxybutane- $\beta$ -sulphonic acid**, sodium salt of (HAUBNER), 1892, A., 424.
- $\gamma$ -Hydroxyisobutanesulphonic acid**, barium salt of (GUARESCHI and GARZINO), 1888, A., 436.
- $\alpha$ -Hydroxy- $p$ -isobutylbenzoic acid** (V. DOBRZYCKI), 1888, A., 368.
- Hydroxyisobutylphosphinic acid** (FOSSEK), 1885, A., 504.
- $\beta$ -Hydroxybutylpiperidine** ( $\alpha$ -*pipecolyl-ethylalkine*) (MATZDORFF), 1890, A., 1436.
- Hydroxybutylpyridine** ( $\alpha$ -*propylpyridylalkine*) (ENGLER and MAJMON), 1891, A., 1505.
- $\beta$ -Hydroxybutylpyridine** ( $\alpha$ -*picolylethylalkine*) (MATZDORFF), 1890, A., 1436.
- Hydroxyisobutylpyrotartaric acid**, salts of (FITTIG and SCHNEEGANS), 1890, A., 591.
- Hydroxyisobutylpyrotartaric acids**,  $\alpha$ - and  $\beta$ -, salts of (FITTIG and FEIST), 1890, A., 592, 593.
- Hydroxyisobutyramide**, *tetrachloro*-, formation of (LEVY, WITTE and CURCHOD), 1890, A., 234.
- Hydroxyisobutyramidine hydrochloride** (PINNER), 1884, A., 1292.
- $\alpha$ -Hydroxybutyric acid**,  $\beta$ -amido- (MELIKOFF), 1884, A., 1301.
- $p$ -bromo- (KOLBE), 1883, A., 574; (MELIKOFF), 1885, A., 650.
- $\beta$ -chloro- (MELIKOFF), 1883, A., 311; (MELIKOFF and PETRENKO-KRITSCHENKO), 1892, A., 296.
- $\beta$ -Hydroxybutyric acid**, laevorotatory, in the blood of a diabetic patient (HUGOTENENQ), 1887, A., 986.
- in the urine in cases of *Diabetes mellitus* (MINKOWSKI), 1885, A., 413.
- in diabetic urine (KULZ), 1885, A., 285; 1887, A., 290; (DEICHMÜLLER, SZYMANSKI and TOLLENS), 1885, A., 830; (STADELMANN), 1887, A., 464; (WOLFE), 1887, A., 857.
- $\beta$ -Hydroxybutyric acid**,  $\alpha$ -chloro- (MELIKOFF), 1883, A., 969; 1884, A., 1301; 1885, A., 650; 1887, A., 30; (MELIKOFF and PETRENKO-KRITSCHENKO), 1892, A., 296.
- $\gamma$ -*tetrachloro*- (V. GARZAROLI-THURNLACKER), 1892, A., 429.
- $\gamma$ -Hydroxybutyric acid** (FRUHLING), 1883, A., 42.
- transformation of, into its lactone (HENRY), 1892, A., 1303.
- Hydroxyisobutyric acid**, conversion of acetonechloroform into (WILLGERODT), 1883, A., 177.
- amido- (MELIKOFF), 1885, A., 650.
- $p$ -bromo- (KOLBE), 1883, A., 573; (MELIKOFF), 1885, A., 650.
- chloro- (MELIKOFF), 1884, A., 1301; 1885, A., 650.
- distillation of, with water (MELIKOFF and PETRENKO-KRITSCHENKO), 1890, A., 736.
- tetrachloro*- (LEVY, WITTE and CURCHOD), 1890, A., 234.
- Hydroxyisobutyrimido-ether hydrochloride** (PINNER), 1884, A., 1292.
- Hydroxybutyro- $\alpha$ -toluido- $\alpha$ -tolylcarbamine**,  $\alpha$ -chloro- (RUCHEIMER and SCHRAMM), 1888, A., 503.
- Hydroxycaffeine**, amide salts (FISCHER), 1883, A., 355.
- Hydroxycamphocarboxylic acid** from camphocarboxylic acid (HALLER and MINGUIN), 1890, A., 638.
- Hydroxycampholactonic acid** (WÖRINGER), 1885, A., 669.
- Hydroxycamphor**. See Campholenic acid.
- Hydroxycamphoronic acids** (KACHLER and SPIZER), 1883, A., 1008; 1889, A., 158.
- Hydroxycarbamidophenol** (KALCKHOFF), 1883, A., 1110.
- Hydroxycarbimidophenol** (BENDER), 1887, A., 245.
- Hydroxycarbon compounds**, action of non-metallic nitrides and hydronitrides on (VIDAL), 1892, A., 1311.
- 3'-Hydroxycarbostryl** (FRIEDLANDER and WEINBERG), 1883, A., 351.
- 4'-Hydroxycarbostryl** (V. BAeyer and BLAEM), 1883, A., 197.
- 3'-nitroso-*(quinisarinine)*** (V. BAeyer and HOMOLKA), 1884, A., 1029.
- $\alpha$ -Hydroxy- $\alpha$ -carboxycinnamic lactone** (BAMBERGER and KRITSCHOLT), 1892, A., 857.
- Hydroxycarboxylic acids**, aromatic, anhydrides of (SCHIFF), 1883, A., 335.
- Hydroxycarboxymethylquinoxalineureide** (HINSBERG), 1885, A., 909.
- Hydroxycarboxytolylglyoxylic acid**, dibromo- (*dibromohydroxymethylbenzoyldicarboxylic acid*) (WILL and LEVMAAN), 1886, A., 253.
- Hydroxycellulose**, formation of, electrochemically (HOPELSROEDER), 1885, A., 208.

- Hydroxyhexachloropentenecarboxylic acid** (ZINCKE and KÜSTER), 1888, A., 1277.
- α*-Hydroxycinchomeronic acid** (*2-hydroxy-pyridine-3:4-dicarboxylic acid*) (WEIDEL and STRACHE), 1886, A., 951.
- Hydroxycinchononic acid** (*2'-hydroxy-quinoline-4'-carboxylic acid*) (KÖNIGS and KÖRNER), 1884, A., 84.
- α*-Hydroxycinchonine** and its derivatives (JUNGFLEISCH and LÉGER), 1888, A., 380, 507; 1889, A., 906.
- β*-Hydroxycinchonine** (JUNGFLEISCH and LÉGER), 1888, A., 380, 507.
- Hydroxycinnamic acid.** See Coumaric acid.
- Hydroxyennoline** and its derivatives (v. RICHTER), 1883, A., 1105; (BUSCH and KLEIN), 1892, A., 1494.
- Hydroxycitraconic acid** and its derivatives (SCHERKEN), 1885, A., 513; (MELIKOFF and FELDMANN), 1890, A., 29.
- Hydroxycitric acid** (v. LIPPMANN), 1883, A., 913.  
sodioferrous salt of (ROTHER), 1883, A., 458.
- Hydroxycitronic acid** (v. LIPPMANN), 1884, A., 939.
- Hydroxycoacetylacetic acid** (EINHORN), 1889, A., 169.
- Hydroxycomazine**, and its derivatives (KRIPPENDORFF), 1885, A., 1243.
- Hydroxycoumenamic acid.** See 3:4:5-Trihydroxypicolinic acid.
- Hydroxy-compounds**, action of aluminium chloride on (CLAUS and MERCKLIN), 1886, A., 143.  
action of sulphur on the salts of aromatic (LANGE), 1888, A., 375.
- Hydroxyconiine**, tribromo- (v. HOFMANN), 1885, A., 563.
- Hydroxy-*m*-coumaric acid** and its derivatives (LUDWIG), 1885, A., 664.
- m*-Hydroxycoumarilic acid** (HANTZSCH), 1887, A., 262.
- m*-Hydroxycoumarin** (v. FECHMANN and WELSH), 1884, A., 1346; (BIZZARRI), 1885, A., 901.
- Hydroxycroconic acid.** See Leuconic acid.
- Hydroxycumidine**, and the action of acetic anhydride on (LIEBERMANN and v. KOSTANECKI), 1884, A., 1147.
- Hydroxycumylacrylic acids**, *o*- and *m*- (WIDMAN), 1886, A., 466, 467.
- Hydroxycyanamylamine** (TRÜGER), 1888, A., 802.
- Hydroxycyanoconiine** (v. MEYER), 1883, A., 352.  
behaviour of, with bromine and potassium hydroxide (v. MEYER), 1883, A., 354.  
derivatives of (v. MEYER), 1883, A., 352; (RIESS), 1885, A., 235.
- Hydroxycyanuric disulphide** (KLASON), 1886, A., 325.
- Hydroxycymene**, bromo- (MAZZARA), 1886, A., 1017.
- γ*-Hydroxydecylic acid** (SCHNEEGANS), 1885, A., 650.
- Hydroxydehydracetic acid** and its acetyl-compound (PERKIN and BERNHART), 1884, A., 1121; (PERKIN), 1887, T., 491, 492.
- Hydroxydeoxybenzoin** (NEY), 1888, A., 1197.
- Hydroxy-*m*-diazines** (v. MEYER), 1890, A., 68.
- Hydroxydiethylallylamine**, chloro- (REBOUL), 1884, A., 578.
- 6-Hydroxy-2:4-diethyl-*m*-diazine-5-carboxylic acid** (v. MEYER), 1889, A., 686.
- Hydroxydifurfurylcyanidine** (PINNER), 1892, A., 1008.
- Hydroxydihydropyridinecarboxylic acid**, aldehyde of (OST), 1883, A., 793.
- 2'-Hydroxydihydroquinoline.** See Hydrocarbostyryl.
- Hydroxydihydroquinolone** (ERLENMEYER and LIPP), 1883, A., 993.
- Hydroxydihydroquinoxaline** (PLOCHE), 1886, A., 351.
- Hydroxydiketodihydropentene**, tri-bromo- (NEF), 1890, A., 1272.
- Hydroxydiketohexene**, pentabromo- (ZINCKE and KEGEL), 1890, A., 1109.
- Hydroxydiketohydrindocarboxylic acid**, dichloro- (ZINCKE), 1888, A., 489.
- Hydroxydiketopentamethylenecarboxylic acid**, *mono*- and *di*-chloro- (HANTZSCH), 1890, A., 131, 132.  
trichloro- (HANTZSCH), 1888, A., 1190; (LANDOLT), 1892, A., 835.  
tetrachloro- (LANDOLT), 1892, A., 836.
- 4'-Hydroxydimethylamido-*α*-naphthaquinone** (MYLIUS), 1885, A., 803.
- Hydroxydimethylamidoquinone** (KEHRMANN), 1890, A., 757.
- Hydroxy-2:3-dimethylbenzoic acid** (JACOBSEN), 1887, A., 36.
- 2-Hydroxy-3:5-dimethylbenzoic acid** (*hydroxyrylic acid*) (GUNTHER), 1884, A., 1347.

- 2-Hydroxy-4:6-dimethylbenzoic acid (JACOBSEN), 1886, A., 709.
- Hydroxydimethylbutyrolactonecarboxylic acid** (ZELINSKY), 1892, A., 436.
- 6-Hydroxy-2:4-dimethyl-*m*-diazine (PINNER), 1886, A., 46; 1889, A., 1006.
- 4-Hydroxy-2:6-dimethyl-*m*-diazine, 5-bromo-, hydrobromide of (PINNER), 1887, A., 1054.
- $\beta$ -Hydroxydimethylethylamine** (KNORR), 1889, A., 905.
- 6-Hydroxy-2:5-dimethyl-4-ethyl-*m*-diazine (v. MEYER), 1890, A., 69.
- 6-Hydroxy-4:5-dimethyl-2-ethyl-*m*-diazine (PINNER), 1889, A., 1007.
- $\beta$ -Hydroxy- $\alpha$ -dimethylisohexolic acid** (WOHLBRUCK), 1887, A., 1099.
- Hydroxydimethylidooheptamethylene** (KIPPING and PERKIN), 1891, T., 224.
- $\beta$ -Hydroxydimethylnaphthaquinoline-sulphonic acid** (REED), 1887, A., 681.
- Hydroxydimethylpurin** (FISCHER), 1884, A., 997.
- 1-Hydroxy-2:5-dimethylpyrroline-3-carboxylic acid (KNORR), 1887, A., 275.
- 4'-Hydroxy-2:2'-dimethylquinazoline (NIEMENTOWSKI), 1888, A., 837.
- Hydroxy-2':3'-dimethylquinoline** [m.p. 44°] (BEYER), 1886, A., 630.
- 1-Hydroxy-2':4'-dimethylquinoline (ENGLER and BAUER), 1889, A., 524.
- 3-Hydroxy-2':4'-dimethylquinoline (ENGLER and BAUER), 1889, A., 525.
- 4'-Hydroxy-1':2'-dimethylquinoline. See 4'-Oxy-1':2'-dimethylquinoline.
- 4-Hydroxy-1:3-dimethylquinoline (NOLTING and TRAUTMANN), 1891, A., 328; 1892, A., 729.
- 4'-Hydroxy-2':3'-dimethylquinoline (CONRAD and LIMPACH), 1892, A., 78.
- Hydroxydimethylquinoxaline** (HINSBERG), 1884, A., 1053; 1889, A., 280; 1892, A., 1359.
- di*bromo- (NASTVOGEL), 1889, A., 238.
- Hydroxydimethylsulphonebenzide** (*di*-hydroxyditolylsulphone) (TASSINARI), 1889, A., 246.
- p*-Hydroxydiphenyl and its derivatives (KATSER), 1890, A., 898.
- synthesis of, from aniline (HIRSCH), 1891, A., 437.
- Hydroxydiphenyl, diamido-** (WEINBERG), 1888, A., 285; (GRIESS and DUISBERG), 1890, A., 59.
- Hydroxydiphenyl bases** (WEINBERG), 1888, A., 285.
- Hydroxydiphenyl triketone** (SODERBAUM), 1891, A., 1043.
- Hydroxydiphenylamine, *di*nitro-** [m.p. 190°] (NIETZKI and SCHUNDELEN), 1892, A., 310.
- thio- (BERNHUSEN), 1885, A., 260; 1886, A., 55.
- o*-Hydroxydiphenylamine, *di*nitro- (SCHOPFF), 1889, A., 772.
- m*-Hydroxydiphenylamine and its derivatives (CALM), 1884, A., 591.
- p*-amido and *p*-nitroso- (KOHLER), 1888, A., 587.
- p*-Hydroxydiphenylamine and its derivatives (CALM), 1884, A., 592; (PHILIP and CALM), 1885, A., 155.
- Hydroxydiphenylbenzyl-maleide and -maleimidine, nitro-** (COHN), 1892, A., 485, 486.
- $\gamma$ -Hydroxy- $\gamma$ -diphenylbutyric acid** (AUGER), 1888, A., 952.
- o*-Hydroxydiphenylcarbamide (LEUCKART), 1890, A., 761.
- Hydroxydiphenylozanidine** (PINNER), 1890, A., 497.
- 6-Hydroxy-2:4-diphenyl-*m*-diazine, formation of (PINNER), 1889, A., 1008; (SCHWARZE), 1890, A., 1159.
- 6-Hydroxy-2:4-diphenyl-*m*-diazine-5-carboxylic acid (v. MEYER), 1890, A., 68.
- 4'-Hydroxydiphenyl-2:2'-disulphonic acid, 4-amido- (LIMPRICHT), 1891, A., 929.
- Hydroxydiphenylene ketone**, and its derivatives (RICHTER), 1884, A., 325.
- Hydroxydiphenylethane** (KOENIGS), 1891, A., 208; (KOENIGS and CARL), 1892, A., 466.
- Hydroxydiphenylethylamine** and its derivatives (GOLDSCHMIDT and POŁONOWSKA), 1887, A., 492; (ZANETTI), 1891, A., 726.
- Hydroxydiphenylmethane-di- and -tricarboxylic acids** (JUILLARD), 1888, A., 707.
- 6-Hydroxy-2:4-diphenyl-5-methyl-*m*-diazine (v. MEYER), 1889, A., 578; 1890, A., 68.
- formation of (SCHWARZE), 1890, A., 1159.
- m*-Hydroxydiphenylnitrosamine (KOHLER), 1888, A., 587.
- Hydroxydiphenylpropionic acid** (LIEBERMANN and HARMANN), 1891, A., 1481.
- Hydroxydiphenylpropylenediamine** (FAUCONNIER), 1888, A., 1281.
- p*-Hydroxydiphenylquinoxaline (AUTENRIETH and HINSBERG), 1892, A., 733.

- 3-Hydroxydiphenyl-6-sulphonic acid, 4:4'-diamido- (WEINBERG), 1888, A., 285.
- Hydroxydiphthalyl (GRAEBE and GUYE), 1886, A., 882.
- Hydroxydipropylamine platinochloride (LIEBERMANN and PAAL), 1883, A., 910.
- Hydroxydiquinolyl (WEIDEL and GLÄSER), 1886, A., 949; (WEIDEL), 1887, A., 848.
- 1-Hydroxy-4:2'-disulpho- $\beta$ -naphthoic acid (KÖNIG), 1889, A., 719.
- Hydroxyditolyleyanidine (PINNER), 1892, A., 1008.
- 2-Hydroxy-5:5'-ditolyl-4:4'-disulphonic acid, 3-amido- (HELLE), 1892, A., 1468.
- Hydroxydixanthenes (v. KOSTANECKI and NESSLER), 1892, A., 504; (v. KOSTANECKI and SEIDMANN), 1892, A., 1097.
- Hydroxydurylic acid (JACOBSEN and SCHNAPPAFF), 1886, A., 68.
- Hydroxy- $\beta$ -isodurylic acid (KROHN), 1883, A., 594.
- Hydroxyethanedisulphonic acid, salts of (MONARI), 1885, A., 970.
- Hydroxyethanesulphonic acid. See Isethionic acid.
- Hydroxyethenylamylacetic acid (POETSCH), 1883, A., 730.
- Hydroxyethoxyanthraquinone (LIEBERMANN and JELLINEK), 1888, A., 716.
- Hydroxyethoxydiphenylamine, dinitro- (NIETZKI and KAUFMANN), 1892, A., 314.
- Hydroxyethoxymethylquinoxaline (AUTENRIETH and HINSBERG), 1892, A., 733.
- 6-Hydroxy-2-*p*-ethoxyphenyl-5-benzyl-4-methyl-*m*-diazine (PINNER), 1891, A., 64.
- 6-Hydroxy-2-*p*-ethoxyphenyl-*m*-diazine-4-carboxylic acid (PINNER), 1891, A., 64.
- 6-Hydroxy-2-*o*- and -*p*-ethoxyphenyl-4-methyl-*m*-diazines (PINNER), 1891, A., 64.
- 6-Hydroxy-2-*p*-ethoxyphenyl-4-phenyl-*m*-diazine (PINNER), 1891, A., 64.
- Hydroxyethoxypyridine [m.p. 128°] (WEIDEL and BLAU), 1886, A., 76.
- 2-Hydroxyethoxypyridine, dichloro-4-amido- (STOKES and v. PECHMANN), 1887, A., 157.
- 1-Hydroxy-1-ethoxyquinoline, 2:4-dichloro- (HEBBRAND), 1889, A., 61.
- 4'-Hydroxy-2'-ethoxyquinoline (BISCHOFF), 1889, A., 519.
- Hydroxyethylacetamide picrate (GABRIEL), 1889, A., 1134.
- Hydroxyethyl-*o*-amidophenol (KNORR), 1889, A., 1219.
- Hydroxyethylamine (*amidoethylalcohol*) nitrate (GABRIEL), 1888, A., 1268.
- salts (GABRIEL), 1888, A., 440.
- Hydroxyethylaniline, preparation of (KNORR), 1889, A., 1219; (OTTO), 1891, A., 1873.
- Hydroxyethyl-*o*-anisidine (KNORR), 1889, A., 1219.
- Hydroxyethylbenzamide (GABRIEL), 1889, A., 1134.
- Hydroxyethylbenzoic acid (*phloro-carboxylic acid*) (OLIVERI), 1884, A., 174.
- o*-chloronitro-, lactone of (ZINCKE and LATTEN), 1892, A., 1230.
- $\gamma$ -Hydroxy- $\alpha$ -ethylbutyric acid and its salts (CHANLAHOFF), 1885, A., 375.
- Hydroxyethyl-*m*-diazine-2-carboxylic acid (PINNER), 1892, A., 1008.
- 1-Hydroxy-1'-ethylenehydroquinoline (KÖHN), 1886, T., 508.
- Hydroxyethylethylaniline (*phenyldiethylalkine*) (LAUN), 1884, A., 1011.
- 5-Hydroxyethyl-2-ethylpiperidine (2:5-methylthylpiperidylalkine) (PRAUSNITZ), 1892, A., 1358.
- 2-Hydroxyethyl-5-ethylpyridine (*methylthylpyridylalkine*) (PRAUSNITZ), 1890, A., 1436.
- $\delta$ -Hydroxyethylhexoic acid, salts of (FITTIG and CHRIST), 1892, A., 962.
- Hydroxyethylhydroxyquinoline and salts of (WURTZ), 1883, A., 923.
- Hydroxyethylic sodium thiosulphate (PURGOTTI), 1892, A., 1418.
- Hydroxyethylidene-2'-methyl- $\beta$ -naphthaquinoline, trichloro- (SEITZ), 1889, A., 527.
- Hydroxyethylmethylamine (KNORR), 1889, A., 1218.
- Hydroxyethylmethylaniline (*phenylmethylthylalkine*) and its derivatives (LAUN), 1884, A., 1011.
- Hydroxyethylmethyl-*o*-anisidine (KNORR), 1889, A., 1220.
- 2-Hydroxyethyl-1-methylpiperidine (*methyl- $\alpha$ -piperidylalkine*) and its derivatives (LADENBURG), 1890, A., 68; 1891, A., 1093; (LIPP), 1892, A., 1245.
- 2-Hydroxyethyl-1-methyltetrahydropyridine (LIPP), 1892, A., 1244.
- Hydroxyethylnaphthylamines (OTTO), 1891, A., 1874.
- Hydroxyethylphosphinic acid (FOSSEK), 1886, A., 530.

- Hydroxyethyl-phthalamic acid and -phthalimide** (GABRIEL), 1888, A., 440.
- 2-Hydroxyethylpiperidine** (LADENBURG), 1890, A., 67; 1891, A., 1093.
- $\alpha$ -Hydroxyethylpiperonylcarboxylic acid** (PERKIN), 1890, T., 996, 1020. oxidation of (PERKIN), 1890, T., 1022. salts of (PERKIN), 1890, T., 1023. bromo- (PERKIN), 1890, T., 1025.
- $\alpha$ -Hydroxyethylpiperonylcarboxylic anhydride** (PERKIN), 1890, T., 1021. bromo- and nitro- (PERKIN), 1890, T., 1025, 1027.
- Hydroxyethylpropylamine** and its platinumchloride (LIEBERMANN and PAAT), 1888, A., 910.
- Hydroxyethylpropylaniline** (LAUN), 1884, A., 1011.
- 2-Hydroxyethylpyridine** ( $\alpha$ -picolyl-alkine) and derivatives of (LADENBURG), 1890, A., 67; 1891, A., 1092.
- $\alpha$ -Hydroxyethylpyrocatecholcarboxylic anhydride** (PERKIN), 1890, T., 1027.
- 4-Hydroxy-3'-ethylquinoline, 2'-chloro-** (RUGHEIMER and SCHRAMM), 1887, A., 738.
- 1-Hydroxy-1'-ethyltetrahydroquinoline** (FISCHER), 1883, A., 1146; (FISCHER and RENOUR), 1884, A., 1049. ethiodide (KOH), 1886, T., 505.
- 4-Hydroxy-1'-ethyltetrahydroquinoline** (RIEMERSCHMIED), 1883, A., 1148.
- Hydroxyethyltheobromine** (FISCHER), 1888, A., 357.
- Hydroxyethyltrihydroquinolinecarboxylic acid** (LIPPMANN and FLEISSNER), 1887, A., 1120.
- Hydroxyethyltrimethylammonium platinumchloride** (BODE), 1892, A., 807.
- Hydroxyethyltrimethylenecarboxylic acid** (MARSHALL and PERKIN), 1891, T., 870.
- $\gamma$ -Hydroxyethylvaleric acid** (YOUNG), 1883, T., 177.
- Hydroxyethylxanthine** (LEHMANN), 1890, A., 32.
- Hydroxy- $\psi$ -flavenol** (WEIDEL and DAMBERGER), 1888, A., 966.
- Hydroxyfluorencarboxylic acid** (GRAEBE and AUBIN), 1889, A., 146.
- Hydroxyfurfuryl-**. See Furfuryl-.
- Hydroxygluconic acid** (BOUTROUX), 1890, A., 1399.
- $\alpha$ -Hydroxyglutaric acid** (WOLFF), 1891, A., 421.
- $\beta$ -Hydroxyglutaric acid** (v. PECHMANN and JENISCH), 1892, A., 147.
- $\alpha$ -Hydroxy- $\beta$ -halogen lactic acids**, distillation of, with water (MELIKOFF and PERKENO-KRITSCHENKO), 1890, A., 736.
- Hydroxyheptoic acid** (FITTIG and SCHMIDT), 1890, A., 589. salts of (YOUNG), 1883, A., 455.
- Hydroxyisheptoic acid** (FITTIG and ZANNER), 1890, A., 590.
- Hydroxyheptylphosphinic acid** (FONSEK), 1886, A., 529.
- $\beta$ -Hydroxyheptylsuccinic acid** (*heridumalic acid*) and its salts (SCHNEEGANS), 1885, A., 650.
- Hydroxyhexanedisulphonic acid**, barium salt of (LUDWIG), 1889, A., 121.
- Hydroxyhexic acid**. See Propylsuccinic acid.
- Hydroxyisohexic acid**. See isoPropyltartaric acid.
- $\gamma$ -Hydroxyhexoamide** (FITTIG and DUBOIS), 1890, A., 880.
- Hydroxyhexoic acid** (HANZSCH and WOHLBRUCK), 1887, A., 717.
- $\gamma$ -Hydroxyhexoic acid**, ammonium salt of (FITTIG and DUBOIS), 1890, A., 880. lactone of, conversion of gluconic acid into (KILIANI and KLEEMANN), 1884, A., 730, 993. action of sodium ethylate on (FITTIG), 1885, A., 375; (FITTIG and DUBOIS), 1890, A., 868.
- $\gamma$ -Hydroxyisohexoic acid**, lactone of, action of sodium ethylate on (ERDMANN), 1885, A., 963. action of water and of hydriodic acid on (FITTIG and RUHLMANN), 1885, A., 375.
- $\delta$ -Hydroxyhexoic acid**,  $\alpha$ - and  $\beta$ -lactones of (GOTTFSTEIN), 1883, A., 454.
- Hydroxyhydrastinine** and its derivatives (FREUND and WILL), 1887, A., 1057.
- $\alpha$ -Hydroxyhydrindenecarboxylamide**, tetrachloro- (ZINCKE and ARNST), 1892, A., 858.
- Hydroxyhydrocarboxystyryl** (2':4'-dihydroxy-3':4'-dihydroquinoline) (EINHORN), 1884, A., 1838.
- 3-chloro-** (EICHENGRUN and EINHORN), 1890, A., 1128; 1891, A., 1100.
- Hydroxyhydro-*p*-coumaric acid** (BLENDEMANN), 1883, A., 818.
- Hydroxyhydrocyanomesitenelactone** (OBREGIA), 1892, A., 325.
- Hydroxyhydroisodehydracetic acid**, nitrile of (OBREGIA), 1892, A., 325.
- Hydroxyhydrodiphtalyllic acid** (WILICENUS), 1885, A., 57.

- Hydroxyhydrolapachol** (HOOKER), 1892, T., 628.
- Hydroxyhydromneonic acid**, lactone of (RUEHMANN), 1890, T., 942.  
bromo-, lactone of (RUEHMANN and DUTTON), 1891, T., 753.
- 1-Hydroxyhydroquinoline** (SKRAUP), 1883, A., 93.
- 2-Hydroxyhydroquinoline** (SKRAUP), 1883, A., 96; (RIEMERSCHMIED), 1883, A., 1148.
- 3-Hydroxyhydroquinoline** (SKRAUP), 1883, A., 94.
- Hydroxyhydroquinoxalines** (HINSBERG), 1889, A., 280.
- Hydroxyimidomethyluracil** (JAEGER), 1891, A., 1007.
- Hydroxyimido-methyl- and -phenyl-synoxazolones** (NUNSBERGER), 1892, A., 1175, 1177.
- Hydroxyindazine** (WITT, NÖLTING and GRANDMOTGIN), 1891, A., 312.
- Hydroxyindene-carboxylic acid** (*hydroindene-carboxylic acid*) (ZINCKE), 1887, A., 728.
- Hydroxyindone**, bromo- (ROSER and HASELHOFF), 1888, A., 1304; (MELDOLA and HUGHES), 1890, T., 400.  
benzylamide, hydrazone, hydrazone-hydrazide, and  $\beta$ -naphthylamide of (MELDOLA and HUGHES), 1890, T., 403.
- Hydroxyketohydrindenecarboxylamide**, *dichloro-* (ZINCKE and ARNST), 1892, A., 858.
- Hydroxyketohydrindenecarboxylic acid**, *tribromo-*, *dichloro-*, and *chloro-bromo-* (ZINCKE and GERLAND), 1888, A., 1199, 1198.
- Hydroxyketoindene**, chloro- and bromo- (ZINCKE and GERLAND), 1888, A., 1199, 1200.
- $\gamma$ -Hydroxy- $\alpha$ -ketojuloline** and  **$\beta$ -nitroso-** (KAYSER and REISSERT), 1892, A., 884.
- Hydroxyketone-dyes** (GRÆBE and EICHENGRÜN), 1891, A., 706; 1892, A., 1224.
- Hydroxyketones**, aromatic (CRÉPEUX), 1892, A., 62.  
behaviour of, with sulphuric acid and with ammonia (GRÆBE and EICHENGRÜN), 1892, A., 1226.  
from fatty acids and phenols (GOLD-ZWEIG and KAISER), 1891, A., 447.
- Hydroxyl group**, influence of certain groups on the thermochemical value of, in the aromatic series (ALEXEEFF and WERNER), 1890, A., 439.
- Hydroxyl group**, reagent for (LANDWEHR), 1887, A., 124; (HINSBERG), 1891, A., 49.  
quantitative estimation of (JACKSON and ROLFE), 1887, A., 749.
- Hydroxylamine** (DIVERS and SHIMIDZU), 1885, T., 612.  
formation of, from nitric acid (DIVERS), 1883, T., 443.  
formation of, by the reduction of nitrates (GLADSTONE and TRIBE), 1883, T., 344.  
formation of, from nitrous acid (DIVERS), 1883, T., 454.  
formation of, from silver, mercury and sodium nitrites (DIVERS and HAGA), 1887, T., 661.  
formation of, by the action of potassium nitrite on hyposulphurous acid (LIDOFF), 1885, A., 722.  
formation of, by the specific action of a mixture of sulphuric and nitric acids on zinc (DIVERS and SHIMIDZU), 1885, T., 597; P., 90.  
mercury fulminate as a source of, free from ammonia (DIVERS and KAWAKITA), 1884, T., 13.  
preparation of (RASCHIG), 1888, A., 913.  
preparation of crystallised (CRISMER), 1892, A., 771.  
preparation and properties of free (LOBRY DE BRUYN), 1892, A., 402, 1301.  
configuration of (AUWERS and MEYER), 1890, A., 1263.  
constitution of (LOSSEN), 1869, A., 1064; (LOBRY DE BRUYN), 1892, A., 1392.  
thermochemistry of (BERTHELOT and ANDRÉ), 1890, A., 934; (THOMSEN), 1892, A., 1143.  
actions of (NAGELI), 1883, A., 728; (FISCHER), 1889, A., 1163.  
action of, on ethereal salts (JEAN-RENAUD), 1889, A., 870.  
action of, with ferrous hydroxide and water (DUNSTAN and DYMOND), 1887, T., 655.  
action of, on litmus (DIVERS and KAWAKITA), 1884, T., 16.  
action of, on thiocarbimides (FISCHER), 1889, A., 1164; (TIEMANN), 1889, A., 1165.  
action of, on animals (GIBBS and REICHERT), 1891, A., 1333.  
action of, on blood-pressure (BRUNTON and BOKENHAM), 1889, A., 630.

- Hydroxylamine**, poisonous action of (LOEW), 1885, A., 830.  
 compounds of, with metallic chlorides (CRISMER), 1890, A., 558.  
 derivatives, organic (SCHRAMM), 1884, A., 51.  
 isomeric monosubstituted (BECKMANN), 1889, A., 607; (AUWERS and MEYER), 1889, A., 609.  
 so-called physically isomeric (LOSSEN), 1892, A., 711.  
 stereochemical isomerism of (BEHREND and KONIG), 1891, A., 1032.  
 structure of (LOSSEN), 1884, A., 1324; 1885, A., 895.  
 alkyl-derivatives of (BEHREND), 1889, A., 979; (KOTHE), 1892, A., 316; (BEHREND and KONIG), 1892, A., 1456.  
 benzyl-derivatives of (WALDER), 1886, A., 796; 1887, A., 246, 813; (BEHREND and LEUCHS), 1889, A., 500, 703.  
 titration of, by iodine, effects of dilution and the presence of sodium salts and carbonic anhydride on (HAGA), 1887, T., 794.
- Hydroxylamine salts**, action of, on plants (MEYER and SCHULZE), 1884, A., 1210.  
 hydrochloride, preparation of (MEYER), 1883, A., 646; (EICHKOFF), 1890, A., 558.  
 use of, in quantitative analysis (LAINER), 1888, A., 1343.  
 estimation of hydrogen chloride in solutions of (MULLER), 1891, A., 107.  
 platinum bases (ALEXANDER), 1888, A., 425.  
 thiocarbimide (v. DER KALL), 1891, A., 1222.  
 amido-derivatives of, constitution of (MINUNNI), 1891, A., 697.
- Hydroxylaminedisulphonic acid**, preparation of the alkali salts of (RASCHIG), 1888, A., 913.
- Hydroxylaminesulphonates** and their conversion into hyponitrites (DIVERS and HAGA), 1889, T., 760; P., 146.
- Hydroxy- $\beta$ -lapachone** (HOOKER), 1891, A., 1240; 1892, T., 649.
- Hydroxylation** by direct oxidation (MEYER), 1883, A., 983, 1072.
- Hydroxylepidine**. See Hydroxy-4'-methylquinoline.
- Hydroxylevulinic acids**,  $\alpha$ - and  $\beta$ - (WOLFF), 1891, A., 1187, 1185.
- Hydro-xyloquinone**. See Xyloquinol.
- Hydroxylutidinecarboxylic acid**, ethylic salt of (COLLIE), 1885, A., 374.
- Hydroxymaleic acid** (SCHERKES), 1884, A., 993; 1885, A., 513.
- Hydroxymalonic acid**. See Tartronic acid.
- o*-Hydroxymandelic acid** (v. DAEYER and FRITSCH), 1884, A., 1022.
- Hydroxymellitic acid** (*hydrotrimellitic acid*) and its salts (JACOBSEN and MEYER), 1883, A., 590.
- Hydroxymesitenedicarboxylic acid** (HANTZSCH), 1883, A., 1083.
- Hydroxymethanesulphonic acid**, sodium salt of (KRAUT, ESCHWEILER and GROSSMANN), 1890, A., 1092.
- Hydroxymethenylamidophenol** (SANDMEYER), 1887, A., 135; (BENDER), 1887, A., 245.
- Hydroxymethenyltolylenediamine** (SANDMEYER), 1887, A., 135.
- o*-Hydroxy-*p*-methoxyacetophenone** (NAGAI), 1892, A., 59.
- 2-Hydroxy-4-methoxyallylbenzene** (v. PECHMANN and COHEN), 1884, A., 1331.
- p*-Hydroxy-*o*-methoxybenzaldehyde-phenylhydrazones** (MAROUS), 1892, A., 317.
- 1-Hydroxy-3-methoxybenzene, 4-amido-** (BECHHOLD), 1889, A., 1155.
- p*-Hydroxy-*m*-methoxybenzoylformic acid** (*hydroxymethoxyphenylglyoxylic acid*; *vanilloyl acid*) (TIEMANN), 1892, A., 64.
- m*-Hydroxy-*o*-methoxycinnamic acid** (SCHNELL), 1884, A., 1165; 1887, A., 140.
- 4'-Hydroxy-1- and -3-methoxy-2'-methylquinolines** (CONRAD and LIMPAICH), 1888, A., 854, 853.
- Hydroxymethoxyquinoline** (LA COSTE and VALEUR), 1887, A., 973.
- 2'-Hydroxy-3-methoxyquinoline** (*methoxycarbostyryl*) (EICHENGRUN and EINHORN), 1891, A., 1101.
- Hydroxymethoxytoluene** (*hydroxytolyl methyl ether*) (LIMPAICH), 1889, A., 499.
- Hydroxymethylbenzene pentaketone** (KEHRMANN), 1888, A., 940.
- Hydroxy- $\beta$ -methyl- $\gamma$ -acetoxime- $\delta$ -is-nitrosoamidovaleric acid**, lactam of (OBRÉGIA), 1892, A., 326.
- Hydroxymethylacridine** (BENTHORN and CURTMAN), 1891, A., 1233.
- Hydroxymethylanthraquinone**, and its acetyl-derivative (ROEMER and LINK), 1883, A., 1139.
- Hydroxymethylanthraquinones**, spectra of (LIEBERMANN and v. KOSTANECKI), 1887, A., 1.

- m*-Hydroxymethylbenzaldehyde (TIEMANN and LUDWIG), 1883, A., 189.  
 nitro-derivatives of, and their constitution (TIEMANN and LUDWIG), 1883, A., 189.  
 $\alpha$ - and  $\beta$ -nitro- (TIEMANN and LUDWIG), 1883, A., 586.  
 Hydroxymethylbenzoic acid. See Hydroxytoluic acid.  
 Hydroxymethylbenzoyldicarboxylic acid, dibromo- (*dibromohydroxyarboxytolylglyoxylic acid*) (WILL and LEYMANN), 1886, A., 253.  
 3'-Hydroxymethyl-4'-*di*bromomethyl-quinoxaline (NASTVOGEL), 1889, A., 238.  
 Hydroxy- $\alpha$ -methylbutyric acids,  $\alpha$ - and  $\beta$ -. See Hydroxyvaleric acids.  
 4'-Hydroxy-1-methylcarbostyryl, 3'-chloro- (*chlorohydroxy-o-tolucarbostyryl*) (RÜGHEIMER and HOFFMANN), 1886, A., 160.  
 6:4-Hydroxymethylcinnamic acid, anhydride of (V. PECHMANN and WELSH), 1884, A., 1846.  
 Hydroxymethyl-coniferin and-coniferyl alcohol (KÖRNER), 1889, A., 159.  
 Hydroxy- $\beta$ -methylcoumarilic acid, bromo- (V. PECHMANN and COHEN), 1884, A., 1322.  
 Hydroxymethylcoumarone (HANTZSCH), 1887, A., 262.  
 Hydroxy- $\beta$ -methyl- $\gamma$ -cyanacetylbutyronitrile (OBRÉGIA), 1892, A., 325.  
 4-Hydroxy-6-methyl-*m*-diazine-2-carboxylic acid (PINNER), 1892, A., 1008.  
 6-Hydroxy-4-methyl-2:5-diethyl-*m*-diazine (PINNER), 1889, A., 1007.  
 6-Hydroxy-5-methyl-2:4-diethyl-*m*-diazine (V. MEYER), 1889, A., 577, 685.  
 oxime of (V. MEYER), 1889, A., 685.  
 Hydroxy-4'-methyl-dihydroquinoline (KNORR and KLOTZ), 1887, A., 278.  
 Hydroxymethyl-dihydroquinoxaline (PLÜCHL), 1886, A., 351; (LEUCKART and HERMANN), 1887, A., 383.  
 Hydroxymethyldiphenyl, diamido- (WEINBERG), 1888, A., 285.  
 Hydroxymethylacetone, stereoisomerism of (CLAISEN), 1892, A., 1073.  
 Hydroxymethylenediphenyl triketone (SÜDERBAUM), 1891, A., 1043.  
 Hydroxymethylenequinolinium base (CLAUS, HOWITZ, MASSAN and RAPS), 1892, A., 878.  
 4'-Hydroxy-1-methyl-3'-ethylcarbostyryl (RÜGHEIMER and SCHRAMM), 1887, A., 738; 1888, A., 502.  
 6-Hydroxy-4-methyl-2-ethyl *m*-diazine (PINNER), 1886, A., 46; 1889, A., 1007.  
 4-Hydroxy-6-methyl-2-ethyl-*m*-diazine 5-bromo- (PINNER) 1887, A., 1054.  
 4'-Hydroxymethylethylquinoline (CONRAD and LIMPACH), 1892, A., 79.  
 4'-Hydroxy-1-methyl-3'-ethylquinoline, 2'-chloro- (RÜGHEIMER and SCHRAMM), 1887, A., 738.  
 Hydroxymethylglutaric acid from levulinic acid and the corresponding lactonic acid (KRECKELER and TOLLENS), 1885, A., 1202; (BLOCK and TOLLENS), 1886, A., 533.  
 Hydroxymethylhydrodrastinine methiodide, bromo- (FREUND and DORMEYER), 1891, A., 1520.  
 2'-Hydroxy-3'-methylhydroquinoline, 2-amido-. See Methylhydrocarbostyryl, 2-amido-.  
 6-Hydroxy-4-methyl-2-hydroxyisopropyl-*m*-diazine (PINNER), 1890, A., 70.  
 $\alpha_1$ -Hydroxy- $\gamma_1$ -methyljulolidine,  $\beta_1\beta_1\gamma_1$ -tribromo- (REISSERT), 1892, A., 498.  
 $\alpha_1$ -Hydroxy- $\gamma_1$ -methyljuloline (REISSERT), 1892, A., 497.  
 $\beta_1$ -bromo- and  $\beta_1\gamma_1$ -dibromo- (REISSERT), 1892, A., 497.  
 "Hydroxymethylmalonic acid" (TANATAR), 1891, A., 175.  
 4'-Hydroxy-2'-methyl- $\alpha$ - and - $\beta$ -naphthaquinolines (*naphtha- $\gamma$ -hydroxyquinolines*) (KNORR), 1884, A., 1198; (CONRAD and LIMPACH), 1888, A., 504.  
 4-Hydroxy-2'-methylphenofurfuran-1'-carboxylic acid, 1:2:3-*tri*-chloro- (IKUTA), 1892, A., 609.  
 4-Hydroxymethyl-1-phenyl-3-methylpyrazolone (PELLIZZARI), 1889, A., 518.  
 Hydroxy- $\alpha$ -methyl-phthalanil and -phthalanilic acid (NIEMENTOWSKI), 1892, A., 608.  
 Hydroxymethylphthalic anhydride, dibromo- (WILL and LEYMANN), 1886, A., 253.  
 Hydroxymethylpurin (FISCHER), 1884, A., 997.  
 dichloro- (FISCHER), 1884, A., 996.  
 4'-Hydroxymethylpyridine, and its derivatives (LIEBEN and HAITINGER), 1884, A., 1196.  
 Hydroxymethylpyridone and its derivatives (BELLMANN), 1884, A., 841.

**Hydroxymethylpyrotartaric acid** (*methylglutamic acid*), salts of (FILLIG and FRANKEL), 1890, A., 585.

**4'-Hydroxy-2-methylquinazoline** (NIEMENPOWSKI), 1889, A., 1065.

**4'-Hydroxy-2-methylquinazoline**, nitro- and chloro- (DEHOFF), 1890, A., 802.

**Hydroxymethylquinazoline**. See also Oxymethylquinazoline.

**1-Hydroxy-2-methylquinoline** (*hydroxytoluquinoline*) (NOLTING and TRAUTMANN), 1891, A., 326; 1892, A., 727.

4-nitro- (NOLTING and TRAUTMANN), 1891, A., 326; 1892, A., 727.

**1-Hydroxy-2'-methylquinoline** (*o-hydroxyquinelline*) and its derivatives (DOEBNER and V. MILLER), 1884, A., 1374.

**1-Hydroxy-4-methylquinoline** (NOLTING and TRAUTMANN), 1891, A., 326; 1892, A., 727.

2-amido- (GANELIN and V. KOSTANECKI), 1892, A., 506.

**1-Hydroxy-4'-methylquinoline** (*hydroxyepidine*) (BUSCH and KOENIGS), 1890, A., 1435.

**3-Hydroxy-1-methylquinoline** (HERZFELD), 1884, A., 1199.

**3-Hydroxy-2'-methylquinoline** (*p-hydroxyquinalline*) (DOEBNER and V. MILLER), 1884, A., 1374.

**3-Hydroxy-4'-methylquinoline** (KOENIGS), 1890, A., 1434; (BUSCH and KOENIGS), 1890, A., 1435.

**3-Hydroxy-4-methylquinoline**, 1-nitro- (NOLTING and TRAUTMANN), 1891, A., 326.

**4-Hydroxy-1-methylquinoline** (HERZFELD), 1884, A., 1199.

**4-Hydroxy-3-methylquinoline** and nitroso- (NOLTING and TRAUTMANN), 1891, A., 326.

**4'-Hydroxy-1-methylquinoline**, 2':3'-dichloro- (RUEHEIMER and HOFFMANN), 1886, A., 160.

**4'-Hydroxy-2'-methylquinoline** (*hydroxyquinalline*) (CONRAD and LIMPACH), 1887, A., 679; 1888, A., 1109; (KNORR), 1887, A., 847. synthesis of homologues of (CONRAD and LIMPACH), 1888, A., 503.

derivatives (CONRAD and LIMPACH), 1887, A., 679; 1888, A., 1109. methiodide (CONRAD and ECKHARDT), 1889, A., 519.

**2'-Hydroxy-4'-methylisoquinoline**, chloro- (GABRIEL), 1887, A., 1112.

**Hydroxymethylquinolines**, 4:1:2-, 2:1:1- and 3:4:1-nitro- (NOLTING and TRAUTMANN), 1892, A., 727, 728, 729.

**4'-Hydroxy-2'-methylquinoline-3'-carboxylic acid and aldehyde** (CONRAD and LIMPACH), 1888, A., 1109.

**Hydroxy-2'-methylquinolineazobenzenesulphonic acid**, sodium salt of (CONRAD and LIMPACH), 1888, A., 1109.

**1-Hydroxy-2'-methylquinolinecarboxylic acid** (KONIG), 1888, A., 610.

**2'-Hydroxy-4'-methylquinoline-1-carboxylic acid** (REINERT), 1891, A., 737.

**4-Hydroxy-2'-methylquinoline-3'-carboxylic acid** (CONRAD and LIMPACH), 1888, A., 1110.

**2'-Hydroxymethylquinolinesulphonic acid** (FEER and KOENIGS), 1885, A., 1235.

**4'-Hydroxy-2'-methylquinolinesulphonic acid** (CONRAD and LIMPACH), 1888, A., 1110.

**Hydroxymethylquinoxaline** (*hydroxytoluquinoraxaline*) (HINSBERG), 1885, A., 910; 1886, A., 561.

**Hydroxymethylquinoxalinecarboxylic acid** (HINSBERG), 1885, A., 909; (ZEHR), 1891, A., 304.

**Hydroxymethylsuccinic acid**, trichloro-, and its salts (FITTIG and MILLER), 1890, A., 586.

**Hydroxymethylsulphonebetaine** (CLAUS and PONSELT), 1890, A., 522.

**5-Hydroxy-2-methylterephthalic acid** (JACOBSEN and MEYER), 1883, A., 590.

**1-Hydroxy-1'-methyltetrahydroquinoline** (*kuirin*) (FISCHER), 1883, A., 1146; (FISCHER and RENOUF), 1884, A., 1049.

physiological properties of (FILEHNE), 1884, A., 474.

benzyl chloride and methiodide of (KOHN), 1886, T., 501, 506.

**1-Hydroxy-2'-methyltetrahydroquinoline and its derivatives** (DOEBNER and V. MILLER), 1884, A., 1374.

**2-Hydroxy-4'-methyltetrahydroquinoline and its nitro-derivatives** (FISCHER and WITTMACK), 1884, A., 1052.

**1-Hydroxymethyltetrahydroquinolinecarboxylic acid** (SCHMITT and ENGELMANN), 1887, A., 738; (KRÖLIKOWSKI and NENCKI), 1888, A., 865.

**Hydroxymethylthiazole** (TCHERNIAC and HELLON), 1883, A., 654; (TCHERNIAC), 1892, A., 1425.

- Hydroxymethylthiazolecarboxylic acid** (ZURCHER), 1889, A., 725; (WOLLMANN) 1891, A., 226.
- Hydroxymethylthiophen** (*hydroxythiophen*) (KUES and PAAL), 1886, A., 536.
- 1-Hydroxymethyltrihydroquinoline-carboxylic acid**, behaviour of, in the organism (KRÓLIKOWSKI and NENCKI), 1888, A., 865.
- $\beta$ -Hydroxy- $\alpha$ -methylvaleric acid** (HANTZSCH and WOHLBRUCK), 1887, A., 717.
- $\gamma$ -Hydroxy- $\alpha$ -methylvaleric acid** (GORTSTEIN), 1883, A., 455.
- Hydroxymethylxanthine** (BEHREND), 1886, A., 338; (LEHMANN), 1890, A., 32.
- $\beta$ -Hydroxymethylxanthone** (v. KOSTANECKI and NESSLER), 1891, A., 1060.
- Hydroxymyristic acid** (HELL and TWERDOMEDOFF), 1889, A., 956.
- $\beta$ -Hydroxy- $\alpha$ - and  $\alpha$ -hydroxy- $\beta$ -naphthalhydroxamic acids** (JEANRENAUD), 1889, A., 871.
- Hydroxynaphthalide** (GRAEBE and GFELLER), 1892, A., 864.
- $\beta$ -Hydroxynaphthaquinoline** (GENTIL), 1885, A., 561.
- Hydroxynaphthaquinone**, dibromo- (ARMSTRONG and STREATFIELD), 1886, P., 232.
- 2'-Hydroxy-1:2-naphthaquinone** (CLAUSTUS), 1890, A., 628.
- 2-Hydroxy-1:4-naphthaquinone** (*naphthalic acid*), preparation of (KOWALSKI), 1892, A., 1098.
- phenylhydrazine derivatives of (ZINCKE and THELEN), 1884, A., 1359; 1888, A., 1097.
- 3-bromo- (MILLER), 1885, A., 667.
- 3-chloro- (CLAUS and MUELLER), 1886, A., 247.
- 3-bromo- and 3-chloro-, action of hypochlorous and hypobromous acids on (ZINCKE and GERLAND), 1888, A., 1198.
- trichloro- (CLAUS), 1886, A., 714.
- tetrachloro- (CLAUS and WENZLICK), 1886, A., 713; (CLAUS), 1886, A., 714.
- 3-nitro-, derivatives of (KEHRMANN and WEICHARDT), 1889, A., 1197.
- 4'-Hydroxy-1:4-naphthaquinone** (*juglone*; *nucin*; *regianin*) (BERNTSEN and SEMPER), 1884, A., 1365; (BERNTSEN and SEMPER), 1885, A., 546; 1886, A., 363; 1887, A., 674; (MYLIUS), 1885, A., 803.
- 4'-Hydroxy-1:4-naphthaquinone** (*juglone*; *nucin*; *regianin*), identity of, with regianin and nucin (PHIPSON), 1885, A., 1112.
- synthesis of (BERNTSEN and SEMPER), 1887, A., 674.
- constitution of (BERNTSEN and SEMPER), 1885, A., 548.
- derivatives (BERNTSEN and SEMPER), 1885, A., 546; (MYLIUS), 1885, A., 803.
- 2-Hydroxy-1:4-naphthaquinoneanilide and 3-chloro-** (ZINCKE and KEGEL), 1889, A., 267, 268.
- Hydroxynaphthaquinonecarboxylic acid**, chloro- (EKSTRAND), 1889, A., 153.
- 4'-Hydroxy-1:4-naphthaquinone-dioxime** (*juglone-dioxime*) (BERNTSEN and SEMPER), 1886, A., 364.
- 2-Hydroxy-1:4-naphthaquinoneimide** (KRONFELD), 1884, A., 1037; (MEERSON), 1888, A., 1200.
- 3-bromo- (ZINCKE and GERLAND), 1887, A., 838.
- 3-Hydroxy-1:4-naphthaquinone-4-imide**, 2-chloro- (ZINCKE and SCHMUNK), 1890, A., 1147.
- 3-Hydroxy-1:4-naphthaquinone-o-xime** (v. KOSTANECKI), 1889, A., 887.
- 2-chloro- (ZINCKE and SCHMUNK), 1890, A., 1147.
- 4'-Hydroxy-1:4-naphthaquinoneo-xime** (*jugloneo-xime*) (BERNTSEN and SEMPER), 1885, A., 547.
- 2'-Hydroxy-2:1-naphthaquinoneo-xime** (CLAUSTUS), 1890, A., 628.
- 2-Hydroxy-1:4-naphthaquinonesulphonic acid**, 3-chloro- (CLAUS and VAN DER CLOET), 1888, A., 603.
- Hydroxynaphthaquinooxalinearboxylic acid** (KÜHLING), 1891, A., 1342.
- Hydroxynaphthalolnic acid** (WALDER), 1883, A., 666.
- Hydroxynaphthotrichloride diethyl orthophosphate** (WOLFFENSTEIN), 1889, A., 615.
- 1'-Hydroxy- $\alpha$ -naphthoic acid** (*naphthol-carboxylic acid*) (EKSTRAND), 1886, A., 715.
- chloro-, and nitro- (EKSTRAND), 1889, A., 153.
- 2-Hydroxy- $\alpha$ -naphthoic acid** [m.p. 157°] and derivatives (NIETZKI and GUTTELMANN), 1887, A., 732; (SCHMITT and BURKARD), 1888, A., 60.
- action of phosphorus pentachloride on (RABE), 1889, A., 514.

- 1-Hydroxy- $\beta$ -naphthoic acid (NIETZKI and GUTTERMANN), 1887, A., 732; (SCHMITT and BURKARD), 1888, A., 59.  
 constitution of (WOLFFENSTEIN), 1889, A., 615.  
 action of phosphorus pentachloride on (WOLFFENSTEIN), 1887, A., 963; 1888, A., 714.  
 4-amido-(NIETZKI and GUTTERMANN), 1887, A., 732; (SCHMITT and BURKARD), 1888, A., 59.
- 3-Hydroxy- $\beta$ -naphthoic acid [m.p. 216°] (SCHMITT and BURKARD), 1888, A., 60.  
 action of aniline on (SCHÜPF), 1892, A., 1476.
- 3-Hydroxy- $\beta$ -naphthoic anilide (SCHÜPF), 1892, A., 1476.
- 3'-Hydroxy- $\beta$ -naphthoxanthone (v. KOSTANECKI), 1892, A., 1099.
- Hydroxynaphthoxanthenes (BENER), 1892, A., 1100.
- $\alpha$ -Hydroxynaphthyl methyl ketone (WITT), 1888, A., 486.
- $\beta$ -Hydroxynaphthylacrylic acid and anhydride (KAUFFMANN), 1883, A., 1136.
- $\alpha\beta$ -Hydroxynaphthylbenzoic acid, and its derivatives (WALDER), 1883, A., 666.
- 6-Hydroxy-2- $\beta$ -naphthyl-*m*-diazine-4-carboxylic acid (PINNER), 1892, A., 1008.
- 6-Hydroxy-2- $\beta$ -naphthyl-4:5-dimethyl-*m*-diazine (PINNER), 1892, A., 1009.
- Hydroxynaphthyl sulphide [m.p. 214°—215°] (TASSINARI), 1887, A., 808.
- $\beta$ -Hydroxynaphthyl mono- and -disulphides (ONUFROWICZ), 1891, A., 320, 321.
- 6-Hydroxy-2- $\beta$ -naphthyl-4-methyl-*m*-diazine (PINNER), 1892, A., 1009.
- Hydroxynaphthylphenyl, diamido-, derivatives of (MELDOLA and MORGAN), 1889, T., 124, 125.
- Hydroxy- $\alpha$ -naphthylthiocarbamide (TIEMANN), 1889, A., 1165; (VOLTMER), 1890, A., 1127; 1891, A., 558.
- 2-Hydroxynicotinic acid (2-hydroxypyridine-3-carboxylic acid) (WEIDEL and STRACHE), 1886, A., 951.
- 6-Hydroxynicotinic acid (6-hydroxypyridine-3-carboxylic acid) and its derivatives (KOENIGS and GEIGY), 1884, A., 1195; (v. PECHMANN and WELSH), 1885, T., 150; A., 174; (v. PECHMANN), 1885, A., 176.
- 6-Hydroxynicotinic acid (6-hydroxypyridine-3-carboxylic acid), preparation of, from hydroxyquinolinic acid (KOENIGS and GEIGY), 1884, A., 945.
- Hydroxynitroethenylamido- $\alpha$ -naphthol (MEERSON), 1888, A., 713.
- $\alpha$ -Hydroxy-*o*-nitrophenylbutene- $\omega$ -dicarboxylic acid (EINHORN and GEBRENBECK), 1890, A., 163.
- Hydroxyoctoic acid (HANTZSCH), 1889, A., 372.  
 salts of (YOUNG), 1883, A., 456; (FITTING and CHRIST), 1892, A., 962.
- Hydroxyoleic acid and its salts (LIECHTI and SUIDA), 1884, A., 239.
- Hydroxyiso-oxazolidicarboxylic acid (v. PECHMANN), 1891, A., 738.
- Hydroxyoxindole chloride, amido- (JACKSON and BENTLEY), 1892, A., 1219.
- Hydroxyoxydipropionic acid, chloro- (WILLGERODT and SCHIFF), 1890, A., 959.
- $\alpha$ -Hydroxypalmitic acid (HELL and JORDANOFF), 1891, A., 820.
- Hydroxypentatricarboxylic anhydride (dicarboxaprolactonic acid) and its derivatives (HJELT), 1883, A., 970.
- Hydroxypentene, tetramido- (NIETZKI and ROSEMAN), 1889, A., 770.
- $\alpha$ -Hydroxypentene cyanide,  $\gamma\gamma$ -hexachloro- (ZINCKE and KÜSTER), 1890, A., 1256.
- Hydroxypentenecarboxylic acid,  $\gamma\gamma$ -hexachloro- (ZINCKE and KÜSTER), 1890, A., 754.
- Hydroxyptic acid, identity of, with ethyltartaric acid (GORBOFF), 1888, A., 1179.
- Hydroxyperezone (hydroxypipitzahoic acid) (ANSCHÜTZ and LEATHER), 1886, T., 728.  
 and its salts (MYLIUS), 1885, A., 778.  
 dibromide (ANSCHÜTZ and LEATHER), 1886, T., 732.
- Hydroxyphenanthraquinonephosphinic acid (FOSSEK), 1886, A., 530.
- Hydroxyphenanthraquinones (ANSCHÜTZ and MEYER), 1885, A., 1067.
- p*-Hydroxyphenanthrazine (AUTENRIETH and HINSBERG), 1892, A., 733.
- Hydroxyphenanthridine (PIOTET and ANKERSMIT), 1892, A., 197.
- Hydroxyphenanthroline (LA COSTE), 1883, A., 811.
- Hydroxyphenindulone, chloro- (KEHRMANN and MESSINGER), 1891, A., 747.
- Hydroxyphenonaphthoxanthone (v. KOSTANECKI), 1892, A., 1099; (BENER), 1892, A., 1100.
- Hydroxyphenyl ethyl ketone. See Propionylphenol.

- Hydroxyphenyl hydroxy- $\alpha$ - and - $\beta$ -naphthyl ketones** (PHOMINA), 1890, A., 389, 901.
- Hydroxyphenyl mercaptan** (HAITINGER), 1883, A., 989.
- Hydroxyphenyl hydroxytolyl ketone** (PHOMINA), 1890, A., 389.
- p*-Hydroxyphenylacetamide** (SALKOWSKI), 1889, A., 1173.
- Hydroxyphenylacetamidine and its hydrochloride** (BEYER), 1884, A., 65; 1885, A., 982.
- o*-Hydroxyphenylacetic acid and its derivatives** (V. BAEYER and FRITZSCH), 1884, A., 1021.
- m*-Hydroxyphenylacetic acid** (SALKOWSKI), 1884, A., 1176.
- p*-Hydroxyphenylacetic acid** (SALKOWSKI), 1884, A., 1176.  
derivatives of (SALKOWSKI), 1889, A., 1173.
- $\alpha$ -Hydroxyphenylacetic acid.** See Mandelic acid.
- Hydroxyphenylacetimidooether and its hydrochloride** (BEYER), 1884, A., 65; 1885, A., 983.
- Hydroxyphenylacetoneitrile, acetyl-derivative of** (MICHAEL and JEANPRETRE), 1892, A., 1088.  
imidoethers of (PINNER), 1891, A., 62.
- Hydroxyphenylacridine** (HESS and BERNTHSEN), 1885, A., 801; (BESTHORN and CURTMAN), 1891, A., 1234.
- Hydroxyphenylacrylic acid.** See *p*-Coumaric acid.
- $\alpha$ -Hydroxyphenylacrylic acid** (PLÜCHL), 1884, A., 605.
- p*-Hydroxyphenylalanine** (ERLENMEYER and LIPP), 1883, A., 994.
- o*-Hydroxyphenylallylthiocarbamide** (V. CHELMICKI), 1891, A., 52.
- Hydroxyphenylamidoacetic acid and derivatives** (VATER), 1884, A., 1144.
- Hydroxyphenylbenzenyl-naphthylendiamine** (FISCHER), 1892, A., 1472.
- 6-Hydroxy-4-phenyl-2-benzyl-*m*-diazine and 6-hydroxy-2-phenyl-5-benzyl-4-methyl-*m*-diazine** (PINNER), 1889, A., 1008.
- $\gamma$ -Hydroxyphenylbutyramide** (FITTIG and MOERLIN), 1890, A., 890.
- Hydroxy- $\alpha$ -phenylbutyric acid** (JAYNE), 1883, A., 473.
- $\alpha$ -Hydroxy- $\gamma$ -phenylbutyric acid,  $\gamma$ -bromo-** (BIEDERMANN), 1892, A., 471.
- $\alpha$ -Hydroxyphenylisobutyric acid,  $\beta$ -bromo-** (KÖRNER), 1888, A., 368; 1889, A., 372.
- Hydroxyphenylbutyrolactone** (FITTIG), 1888, A., 595; (FITTIG and OBERMÜLLER), 1892, A., 986.
- $\alpha$ -Hydroxy- $\gamma$ -phenylbutyro- $\gamma$ -lactone** (BIEDERMANN), 1892, A., 472.
- $\alpha$ -Hydroxy- $\gamma$ -phenylbutyronitrile, dibromo-** (FISCHER and STEWART), 1892, A., 1447.
- Hydroxyphenylcarbamide** (TRAUBE), 1889, A., 394; (V. DER KALL), 1891, A., 1222.
- Hydroxyphenylcarbamides, *o*- and *p*-** (KALCKHOFF), 1883, A., 734, 735.
- o*-Hydroxy- $\alpha$ -phenyleinechonic acid** (DOEBNER), 1889, A., 410.
- $\alpha$ -Hydroxyphenylcrotonic acid** (PEINE), 1884, A., 1344; (TIEMANN), 1892, A., 471.  
bromo- (FISCHER and STEWART), 1892, A., 1447.
- $\alpha$ -Hydroxyphenylcrotonitrile** (PEINE), 1884, A., 1344.
- 6-Hydroxy-2-phenyl-*m*-diazine-4-carboxylbenzamidine** (PINNER), 1890, A., 69.
- 6-Hydroxy-2-phenyl-*m*-diazine-4-carboxylic acid and amide** (PINNER), 1889, A., 1009.
- 6-Hydroxy-5-phenyl-2:4-dibenzyl-*m*-diazine** (WACHE), 1889, A., 684.
- 2'-Hydroxy-3'-phenyldihydroquinazoline** (PAAL and BODEWIG), 1891, A., 941.
- 6-Hydroxy-2-phenyl-4:5-dimethyl-*m*-diazine** (PINNER), 1889, A., 1008.
- o*-2-Hydroxyphenyl-4:5-dimethylglyoxaline** (WADSWORTH), 1890, T., 10.
- m*-4-Hydroxyphenyl-2:6-dimethylpyridine** (LEPETIT), 1887, A., 1053.
- 1-*o*-Hydroxyphenyl-2:5-dimethylsuccinic acid** (FITTIG and BROWN), 1890, A., 777.
- 1-*o*-Hydroxyphenyl-2:5-diphenylpyrrolidine** (PAAL and BRAIKOFF), 1890, A., 264.
- Hydroxyphenylethenylamidine and its hydrochloride** (BEYER), 1884, A., 65.
- Hydroxyphenylethenylamidoxime and its derivatives** (GROSS), 1885, A., 898, 1218.
- $\beta$ -Hydroxyphenylethyl methyl ketone, *m*-chloro-*o*-nitro-** (EICHENGRUN and EINHORN), 1890, A., 1128; 1891, A., 1099.
- $\beta$ -Hydroxy- $\beta$ -phenylethyl- $\alpha$ -isocamylmalonic acid** (PAAL and HUFFMANN), 1890, A., 1101.
- Hydroxyphenylethyltrichloramidoethane** (BOESNECK), 1888, A., 538.
- 6-Hydroxy-4-phenyl-2-ethyl-*m*-diazine** (PINNER), 1889, A., 1007.
- Hydroxy- $\beta$ -phenyl- $\alpha$ -ethylpropionic acid** (PERKIN and STENHOUSE), 1891, T., 1009.

- Hydroxy-2-phenylethylpyridine** (*hydroxy- $\alpha$ -stilbazoline*) (BUTTER), 1890, A., 1439.
- Hydroxyphenylformamidine** (COMSTOCK and CLAPP), 1892, A., 708.
- o*-Hydroxyphenylglyoxylic acid** (v. BAeyer and FRITZCH), 1884, A., 1021.
- Hydroxyphenylhexoic acid** (ERDMANN), 1890, A., 377.
- Hydroxyphenylhydrindone** and its hydrazone (v. MILLER and ROHRF), 1892, A., 1221.
- Hydroxyphenylhydrocoumarin** (LIEBERMANN and HARTMANN), 1891, A., 1484.
- and its isomerides (LIEBERMANN and HARTMANN), 1892, A., 849.
- 2'-Hydroxyphenylhydroquinoline.** See Phenylhydrocarbostyryl.
- 6-Hydroxy-4-phenyl-2-hydroxybenzyl-*m*-diazine** (PINNER), 1891, A., 63.
- 6-Hydroxy-4-phenyl-2-hydroxyisopropyl-*m*-diazine** (PINNER), 1890, A., 70.
- p*-Hydroxy-2'-phenyl-4-hydroxyquinoline** (WEIDEL and v. GEORGEVICS), 1888, A., 967.
- Hydroxyphenylic anthranilate** (v. MEYER and BELLMANN), 1886, A., 358.
- sulphide (TASSINARI), 1887, A., 807.
- disulphide (LEUCKART), 1890, A., 604.
- and its compounds (HAFFINGER), 1888, A., 988.
- oxidation of the methyl ether of (HAFFINGER), 1883, A., 989.
- thio- (LEUCKART), 1890, A., 604.
- p*-Hydroxyphenylimidomethylene ethylenic disulphide** (MIGLIATI), 1891, A., 895.
- 2'-*p*-Hydroxyphenylindazine** (PAAL), 1891, A., 724.
- o*-Hydroxyphenyllactic acid** (*salicyllactic acid*) (PLOCHE and WOLFRUM), 1885, A., 899.
- p*-Hydroxyphenyllactic acid** (ERLENMEYER and LIPP), 1883, A., 993.
- a-m*-Hydroxyphenyl-*p*-methoxy-hydroquinoline and -quinoline** (v. MILLER and KINKELIN), 1887, A., 979, 978.
- Hydroxyphenylmethylamidotrichloroethane** and its derivatives (BOESSENCK), 1888, A., 587.
- Hydroxyphenylmethylisocrotonic acid** (FITTIG), 1890, A., 584; (FITTIG and BROWN), 1890, A., 778.
- 4-Hydroxy-2-phenyl-6-methyl-*m*-diazine**, derivatives of (PINNER), 1886, A., 46.
- diamido- (PINNER), 1887, A., 1054.
- 4-Hydroxy-2-phenyl-6-methyl-*m*-diazine**, 5-bromo- (PINNER), 1887, A., 1053.
- 6-Hydroxy-2-phenyl-4-methyl-*m*-diazine** (PINNER), 1885, A., 751; 1889, A., 1008; 1891, A., 468.
- 6-Hydroxy-4-phenyl-2-methyl-*m*-diazine** (PINNER), 1889, A., 1007.
- 6-Hydroxy-2-phenyl-4-methyl-*m*-diazine-5-acetic acid** (PINNER), 1890, A., 69.
- 6-Hydroxy-2-phenyl-4-methyl-*m*-diazine-5-propionic acid** (PINNER), 1890, A., 70.
- 6-Hydroxy-2-phenyl-4-methyl-5-ethyl-*m*-diazine** (PINNER), 1889, A., 1008.
- 6-Hydroxy-4-phenyl-5-methyl-2-ethyl-*m*-diazine** (SCHWARZE), 1890, A., 1159.
- Hydroxyphenyl-*p*-methylic sulphide** (TASSINARI), 1887, A., 807.
- Hydroxy- $\beta$ -phenyl- $\alpha$ -methylpropionic acid** (PERKIN and CALMAN), 1886, T., 159; (PERKIN and STENHOUSE), 1891, P., 43.
- Hydroxyphenylmethylpyridazone** (ACH), 1890, A., 71.
- $\beta$ -Hydroxyphenylmethylpyrotartaric acid**, salts of (FITTIG and LIEBMAN), 1890, A., 776.
- 4'-Hydroxy-2'-phenyl-3-methylquinoline** (JST), 1886, A., 812.
- Hydroxyphenylmethylquinoxaline** (HINSBERG), 1885, A., 909.
- $\beta$ -Hydroxyphenyl- $\alpha$ -naphthylamine**,  $\alpha\beta$ -dichloro- (ZINKE and KEGEL), 1889, A., 268.
- 6-Hydroxy-4-phenyl-2- $\beta$ -naphthyl-*m*-diazine** (PINNER), 1892, A., 1009.
- p*-Hydroxyphenyl-*m*-nitrophenylthiocarbamide** (STEUDEMANN), 1884, A., 307.
- Hydroxyphenylphthalamic acid** (PIUTTI), 1886, A., 1027.
- p*-Hydroxyphenylphthalamide** (PIUTTI), 1886, A., 1026.
- Hydroxyphenylpivalic acid.** See  $\beta$ -Hydroxyphenylvaleric acid.
- $\beta$ -Hydroxyphenylpropaldehyde** (*phenyl- $\beta$ -lactic aldehyde*), *m*-chloro-*o*-nitro- (EICHENGRUN and EINHORN), 1891, A., 1100.
- o*-nitro- (v. BAeyer and DREWSSEN), 1884, A., 58.
- m*-nitro- (GÖHRING), 1885, A., 792.
- p*-nitro-, compound of, with aldehyde, (GÖHRING), 1885, A., 527.
- $\beta$ -Hydroxyphenylpropionamide**, *m*-chloro-*o*-nitro- (EICHENGRUN and EINHORN), 1890, A., 1127; 1891, A., 1100.

- p*-Hydroxy- $\alpha$ -phenylpropionic acid (*phloreolic acid*), artificial formation of (TRINIUS), 1885, A., 529.
- Hydroxy- $\beta$ -phenylpropionic acids, *o*-, *m*- and *p*-. See Hydrocoumaric acids.
- $\alpha$ -Hydroxyphenylpropionic acid. See Phenyl- $\alpha$ -lactic acid.
- $\beta$ -Hydroxyphenylpropionic acid (*phenyl- $\beta$ -lactic acid*), formation of, from ethylic benzoylacetate (PERKIN), 1885, T., 254.
- bromo- (ERLENMEYER), 1883, A., 196; 1891, A., 1482.
- m*-chloro-*o*-nitro- (EICHENGRÜN and EINHORN), 1890, A., 1127; 1891, A., 1099.
- $\alpha$ -iodo- (ERLENMEYER and ROSENHEK), 1887, A., 45.
- o*-nitro- (v. BAAYER and DREWSEN), 1884, A., 58; (EINHORN), 1884, A., 66.
- alcohol of (CALM), 1883, A., 341.
- $\beta$ -lactone of (EINHORN), 1884, A., 65.
- m*-nitro-, lactone of (PRAUSNITZ), 1884, A., 1175.
- p*-nitro- and its ethyl and methyl derivatives (BASLER), 1884, A., 604.
- $\beta$ -lactone of (BASLER), 1884, A., 604.
- o*-, *m*- and *p*-nitro-, etherification of (EINHORN and PRAUSNITZ), 1884, A., 1351.
- $\beta$ -Hydroxyphenylpropionanilide (*phenyl- $\beta$ -lactanilide*), *p*-nitro- (BASLER), 1884, A., 1173.
- $\beta$ -Hydroxyphenylpropyl ketone, *m*-chloro-*o*-nitro- (EICHENGRÜN and EINHORN), 1891, A., 1098.
- $\beta$ -Hydroxyphenylpropyl methyl ketone and its derivatives (v. BAAYER and DREWSEN), 1883, A., 341; (v. BAAYER and BECKER), 1883, A., 1120; (EICHENGRÜN and EINHORN), 1890, A., 1128; 1891, A., 1099.
- Hydroxyphenylpyrazoline. See Phenylpyrazolone.
- 2-Hydroxy-phenyl- $\gamma$ -pyridone, 3:5-di-chloro-, and its carboxylic acid (ZINCKE), 1890, A., 964; (ZINCKE and FUCHS), 1892, A., 449, 448.
- Hydroxyphenylpyrotartaric acid (*phenylitamic acid*), *m*- and *p*-nitro-, and barium salts of (SALOMONSON), 1888, A., 480.
- 2'-*o*-Hydroxyphenylquinoline (*phenol-quinoline*) (DORBNER), 1889, A., 410.
- 2'-*m*-Hydroxyphenylquinoline (*phenol-quinoline*), and its salts (v. MILLER and KINKELIN), 1885, A., 1145.
- 2'-*p*-Hydroxyphenylquinoline (*phenol-quinoline*) (WEIDEL), 1887, A., 847.
- 3-Hydroxy-2'-phenylquinoline, *p*-amido- (WEIDEL and v. GEORGIEVICS), 1888, A., 967.
- 4'-Hydroxy-2'-phenylquinoline (JUST), 1886, A., 811; (KNORR), 1888, A., 1113.
- synthesis of (CONRAD and LIMPACH), 1888, A., 505.
- 4'-Hydroxyphenylquinolines,  $\alpha$ - and  $\beta$ - (KOENIGS and MAI), 1887, A., 599.
- 4'-Hydroxy-2'-phenylquinoline-3'-carboxylic acid, and its ethyl salt (JUST), 1886, A., 161, 811.
- $\alpha$ -Hydroxy- $\alpha$ - and  $\beta$ -phenylsuccinic acids. See  $\alpha$ - and  $\beta$ -Phenylmalic acids.
- Hydroxyphenylsulphonic acid. See Phenolsulphonic acid.
- Hydroxy-2'-phenyltetrahydroquinoline (WEIDEL), 1887, A., 848.
- $\mu$ -Hydroxy- $\alpha$ -phenylthiazole (ARAPIDES), 1889, A., 413.
- chloro- (SCHATZMANN), 1891, A., 745.
- Hydroxyphenylthiocarbamide (FISCHER), 1889, A., 1164; (TIEMANN), 1889, A., 1165; (VOLTMER), 1890, A., 1126; 1891, A., 558; (v. DER KALL), 1891, A., 1222.
- p*-Hydroxyphenylthiocarbamide (KALCKHOFF), 1883, A., 735.
- 3-Hydroxyphenyltoluenesulphonic acid, 4:4'-diamido- (WEINBERG), 1888, A., 285.
- m*-Hydroxyphenyltolylamine (ZEGA and BUCH), 1886, A., 873.
- Hydroxyphenyl-*o*-tolylamines, *m*- and *p*- (PHILLIP), 1886, A., 942, 941.
- m*-Hydroxyphenyl-*p*-tolylamine, nitroso- (HATSCHEK and ZEGA), 1886, A., 455.
- Hydroxyphenyl-*p*-tolylamines, *m*- and *p*-, and their derivatives (HATSCHEK and ZEGA), 1886, A., 455.
- 6-Hydroxy-4-phenyl-2-*p*-tolyl-*m*-di-azine (PINNER), 1891, A., 470.
- Hydroxyphenyltolylethanes, *o*- and *m*- (KOENIGS and CARL), 1892, A., 446.
- Hydroxyphenyltriphtalamic acid (PIUTTI), 1886, A., 1027.
- $\beta$ -Hydroxyphenylvaleric acid (*hydroxy-phenylpyralic acid*) (FITTIG and JAYNE), 1883, A., 471.
- and its derivatives (OTT), 1885, A., 663.
- $\gamma$ -Hydroxyphenylvaleric acid (FITTIG and STERN), 1892, A., 988.
- $\gamma$ -Hydroxyphenylisovaleric acid, salts of (FITTIG and LIERMANN), 1890, A., 776.
- Hydroxyphenylvalerolactone (FITTIG and MAYER), 1892, A., 986.

- Hydroxyphosphinic acids** (FOSSEK), 1885, A., 504; 1886, A., 529.
- Hydroxyphosphinous acids** (VILLE), 1890, A., 618.
- Hydroxyisophthalaldehydes**,  $\alpha$ - and  $\beta$ - (VOSWINCKEL), 1883, A., 190.
- Hydroxyphthalanilide** (PIUTTI), 1886, A., 1026.
- 1:2:3-Hydroxyphthalic acid** (JACOBSEN), 1883, A., 1124; (MILLER), 1884, A., 1177; (STOKES), 1885, A., 540. *dinitro- (juglonic acid)* (BERNTHSEN and SEMPER), 1885, A., 548.
- 1:3:4-Hydroxyphthalic acid** (GRAEBE), 1885, A., 902; (GRAEBE and RUE), 1886, T., 522; P., 211.
- Hydroxyisophthalic acid** (VOSWINCKEL), 1883, A., 190.
- $\beta$ -Hydroxyphthalide** (GRAEBE and RUE), 1886, T., 525.
- $\beta$ -Hydroxyphthalimide** (GRAEBE and RUE), 1886, T., 524.
- $\beta$ -Hydroxy- $\beta$ -phthalimidoethylic sulphide** (GABRIEL), 1892, A., 130.
- $p$ -Hydroxypiazthiole** (AUTENRIETH and HINSBERG), 1892, A., 734.
- $\alpha$ -Hydroxypicolinic acid** ( *$\alpha$ -hydroxypyridinecarboxylic acid*), and its salts (OST), 1883, A., 795. *trichloro-* (OST), 1883, A., 795.
- $\beta$ -Hydroxypicolinic acid** ( *$\beta$ -hydroxypyridinecarboxylic acid*) (OST), 1883, A., 795; 1885, A., 49. *chloro-* [ $\beta$ -acid] (OST), 1883, A., 795. *chloro-* [ $\gamma$ -acid] (SEYFFERTII), 1887, A., 158.
- $\gamma$ -Hydroxypicolinic acid and chloro-** (BEILMANN), 1884, A., 840.
- Hydroxypimelic acid** (SCHLEICHER), 1892, A., 428.
- 6-Hydroxy-2-pipecoline** (DUNZEL), 1889, A., 904.
- Hydroxypiperhydronic acid** (WEINSTEIN), 1885, A., 664.
- Hydroxypiperic acids**,  $\alpha$ - and  $\beta$ -, oxidation of (REGEL), 1887, A., 488.
- 2-Hydroxypiperidine** (WOLFFENSTEIN), 1892, A., 1485.
- Hydroxypiperohydrolactone** (REGEL), 1887, A., 488.
- $\beta$ -Hydroxypiperonylethyl methyl ketone** (*piperonyllartyl methyl ketone*), and bromo- (OECKER), 1891, A., 1476.
- Hydroxypipitzahoic acid**. See **Hydroxyperezone**.
- Hydroxypropamidine salts** (PINNER), 1891, A., 63.
- $\alpha$ -Hydroxypropenylamidoxime**,  $\beta$ -trichloro- (RICHTER), 1892, A., 321.
- Hydroxypropenylbenzoic acid** ( *$p$ -propenylsalicylic acid*) (HEYMANN and KOENIGS), 1887, A., 241.
- $\alpha$ -Hydroxypropenylethenylazoxime**,  $\beta$ -trichloro- (RICHTER), 1892, A., 321.
- $\alpha$ -Hydroxypropionic acid**. See **Lactic acid**.
- $\beta$ -Hydroxypropionic acid**. See **Hydracrylic acid**.
- Hydroxypropionitrile**, imidoethers of (PINNER), 1891, A., 62.
- $\omega$ -Hydroxypropyl phenyl ketone** (PERKIN), 1885, T., 844.
- $\beta$ -Hydroxypropylacridine**,  $\omega$ -trichloro- (*methylacridinechloral*) (BERNTHSEN and MUEHLERT), 1887, A., 849.
- $\alpha$ -Hydroxypropylamine** (*amidoisopropyl alcohol*) (LIEBERMANN and PAAL), 1883, A., 909.
- $\beta$ -Hydroxypropylamine**, *trichloro-* (FAUCONNIER), 1888, A., 1265.
- $\gamma$ -Hydroxypropylamine** (GABRIEL and WEINER), 1888, A., 1293.
- Hydroxypropylamylamine** (LIEBERMANN and PAAL), 1883, A., 910.
- $\beta$ -Hydroxypropylbenzamide** (HIRSCH), 1890, A., 860.
- 4-Hydroxyisopropylbenzoic acid**, 2-amido- (WIDMAN), 1886, A., 466. action of nitrous acid and of ethylic chloroformate on (WIDMAN), 1884, A., 1022.
- 2:5-dibromo-** (FILETI and BONICONTRO), 1892, A., 604.
- 2-nitro-** (WIDMAN), 1886, A., 466.
- 3-nitro-**, and its derivatives (WIDMAN), 1883, A., 330; 1884, A., 316.
- exo*-Hydroxyisopropylbenzoic acid**, 3-amido- (WIDMAN), 1884, A., 317. action of acetic anhydride on (WIDMAN), 1884, A., 302.
- Hydroxypropylcarboxyphenylurethane** (WIDMAN), 1881, A., 1023.
- Hydroxyisopropylidiphenyleneketonecarboxylic acid** (BAMBERGER and HOOKER), 1885, A., 1070.
- Hydroxypropylenepiperidine** ( *$\alpha$ -lupetidinallkine*) (LADENBURG), 1891, A., 1119.
- Hydroxypropylhydroxybenzoic acid** (WIDMAN), 1884, A., 1022.
- $\alpha$ -Hydroxy- $\beta$ -propylidenebutylamide** (JOHANNY), 1891, A., 38.
- Hydroxypropylmalonic acid**, salts of (HJELT), 1883, A., 456.
- Hydroxypropylmethylaniline** (*phenylmethylpropylalkine*) (LAUN), 1884, A., 1011.

- Hydroxypropylpiperidine** (*piperpropylalkine*), and its derivatives (LATX), 1884, A., 1054; (ENGLER and BAUER), 1891, A., 1505.
- $\alpha$ -Hydroxypropylpiperidine.** See Conhydrin.
- $\beta$ -Hydroxypropylpiperidine** ( *$\alpha$ -pipercolylmethylalkine*) (LADENBURG), 1890, A., 68.
- Hydroxypropylphosphinic acid** (FONSEK), 1886, A., 530.
- Hydroxypropylphthalamic acid** (GABRIEL and LAUER), 1890, A., 472.
- $\gamma$ -Hydroxypropylphthalimide** (GABRIEL and LAUER), 1890, A., 472; (LAUER), 1890, A., 1089.
- Hydroxypropylphthalimide**, nitro- (NEUMANN), 1890, A., 890.
- Hydroxypropylpyridine** [b.p. 213] (ENGLER and BAUER), 1891, A., 1505.
- Hydroxypropylpyridine** ( *$\alpha$ -lutidylalkine*) (ALEXANDER), 1890, A., 1447; (LADENBURG), 1891, A., 1119.
- $\beta$ -Hydroxypropylpyridine** ( *$\alpha$ -picolylmethylalkine*) (LADENBURG), 1890, A., 68.
- $\alpha$ -Hydroxypropylpyridine**,  $\omega$ -trichloro- (EINHORN and LIEBRECHT), 1887, A., 845.
- $\alpha$ -Hydroxypropylquinoline**, trichloro- (EINHORN), 1886, A., 721.
- 2'-Hydroxy-2-isopropylquinoline** (WIDMANN), 1886, A., 465.
- Hydroxypropylsuccinic acid**, lactone of (HJELT), 1883, A., 656, 971.
- Hydroxy- $p$ -isopropylsalicylic acid** (HEYMAN and KOENIGS), 1887, A., 241.
- 2-Hydroxypyridine** ( *$\alpha$ -pyridone*) (KOENIGS and KÖRNER), 1884, A., 85; (KOENIGS and GEIGY), 1884, A., 1195; (FEER and KOENIGS), 1886, A., 1044; (V. PECHMANN and BALTZER), 1892, A., 208.
- di*bromo-** (KOENIGS and GEIGY), 1884, A., 1195.
- di*chloro-** (KOENIGS and GEIGY), 1884, A., 1369.
- 3:5-*di*iodo-** (PREIFFER), 1887, A., 845.
- 3-Hydroxypyridine** (FISCHER and RENOUF), 1884, A., 1050; (KOENIGS and GEIGY), 1884, A., 1369.
- from pyridinesulphonic acid, derivatives of (FISCHER and RENOUF), 1884, A., 1370.
- di*bromo-** and its salts (FISCHER), 1884, A., 1370.
- 4-Hydroxypyridine** (*chelamide*) (LERCH), 1885, A., 46; (HATTINGER and LIEBEN), 1885, A., 311, 966.
- 4-Hydroxypyridine** (*chelamide*) from  $\beta$ -hydroxypicolinic acid (OST), 1885, A., 50.
- and its *di*homio-derivative (LIEBEN and HATTINGER), 1883, A., 371.
- 6-Hydroxypyridine**, 2:3:5-trichloro-4-amido- (STOKES and V. PECHMANN), 1887, A., 156.
- Hydroxypyridine**, amido- [m.p. 214°], and its derivatives (KRIPPENDORFF), 1885, A., 1243.
- Hydroxypyridine-bases**, synthesis of (LADENBURG), 1890, A., 67; 1891, A., 1092.
- $\alpha$ -Hydroxypyridinecarboxylic acid** ( *$\alpha$ -hydroxypicolinic acid*) and its salts (OST), 1883, A., 795.
- di*-chloro-** (OST), 1883, A., 795.
- $\beta$ -Hydroxypyridinecarboxylic acid** ( *$\beta$ -hydroxypicolinic acid*) (OST), 1883, A., 795; 1885, A., 49.
- chloro-** (OST), 1883, A., 795.
- 2-Hydroxypyridine-3-carboxylic acid** (*2-hydroxypicolinic acid*) (WEIDEL and STRACHE), 1886, A., 951.
- 6-Hydroxypyridine-3-carboxylic acid** (*6-hydroxynicotinic acid*), and its derivatives (KOENIGS and GEIGY), 1884, A., 1195; (V. PECHMANN and WELSH), 1885, T., 150; A., 174; (V. PECHMANN), 1885, A., 176.
- preparation of, from hydroxyquinolinic acid (KOENIGS and GEIGY), 1884, A., 945.
- 2-Hydroxypyridine-3:4-dicarboxylic acid** ( *$\alpha$ -hydroxyquinolonic acid*) (WEIDEL and STRACHE), 1886, A., 951.
- 4-Hydroxypyridine-2:6-dicarboxylic acid.** See Ammonchelidonic acid.
- 6-Hydroxypyridine-2:3-dicarboxylic acid** (*hydroxyquinolinic acid*), and its salts (KOENIGS and KÖRNER), 1884, A., 85; (KOENIGS and GEIGY), 1884, A., 1195; (FEER and KOENIGS), 1885, A., 1236.
- 3-Hydroxypyridyl-2-butyric acid.** See Morrhucic acid.
- Hydroxyprotarctic acid** (*itamic acid*) and its salts (BEEH), 1883, A., 457.
- trichloro-**, salts of (FITTIG and MILLER), 1890, A., 586.
- Hydroxypyruvic acid** (WILL), 1891, A., 542.
- osazone of** (WILL), 1892, A., 356.
- Hydroxyquinaldine.** See Hydroxy-2'-methylquinoline.
- Hydroxyquinhydrone** (BARTH and SCHREDER), 1885, A., 520.

- Hydroxyquinol**, the third isomeric trihydroxybenzene (BARTH and SCHREDER), 1883, A., 987; 1885, A., 520.  
 derivatives of (SCHWEITZER), 1889, A., 389.
- Hydroxyquinoline** (*kynurin*) (SKRAUP), 1890, A., 174.  
 oxidation of (KRETSCHY), 1883, A., 674.
- Hydroxyquinoline, 3'-amido-** [m. p. 109°-110°], and the action of its diazo-salts on phenols and tertiary bases (RIEMERSCHMIED), 1883, A., 1148.  
 nitro- (WEIDEL and HAZURA), 1883, A., 223.  
 1-nitro- (SCHMITT and ENGELMANN), 1888, A., 67; (v. KOSTANECKI), 1891, A., 579; (Vis), 1892, A., 1105.  
*di*-nitro- (CLAUS and POSSELT), 1890, A., 523.
- 1-Hydroxyquinoline** (SKRAUP), 1883, A., 92; (HERZFELD), 1884, A., 1199; (FISCHER and RENOUF), 1884, A., 1370; (KOHN), 1886, T., 500.  
 action of chlorine on (HEBE BRAND), 1889, A., 60.  
 action of methylic iodide on (CLAUS and HOWITZ), 1890, A., 1323.  
 quaternary base derived from (WURTZ), 1883, A., 923.  
 derivatives (SKRAUP), 1883, A., 92; (HERZFELD), 1884, A., 1199; (FISCHER and RENOUF), 1884, A., 1370; (KOHN), 1886, T., 500; (LIPPMANN and FLEISSNER), 1890, A., 265.  
 alkyl-halogen derivatives of (LIPPMANN and FLEISSNER), 1890, A., 174; (CLAUS and HOWITZ), 1890, A., 1323.  
 methohydroxide (CLAUS, HOWITZ, MASSAN and RAPS), 1892, A., 878.
- 1-Hydroxyquinoline, bromo-** [m. p. 140°] (SCHMITT and ENGELMANN), 1888, A., 67.  
 4-bromo- [m. p. 124°] (CLAUS and HOWITZ), 1892, A., 354.  
 4:3-*di*bromo- (CLAUS and POSSELT), 1890, A., 522; (CLAUS and HOWITZ), 1892, A., 354.  
 3:4:4'-*tri*bromo- (SREK), 1890, A., 177; (CLAUS and HEERMANN), 1891, A., 83.  
 chloro-, 2:4-*di*chloro-, and 2:3:4-*tri*-chloro- (HEBE BRAND), 1889, A., 60.  
 2:4-*di*nitro- (v. KOSTANECKI), 1891, A., 579.
- 2-Hydroxyquinoline** (FISCHER), 1883, A., 91; (SKRAUP), 1883, A., 95; (CLAUS), 1888, A., 729.
- 2-Hydroxyquinoline derivatives** (FISCHER), 1883, A., 91; (SKRAUP), 1883, A., 95.  
 methiodide, methochloride and methohydroxide (CLAUS, HOWITZ, MASSAN and RAPS), 1892, A., 876.
- 2'-Hydroxyquinoline.** See Carbostryl.
- 3-Hydroxyquinoline** (SKRAUP), 1883, A., 93.  
 from *p*-quinolinesulphonic acid (ILAPP), 1884, A., 758.  
 from 2-hydroxyquinolino-4' (?) -carb-oxylic acid (SKRAUP), 1884, A., 86.  
 action of chlorine on (ZINCKE), 1891, A., 1249.  
 derivatives (SKRAUP), 1883, A., 93.  
 alkyl-halogen derivatives of (CLAUS and HOWITZ), 1890, A., 1323.  
 benzylchloride, benzylhydroxide, etho-bromide and ethohydroxide (CLAUS and HOWITZ), 1891, A., 1253.  
 hydrobromide, 4-bromo- (CLAUS and HOWITZ), 1892, A., 353.  
 methochloride, methohydroxide and methosulphate (CLAUS and HOWITZ), 1891, A., 1252.  
 methyl ether. See Quinainisole.  
 1-amido- (MATHEUS), 1888, A., 852; (ALTSCHUL), 1888, A., 1108.  
*di*bromo- (CLAUS and POSSELT), 1890, A., 523.  
 4-chloro-, and 2:4-*di*chloro- (ZINCKE), 1891, A., 1249.  
 1:2:4-*tri*chloro- (ZINCKE), 1891, A., 1250.  
 1-nitro- (SCHMITT and ALTSCHUL), 1888, A., 67; (MATHEUS), 1888, A., 965; (ALTSCHUL), 1888, A., 1108.  
 1-nitroso- (MATHEUS), 1888, A., 965.
- 3'-Hydroxyquinoline and its derivatives** (RIEMERSCHMIED), 1883, A., 1117.
- 4-Hydroxyquinoline** (CLAUS), 1888, A., 729.  
 3-chloro- (CLAUS, HOWITZ, MASSAN and RAPS), 1892, A., 877.
- Hydroxyisoquinoline, mono-** and *di*-chloro- (RUGHIMER), 1886, A., 702.
- Hydroxyisoquinolines and their derivatives** (CLAUS, HOWITZ, MASSAN and RAPS), 1892, A., 877.
- Hydroxyquinolines, preparation of** (ANON.), 1884, A., 945.  
 derivatives of, and their physiological effects (FISCHER), 1883, A., 1146.
- 1-Hydroxyquinolinecarbothionylic acid** (LIPPMANN and FLEISSNER), 1888, A., 1092.
- Hydroxyquinolinecarboxylic acid** (*kynurenic acid*; *kynurenic acid*), oxidation of (KRETSCHY), 1883, A., 674.

- 1-Hydroxyquinolinecarboxylic acid** [m.p. 250°] (LIPPMANN and FLEISSNER), 1887, A., 63, 1119; 1888, A., 1092.  
and its derivatives, behaviour of, in the organism (KROLIKOWSKI and NENCKI), 1888, A., 864.  
derivatives (LIPPMANN and FLEISSNER), 1887, A., 63.
- 1-Hydroxyquinolinecarboxylic acid** [m.p. 235°] (SCHMITT and ENGELMANN), 1887, A., 738; 1888, A., 66.  
derivatives (SCHMITT and ENGELMANN), 1887, A., 738.  
nitro- (SCHMITT and ENGELMANN), 1888, A., 66.
- 2'-Hydroxyquinoline-3'-carboxylic acid** (*carbostyrylcarboxylic acid*) (FRIEDLÄNDER and GÖHRING), 1884, A., 1020.
- 2-Hydroxyquinoline-4'-(β)-carboxylic acid** (*xanthoquinic acid*) (SKRATCP), 1884, A., 86.
- 2'-Hydroxyquinoline-4'-carboxylic acid** (*hydroxycinchoninic acid*) (KÖNIGS and KÖRNER), 1884, A., 84.
- 3-Hydroxyquinolinecarboxylic acid** (LIPPMANN and FLEISSNER), 1887, A., 1120; (SCHMITT and ALTSCHUL), 1888, A., 67.
- 1-Hydroxyquinolinedisulphonic acid** (LIPPMANN and FLEISSNER), 1890, A., 268; (CLAUS and POSSELT), 1890, A., 523.
- 3-Hydroxyquinoline-1'-methylbetaine** (CLAUS and HOWITZ), 1891, A., 1252.
- 3-Hydroxyquinoline-1:4-quinone**, 2-chloro-, and its anilide (ZINCKE), 1891, A., 1251.
- 1-Hydroxyquinolinesulphonic acid** (LIPPMANN and FLEISSNER), 1890, A., 268.
- 1-Hydroxyquinoline-4-sulphonic acid** (CLAUS and POSSELT), 1890, A., 522.  
bromo- (CLAUS and POSSELT), 1890, A., 522.
- 2'-Hydroxyquinolinesulphonic acid** (*carbostyrylsulphonic acid*) (LA COSTE and VALEUR), 1886, A., 629; 1887, A., 379.
- 3-Hydroxyquinolinesulphonic acid** (CLAUS and POSSELT), 1890, A., 523.  
bromo- (CLAUS and POSSELT), 1890, A., 523.
- 3'-Hydroxyquinolinesulphonic acid** (LA COSTE and VALEUR), 1886, A., 629; 1888, A., 297.  
and its salts (RIEMERSCHMIED), 1883, A., 1143.
- Hydroxyquinolinic acid** (*6-hydroxyquinoline-2:3-dicarboxylic acid*), and its salts (KÖNIGS and KÖRNER), 1884, A., 85; (KÖRNIGS and GELLY), 1884, A., 1193; (FEER and KÖRNIGS), 1885, A., 1236.
- Hydroxyquinone**, *tri*bromo- (BARTH and SCHREIBER), 1885, A., 520.  
*p*-chloro- (STIEGLITZ), 1891, A., 456.  
*d*initro-, preparation of (NIETZKI), 1884, A., 58.
- Hydroxyquinoneimide**, chloramido- (KEHRMANN), 1890, A., 241.
- Hydroxyquinones** (NIETZKI and KHRMANN), 1888, A., 263; (KOWALSKI), 1892, A., 1098.  
formation of, from quinones (KOWALSKI), 1892, A., 45.  
behaviour of, with mordants (v. KOSTANECKI), 1889, A., 869.
- Hydroxyquinophenol**. See 1:2-Dihydroxyquinoline.
- 3-Hydroxyquinoxaline** (AUTENRIETH and HINSBERG), 1892, A., 732.
- 2'-Hydroxyquinoxaline-3'-carboxylic acid** (KÜHLING), 1891, A., 1342.
- Hydroxyresazoin** (EBELICH), 1888, A., 145.
- Hydroxysebacic acid** (CLAUS and STEINKAULER), 1888, A., 134.
- α-Hydroxystearic acid** (HELL and SADOWSKY), 1891, A., 1396.
- β-Hydroxystearic acid** (SAYTZEFF), 1886, A., 140; (M., C. and A. SAYTZEFF), 1887, A., 30; (GEITEL), 1888, A., 578.
- γ-Hydroxystearic acid** (GEITEL), 1888, A., 578.
- Hydroxystearic anhydride** (M., C. and A. SAYTZEFF), 1887, A., 31.
- Hydroxy-α-stilbazoline**. See Hydroxy-2-phenylethylpyridine.
- p-Hydroxystyrolene** (BERNTSEN and BENDER), 1883, A., 70.
- o-Hydroxystyryl methyl ketone** (*methyl coumarone ketone*) and its derivatives (HARRIES), 1892, A., 169.
- Hydroxystyrylhydantoin bromide** (PINNER and SPILKER), 1889, A., 706.
- Hydroxy-2'-styrylpyridine** (*hydroxy-α-stilbazole*) (BUTTER), 1890, A., 1438.
- Hydroxysuberic acid** and its salts (HELL and REMPEL), 1885, A., 756; (HEMPEL), 1885, A., 757.
- p-Hydroxy-o-sulphobenzoic acid** (HEDRICK), 1888, A., 280; (PINANELLO), 1889, A., 1063.
- p-Hydroxy-m-sulphobenzoic acid** and its salts (KLEPL), 1884, A., 446.
- 1-Hydroxy-4-sulpho-β-naphthoic acid** (KÖNIG), 1889, A., 719; 1890, A., 636.

- Hydroxysulphonebenzide** (*dihydroxydiphenylsulphon*) (TASSINARI), 1889, A., 245.
- Hydroxyterebic acid**, salts of (ROSER), 1884, A., 459.
- Hydroxyterephthalic acid**, reduction products of (V. BAYER and TUTEIN), 1889, A., 1180.
- Δ<sup>3</sup>-Hydroxytetrahydrobenzylidimethylamine** (MERLING), 1892, A., 359.
- Hydroxytetrahydronaphthoic acid**, bromo-, lactone of (V. BAYER, SCHODER and BESENFELDER), 1892, A., 193.
- 1-Hydroxytetrahydroquinoline**, preparation of methyl and ethyl derivatives of (ANON.), 1883, A., 871.
- 3-Hydroxytetrahydroquinoline**, bromo-, hydrochloride (SRPEK), 1890, A., 177.
- 1-Hydroxytetrahydroquinolinecarboxylic acid** (LIPPMANN and FLEISNER), 1887, A., 1119.
- Hydroxytetrahydroterephthalic acid** (V. BAYER and TUTEIN), 1889, A., 1180.
- Hydroxytetramethylenecarboxylic acid** (PERKIN and SINCLAIR), 1892, T., 44.
- Hydroxytetramethylhexahydropyridine**. See Triacetonealkamine.
- Hydroxytetramethylpropylenediamine** (BEREND), 1884, A., 1114.
- 4'-Hydroxy-1:3:4:2'-tetramethylquinoline** (CONRAD and LIMPACH), 1888, A., 504.
- aldehyde (CONRAD and LIMPACH), 1888, A., 1110.
- Hydroxytetrethylpropylenediamine** (BEREND), 1884, A., 1114.
- Hydroxytetric acid**. See Methylsuccinic acid.
- o-Hydroxythiocarbanilide** (KALCKHOFF), 1883, A., 1110.
- p-Hydroxythiocarbanilide** (KALCKHOFF), 1883, A., 735.
- Hydroxythionaphthene** (BIEDERMANN), 1886, A., 788.
- Hydroxythiotolen**. See Hydroxymethylthiophen.
- Hydroxythiotoluene** (TRUHLAR), 1887, A., 473.
- Hydroxythymophenindulone** (KEHRMANN and MESSINGER), 1891, A., 747.
- Hydroxythymoquinone** (MAZZARA), 1890, A., 965; (KOWALSKI), 1892, A., 1098.
- constitution of (MAZZARA), 1890, A., 884.
- derivatives, constitution of (MAZZARA), 1891, A., 297.
- Hydroxythymoquinoneimide**, amido- (ANSCHÜTZ and LEATHER), 1886, T., 725.
- 2-Hydroxy-m-tolenylamidoxime** (*o-homosalicenylamidoxime*) (PASCHEN), 1892, A., 320.
- 4-Hydroxy-m-tolenylamidoxime** (*p-homosalicenylamidoxime*) (GOLDBECK), 1892, A., 319.
- 6-Hydroxy-m-tolenylamidoxime** (*o-homo-p-hydroxybenzenylamidoxime*) (PASCHEN), 1892, A., 320.
- Hydroxytolenylazoxime**. See under Azo-.
- 2-Hydroxy-m-tolualdehyde** (*o-homosalicylaldehyde*) and oxime of (PASCHEN), 1892, A., 320.
- 6-Hydroxy-m-tolualdehyde** (*o-homo-p-hydroxybenzylaldehyde*) and oxime and phenylhydrazone of (PASCHEN), 1892, A., 320.
- 4-Hydroxy-m-tolualdoxime** and -toluamide (*p-homo-salicylaldoxime* and -amide) (GOLDBECK), 1892, A., 318.
- Hydroxytolucarbostyryl**. See Hydroxymethylcarbostyryl.
- Hydroxytoluene**. See Cresol.
- o-Hydroxytoluic acid** (*o-hydroxymethylbenzoic acid*) (HJELT), 1892, A., 715.
- rate of transformation of, into phthalide (COLLAN), 1892, A., 1270.
- 5-nitro- (HÖNIG), 1886, A., 242.
- p-Hydroxytoluic acid**, heats of combustion and formation of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.
- Hydroxy-o-toluic acids**, 5- and 6- (JACOBSEN), 1883, A., 1124.
- 4-Hydroxy-m-toluic acid** (*p-homosalicylic acid*; *α-cresotic acid*), occurrence of, in artificial salicylic acid (DUNSTAN and BLOCH), 1891, A., 454.
- derivatives of (GOLDBECK), 1892, A., 318.
- anhydrides of (BARGIONI and SCHIFF), 1888, A., 838.
- 5-Hydroxy-3-toluic acid**, conversion of ethylic acetoneoxalate into (CLAISEN), 1890, A., 364.
- 2:4:6-trinitro- (nitroccusic acid)**, synthesis of (V. KOSTANECKI and NIEMENTOWSKI), 1885, A., 531.
- 2-Hydroxy-p-toluic acid** (*m-hydroxymethylbenzoic acid*) (WEINREICH), 1887, A., 669.
- Hydroxy-m- and -p-toluic acids**, 2- and 3- (*β-* and *γ-cresotic acids*), occurrence of, in artificial salicylic acid (DUNSTAN and BLOCH), 1891, A., 454.
- amido- (NIETZKI and RUPPERT), 1891, A., 308, 309.

2-Hydroxy-*m*-toluic phenylhydrazone (*o*-homosalicylphenylhydrazone) (PASCHEN), 1892, A., 320.  
 4-Hydroxy-*m*-toluonitrile (*p*-homosalicylonitrile) (GULDBECK), 1892, A., 319.  
 . methyl derivative of (LIMPACH), 1889, A., 499.  
 Hydroxy-*m*-toluonitriles, 2- and 6- (PASCHEN), 1892, A., 320.  
 Hydroxytoluquinoline. See Hydroxymethylquinoline.  
 Hydroxytoluquinone, *di*bromo- (SPICA and MAGNANINI), 1884, A., 175.  
 Hydroxytoluquinoxaline. See Hydroxymethylquinoxaline.  
 Hydroxytolyl methyl ether. See Hydroxymethoxytoluene.  
 Hydroxy-*p*-tolylacetic acid (CLAUS and KROSEBERG), 1887, A., 949.  
 6-Hydroxy-2-*p*-tolyl-5-benzyl-2-methyl-*m*-diazine (PINNER), 1891, A., 470.  
 $\omega$ -Hydroxytolylcarbamide (SÖDERBAUM and WIDMAN), 1889, A., 972.  
 4-Hydroxy-6-*p*-tolyl-*m*-diazine-2-carboxylic acid (PINNER), 1892, A., 1008.  
 Hydroxytolylene-*o*-dicarboxylic acid, lactide of (EPHRAIM), 1890, A., 1143.  
 $\omega$ -Hydroxytolylethylthiocarbamide (SÖDERBAUM and WIDMAN), 1890, A., 178.  
 4-Hydroxy-6-*p*-tolyl-2-methyl-*m*-diazine (GLOCK), 1888, A., 1290.  
 6-Hydroxy-2-tolyl-4-methyl-5-ethyl-*m*-diazine (PINNER), 1891, A., 469.  
 4'-Hydroxy-1-tolyl-2'-methylquinoline, synthesis of (KNORR), 1884, A., 1198.  
 Hydroxytolylmethylthiocarbamide (SÖDERBAUM and WIDMAN), 1890, A., 178.  
 $\omega$ -Hydroxytolylphenylcarbamide (SÖDERBAUM and WIDMAN), 1889, A., 973.  
 Hydroxy-*o*-tolylthiocarbamide (TIEMANN), 1889, A., 1165; (VOLTMER), 1890, A., 1126; 1891, A., 558.  
 6-Hydroxy-2:4:5-triethyl-*m*-diazine (WAHNE), 1889, A., 684.  
*o*-Hydroxytrimethylbenzaldehyde (AUWERS), 1885, A., 380.  
 6-Hydroxy-2:4:5-trimethyl-*m*-diazine (PINNER), 1889, A., 1006.  
 Hydroxytrimethylenediphtalamic acid (GOEDECKEMEYER), 1888, A., 1295.  
 $\beta$ -Hydroxytrimethylenediphtalimide (GOEDECKEMEYER), 1888, A., 1295; (GABRIEL), 1889, A., 486.

Hydroxytrimethylethylammonium hydroxid\* (BRIEGER), 1884, A., 1202.  
 physiological action of (CERVELLO), 1885, A., 925; 1888, A., 309.  
 platinochloride, chloro- (BODE), 1892, A., 807.  
 Hydroxytrimethylglutaric acid lactone (AUWERS and MEYER), 1890, A., 480.  
 Hydroxytrimethylpyrroline (WEIL), 1886, A., 529.  
 4'-Hydroxy-2':1:3-trimethylquinoline (CONRAD and LIMPACH), 1888, A., 503.  
 Hydroxy-2':1:3-trimethylquinoline-carboxylic acid (CONRAD and LIMPACH), 1888, A., 504.  
 Hydroxytrimethyluracil, *di*bromo- and *dichloro*- (HAGEN), 1888, A., 582.  
 Hydroxytrimethylxanthine (HAGEN), 1888, A., 582.  
 6-Hydroxy-2:4:5-triphenyl-*m*-diazine (WAHNE), 1889, A., 684.  
*o*-Hydroxytriphenylmethane (FISCHER and FRANKEL), 1888, A., 56.  
 Hydroxytropine (*oscine*) (HESSE), 1892, A., 1498.  
*p*-Hydroxytruxillie acid (LIEBERMANN and BERGAMI), 1889, A., 699.  
 $\beta$ -Hydroxy- $\alpha$ -truxillie acid (HOMANS, STELTZNER and SUKOW), 1891, A., 1496.  
 Hydroxyuracil, bromonitro- (BEHREND), 1887, A., 920.  
 $\gamma$ -Hydroxyvaleramide (NEUGEBAUER), 1885, A., 651; (FITTIG and RANCH), 1890, A., 879.  
 Hydroxyvaleric acid, oxime of (WOLFF), 1891, A., 1185.  
*n*-Hydroxyvaleric acid and its salts (MENOZZI), 1884, A., 1122; (JUSLIN), 1885, A., 137.  
 $\gamma$ -Hydroxyvaleric acid, transformation of, into its lactone (OSTWALD), 1891, A., 1151; (HENRY), 1892, A., 1303.  
 $\beta$ -Hydroxyisovaleric acid (REFORMATSKY), 1887, A., 717.  
 Hydroxyvaleric acids ( $\alpha$ - and  $\beta$ -hydroxy- $\alpha$ -methylbutyric acids), chloro-derivatives of (MELIKOFF), 1886, A., 1008; 1887, A., 30; 1888, A., 1177; (MELIKOFF and PETRENKO-KRITSCHENKO), 1890, A., 736, 862.  
 Hydroxyvalerolactone (FITTIG and URBAN), 1892, A., 958.  
 Hydroxyvinylphenylethenylamidoxime (BORNEMANN), 1886, A., 799.  
 Hydroxyvinylphenylpropionic acid, *p*-nitro- (EINHORN and GEHRENEBECK), 1889, A., 397.  
 Hydroxyxanthine (BEHREND), 1887, A., 919.

- Hydroxyzanthone**, constitution of (GRAEBE), 1890, A., 505.
- Hydroxyzanthones** (v. KOSTANECKI and NESSLER), 1892, A., 504; (v. KOSTANECKI and RUTIMAUER), 1892, A., 1096; (BENER), 1892, A., 1100.
- of the naphthalene and quinoline series (v. KOSTANECKI), 1892, A., 1098.
- synthesis of (v. KOSTANECKI and NESSLER), 1891, A., 1060; (NESSLER), 1891, A., 1494.
- Hydroxyxylic acid** (2-hydroxy-3:5-dimethylbenzoic acid) (GUNTER), 1884, A., 1847.
- Hydrozincite** (v. ZEPHAROVICH), 1887, A., 1021.
- Hygric acid** (LIEBERMANN and KÜHLING), 1891, A., 586.
- Hygrine** (BIGNON), 1886, A., 388; (STOCKMAN), 1888, A., 508; (LIEBERMANN), 1889, A., 732; (LIEBERMANN and KÜHLING), 1891, A., 586.
- separation of, from cocaine (HOWARD), 1887, A., 1126.
- Hygrometer**, a condensation (CROVA), 1883, A., 118.
- Hymenodictyonine**, the bitter principle of *Hymenodictyon excelsum* (NAYLOR), 1883, A., 1141; 1885, A., 565.
- Hyoglycocholic acids**,  $\alpha$ - and  $\beta$ - (JOLIN), 1887, A., 742; 1888, A., 1213; 1889, A., 422.
- Hyosine** and **hyoscyamine**. See Alkaloids.
- Hyperite**, porphyritic, from California (v. CHRISTSCHOFF), 1886, A., 780.
- Hypersthene** (*szaboite*) (KRENNER and KOCH), 1886, A., 432.
- from Krakatoa ashes (REUTERS), 1886, A., 602.
- from Transylvania, analysis of (KOCH), 1885, A., 735.
- Hypersthene-andesite** (HAGUE and IDDINGS), 1884, A., 29; (CROSS), 1884, A., 568.
- from Peru (HATCH), 1885, A., 1189.
- Hypocaffeine** and its salts (FISCHER), 1883, A., 356.
- Hypochlorin** and its formation (FRANK), 1883, A., 483.
- crystals, Pringsheim's, nature of (MEYER), 1883, A., 483.
- Hypochlorous acid**. See Chlorine.
- Hypoethyltheobromine** (FISCHER), 1883, A., 357.
- Hypomelanin** (MÖRNER), 1887, A., 168.
- Hypomelaninic acid** (NENCKI and SIEBER), 1888, A., 976.
- Hypomercurosic sulphite** (DIVERS and SHIMIDZU), 1886, T., 567.
- Hyponitrous acid**. See under Nitrogen.
- Hypophospho-molybdates** and -tungstates (HIBER), 1884, A., 560.
- Hypo-phosphorous** and -phosphoric acids. See under Phosphorus.
- Hyposantonin** acid (GUCCI and GRASSI-CRISTALDI), 1892, A., 870; (FRANCESCONI), 1892, A., 1353.
- isoHyposantonin** acid (GUCCI and GRASSI-CRISTALDI), 1892, A., 870.
- Hyposantonin** and **isohyposantonin** (GRASSI-CRISTALDI), 1890, A., 904; (GUCCI and GRASSI-CRISTALDI), 1892, A., 870.
- Hypo-sulphurous** and -sulphuric acids. See under Sulphur.
- Hypoanthine** (*sarcine*) (KOSSEL), 1883, A., 924; (BRUHNS), 1890, A., 534; (BRUHNS and KOSSEL), 1892, A., 220.
- occurrence of (BAGINSKY; KOSSEL), 1885, A., 286.
- in urine (SALOMON), 1887, A., 739.
- as a plant-constituent (SCHULZE and BOSSHARD), 1885, A., 1007.
- constitution of (GAUTIER), 1885, A., 276.
- estimation of, in various organs and in yeast (SCHINDLER), 1889, A., 791.
- Hystazarin** (2:3-dihydroxyanthraquinone) and its compounds (SCHÖELLER), 1888, A., 1203; 1889, A., 719.

## I.

- Ice**, physical properties of (PETTERSON), 1884, A., 889.
- refraction of light by (PULFRICH), 1888, A., 881.
- refractive index of (MEYER), 1887, A., 753.
- electrical conductivity of (FOUS-SEREAU), 1884, A., 1241.
- electrification of, by water friction (SOHNCKE), 1886, A., 960.
- Ice-calorimeter**, Bunsen's (BOYS), 1887, A., 1073.
- modifications of (BLÜMCKE), 1886, A., 5; (BARRETT), 1888, A., 103.
- corrections for (BOLTZMANN), 1886, A., 409.
- Ice plant** ("*Mesembryanthemum crystallinum*") (MANGON), 1883, A., 499; (HECKEL), 1883, A., 680.
- Iceland moss**, constituents of (HILGER and BUCHNER), 1890, A., 600.
- Iceland spar**, rate of the action between acids and (SPRING), 1888, A., 900; 1890, A., 843.

- Iceland spar.** See also Calcium carbonate.
- Ichthulin** (WALTER), 1891, A., 1389.
- Icterus** (ENGEL and KIENER), 1889, A., 637.
- glycogenesis in (DASTRE and ARIHUS), 1889, A., 1233.
- Ictrogen** (ARNOLD and KUNN), 1883, A., 228.
- Idocrase** (*vesuvian*) (SCHUBERT), 1883, A., 35.
- from Ala and Monzoni, analyses of (LUDWIG and RENARD), 1884, A., 408.
- from Kedebeč in the Caucasus (KURN), 1883, A., 1067.
- from New South Wales (LIVERSIDGE), 1886, A., 774.
- from Norway (WIDMAN), 1892, A., 1408.
- manganese-bearing from Sweden (IGELSTRÖM), 1888, A., 235.
- from Vesuvius, discovery of fluorine in (JANNASCH), 1883, A., 1067.
- crystalline form of (DOELTER), 1883, A., 441.
- composition of (JANNASCH), 1884, A., 828; (COSSA), 1886, A., 601; (RAMMELSBERG), 1888, A., 431; (VOGEL), 1890, A., 221; (LINDSTRÖM), 1890, A., 718; (KENNIGOTT), 1891, A., 651.
- effect of heat on the optical properties of (DOELTER), 1885, A., 26.
- decomposition-products of (DOELTER and HUSSAK), 1884, A., 566.
- Idrialite** (SCHARIZER), 1883, A., 427.
- from Idria (v. ZEPHAROVICH), 1887, A., 1021.
- Idunium** (WEBER), 1884, A., 1265.
- Igelströmite.** See Knebelite.
- Ignatieffite**, a variety of alunite (PFLUG), 1887, A., 1085; 1890, A., 454.
- Ilex Cuscuta*, analysis of the leaves of (VENABLE), 1885, A., 1254.
- Ilex paraguayensis*, analysis of (PECKOLT), 1884, A., 479.
- Ilcyl alcohol** (PERSONNE), 1884, A., 1366; (DIVERS and KAWAKITA), 1888, T., 274; P., 13.
- Illicium anisatum*, constituents of the fruit and seeds of (OSWALD), 1891, A., 957.
- Illicium religiosum*, products of the distillation of the leaves and fruits of (EIJKMAN), 1886, A., 95; 1887, A., 497.
- Illicium verum* (ANON.), 1885, A., 1275.
- Illigera pulchra*, alkaloid from (GRESHOFF), 1891, A., 338.
- Illumination**, standard of (PREECE), 1885, A., 321.
- Ilmenite** (*iron titanate*; *titanic iron*) from the Ardennes (KLEMENT), 1888, A., 430.
- Ilmenite** (*iron titanate*; *titanic iron*), from the Fichtelgebirge (v. SANDBERGER), 1892, A., 1406.
- conversion of rutile into (v. LA-SAULX), 1884, A., 1104.
- composition of (KOENIG and v. DER PFORDTEN), 1889, A., 948.
- action of sodium on (KOENIG and v. DER PFORDTEN), 1889, A., 1123.
- action of sulphuric acid on (KOENIG and v. DER PFORDTEN), 1889, A., 947.
- Ilvaite** (*lievrite*) from Kangerdluarsuk, Greenland (LORENZEN), 1886, A., 676.
- Imabenzil** (JAPP), 1884, A., 313; (HENIUS), 1885, A., 1067; (JAPP and WYNNE), 1886, T., 478; P., 202.
- Image**, photographic invisible, identity of photo-salts with the substance forming (LEA), 1888, A., 7.
- Imidazoles** (HANTZSCH), 1892, A., 313; (MARCKWALD), 1892, A., 1326.
- See also Glyoxaline.
- $\mu$ -Imidazolone** (MARCKWALD), 1892, A., 1327.
- $\mu$ -Imidazolyl mercaptan and methylic sulphide** (MARCKWALD), 1892, A., 1328.
- Imides**, conversion of nitriles into (PINNER), 1883, A., 730.
- action of hypochlorites and hypobromites on (HOOGWERFF and VAN DORP), 1891, A., 1216.
- substituted, modes of formation of (HALLER), 1892, A., 1204.
- Imidoacetates**, constitution of (PINNER), 1892, A., 982.
- Imidobenzophenone hydrochloride** (HANTZSCH and KRAFT), 1892, A., 339.
- Imidobenzoylmethylic cyanide.** See Phenylimidopropionitrile.
- Imido- $\alpha$ -benzoylpropionitrile** (*imido- $\alpha$ -benzoylmethylic cyanide*) (v. MEYER), 1889, A., 577.
- Imidobutyrylpropylic cyanide.** See Imido-octonitrile.
- Imidocarbaminethio-*n*- and iso-butyric anhydrides** (ANDREASCH), 1888, A., 48, 47.
- Imidocarbamine- $\beta$ -thiolactic acid** (ANDREASCH), 1886, A., 226.
- Imidochlorides** and their reactions (JUST), 1886, A., 617.
- Imidodiazoles** (HANTZSCH), 1892, A., 313.
- Imidodibenzamide** (KRAFFT and KARSTENS), 1892, A., 713.
- d*:Imido-2:5-dihydroxyquinone** (NIETZKI), 1884, A., 58.
- d*:Imido-3:6-dihydroxyterephthalic acid** (BÜNINGER), 1888, A., 955.

- di*Imidodimethylaniline *disulphide* (BERNTSEN), 1889, A., 776.
- Imidodimethyluracil (JAEGER), 1891, A., 1007.
- di*Imidodinaphthyllic hydrochloride (JULIUS), 1887, A., 56.
- Imidodinaphthyllic oxide (RIS), 1886, A., 1036.
- Imidodiphosphoric acids, *mono*- and *di*- (MENTE), 1889, A., 210.
- di*Imidodiphosphormonic acid (MENTE), 1889, A., 210.
- Imido-*o*- and *p*-ditolamides (KRAFFT and KARSTENS), 1892, A., 712.
- Imido-ethers and their derivatives (PINNER), 1891, A., 468.
- from acetone cyanhydrin and allylic cyanide (PINNER), 1884, A., 1292.
- from *o*- and *p*-ethoxybenzonitrile (PINNER), 1891, A., 63.
- from trimethylenic cyanide (PINNER), 1891, A., 61.
- of hydroxypropionitrile and phenylhydroxyacetoneitrile (PINNER), 1891, A., 62.
- action of hydroxylamine on (PINNER), 1884, A., 739.
- action of phenylhydrazine on (PINNER), 1884, A., 743, 1323.
- action of secondary amines on (PINNER), 1891, A., 37.
- Imidoethoxytoluene (SCHREIBER), 1891, A., 552.
- Imidoethyl cresyl ether. See Ditolyloxydiethylamine.
- Imido-group, action of nitric acid on the hydrogen of (FRANCHIMONT), 1889, A., 1145.
- reagent for (HINSBERG), 1891, A., 49.
- di*Imidoguaiacol (HERZIG), 1883, A., 464.
- Imidohexylhexonitrile (*imidododeconitrile*) (WACHE), 1889, A., 684.
- Imidole (HANTZSCH), 1892, A., 312.
- Imidomalonamide (CONRAD and BRÜCKNER), 1892, A., 40.
- $\mu$ -Imidomethylenic ethylenic and  $\mu$ -imidomethylenic propylenic *disulphides*, salts of (MIOLATI), 1891, A., 894, 895.
- $\mu$ -Imido-*n*-methylthiazoline (NÄF), 1891, A., 1515.
- Imidomethyluracil and its derivatives (JAEGER), 1891, A., 1007.
- 1':4'-*di*Imido- $\alpha$ -naphthoic acid (EKSTRAND), 1889, A., 152.
- di*Imidonaphthol (KRONFELD), 1884, A., 1037.
- Imido-octonitrile (*imidobutyrylpropylic cyanide*) (WACHE), 1889, A., 684.
- Imidoparaldehyde. See Paralimine.
- Imidophenylbenzoglycocynamidine (GRIESS), 1886, A., 1225.
- Imidophenyluracil (JAEGER), 1891, A., 1007.
- Imidopimelimide (MARCKWALD), 1888, A., 678.
- Imidopropylbenzoylethyllic cyanide (BURNS), 1891, A., 889.
- $\alpha$ -Imidopropylethyllic cyanide (*imido-hexonitrile*) (v. MEYER), 1889, A., 114.
- di*Imidosorecinol (TYPKE), 1883, A., 918.
- Imidosuccinodiamide (HELLAND POLIAKOFF), 1892, A., 820.
- Imidosulphonamide (DIVERS and HAGA), 1892, T., 952.
- Imidosulphonates (DIVERS and HAGA), 1892, T., 943; P., 147.
- Imidosulphonic acid (DIVERS and HAGA), 1892, T., 945; (KRAFFT and BOURGEOIS), 1892, A., 700.
- Imidosulphurylamide (MENTE), 1889, A., 211.
- Imidothiocarbamates (BERTRAM), 1890, A., 1291; 1892, A., 465.
- Imidothiodiphenylimide and its salts (BERNTSEN), 1885, A., 259.
- Imines (LADENBURG), 1883, A., 910; 1886, A., 139.
- Imperatorine (*peucedanine*) reactions of (BROCINER), 1890, A., 310.
- Imperialine and its derivatives (FRAGNER), 1889, A., 284; (JASSOY), 1890, A., 1154.
- Imphy-sugar, manufacture of, in the United States (BÜCKMANN), 1883, A., 633.
- Implements, bronze, used by the miners of Peru (BOUSSINGAULT), 1883, A., 691.
- Inactose (MAUMENÉ), 1888, A., 668.
- Inanition, amount of hemoglobin in the blood during (GROLL and HERMANN), 1889, A., 531.
- bile during (LUKJANOW), 1892, A., 225.
- formation of glyconic acid in (THIERFELDER), 1886, A., 572; (NEBELTHAU), 1891, A., 1529.
- Incandescence by ultra-red rays (LOMBEL), 1886, A., 5.
- flameless, produced by coal gas (PARMENTIER), 1892, A., 768.
- Incandescent lamps, Swan's, spectrum of (LIVING and DEWAR), 1883, A., 1.
- relation between electric energy and radiation in the spectrum of (ABNEY and FESTING), 1885, A., 325.
- radiation and energy of (ABNEY and FESTING), 1884, A., 249.
- electrometric measurement of, energy radiated from (GARBE), 1884, A., 881.
- See also Electric lamps under Electrochemistry.

**Incandescent substances**, law of emanation of light from (MOLLER), 1885, A., 623.

**Inclusions** in sapphire, ruby, and spinel (PRINZ), 1883, A., 1062.

**Indamines** (NIETZKI and OTTO), 1888, A., 949.

**Indazine** (*indazole*) (FISCHER and KUZEL), 1884, A., 441; (FISCHER and HEPP), 1891, A., 1047.  
derivatives of (FISCHER and TAFEL), 1885, A., 540; (STRASSMANN), 1890, A., 781; (WITT, NÖLTING and GRANDMOUGIN), 1891, A., 312; (PAAL), 1892, A., 67.  
synthesis of (PAAL), 1891, A., 723.

**Indazine**, amido- and nitro- (WITT, NÖLTING and GRANDMOUGIN), 1891, A., 312.

**isoIndazine derivatives**, synthesis of (AUWERS and v. MEYENBURG), 1891, A., 1375.

**Indazineacetic acid** and its derivatives (FISCHER and TAFEL), 1885, A., 542.

**Indazinecarboxylic acid**, brom- (FISCHER and TAFEL), 1885, A., 542.

**Indene** (*indonaphthene*) (KRAEMER and SPILKER), 1891, A., 205.  
ketone (ZINCKE), 1887, A., 728.  
derivatives of (ROSER), 1888, A., 1303.  
conversion of  $\beta$ -naphthaquinone into (ZINCKE), 1887, A., 728.  
formation of, from dibrom- $\alpha$ -naphthol (MELDOLA and HUGHES), 1890, T., 393; P., 57.  
synthesis of (ROSER), 1887, A., 729, 836; (v. MILLER and ROHDE), 1889, A., 984; 1890, A., 1138.  
conversion of, into substituted acetophenonecarboxylic acids (ZINCKE and GERLAND), 1888, A., 1192.

**Indene**, dichlor- (HAUSMANN), 1889, A., 1173.  
hydroxybromide (KRAEMER and SPILKER), 1891, A., 206.

**Indian hemp** (*Cannabis indica*), alkaloid in (HAY), 1883, A., 1155.

**Indian wheat** (BALLAND), 1884, A., 355.

**Indian wood**, analyses of (CRIPER), 1883, A., 107.

**Indian yellow** (*purree, pihuri*) (SPIEGEL), 1883, A., 219; (ANON.), 1885, A., 620; (KÜLZ), 1887, A., 498; (GRAEBE), 1890, A., 504.

**India-rubber**. See Caoutchouc.

**Indican**, modification of Jaffé's test for (OBERMAYER), 1891, A., 248.  
spectroscopic detection of (MAC MUNN), 1884, A., 198.

**Indican** and its homologues, detection and estimation of, in urine (MICHAÏLOFF), 1888, A., 880.

**Indicator** for weak acids (ENGEL), 1886, A., 486.  
showing the neutral point in alkalimetry and acidimetry (GAWALOWSKI), 1884, A., 363.  
gallein as an (DECHAN), 1885, A., 1012.  
iodic acid as an (FURRY), 1885, A., 592.

**Indicators** (GAWALOWSKI), 1884, A., 1215; (THOMSON), 1885, A., 1157; (FISCHER and PHILIPP), 1885, A., 1159; (LUNGE), 1886, A., 278.  
alkalimetric (WIELAND), 1883, A., 1167.  
different, use of, in acidimetry (BERTHELOT), 1885, A., 473.  
for the estimation of hydroxides in presence of carbonates (ENGEL and VILLE), 1885, A., 931.  
litmus, rosolic acid, methyl-orange, phenacetolin and phenolphthalein as (THOMSON), 1883, A., 682, 824, 827; 1884, A., 691, 869.

**Indicolite**, so called, from Harlem (RIGGS), 1888, A., 351.

**Indigo**, fixing, on cotton (SCHLIEPER and BAUM), 1884, A., 136.  
method for effecting discharges on fibre dyed with (FRANC), 1886, A., 291.  
reducing vat for (COLLIN and BENJOIST), 1885, A., 1096.  
assay of (WOLFF), 1884, A., 507; (LEE), 1884, A., 1438; (HAU), 1885, A., 934; (RAWSON), 1885, A., 697, 1015; 1888, A., 761; (HUNIG), 1890, A., 311; (VOELLER), 1891, A., 1564.  
estimation of indigotin in (OWEN), 1891, A., 1404.

**Indigo-blue**. See Indigotin.

**Indigocarmine** (*indigotinidissulphonic acid*), synthesis of (HEYMANN), 1891, A., 1069; 1892, A., 69; (KNIETZCH), 1891, A., 1231.

**Indigodicarboxylic acid**, and its salts (Low), 1885, A., 799.

**Indigo-dyes** on fabrics, testing (LENZ), 1887, A., 1147.

**Indigo-fermentation**, microbe of (ALVAREZ), 1887, A., 1061.

**Indigo-forming substances** in the urine, knowledge of (HOPPE-SEYLER), 1884, A., 1058.

**Indigo-green** (SOXHLET), 1892, A., 991.

**Indigo-group**, compounds of the (v. BAeyer), 1884, A., 73.

- Indigo-red** (*indirubin*) (V. BAEYER), 1884, A., 76; (FORRER), 1884, A., 1028.  
 extraction of, from urine (MÉHU), 1884, A., 1059; (ROSIN), 1891, A., 850.  
 occurrence and detection of, in urine (ROSENBAACH), 1890, A., 1032.  
 derivatives of (FORRER), 1884, A., 1028.
- Indigo-stem**, ash of (WHITE), 1889, A., 794.
- Indigotin** (*indigo-blue*), extraction of, from commercial indigo (MORGAN), 1891, A., 722.  
 extraction of, from urine (MÉHU), 1884, A., 1059.  
 preparation of, from *o*-amidoacetophenone (V. BAEYER and BLOEM), 1884, A., 1026.  
 preparation of, from the *o*-amido-derivatives of acetophenone and phenylacetylene (ANON.), 1884, A., 287.  
 preparation of, from *o*-nitrobenzaldehyde (V. BAEYER and DREWSSEN), 1883, A., 341.  
 preparation of, from *o*-nitrophenylpropionic acid by means of potassium cyanide (MICHAEL), 1887, A., 672.  
 synthesis of (MULLER), 1885, A., 850; (HEUMANN), 1891, A., 311.  
 synthesis of, from bromacetanilide (FLIMM), 1890, A., 383.  
 synthesis of, from anilidoacetic acid (HEUMANN), 1891, A., 75, 206, 456; (LEDERER), 1891, A., 75, 311, 928; (BIEDERMANN and LEPETIT), 1891, A., 206.  
 Baeyer's artificial, application of (SCHMID), 1883, A., 257.  
 bleaching of, by electrochemical means (GOPPELSROEDER), 1885, A., 108.  
 decolourising action of ferric salts on (MARGARY), 1884, A., 457.  
 fixation of alumina as a discharge on (SCHEUBER), 1885, A., 1276.  
 goods printed with artificial (COSTOBADIE), 1885, A., 1023.  
 products from (O'NEILL), 1892, A., 991.  
 estimation of (MANNLEY), 1887, A., 1147.  
 estimation of, for commercial purposes (OWEN), 1890, A., 96.  
 estimation of, in dyed fabrics (RENARD), 1890, A., 931.  
 estimation of, in indigo (OWEN), 1891, A., 1404.
- Indigotin** (*indigo-blue*), estimation of, in textile fabrics (RENARD), 1887, A., 871.
- Indigotin brom-** (V. BAEYER and BLOEM), 1884, A., 1027.  
 chlor- (GNEHM), 1884, A., 1028.  
 tetrachlor-, preparation of (GNEHM), 1884, A., 1028; (ANON.), 1886, A., 112.
- Indigotindisulphonic acid** (*indigocarminic*), synthesis of (HEYMANN), 1891, A., 1069; 1892, A., 69; (KNIETSCH), 1891, A., 1231.
- Indigo-vats**, application of electrolysis in preparing (GOPPELSROEDER), 1884, A., 942, 1448.
- Indigo-white** (*leucindigo*), conversion of, into indigotin (GOPPELSROEDER), 1884, A., 1449.
- Indileucin**, and its derivatives (FORRER), 1884, A., 1029.
- iso*Indileucin and its derivatives (ENGLER and HASSENKAMP), 1885, A., 1223.
- Indirubin**. See Indigo-red.
- Indium** as a halogen carrier (WILLGERODT), 1887, A., 326.  
 effect of, on the freezing-point of tin (HEYCOCK and NEVILLE), 1890, T., 385.
- Indium, mono-, di- and tri-chlorides** and their vapour densities (NILSON and PETTERSSON), 1888, T., 820, 818, 816.  
 hydrosulphide (LINDER and PICTON), 1892, T., 134.  
 hydroxide, dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 74, 88.  
 oxide, action of magnesium on (WINKLER), 1890, A., 694.  
 sulphide, colloidal state of (WINSINGER), 1888, A., 912.
- Indoaniline** (MOHLAU), 1886, A., 146.
- Indoanils** (MOHLAU), 1884, A., 59.
- Indogen and indogenides** (V. BAEYER), 1884, A., 78.
- Indole** (*skatole*) (KOLBE), 1883, A., 1130; (LIPP), 1884, A., 1030.  
 preparation of (E. and H. SALKOWSKI), 1885, A., 567; (CIAMIGIAN and ZATTI), 1889, A., 1137.  
 preparation of, and transformation of scatole into (FILETTI), 1884, A., 458.  
 preparation of, from dichlorether and aniline (BERLINERBLAU), 1887, A., 836.  
 intermediate products in the formation of, from dichlorether and aromatic amines (BERLINERBLAU and POLIKIER), 1887, A., 813.

- Indole** (*k'tole*), preparation of, from anilidoacetic acid (MAUTHNER and SUDA), 1889, A., 1068.  
 obtained by fusing strychnine with caustic potash (GOLDSCHMIDT), 1883, A., 99.  
 preparation of, from *o*-toluidine derivatives (MAUTHNER and SUDA), 1886, A., 886.  
 synthesis of, from cumaldehyde (WIDMAN), 1883, A., 329.  
 synthesis of, from tartaric acid and aniline (POLIKIER), 1892, A., 66.  
 constitution of (BAMBERGER), 1891, A., 1090.  
 actions of (CIAMICIAN and ZATTI), 1889, A., 1187.  
 action of methyle iodide on (ZATTI and FERRATINI), 1890, A., 1292.  
 methylation of (FISCHER and STECHE), 1887, A., 976.  
 conversion of the homologues of, into quinoline derivatives (MAGNANINI), 1887, A., 1113; 1890, A., 1322.
- Indole derivatives** (HEGEL), 1886, A., 551; (PFULF), 1887, A., 956; (TRENKLER, WOLFF), 1889, A., 259; (CIAMICIAN and ZATTI), 1889, A., 1187; (INCE), 1890, A., 57; (ZATTI and FERRATINI), 1890, A., 988, 1292.  
 from *m*-hydrazinebenzoic acid (RODER), 1887, A., 149.  
 from methylphenylhydrazine (DEGEN), 1887, A., 149.  
 from  $\alpha$ -naphthylhydrazine (SCHLIEFER), 1887, A., 968.  
 from  $\beta$ -naphthylhydrazine (SCHLIEFER), 1887, A., 153.  
 from phenylhydrazine (FISCHER), 1887, A., 149.  
 from tolylhydrazine (RACHEN), 1887, A., 956.  
 conversion of pyrroline derivatives into (DENNSTEDT), 1889, A., 400.  
 formation of (BISCHLER), 1892, A., 1465.  
 synthesis of (FISCHER and HES), 1884, A., 1180; (FISCHER), 1886, A., 805; 1887, A., 148.  
 constitution of (FISCHER), 1887, A., 148.  
 reaction of (CIAMICIAN and ZATTI), 1889, A., 1187.  
 methylation of (LIPP), 1885, A., 167; (FISCHER and STECHE), 1887, A., 588; (FISCHER and MEYER), 1890, A., 1421.  
 conversion of, into hydroquinolines (FISCHER and STECHE), 1888, A., 298.
- Indole derivatives, nitro-derivatives of** (ZATTI), 1890, A., 897.  
**Indole, nitroso-** (ZATTI and FERRATINI), 1890, A., 1293.  
 molecular weight of (ZATTI and FERRATINI), 1892, A., 67.  
*isoIndole* (3:6-diphenylpyrazine; *amphiphenacylnitrile*) (FRIEDLANDER and MAHLV), 1883, A., 918; (MOHLAT), 1885, A., 560.  
 molecular weight of (TREADWELL and MEYER), 1883, A., 665.  
**3'-Indoleacetoxime** (ZATTI), 1889, A., 712.  
**2'-Indolecarboxylic acid** (FISCHER), 1886, A., 806; (CIAMICIAN and MAGNANINI), 1888, A., 483; (CIAMICIAN and ZATTI), 1888, A., 957.  
 action of acetic anhydride on (ZATTI), 1889, A., 712.  
**3'-Indolecarboxylic acid** (CIAMICIAN and MAGNANINI), 1888, A., 483; (CIAMICIAN and ZATTI), 1888, A., 957.  
 synthesis of (ZATTI and FERRATINI), 1890, A., 1293.
- Indonaphthene.** See Indene.  
 **$\alpha$ -Indone,  $\gamma$ -brom-,** preparation of (MELDOLA and HUGHES), 1890, T., 396.  
 action of aniline on (MELDOLA and HUGHES), 1890, T., 398.  
 **$\beta\gamma$ -dibrom-, derivatives of** (ROSER and HASELHOFF), 1888, A., 1304.
- Indophenine, formation of** (MEYER), 1888, A., 1091; (GUMPERT), 1886, A., 348.
- Indophenol ( *$\alpha$ -naphthol-blue*)** (PARST), 1883, A., 69; (KOECHLIN), 1883, A., 695; (MÖHLAU), 1886, A., 146.  
 preparation of (ANON.), 1883, A., 759; (MÖHLAU), 1884, A., 594.
- Indophenols** (WITT), 1884, A., 743; (NIETZKI and OTTO), 1888, A., 949.  
 and indophenol-like dyes (MÖHLAT), 1884, A., 593.
- Indothymol** (BAYRAC), 1892, A., 1311.
- Indoxazene** (CATHCART and MEYER), 1892, A., 993.
- Indoxyl, action of aldehydes and ketonic acids on** (v. BAEYER), 1884, A., 75.  
 action of isatin and ethyl- $\psi$ -isatin on (v. BAEYER), 1884, A., 76.  
 and indoxyl-compounds, action of nitrous acid on (v. BAEYER), 1884, A., 74.  
 nitrosamine of (v. BAEYER), 1884, A., 74.

- Indoxyl**, nitroso- (v. BAER), 1883, A., 1131.
- ψ-Indoxyl** and oxime of (v. BAER), 1884, A., 73, 74.
- Induction machine**, simplest form of (ELSTER and GEITEL), 1885, A., 1098.
- influence of the chemical nature and the pressure of gases on the generation of electricity by an (HEMPER), 1884, A., 701; 1885, A., 1098.
- machines, variation of (LOMMEL), 1885, A., 1098.
- spark. See Electrochemistry.
- Induline** from fluorindine (FISCHER and HEPP), 1890, A., 1445.
- constitution of (KEHRMANN), 1890, A., 1265.
- Indulines** (WITT and THOMAS), 1883, T., 112; (ULLRICH), 1886, A., 187; (WITT), 1887, A., 821; (FISCHER and HEPP), 1887, A., 1105; 1888, A., 1291; 1890, A., 764, 908; 1891, A., 1044; 1892, A., 341; (ISTEL), 1892, A., 492.
- formation of (WITT), 1884, A., 743; (FISCHER and HEPP), 1892, A., 1476.
- process for the production of, on the large scale (WITT and THOMAS), 1883, T., 113.
- relations between euhodines, safra-nines and (KEHRMANN and MES-SINGER), 1891, A., 1213.
- Inertia**, moments of, establishment of fundamental formulæ for the calcula-tion of (HINRICHS), 1892, A., 948.
- Inesite** (*rhodotilite*) from Dillenburg (SCHNEIDER), 1888, A., 1261; 1890, A., 345, 460.
- from Sweden (FLINK), 1890, A., 459.
- Infection**, substances which favour (ROGER), 1891, A., 100.
- Infra-red spectra**. See Photochemistry.
- Infusoriæ**, ciliated, glycogen in (MAR-PAS), 1886, A., 383.
- Infusorial earth** from Richmond, Vir-ginia (CABELL), 1885, A., 228.
- Ink**, etching, manufacture of (ANON.), 1884, A., 880.
- printing, process for preparing (ANON.), 1883, A., 896.
- writing, action of bleaching agents on (IRVINE), 1888, A., 764.
- Inoculation** against splenic fever with Pasteur's protective lymph (RO-LOFF), 1884, A., 914.
- Pasteur's protective, and cattle plague (Koch), 1884, A., 96; (MULLER), 1884, A., 473.
- Inorganic acids**. See Acids.
- Inorganic compounds**, melting points of certain (CARNELLEY and O'SHEA), 1884, T., 409.
- experiments on the diffusion of some organic and (SCHEFFER), 1883, A., 1047.
- free from hydrogen, action of carbon tetrachloride on (QUANTIN), 1888, A., 785.
- Inorganic salts**. See Salts.
- Inosite**. See Carbohydrates.
- Inosites**, heat of transformation of isomeric (BERTHELOT), 1890, A., 1041.
- Insecticide**, naphthalene as an (FISCHER), 1885, A., 454.
- Insects**, uric acid in (MACMUNN), 1886, A., 1056.
- Insensibility** arising from a deficiency of oxygen in the air (WALLACE), 1883, A., 819.
- Insolinic acid** (MELLINGHOFF), 1890, A., 240.
- Insulating liquids**, dielectric constants of (QUINCKE), 1883, A., 915.
- Insulator**, benzene as an (HERTZ), 1884, A., 244.
- Insulators**, electrical resistance of (FOUSSEREAU), 1884, A., 245.
- Integral weights** in chemistry (HUNT), 1887, A., 1077.
- Intellectual activity**, influence of, on the elimination of phosphoric acid by the urine (MAIRET), 1884, A., 1394.
- Intercellular matter** (MANGIN), 1890, A., 656.
- Intestinal gases**, comparative investi-gations of (TAPPEINER), 1883, A., 928.
- human, methyl mercaptan in (NENCKI), 1890, A., 540.
- Intestine**, absorption of fat in the (GRUENHAGEN and KROHN), 1890, A., 183.
- absorption of sugar from the small (GINSBERG), 1890, A., 276.
- nitrogenous constituents of the con-tents of the, which arise from the body (HOFMEISTER), 1888, A., 861.
- action of opium and morphine on (SPITZER), 1891, A., 852.
- dehydration of glucose in (CHIT-TENDEN), 1888, A., 79.
- digestion of various foods in (MAL-FATTI), 1886, A., 379.
- function of animal gum in (LAND-WEHR), 1888, A., 176.
- putrefaction in (BAUMANN), 1886, A., 384.
- Intravascular clotting** (WOOLDRIDGE), 1886, A., 821; (KRUGER), 1888, A., 305; (WRIGHT), 1891, A., 953.

- Inulin.** See Carbohydrates.
- Inuloid** (HONIG and SCHUBERT), 1888, A., 247.
- Inversion** by invertase, theory of (O'SULLIVAN and TOMPSON), 1890, T., 918.
- of cane sugar by acids, rate of change in (ARRHENIUS), 1889, A., 1103.
- $\beta$ -Invertan.** See Invertase under Enzymes.
- Invertan** copper compounds (O'SULLIVAN and TOMPSON), 1890, T., 914.
- series (O'SULLIVAN and TOMPSON), 1890, T., 894.
- constitution of (O'SULLIVAN and TOMPSON), 1890, T., 921.
- Invertase.** See Enzymes.
- Invertebrates**, blood of (GRIFFITHS), 1892, A., 648.
- action of nicotine on (GREENWOOD), 1891, A., 485.
- Invertin.** See Invertase under Enzymes.
- Invert-sugar.** See Carbohydrates:
- Iodacetaldehyde** (CHAUTARD), 1886, A., 330, 1006; (BLOXAM and HERBORN), 1886, A., 864, 1006.
- Iodacetamide** (HENRY), 1885, A., 373.
- Iodacetanilides**, *o*-, *m*- and *p*- (KÖRNER and WENDER), 1888, A., 1279, 1280.
- 4-Iod- $\alpha$ -acetonaphthalide** (MELDOLA), 1885, T., 523.
- Iodacetone** (DE CLERMONT and CHAUTARD), 1885, A., 648.
- Iodacetonitrile** (HENRY), 1886, A., 1001.
- p*-Iodacetophenone** (SCHWEITZER), 1891, A., 684, 830.
- Iodacetothienone** (GATTERMANN and RÜMER), 1886, A., 537.
- Iodacetylaerylic acids**, *mono*- and *di*- (ANGELI and CHIUSI), 1892, A., 1179.
- Iodacetylaerylic oxime** (ANGELI and CHIUSI), 1892, A., 1179.
- Iodacetylenes**, *mono*- and *di*- (v. BABYER), 1885, A., 1199.
- di*Iodacrylic acid** (HOMOLKA and STOLZ), 1885, A., 1198; (BRUCK), 1892, A., 431.
- tri*Iodacrylic acid** (HOMOLKA and STOLZ), 1885, A., 1198.
- Iodamidothymol** (KEHRMANN), 1889, A., 993.
- Iodaniline**, *o*-, *m*- and *p*- and 2:4-*di*- (KÖRNER and WENDER), 1888, A., 1279.
- Iodanisic acid** (SCHALL and DRALLE), 1885, A., 146.
- Iodapatite** (DITTE), 1883, A., 784.
- Iodates.** See Iodic acid under Iodine.
- Iodation** in the aromatic series, method of (ISTRATI), 1891, A., 1197.
- p*-Iodazobenzene** (NÖLTING and WERNER), 1891, A., 211.
- di-p*-Iodazobenzene**, colour of (LING), 1892, P., 198.
- tri*Iodethane** (*methyliodoform*) (DE BOINSNIEU), 1888, A., 930.
- Iodethoxycymene** (*iodocymyl ethyl ether*) (WILLGERODT and KORNBLUM), 1889, A., 697.
- $\beta$ -Iodethylamine hydriodide** (GABRIEL), 1888, A., 669.
- di*Iodethylene** (*acetylenic diiodide*), isomeric varieties of (KEISER), 1890, A., 594; (PATERNO and PERATONER), 1890, A., 1219; 1891, A., 654.
- tet*Iodethylene** (HOMOLKA and STOLZ), 1885, A., 1198.
- Iodic acid.** See under Iodine.
- Iodic anhydride.** See Iodine pentoxide.
- Iodine**, occurrence of, in cod-liver oil and other fish oils (STANFORD), 1884, A., 504.
- occurrence of, in *Fucus vesiculosus* and *Chondrus crispus* (VAN ITALLIE), 1890, A., 402.
- occurrence of free, in a mineral water (WANKLYN), 1887, A., 221.
- occurrence of, in phosphorites (v. SANDBERGER), 1887, A., 222.
- origin of, in the gases of volcanoes (RICCIARDI), 1887, A., 643.
- molecular weight of, in solution (LOEB), 1888, T., 805; P., 87; (PATERNO and NASINI), 1888, A., 1027; (BECKMANN; GAUTIER and CHARPY), 1890, A., 447; (HERTZ), 1891, A., 260.
- extraction (ANON.), 1884, A., 1221.
- liberation of, from hydrogen iodide by the action of light in presence of oxygen (RICHARDSON), 1887, T., 805.
- obtaining, in Peru (ANON.), 1885, A., 706.
- recovery of, from organic iodide residues (GLADSTONE and TRIBE), 1883, T., 345.
- purification of, from chlorine (MUSSET), 1891, A., 392.
- affinities of, in solution (GAUTIER and CHARPY), 1891, A., 148.
- absorption spectra of solutions of (RIGOLLOT), 1891, A., 374.
- dispersion equivalent of (GLADSTONE), 1888, A., 339.
- refractive equivalent of (BRÜHL), 1887, A., 193.
- colour of, in solution (GAUTIER and CHARPY), 1890, A., 446; (WIEDEMANN), 1891, A., 139.

**Iodine**, heat of combination of, with magnesium (BEKEIÖFF), 1892, A., 762.  
 boiling and melting points of (RAMSAY and YOUNG), 1886, T., 454.  
 vapour density of (KRAUSE and MEYER), 1890, A., 1365.  
 vapour density of, at a white heat (BILTZ and MEYER), 1889, A., 674.  
 vapour pressures of (RAMSAY and YOUNG), 1886, T., 458; P., 181.  
 vapour, fluorescence of (LOMMEL), 1883, A., 763.  
   dissociation of, by the electric discharge (THOMSON), 1887, A., 1013.  
   prolonged action of the electric discharge on (LUEDEKING), 1890, A., 687.  
 exchange of bromine, chlorine and, between inorganic and organic compounds (BRIX), 1885, A., 34; (KOHNEIN), 1885, A., 35; (WILDERMANN), 1892, A., 574.  
 action of arsenic trisulphide on (SCHNEIDER), 1888, A., 414.  
 action of, on carbon compounds at high temperatures (RAYMAN and PREIS), 1884, A., 1311.  
 action of, on hydrogen arsenide and hydrogen antimonide (BRUNN), 1888, A., 1224.  
 action of, on hydrogen peroxide (BAUMANN), 1892, A., 539.  
 action of, on iron (FLEURY), 1888, A., 654.  
 action of, on potassium chlorate (THORPE and FERRY), 1892, T., 925; P., 161.  
 action of, on potassium chlorate and water (BASCHET), 1890, T., 760; P., 113.  
 action of, on potassium sulphite and thiosulphate (COLDFAX), 1892, T., 1083; P., 155.  
 action of, on sodium hydrogen sulphite (SPRING and BOURGEOIS), 1892, A., 681.  
 fixation of, by starch (ROUVIER), 1892, A., 578.  
 oxidation of, during nitrification (MÜNTZ), 1885, A., 870.  
 solubility of, in chloroform (DUNCAN), 1892, A., 769.  
 solutions, standardising (KALMANN), 1886, A., 579; 1887, A., 618.  
 chlorine compounds of (STORTENBEKER), 1892, A., 1837.  
 combination of, with oxygen, in presence of spongy platinum (WEHSARG), 1885, A., 846.

**Iodine**, compounds of, with ammonia (RASCHIG), 1888, A., 26.  
**Hydriodic acid** (*hydrogen iodide*), preparation of (MEYER), 1888, A., 219; (ETARD), 1889, A., 14; (MERZ and HOLZMANN), 1889, A., 754.  
   preparation of, use of liquid paraffin in the (CRISMER), 1884, A., 1073.  
   magnetic rotatory power of (PERKIN), 1889, T., 708, 739; P., 130.  
   molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 593.  
   action of light on, in presence of oxygen (RICHARDSON), 1887, T., 805.  
   lecture experiments with (AUSTEN), 1889, A., 754.  
   action of, on substances containing sulphur (BENEDIKT and BAMBERGER), 1891, A., 1296.  
   action of, on zinc containing lead (SPRING and VAN AUBEL), 1887, A., 1076.  
   influence of mineral acids on the velocity of action between bromic acid and (MAGNANINI), 1891, A., 144.  
   catalytic influence of acids on the velocity of the action between hydrogen peroxide and (MAGNANINI), 1892, A., 110.  
   influence of, on the solution of zinc in dilute sulphuric acid (PULINGER), 1890, T., 825.  
   oxidation of, by oxy-acids (BURCHARD), 1889, A., 207.  
**Iodides**, specific volumes of normal alcoholic (DOBRINER), 1888, A., 334.  
   some reactions of tertiary alcoholic (BAUER), 1884, A., 167.  
   action of chlorine and bromine on organic (MEYER), 1886, A., 929.  
   action of, on copper salts (CARNEGIE), 1889, P., 2.  
   action of inorganic, on organic chlorides and bromides (SPINDLER), 1886, A., 434.  
   action of pyridine bases on alcoholic (OECHSNER DE CONINCK), 1884, A., 612.  
   decomposition of, by the stomach (KULZ), 1887, A., 508; (OECHSEL), 1889, A., 426.  
   chlorides and bromides of the alkalis, distinction between (VITALI), 1890, A., 289.  
**Periodides** (DAFFERT), 1883, A., 978.

- Iodine oxyacids** (BLOMSTRAND), 1887, A., 327.  
 action of, on hydrogen peroxide (BAUMANN), 1892, A., 539.
- Iodic acid** (LESQUIRE), 1890, A., 106; (BLOMSTRAND), 1890, A., 107; (DITTE), 1892, A., 1388.  
 preparation of (BASSETT), 1890, T., 780.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 592.  
 rate of chemical change between sulphurous acid and (LANDOLT), 1886, A., 658.  
 as an indicator (FURRY), 1885, A., 592.  
 use of, in quantitative analysis (SCHWICKER), 1892, A., 1027.  
 double salts of, with other acids (BLOMSTRAND), 1890, A., 107.  
 systematic method of testing for (LONGI), 1883, A., 1172.  
 testing nitric acid and sodium nitrate for (BECKURTS and ROUGE-MONT), 1886, A., 834.
- Iodates** (DITTE), 1892, A., 1388.  
 precipitation of mixtures of sulphates and, by barium salts (CHRUSTSCHOFF), 1887, A., 884.  
 estimation of, in potassium iodide (GIGLI), 1892, A., 657.
- Periodic acid**, action of sulphurous acid on (SELMONS), 1888, A., 338.
- Periodates** (KIMMINS), 1887, T., 356; P., 22; 1889, T., 143; P., 3.  
 constitution of (KIMMINS), 1889, T., 152.
- Iodine chloride** (RAMSAY and YOUNG), 1886, T., 461.  
 modifications of (STORTENBEKER), 1889, A., 102; 1892, A., 1387.  
 and its action on organic compounds, especially on quinolines and alkaloids (OSTERMAYER), 1885, A., 672.  
*trichloride* (STORTENBEKER), 1889, A., 102; 1892, A., 1388; (TAVEL and TSCHIRCH), 1892, A., 1388.  
 action of hypochlorous anhydride on (BASSETT and FIELDING), 1887, A., 106.  
 chlorides, thermochemical investigation on (THOMSEN), 1883, A., 543.  
*pentoxide (iodic anhydride)* (WEHSARG), 1885, A., 346.  
 combination of, with sulphuric anhydride (WEBER), 1887, A., 323.
- Iodine, detection, estimation and separation:—**  
 detection of (LONGI), 1883, A., 1172; (COOK), 1885, T., 471; P., 19; (DEGHAN), 1886, T., 682; P., 227.  
 detection of, in presence of large quantities of bromine (BRITO), 1885, A., 189.  
 detection of, in presence of chlorine and bromine (JONES), 1884, A., 492; (HART), 1885, A., 295; (DENIGES), 1891, A., 495, 1288; (MACNAIR), 1892, A., 1514.  
 detection of traces of, in presence of much chlorine (JOHNSTON), 1891, A., 242.  
 detection of, in *Laminaria* (FLÜCKIGER), 1887, A., 996.  
 detection of, in organic compounds (MAIRSH), 1889, A., 796.  
 detection of, in urine (SCHWARZ), 1888, A., 626.  
 testing for, in nitric acid and sodium nitrate (BECKURTS and ROUGE-MONT), 1886, A., 834.  
 estimation of (COOK), 1885, T., 471; P., 19; (DEGHAN), 1886, T., 682; P., 227; (WEISS), 1886, A., 97; (McCULLOCH), 1888, A., 526; (STORTENBEKER), 1889, A., 185; 1890, A., 1185; (ERRERA), 1889, A., 304; (REICHARDT and UPMAYER), 1889, A., 1086; (DE KONINCK and NIHOUL), 1892, A., 527; (BAUMANN), 1892, A., 539.  
 estimation of, by Field's method (WILLGERODT), 1886, A., 833.  
 estimation of, in presence of chlorine and bromine (VOLTSMANN), 1883, A., 120; (LYTTE), 1884, A., 649; (TEED), 1885, A., 1261; (LEBEAU), 1890, A., 825.  
 estimation of, in presence of chlorine and bromine by means of ferric sulphate (CAVAZZI), 1884, A., 366.  
 estimation, indirect, of bromine, chlorine and, by electrolysis of their silver salts (WHITFIELD), 1887, A., 525.  
 estimation of, in haloid salts (GOOCH and BROWNING), 1890, A., 1186.  
 estimation of, in organic compounds (ZULKOWSKI), 1885, A., 1162.  
 estimation of, in presence of sulphuretted hydrogen (TORSÖE), 1883, A., 508.  
 estimation of, in urine (BAUMANN), 1884, A., 1423; (HARNACK), 1884, A., 1423; 1885, A., 296; (JOLLES), 1891, A., 1288.

**Iodine, estimation and separation:—**

- estimation, volumetric, of (SALZER), 1887, A., 862.  
 estimation, volumetric, of, in the presence of chlorine and bromine (McCULLOUGH), 1888, A., 626.  
 separation of bromine and (HOLTON), 1886, A., 279.  
 separation of bromine, chlorine and (BARNES), 1883, A., 1167; (SCHIERHOLZ), 1892, A., 1028.  
 separation of bromine, chlorine and, improved form of apparatus for the (DEGHAN), 1887, T., 690.  
 separation of bromine, chlorine, cyanogen and (ERRERA), 1889, A., 304.  
 separation of, from chlorine, in the dry way (KRUTWIG), 1884, A., 1073.

See also Iodometry.

**Iodine-carrier, ferric chloride as an**

- (MEYER), 1886, A., 341.  
 sulphuric acid as an (NEUMANN), 1887, A., 573.

**Iodine-green, description and measurement of the spectrum of (HARTLEY), 1887, T., 174.*****di*Iodobehenic acid (LIEBERMANN and SACHSE), 1892, A., 471.****Iodobenzene. See Benzene.****Iodoisobenzidine hydrochloride (NÜLTING and WERNER), 1891, A., 211.*****p*-Iodobenzoic acid (PAHL), 1884, A., 1009.*****p*-Iodobenzoic sulphinide (DE RODES), 1891, A., 1227.****Iodo- and *p*-*di*iodo-benzophenones (HOFFMANN), 1891, A., 1236.*****di*Iodobenzylamine (BILTZ), 1892, A., 1449.*****o*-Iodobenzylidenemalonie acid (STUART), 1887, P., 118; 1888, T., 142.*****p*-Iodoisobutylbenzene (PAHL), 1884, A., 1009.****2-Iodo-*o*-isobutyltoluene (EFFRONT), 1885, A., 152.** **$\gamma$ -Iodobutyric acid (HENRY), 1886, A., 440.*****di*Iodoisobutyric acid (FISCHER and TAFEL), 1889, A., 478.****Iodocholeic acid (MYLIUS), 1887, A., 606.****Iodochromate (DIETZE), 1892, A., 124.****Iodochromic acid, non-existence of (RAWSON), 1889, A., 678.*****di*Iodocinnamic acid (LIEBERMANN and SACHSE), 1891, A., 1483; 1892, A., 470.****Iodocresol. See Cresol.****3-Iodo-*o*-cresol-5-sulphonic acid (KEHRMANN), 1888, A., 841.*****d*/Iodo-*m*-cresol-*p*-sulphonic acid**

(KEHRMANN), 1889, A., 994.

**Iodocrocein-scarlet (OSTERMAYER), 1885, A., 673.****5-Iodo  $\psi$ -cumene (WALLACH and HEUNLIER), 1888, A., 362.****6-Iodo  $\psi$ -cumene, action of sulphuric acid on (KURZEL), 1889, A., 995.****Iodo- $\psi$ -cumene-6-sulphonic acid (KURZEL), 1889, A., 995.****Iodocymyl, salts of (WILLGERODT and KORNBLUM), 1889, A., 697.****Iodocymyl ethyl ether (*iodoethoxycymene*) (WILLGERODT and KORNBLUM), 1889, A., 697.*****di*Iododeoxybenzoin (CURTIUS and LANG), 1892, A., 451.*****di*Iododiacetylene (v. DAEYER), 1885, A., 1199.*****p*-Iodo-*s*-diphenylhydrazine (NÜLTING and WERNER), 1891, A., 211.*****di*Iodo-*m*-ditolyl (STOLLE), 1888, A., 700.****6-Iodo-1:2:4:5-durene (TÖHL), 1892, A., 967.****Iodoform, preparation of (ANON.), 1885, A., 463; (GUNTHER), 1887, A., 787; (CASTHÉLAZ and BRÜERE), 1890, A., 577.**

manufacture of (SUILLIOT and RAYNAUD), 1889, A., 1055.

cryoscopic behaviour of solutions of, in benzene and chloroform (v. KLOBUKOFF), 1889, A., 821.

molecular reduction of the freezing point of benzene by (PATERNO), 1889, A., 566.

action of light on (DACOMO), 1886, A., 1000.

action of bromine on (LÖSCHER), 1888, A., 436.

action of, on mercuric salts (COTTON), 1888, A., 670.

action of sodium ethoxide on (MULDER), 1889, A., 363.

action of solid potash on a solution of, in acetone (WILLGERODT and MÜLLER), 1885, A., 618.

decomposition of, by silver nitrate (GRESHOFF), 1889, A., 445.

fate of, in the organism (ZELLER), 1884, A., 1062.

iodine in human urine after the external application of (GRÜNDELER), 1885, A., 413.

detection of, in the fluids and organs of the animal body (LUSTGARTEN), 1883, A., 243.

estimation of (GRESHOFF), 1889, A., 445; (RICHMOND), 1892, A., 1528.

***p*-Iodoformanilide (COMSTOCK and KLEEBERG), 1890, A., 1415.**

- Iodoisofornanilide** (COMSTOCK and KLEEBERG), 1890, A., 1414.
- Iodofulminuric acid** (EHRENBERG), 1885, A., 1192.
- Iodofumaric acid** and some of its salts (V. BANDROWSKI), 1883, A., 313.
- Iodohæmin**, formation of, as a method for detecting blood stains (BUFALINI), 1886, A., 184.
- p-Iodohydrindone** (MIERSCH), 1892, A., 1222.
- Iodo-m-hydroxybenzoic acid** (LIMPRICHT), 1891, A., 1037.
- $\alpha$ -Iodo- $\beta$ -hydroxyphenylpropionic acid** (ERLENMEYER and ROSENHEK), 1887, A., 45.
- 3:5-di-Iodo-2-hydroxypyridine** (PFEIFFER), 1887, A., 845.
- Iodole** (*tetridopyrrolin*) (CIAMICIAN and DENNSTEDT), 1883, A., 350; (CIAMICIAN), 1887, A., 597.  
molecular weight of (MAGNANINI), 1890, A., 906.
- 4-Iodomandelic acid** (SCHWEITZER), 1891, A., 831.
- Iodomericuric acid** (NEUMANN), 1889, A., 1050.
- Iodomesitylene** (TÜHL), 1892, A., 967.
- di-Iodomethane**. See Methylenic di-iodide.
- Iodo-p-methoxytoluene** (SCHALL and DRALLE), 1885, A., 146.
- Iodomethylene**, action of, on silver nitrate (MEYER), 1892, A., 575.
- Iodomethylene dichlorides**, *mono*- and *di*- (HÜLAND), 1887, A., 905.
- $\alpha$ -Iodomethylethylhexamethylene** (KIPPING and PERKIN), 1890, T., 23.
- 6:5:2-Iodomethylpropylquinone** and oxime of (KEHRMANN), 1889, A., 993.
- m-Iodomethylquinol** (KEHRMANN), 1889, A., 993.
- Iodo-1-methylquinoline** (LA COSTE), 1885, A., 815.
- Iodomethylquinones**, *mono*- and *di*- (KEHRMANN), 1889, A., 993, 994.
- Iodomethylthiazolecarboxylic acid** (WOHMANN), 1891, A., 226.
- Iodometry** (TOFF), 1837, A., 688, 997; (SALZER), 1892, A., 1514.  
potassium bromide as original standard for (DENIGES), 1891, A., 615.  
See also Iodine estimation.
- Iodonaphthalene**. See Naphthalene.
- 1-Iodonaphthalene-4'-sulphonic acid** (MAUTZELIUS), 1890, A., 168.
- 2-Iodonaphthalenesulphonic acids** (ARMSTRONG and WYNN), 1887, P., 23; 1889, P., 119.
- 1-Iodo- $\beta$ -naphthol** (MELDOLA), 1885, T., 525.
- Iodo- $\beta$ -naphthol** [m.p. 88°] (OSTERMAYER), 1885, A., 672.
- Iodo- $\beta$ -naphthol- and -naphthylamine-sulphonic acids** (OSTERMAYER), 1885, A., 673.
- 4-Iodo-2-nitro- $\alpha$ -acetonaphthalide** (MELDOLA), 1885, T., 523.
- o-di-Iodonitrobenzene** (KÖRNER and (WENDER), 1888, A., 1280.
- Iodo-*i*-nitrobenzenes** [3:1:2] and [4:1:3] (WENDER), 1890, A., 886, 887.
- 2-Iodo-1:3:5-trinitrobenzene** (HEPP), 1883, A., 316.
- Iodonitromethane**, preparation of (RUSSANOFF), 1892, A., 1415.
- Iodonitromethane-azobenzene and -azotoluene** (RUSSANOFF), 1892, A., 1416.
- Iodonitronaphthalenes**, 1:2-, 4:1-, and 2:1- (MELDOLA), 1885, T., 519, 520.
- 4-Iodo-2-nitro- $\alpha$ -naphthol** (MELDOLA), 1885, T., 524.
- p-Iodo-m-nitro-phenetol and -phenol** (HÄHLE), 1891, A., 431.
- Iodonitrothiophen** (KRECH), 1884, A., 1314.
- Iodonitro-m-xylene** (AHRENS), 1892, A., 1437.
- p-Iodo-octylbenzene** (AHRENS), 1887, A., 133.
- Iodo- $\alpha$ -octylthiophen** (v. SCHWELNITZ), 1886, A., 535.
- Iodophenol**. See Phenol.
- 2:6-di-Iodophenol-4-sulphonic acid** (KEHRMANN), 1888, A., 595, 841, 842; (OSTERMAYER), 1888, A., 596.
- Iodophenolsulphonic acids** (KEHRMANN), 1889, A., 993.
- Iodophenylmethylenesulphone** (MICHAEL and PALMER), 1885, A., 536.
- Iodo- $\beta$ -phenylpropionic acids**, *o*-, *m*- and *p*- (HERZBERG), 1885, A., 661, 662.
- Iodoisophthalic acid** and its salts (KLINGEL), 1886, A., 61; (HAMMERICH), 1890, A., 1107.
- Iodopilocarpine ethiodide** (CHASTAING), 1885, A., 1250.
- Iodopropionic acid** (HOMOLKA and STOLZ), 1885, A., 1193; (v. BAeyer), 1885, A., 1199; (STOLZ), 1886, A., 530.
- $\beta$ -Iodopropionamide** (HENRY), 1885, A., 372.
- $\alpha$ -di-Iodopropionamide** (CURTIUS and LANG), 1892, A., 452.
- $\beta$ -Iodopropionic acid**, preparation of (MEYER), 1887, A., 232; 1888, A., 360.  
action of, on ethylic thiocarbamate (LANGLET), 1892, A., 440.

- Iodopropylthiophen** (RUFF), 1887, A., 804.
- 4-Iodopyridine** (HAITINGER and LIEBEN), 1885, A., 966.
- tetr-Iodopyrroline (iodole)** (CIAMICIAN and DENNETT), 1883, A., 350; (CIAMICIAN), 1887, A., 597.  
molecular weight of (MAGNANINI), 1890, A., 906.
- di*-Iodoquinol** (METZELER), 1888, A., 1278.
- 2'-Iodoquinoline and its derivatives** (FRIEDLANDER and WEINBERG), 1885, A., 989.
- 2:6-*di*-Iodoquinone** (KEHRMANN), 1888, A., 841; (METZELER), 1888, A., 1278.
- 3:5-*di*-Iodoquinone** (SEIFERT), 1884, A., 431.
- Iodoquinones** (KEHRMANN), 1889, A., 993, 1184.
- di*-Iodoquinone-chlorimide and -dimethylanilide** (SEIFERT), 1884, A., 431.
- Iodosobenzoic acid** (MEYER and WACHTER), 1892, A., 1460.
- di*-Iodostearolic acid and *tri*-iodostyrene** (LIEBERMANN and SACHSE), 1892, A., 470.
- as-di*-Iodosuccinamide** (CURTIUS and LANG), 1892, A., 453.
- Iodotaronine** (ROSER), 1888, A., 1116.
- Iodotetramethylpiperidine** (FISCHER), 1884, A., 1290.
- α*-Iodothiophen** (MEYER and KREIN), 1884, A., 1131.
- di*-Iodothiophen**, action of ethylic chloro-carbonate and sodium amalgam on (NAHNSEN), 1885, A., 1207.
- Iodothiophenic acid** (GATTERMANN and RÖMER), 1886, A., 537.
- Iodothymol** (WILLGERODT), 1888, A., 910; (WILLGERODT and KORNBLUM), 1889, A., 697.
- di*-Iodothymol** (MESSINGER and VORTMANN), 1889, A., 1151.
- o*-Iodothymol-*p*-sulphonic acid** (KEHRMANN), 1889, A., 993.
- Iodothymoquinone** (KEHRMANN), 1889, A., 1185.
- p*-Iodotoluenedisulphonic acid** (LIMPRICHT), 1885, A., 1233; (RICHTER), 1886, A., 152.
- o*-Iodotoluenesulphonic acid** (MADERY and PALMER), 1885, A., 538.
- p*-Iodotoluenesulphonic acid** (DE ROODE), 1891, A., 1227.
- 4-Iodo-*o*-toluidine-5-sulphonic acid and its derivatives** (LIMPRICHT), 1885, A., 1234; (FORTH), 1886, A., 153.
- di*-Iodo-*p*-tolyllic acetate and benzoate** (SCHALL and DRALLE), 1885, A., 146.
- Iodo-*p*-tolylmethylenesulphone** (ORTO), 1888, A., 482.
- β*-Iodotrimethylethylammonium salts** (SCHMIDT), 1892, A., 808.
- Iodotrimethylpiperidine** (FISCHER), 1884, A., 1291.
- γ*-Iodotrimethylpropylammonium iodide** (PARTHEIL), 1890, A., 357.
- Iodoundecylenic acid** (BRUNNER), 1886, A., 1011.
- Iodoxy-*di*-iodo-benzene and -resorcinol** (MESSINGER and VORTMANN), 1889, A., 1150, 1151.
- 4-Iodo-*m*-xylene**, action of sulphuric acid on (HAMMERICH), 1890, A., 1106.
- di*-Iodo-*m*-xylene** (HAMMERICH), 1890, A., 1107.
- di*-Iodo-*o*-xylene** (LESER), 1884, A., 1314.
- 4-Iodo-*m*-xylenesulphonic acid** (BAUCH), 1891, A., 73.
- Iolite**. See Cordierite.
- Ions**, colour of the (OSWALD), 1892, A., 1137.  
theory of dissociation into, and its consequences (PICKERING), 1890, P., 171; 1891, A., 972.  
transfer of, in fused and solid silver iodide (LEHMANN), 1890, A., 317.  
See also Electrochemistry.
- Ipecacuanha**, estimation of (RANSOM), 1887, A., 1147; (LYONS), 1889, A., 803.  
root, dextrose from (MERCK), 1891, A., 1133.  
wine, assay of emetine in (BLUNT), 1890, A., 310, 548.
- Ipomic acid**. See Sebacic acid.
- Ipomœic acid** (POLECK and SAMELSON), 1885, A., 670.
- Iridioammonium compounds** (PALMAER), 1889, A., 352; 1891, A., 402, 1165.
- Iridium**, atomic weight of (JULY), 1890, A., 1067; (SEUBERT), 1891, A., 885.  
for pen-points (CLARKE and JOSLIN), 1884, A., 400.  
removal of platinum from (ANTONY), 1892, A., 1285.  
fusion, casting, dephosphorising and plating of (PERRY), 1885, A., 462.  
actions of (LECOQ DE BOISBATDRAN), 1883, A., 905.  
alloy of, with tin (DEBRAY), 1887, A., 779.  
compounds of (VINCENT), 1885, A., 356.
- Iridium phosphorus bromides** (GEISEN-HEIMER), 1890, A., 1333.

**Iridium** chloride, molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
 chlorides (JOLY), 1890, A., 1068.  
 phosphochlorides (GEISENHEIMER), 1890, A., 1068.  
 combination of, with arsenic chloride (GEISENHEIMER), 1890, A., 1069.  
 dioxide (GEISENHEIMER), 1890, A., 948.  
 phosphide (CLARKE and JOSLIN), 1884, A., 400.  
 sulphate, violet (LECOQ DE BOISBAUDRAN), 1883, A., 1057.  
 potassium sulphate (LECOQ DE BOISBAUDRAN), 1883, A., 905.  
**Iridium**, analysis of, fused (CLARKE and JOSLIN), 1884, A., 400.  
 detection of (LECOQ DE BOISBAUDRAN), 1883, A., 907.  
**Iridosmine**, artificial production of (DEBRAY), 1883, A., 298.  
**"Irisin"** (WALLACH), 1887, A., 26; 1888, A., 438.  
 molecular weight of (EKSTRAND and MAUZELIUS), 1890, A., 227.  
**Iron**, native, of terrestrial origin, from Berezowsk (DAUBRÉE and MEUNIER), 1891, A., 1434.  
 from Cañon Diablo (MALLARD; DAUBRÉE), 1892, A., 947.  
 from Greenland, analyses of (LORENZEN), 1885, A., 639.  
 occurrence of, in Mexico (ANON.), 1884, A., 1101.  
 accompanying native gold in Montgomery Co., Virginia, and in Burke Co., N. Carolina (PAGE), 1883, A., 29.  
 containing nickel from Sanarka, in the Ural mountains (GREWINGK), 1884, A., 401.  
 presence of, in bone-black (TERNE), 1892, A., 1053.  
 meteoric. See Meteoric iron and Meteorites.  
 pyrophoric (BIRNIE), 1885, A., 752.  
 molecular changes in (LE CHATELIER), 1891, A., 1308.  
 passive state of (SAINT-EDME), 1888, A., 788; (ANDREWS), 1891, A., 250; (GAUTIER and CHARPY), 1891, A., 1427.  
 properties of, influence of foreign substances on the (OSMOND), 1890, A., 566, 567.  
 properties of, influence of phosphorus on (SCHNEIDER), 1888, A., 421.  
 properties of, influence of silicon on the (TURNER), 1886, P., 266; 1887, T., 129; 1888, T., 844.

**Iron**, relation of, to cobalt as indicated by absorption spectra (RUSSELL and ORSMAN), 1889, P., 14.  
 refraction and dispersion of (DU BOIS and RUBENS), 1891, A., 373.  
 anomalous rotatory dispersion in (LOBACH), 1890, A., 673.  
 electrical resistance of, at high temperatures (LE CHATELIER), 1890, A., 549.  
 electrochemical effects of magnetising (ANDREWS), 1889, A., 92; 1890, A., 678.  
 recalescence of (TOMLINSON), 1888, A., 546.  
 specific heat of (NACCARI), 1888, A., 1236.  
 white, decomposition of, by heat (FOURQUIGNON), 1881, A., 1444.  
 so-called burning of (LEDEBUR), 1884, A., 935.  
 volatilisation of, in presence of carbonic oxide (GARNIER), 1891, 1429.  
 process for producing a bronze-coloured surface on (MAYER), 1884, A., 127.  
 producing a coating of ferrosferriic oxide on (HONGMANN), 1885, A., 1271.  
 production of galvanic deposits on (ANON.), 1885, A., 940.  
 galvanising and nickeling of, in Cleveland, Ohio (ANON.), 1883, A., 404.  
 welding of (BOEHME), 1884, A., 786.  
 chemical behaviour of, in the magnetic field (NICHOLS), 1886, A., 668.  
 action of various substances on (ANON.), 1884, A., 518.  
 action of ammonia on, at a red heat (WARREN), 1887, A., 702.  
 action of carbon monoxide on (GUNTZ), 1892, A., 568.  
 action of chlorine and of bromine on (GAUTIER and CHARPY), 1892, A., 118.  
 action of ferric sulphate on (MENKE), 1887, A., 703.  
 action of hydrogen chloride on (ISAMBERT), 1886, A., 425.  
 action of iodine on (FLEURY), 1888, A., 654.  
 action of nitric acid on (GAUTIER and CHARPY), 1891, A., 1426; (MONTMARTINI), 1892, A., 1278.  
 action of nitric oxide on (BAYLEY), 1888, A., 388; (SABATIER and SENDERENS), 1892, A., 1152.

**Iron**, action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 660.  
 action of water in the slow oxidation of (TRAUBE), 1885, A., 1105.  
 action of water-gas on (ROSCOE and SCUDDER), 1891, P., 126.  
 addition of iron silicide to specially pure (TURNER), 1887, T., 134.  
 behaviour of the different modifications of carbon towards, at an elevated temperature (HEMPFEL), 1885, A., 725.  
 carburisation of, by the diamond (OSMOND), 1891, A., 807.  
 dephosphorisation of (HILGENSTOCK), 1884, A., 520.  
 dissemination of sulphur and phosphorus through masses of (WARREN), 1889, A., 13.  
 precipitation of copper by (ESSENER), 1892, A., 276.  
 solution of, in aqueous soda (ZIRNITZ), 1889, A., 105.  
 solution of, in acids, volume and carbon contents of the gas evolved during (BACKSTRÖM and PAJUKUL), 1888, A., 420.  
 occlusion of hydrogen by (THOMA), 1889, A., 568; (NEUMANN and STREINTZ), 1892, A., 567.  
 distribution and condition of, in barley (PETIT), 1892, A., 1509.  
 in plant nutrition, substitution of manganese for (SPAMPANI), 1891, A., 1394.  
 macro- and micro-chemical reactions of (v. ZALESKI), 1890, A., 296.  
 physiological action of (SKVORTZOW), 1888, A., 1325.  
 assimilation of, in the animal organism (BUNGE), 1885, A., 574.  
 in what form is it absorbed? (SOCIN), 1891, A., 478.  
 deposits of, in the tissues (DELÉPINE), 1891, A., 1274.  
 excretion of, from the organism (v. ZALESKI), 1888, A., 977; (GOTTLIEB), 1891, A., 1128.  
 in the liver and spleen (KRÜGER, MEYER and PERROT), 1891, A., 818.  
 normal storage of, in the liver (DELÉPINE), 1890, A., 1177.  
 presence of, in the liver (v. ZALESKI), 1886, A., 1054; (BUNGE), 1892, A., 1503.  
 combination of carbon with, under pressure (HEMPFEL), 1883, A., 557.

**Iron**, volatile compounds of, with carbonic oxide (MOND and QUINCKE), 1891, T., 604; P., 117; (MOND and LANGER), 1891, T., 1090; P., 149; (BERTHELOT), 1891, A., 1427.  
**Iron alloys**, electrical resistance of, at high temperatures (LE CHATELIER), 1890, A., 549.  
 with copper and platinum (MAUMENÉ), 1887, A., 778.  
 with aluminium, cobalt, manganese and nickel. See Ferro-  
**Iron salts**, preparation of, utilisation of burnt pyrites in (A. and P. BUISINE), 1892, A., 1281.  
 effect of temperature on the magnetism of (PLESSNER), 1890, A., 678.  
 action of alkaline polysulphides on (DE KONINCK and LEDENT), 1892, A., 537.  
 as carriers of bromine (MEYER), 1885, A., 1182; (SCHEUFELLEN), 1885, A., 1182; 1886, A., 340.  
**Iron antimonates** (BEILSTEIN and v. BLÄSE), 1889, A., 1124.  
 potassium fluoride (CHRISTENSEN), 1887, A., 448.  
 nitride (WARREN), 1887, A., 702.  
 phosphate, from Belgium (CESARO), 1885, A., 878.  
 sulphates, native, from Chili (MACKINTOSH), 1890, A., 454; (DARAPSKY), 1890, A., 456; (GENTH and PENFIELD), 1891, A., 274.  
 ammonium sulphates (LACHAUD and LÉPIERRE), 1892, A., 943.  
 copper ammonium sulphate (ROY), 1887, P., 53.  
 magnesium sulphate, native (BLÄSE), 1884, A., 269.  
 sulphide (GAUTIER and HALLOPEAU), 1889, A., 677.  
 nickel sulphide (HUNT), 1888, A., 1254; (MACKINTOSH), 1889, A., 214.  
 potassium sulphide, action of cuprous chloride on (SCHNEIDER), 1889, A., 354.  
 sodium sulphide (BRUNNER), 1890, A., 215.  
 telluride (HILLEBRAND), 1887, A., 341.  
 titanate. See Ilmenite.  
**Ferrie salts**, action of finely divided metals on (CARNEGIE), 1888, T., 463; P., 48.  
 action between thiocyanates and (MAGNANINI), 1891, A., 1150.  
 reduction of (AUSTEN and HURFF), 1883, A., 512.

**Ferric salts**, solutions of, action of iron on (ESSNER), 1892, A., 276.  
 solutions of, reduction of, by means of amalgamated zinc and platinum foil (BEEBE), 1886, A., 386.  
 behaviour of, as mordants (LIECHTI and SUIDA), 1884, A., 796.  
 behaviour of, as mordants, with silk (LIECHTI and SUIDA), 1885, A., 315.  
 rapid method for the titration of (CARNEGIE), 1888, T., 468; P., 48.  
**Ferric antimonate** (EBEL), 1890, A., 216.  
 potassium and sodium arsenates (LEFÈVRE), 1890, A., 1378.  
 pyroarsenate (LEFÈVRE), 1890, A., 1378.  
 bromide, reduction of, by boiling (DE KONINCK), 1890, A., 111.  
 chloride, absorption spectrum of (RUSSELL and ORSMAN), 1889, P., 14.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
 electrolytic conductivity of (HAMPE), 1888, A., 890.  
 as an exciting agent for voltaic batteries (WARREN), 1887, A., 413.  
 vapour density of (FRIEDEL and CRAFTS), 1888, A., 1251.  
 vapour density of, at various temperatures (GRÜNEWALD and MEYER), 1888, A., 422.  
 reduction of, by light (LEMOINE), 1891, A., 965.  
 action of, on potassium iodide (CARNEGIE), 1889, A., 1113.  
 action of barium peroxide on (KWASNICK), 1892, A., 408.  
 action of potassium nitrite on (PESCI), 1888, A., 1252.  
 action of, on metallic sulphides (CAMMERER), 1892, A., 18, 278.  
 action of, on lead sulphide (GABBA), 1889, A., 947.  
 decomposition of, by water (FOUSSEREAU), 1886, A., 844.  
 as a carrier of iodine (MEYER), 1886, A., 341.  
 use of, in sugar factories (BERGREEN and LICHT), 1884, A., 939.  
 compounds of, with nitric oxide and nitric peroxide (BESSON), 1889, A., 884.

**Ferric chloride**, double salts of, with other metallic chlorides (NEUMANN), 1886, A., 124; 1888, A., 655.  
 hydrochlorides of (ENGEL; SABATIER), 1887, A., 894.  
 oxychlorides, crystallised (ROUSSEAU), 1890, A., 1063; 1892, A., 119.  
 ethoxide. See Ethoxide, ferric.  
 hydroxide (*ferric hydrate*) colloidal (GRIMAUD), 1884, A., 573.  
 molecular weight of (SABANÉEFF), 1890, A., 1216.  
 solutions of (PICTON and LINDER), 1892, T., 152, 162.  
 derivatives of (GRIMAUD), 1884, A., 966.  
 change which it undergoes after a time (TOMMASI and PELLIZZARI), 1883, A., 24.  
 dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 76, 89.  
 action of, on aluminic and ferric salts (GORGEU), 1890, A., 946.  
 behaviour of, with hydrogen sulphide (WRIGHT), 1883, T., 156.  
 relative basicity of aluminium hydroxide and (SCHNEIDER), 1890, A., 1062.  
 See also Limonite.  
 hydroxides (TOMMASI), 1883, A., 24.  
 crystallised, formation of, in the dry way (ROUSSEAU and BERNHEIM), 1888, A., 917.  
 hypophosphite, assay of (MOERK), 1891, A., 1290.  
 periodates (KIMMINS), 1889, T., 149.  
 oxide ( $\text{Fe}_2\text{O}_3$ ), colloidal (VAN BEMMELEN), 1888, A., 1162.  
 action between certain sulphates and, at high temperatures (SCHEUREN-KESTNER), 1885, A., 125.  
 influence of, on the decomposition of potassium chlorate (FOWLER and GRANT), 1890, T., 278.  
 reduction of, with carbonic oxide (AKERMAN), 1884, A., 20.  
 rehydration of (CROSS), 1883, A., 853.  
 precipitation of, by ammonia (LUNGE), 1890, A., 420.  
 estimation of, in presence of alumina (DONATH and JELLER), 1886, A., 1076.

**Ferrie oxide** ( $\text{Fe}_2\text{O}_3$ ), estimation of, in phosphates (v. GRUBER), 1891, A., 501, 963.  
 estimation of, in mineral phosphates and manures (THOMSON), 1887, A., 302.  
 estimation of, in phosphatic manures (STUTZER), 1891, A., 245.  
 estimation of alumina and, in phosphates (JONES), 1891, A., 114.  
 estimation of alumina and, in phosphates, alcohol method of (SHEPHERD), 1891, A., 1138.  
 separation of, from alumina (BEILSTEIN and LUTHER), 1891, A., 1293.  
 separation of, from alumina and titanio oxide (COHEN), 1884, A., 640.  
 See also Hematite.  
 phosphate (HAUTEFEUILLE and MARGOTTE), 1888, A., 420.  
 tetrahydrated, formation of (ARTH), 1890, A., 292.  
 action of carbon tetrachloride on (QUANTIN), 1887, A., 330.  
 metaphosphate (JOHNSON), 1889, A., 757.  
 selenites (BOUTZOUREANU), 1888, A., 220; 1891, A., 262.  
 sulphate, anhydrous, crystallised (LACHAUD and LÉPIERRE), 1892, A., 943.  
 basic, molecular weight of (PICKERING), 1883, T., 182.  
 properties of (ROHART), 1883, A., 1178.  
 reduction of, in volumetric analysis (JONES), 1889, A., 1248.  
 sulphates, basic (ATHANASEN), 1886, A., 982.  
 sulphide, action of potassium cyanide on (WRIGHT), 1883, T., 163.  
 See also Marcasite.  
 dithionate (KLÜSS), 1888, A., 1156.  
 thiosulphate (FOCK and KLÜSS), 1890, A., 330.  
 o-titanate (KOENIG and v. DER PFORDTEN), 1889, A., 948.  
**Ferrosoferrie oxide** ( $\text{Fe}_3\text{O}_4$ ), producing a coating of, on iron (HONIGMANN), 1885, A., 1271.  
 See also Magnetite.  
**Ferrous salts**, action of nitrites on (PICCINI and MARINO-ZUCO), 1886, A., 418.

**Ferrous chloride**, 'electrolytic conductivity of (HAMPE), 1888, A., 890.  
 vapour density of (MEYER), 1884, A., 965; (NILSON and PETERSSON), 1888, T., 827.  
 hydroxide, crystallised (DE SCHULTEN), 1889, A., 1115.  
 and its behaviour with nitric oxide, nitrites, and nitrates in alkaline solution (DIVERS and HAGA), 1885, T., 364.  
 periodates (KIMMINS), 1889, T., 150.  
 oxide ( $\text{FeO}$ ), action of, on vegetation (KELLNER), 1886, A., 486.  
 estimation of, in insoluble silicates (CHESTER and CAIRNS), 1888, A., 196.  
 selenide, and the preparation of hydrogen selenide from (DIVERS and SHIMIDZU), 1885, T., 443.  
 sulphate, retentive properties of, for ammonia and phosphoric acid (GRIFFITHS), 1886, T., 121.  
 action of concentrated sulphuric acid on (EREMIN), 1889, A., 347.  
 solubility of (ETARD), 1888, A., 645.  
 See also Agricultural Chemistry.  
 aluminium sulphate, native, from Mexico (LIPPIT), 1884, A., 24.  
 ammonium sulphate as a reagent for nitric acid (AUBRY and HAMBERLAIN), 1884, A., 493; (ROSA), 1886, A., 99.  
 sulphide, heat of formation of (MULLENHOFF), 1885, A., 950.  
 action of potassium cyanide on (WRIGHT), 1883, T., 163.  
 See also Pyrites and Pyrrhotite.  
 dithionate and double dithionates (KLÜSS), 1888, A., 1156.  
 thiosulphate and sodium thiosulphate (VORFMANN and PADBERG), 1890, A., 12.  
**Iron organic compounds:—**  
 Iron potassium cyanogen compound (MAHLA), 1889, A., 359.  
 potassium thiocyanates (KRÜSS and MORAHT), 1889, A., 1129.  
**Ferrie carbonylferrocyanide** (MULLER), 1890, A., 117.  
 dextrosate (CHAPMAN), 1891, T., 325; P., 66.  
 ferricyanide as a reagent for detecting traces of reducing gases (BROWN), 1888, A., 627.

- Ferric ferrocyanide** (*Prussian blue*), composition of (REYNOLDS), 1887, T., 644; P., 86.  
 peptonate (ROBIN), 1885, A., 1147.  
**Ferropentacarbonyl** (MOND and LANGER), 1891, T., 1091; P., 149.  
**Ferrosoferric ferricyanide** (REYNOLDS), 1888, T., 778.  
**Ferroso-sodium tetracyanide** (ETARD and BÉMONT), 1885, A., 234.  
**Ferrous ferricyanide** (*Turnbull's blue*), composition of (REYNOLDS), 1887, T., 644; P., 86.  
 potassium ferricyanide (*soluble Prussian blue*) (GUIGNET), 1889, A., 475.  
**Iron-ore**, magnetic. See Magnetite.  
 oolitic, of Lorraine, microscopic structure of (BLEICHER), 1892, A., 791.  
 pisolitic, formation of (MEUNIER), 1883, A., 1065.  
**Iron ores**, specular, of Cuba, genesis of (KIMBALL), 1885, A., 356.  
 of the Marquette district, Michigan (VAN HISE), 1892, A., 794.  
 of the Penokee-Gobec series of Michigan and Wisconsin (VAN HISE), 1889, A., 473.  
 of Central Russia (ZEMJAISCHENSKY), 1892, A., 689.  
 of Sinaloa (SILLIMAN), 1883, A., 162.  
 of Taberg in Småland, Sweden (TORNEBOHM), 1883, A., 429.  
 genesis of, by replacement of limestone (KIMBALL), 1892, A., 126.  
 origin of, in the older limestones of the secondary series (DIEULAFAIT), 1885, A., 644.  
 addition of manganese to (ANON.), 1885, A., 1271.  
**Iron-biotite** from Auburn, Maine (CLARKE), 1888, A., 118.  
**Iron-deweylite** from Kraubach (HATLE and TAUNN), 1888, A., 429.  
**Iron-glance**, occurrence of (SELIGMANN), 1886, A., 126.  
 from Ascension (VOM RATH), 1883, A., 436.  
**Iron-gymnite** (*hydrophile*) from Styria (HATLE and TAUNN), 1891, A., 21.  
**Iron-mica** from Pike's Peak (CLARKE), 1888, A., 118.  
**Iron-pyrites**. See Pyrites.  
**Ironstone** concretions from New South Wales (LIVERSIDGE), 1886, A., 774.  
**Iron ores**, estimation of:—  
 analysis of (TAMM), 1888, A., 529.  
 titration of (HEMPEL), 1885, A., 932.  
 estimation of arsenic in (LUNDIN), 1885, A., 838.  
**Iron ores**, estimation of:—  
 estimation of manganese in (ZULKOWSKI), 1884, A., 116.  
 estimation of phosphorus in (TAMM), 1884, A., 875; (JENNINGS), 1889, A., 189; (JONES), 1891, A., 363; (EMMERTON), 1892, A., 529.  
 estimation of titanium in (JENNINGS), 1889, A., 189.  
 estimation of zinc in (PLATZ), 1890, A., 1192.  
**Iron industry** (ANON.), 1883, A., 132, 402, 531; 1884, A., 129, 1083.  
 analysis of the raw materials and products of (MEINEKE), 1889, A., 441.  
**Iron ingot**, malleable, production of (ANON.), 1885, A., 1271.  
 manufacture of (ANON.), 1883, A., 402; (KUPELWIESER), 1884, A., 519.  
 Atwood's process for refining (ANON.), 1885, A., 1272.  
**Cast iron**, graphite in (JORDAN and TURNER), 1886, T., 220.  
 condition of silicon in (JORDAN and TURNER), 1886, T., 215; P., 155.  
 calorimetric researches on the condition of silicon and aluminium in (OSMOND), 1892, A., 19.  
 titanium carbide in (SHIMER), 1887, A., 703.  
 selective alteration of the constituents of (TURNER), 1885, T., 474; P., 61.  
 influence of charcoal on the amount of phosphorus in (ANON.), 1883, A., 403.  
 influence of silicon on the condition of carbon in (GAUTIER), 1887, A., 220.  
 influence of silicon on the properties of (TURNER), 1885, T., 577, 902; P., 85, 100; 1886, T., 130; P., 133.  
 influence of re-melting on the properties of (TURNER), 1886, T., 493; P., 209.  
 relative oxidisability of malleable and (GRÜNER), 1883, A., 755.  
 action of sea-water on (DRAPER), 1888, A., 421.  
 dephosphorising or desulphurising (ANON.), 1885, A., 1271.  
 analyses of (ANON.), 1883, A., 132.  
 estimation of carbon in (BRENE-MAN), 1884, A., 219.  
 estimation of total carbon in (ANON.), 1883, A., 882.  
 estimation of manganese in (WEIS-MANN), 1888, A., 992.  
 estimation of manganese in, effect of silica on (DEANE), 1887, A., 183.

- Cast iron**, estimation of phosphorus in (DEANE), 1887, A., 183; (JONES), 1891, A., 363; (EMMERION), 1892, A., 529; (REINHARDT), 1892, A., 912.  
 estimation of silicon in, method of rapid evaporation for (JONES), 1889, A., 1246.  
 estimation of sulphur in (ROCHOLL), 1883, A., 512; (WILSON), 1892, A., 382.
- Wrought iron**, estimation of slag in (BARROWS and TURNER), 1892, T., 551; P., 122.
- Steel from pig-iron containing phosphorus**, at Cleusot (DELAFOND), 1883, A., 403.  
 best, production of (MULLER), 1885, A., 1167.  
 cast, calorimetric study of the effect of tempering and hammering on (OSMOND), 1885, A., 856.  
 heating and cooling of (OSMOND), 1887, A., 14.  
 relative oxidisability of malleable and (GRUNER), 1883, A., 755.  
 cementation, crystals in (STOLTZER), 1883, A., 629.  
 crucible (LEDEBUR), 1885, A., 616.  
 fused, cellular structure of (OSMOND and WERTH), 1885, A., 485.  
 heating and cooling of (OSMOND), 1887, A., 219.  
 malleable ingot, production of (ANON.), 1885, A., 1271.  
 Russian basic (KERN), 1883, A., 1036.  
 tungsten (ANON.), 1883, A., 533; (MULLER), 1885, A., 1167.  
 manufacture of (KUPELWIESER), 1884, A., 519.  
 Bessemer process for the manufacture of (ANON.), 1884, A., 517, 1083.  
 Bessemer converter, chemistry of (STEAD), 1883, A., 832.  
 Bessemer converter, utilisation of the heat of the flame of (ANON.), 1885, A., 1271.  
 molecular changes in (LE CHATELIER), 1891, A., 1308.  
 nature of (KOSMANN), 1890, A., 215.  
 condition in which carbon exists in (ABEL and DEERING), 1883, T., 303.  
 manganese in (GUILLER), 1885, A., 307; (BABBITT), 1887, A., 619.  
 recalcrescence of (NEWALL), 1888, A., 892.  
 hardness of (ANON.), 1883, A., 883.
- Steel**, passive state of (ANDREWS), 1891, A., 250.  
 so-called burning of (LEDEBUR), 1884, A., 935.  
 tempering of (FROMME), 1885, A., 26.  
 influence of foreign substances on the properties of (OSMOND), 1890, A., 566, 567.  
 influence of manganese, phosphorus, silicon and tungsten on the properties of (OSMOND), 1887, A., 639.  
 influence of silicon on the properties of (TURNER), 1886, P., 266; 1887, T., 129; 1888, T., 844.  
 influence of sulphur and copper on the working of (WASUM), 1883, A., 404.  
 residues obtained from, by the action of acids (OSMOND and WERTH), 1887, A., 894.  
 analyses of (ANON.), 1884, A., 1231.
- Steel-castings**, evolution of gas from (MULLER), 1884, A., 787.
- Steel ingots**, irregularities in the composition of (ZETSCHE), 1886, A., 108.  
 rolling of, with their own initial heat without the use of fuel (ANON.), 1883, A., 532.
- Steel-rails**, chemical composition and testing of (ANON.), 1883, A., 531.
- Steel, analytical processes relating to:—**  
 aluminium, analysis of (ZIEGLER), 1890, A., 1471.  
 tungsten, analysis of (ANON.), 1884, A., 1231; (SCHNEIDER and LIPP), 1885, A., 840.  
 detection of small quantities of aluminium in (CARNOT), 1891, A., 501.  
 examination of (ANON.), 1885, A., 1160.  
 estimation of aluminium in (DROWN and McKENNA), 1892, A., 102.  
 estimation of minute quantities of aluminium in (STEAD), 1890, A., 548; (CARNOT), 1891, A., 501.  
 estimation of carbon in (ZABUDSKY), 1884, A., 1427; (TURNER), 1885, A., 1161; (GINTL), 1886, A., 98; (BLOUNT), 1883, A., 530; (v. JUPPIER), 1889, A., 186; (HOGG), 1889, A., 308; (TURNER), 1892, A., 913.  
 estimation of minute quantities of carbon in (STEAD), 1883, A., 1032.  
 estimation of free and combined carbon in (PETTERSSON and SMITT), 1890, A., 1027.

**Steel, analytical processes relating to:—**

- estimation of total carbon in (ANON.), 1883, A., 882.
- estimation of chromium in (REINHARDT; WAHLBERG), 1890, A., 85; (HOGG), 1892, A., 538.
- estimation of chromium in, in presence of phosphorus (ARNOLD and HARDY), 1888, A., 757.
- estimation of copper in (REINHARDT), 1890, A., 85.
- estimation of iron in (MORGAN), 1887, A., 1140.
- estimation of manganese in (TROILIUS), 1885, A., 597; (WEISSMANN), 1888, A., 992; (BLUM), 1891, A., 963; (RURUP), 1892, A., 916; (RUBRICIUS), 1892, A., 1030.
- estimation of phosphorus in (TROILIUS), 1885, A., 597; (KALMANN), 1886, A., 280; (MACKINTOSH), 1886, A., 438; (HUSE), 1886, A., 1073; (DEANE), 1887, A., 183; (VORWERK), 1887, A., 299; (MEINEKE), 1887, A., 396; (SCHNEIDER), 1887, A., 527; (SHIMER), 1889, A., 76; (JONES), 1891, A., 363; (MALOT), 1892, A., 523; (EMMERTON), 1892, A., 529; (HAMILTON), 1892, A., 911.
- estimation of phosphorus in, modified molybdate method for (WOOD), 1886, A., 280.
- estimation of silicon in (ANON.), 1883, A., 883; (TURNER), 1884, T., 260; 1887, A., 1140; 1888, A., 195; (MORGAN), 1888, A., 195.
- estimation of sulphur in (CRAIG), 1883, A., 121, 512; (ANON.), 1883, A., 883; (PETER), 1885, A., 1161; (MORGAN), 1887, A., 1140; 1888, A., 1334; (ARNOLD and HARDY), 1888, A., 1333; (COHEN; ARCHBUTT), 1890, A., 1463; (REINHARDT), 1890, A., 1464; (WILSON), 1892, A., 382.
- estimation of tungsten in (NAMIAS), 1892, A., 539.

**Iron (in general), detection, estimation and separation:—**

- analysis of (TAMM), 1883, A., 510; 1888, A., 529; (ANON.), 1884, A., 1281.
- tungsten, analysis of (ANON.), 1884, A., 1231; (SCHNEIDER and LIPP), 1885, A., 840.
- detection of small quantities of aluminium in (CARNOT), 1891, A., 501.

**Iron (in general), detection, estimation and separation:—**

- detection of minute quantities of, in minerals (JOHNSTONE), 1889, A., 797.
- detection of, in oil (EMDE), 1869, A., 448.
- testing for arsenic in (SAUTERMEISTER), 1892, A., 1030.
- reaction to detect the presence of metallic (v. LASALLE), 1884, A., 1078.
- thiocyanate reaction for (WERNER), 1883, A., 510.
- examination of (ANON.), 1885, A., 1160.
- estimation of (BARLOW), 1886, A., 393; (SCHACHT), 1888, A., 631.
- estimation of aluminium and, by the Glaser method (GIBBINS), 1892, A., 755.
- estimation of small quantities of, by Hamburger's method (HUPPERT), 1892, A., 1525.
- estimation of, by hydrogen sulphide (STORCH), 1883, A., 1169.
- estimation of, by Weil's method (ANON.), 1883, A., 509.
- estimation of, by nitroso- $\alpha$ -naphthol (MEINEKE), 1888, A., 1132.
- estimation of, by nitroso- $\beta$ -naphthol, and by zinc oxide (MEINEKE), 1889, A., 442.
- estimation of, by means of permanganate solution (KRUTWIG and COCHETEU), 1883, A., 1168.
- estimation of, by potassium chromate (CRISMER), 1884, A., 1078.
- estimation of, by means of potassium iodide (FALIERES), 1885, A., 1011.
- estimation of, by potassium permanganate in presence of free hydrochloric acid and chlorides (HOW), 1885, A., 297.
- estimation of, in alloys (PETERSON), 1885, A., 194.
- estimation of, in ferro-alloys, influence of copper on (HOGG), 1889, A., 798.
- estimation of minute amounts of, in alum, etc. (TATLOCK), 1888, A., 90.
- estimation of, in aluminium (HUNT, CLAPP and HANDY), 1892, A., 1131.
- estimation of aluminium in (STEAD), 1890, A., 548; (CARNOT), 1891, A., 501; (DROWN and McKENNA), 1892, A., 102.
- estimation of aluminium and, in presence of calcium and phosphoric acid (KENNEPohl), 1889, A., 188.
- estimation of aluminium and, in the presence of phosphoric acid (KREUG), 1892, A., 755.

**Iron (in general), estimation and separation:—**

estimation of arsenic in (LUNDIN), 1885, A., 838; (V. REIS), 1890, A., 194.

estimation of bismuth and lithium in (WARREN), 1888, A., 1256.

estimation of carbon in (LEDEBUR), 1883, A., 121; (STEAD), 1883, A., 1032; (TURNER), 1885, A., 1161; (GINTL), 1886, A., 98; (BRAND), 1887, A., 866; (DE KONINCK), 1888, A., 1341; (V. JUPTNER), 1889, A., 186; 1892, A., 1030; (HOGG), 1889, A., 308; (BLUM), 1889, A., 1088; (WIBORGH), 1890, A., 924; (PETTERSSON and SMITT), 1890, A., 1027; (THÜRNER), 1892, A., 913.

estimation of, in chars (DAVIDSON), 1888, A., 196.

estimation of chromium in, in presence of phosphorus (ARNOLD and HARDY), 1888, A., 757.

estimation of chromium and copper in (REINHARDT), 1890, A., 85.

estimation of, in cryolite (FRESNIUS and HINTZ), 1889, A., 927.

estimation of, in hydrochloric acid solutions by means of potassium permanganate (REINHARDT), 1890, A., 296.

estimation of manganese in (ANON.), 1883, A., 883; (TROILIUS), 1885, A., 597; (BABBITT), 1887, A., 619; (MORGAN), 1887, A., 1140; (BLUM), 1891, A., 963; (RURUP), 1892, A., 916; (RUBRICIUS), 1892, A., 1030, 1524.

estimation of nickel in presence of (MOORE), 1887, A., 1141.

rich in silicon, estimation of small quantities of manganese in (REINHARDT), 1888, A., 1132.

estimation of, in ores by the stannous chloride method, sources of error in (FÖHR), 1883, A., 242.

estimation of, in iron ores by the tartaric acid method (BLUM), 1888, A., 757.

estimation of oxygen in (LEDEBUR), 1883, A., 121.

estimation of, in phosphates (KRETSCHMAR), 1886, A., 393; (DYER, JONES), 1886, A., 491; (MEYER), 1892, A., 536.

estimation of, in phosphatic manures (GLASER), 1890, A., 420.

estimation of phosphorus in (TAMM), 1884, A., 875; (TROILIUS), 1885, A., 597; (KALMANN), 1886, A., 280; (MACKINTOSH), 1886, A.,

**Iron (in general), estimation and separation:—**

488; (IUS), 1886, A., 1073; (VORWERK), 1887, A., 299; (MEINER), 1887, A., 396; 1888, A., 1130; (SCHNEIDER), 1887, A., 527; (WEDDING), 1887, A., 865; (SHIMER), 1889, A., 76; (V. REIS), 1889, A., 648; (BORMANN), 1890, A., 416; (METZ), 1891, A., 961; (MALOT), 1892, A., 528; (HAMILTON), 1892, A., 911.

estimation of phosphorus in, in presence of silicon (DROWN), 1889, A., 1245.

estimation of, in rock analysis (CHATARD), 1891, A., 768.

estimation of silicon in (ANON.), 1883, A., 883; (TURNER), 1884, T., 260; 1887, A., 1140; 1888, A., 195; (BLUM), 1886, A., 835; (STRICK), 1887, A., 527; (MORGAN), 1887, A., 1140; 1888, A., 195.

estimation of, in slags (KOSMANN), 1886, A., 489; (NEUMANN), 1887, A., 1140.

estimation of sulphur in (CRAIG), 1888, A., 121, 512; (ANON.), 1883, A., 883; (PETER), 1885, A., 1161; (WIBORGH), 1886, A., 743; (MOLLER), 1887, A., 296; (MORGAN), 1887, A., 1140; 1888, A., 1334; (PLATZ), 1887, A., 1141; (ARNOLD and HARDY), 1888, A., 1333; (V. REIS), 1889, A., 648; (BLUM), 1890, A., 921; 1892, A., 1376; (COHEN), ARCHBUTT, 1890, A., 1463; (REINHARDT), 1890, A., 1464; (V. REIS and WIGGERT), 1891, A., 1549.

estimation of, in water (BELL), 1890, A., 419.

estimation, colorimetric, of (THOMSON), 1885, T., 493; P., 65; (SABANÉEFF and KISLAKOWSKY), 1888, A., 757; (LAPICQUE), 1892, A., 240; (RIDAN), 1892, A., 1132.

estimation, spectro-colorimetric, of (KRUSS and MORAHT), 1889, A., 1247.

estimation, electrolytic, of (GLASSEN), 1885, A., 191; (SMITH), 1888, A., 1344; (BRAND), 1890, A., 294.

estimation, volumetric, of (BRUEL), 1884, A., 367; (ATKINSON), 1884, A., 873; (LINOSSIER), 1885, A., 840; (NAMIAS), 1892, A., 240.

estimation, volumetric, of, in *Ferrum reductum* (PARTHIEL), 1890, A., 827; (GRÜTZNER), 1892, A., 1524.

estimation, volumetric, of, normal solutions for (BRITTON), 1883, A., 241.

**Iron** (in general), estimation and separation:—  
 estimation, volumetric, of, by means of potassium dichromate (BYA), 1885, A., 530.  
 estimation of, in starving animals (V. ZALESKI), 1888, A., 977.  
 estimation of, in blood (LAPIQUE), 1890, A., 297.  
 estimation of, in the foetal organism (BUNGE), 1889, A., 789; 1892, A., 516, 1502.  
 estimation of, in the liver and spleen of young animals (LAPIQUE), 1890, A., 185.  
 separation of, from aluminium (VIGNON), 1885, A., 689; (V. ILINSKI and V. KNORE), 1886, A., 100.  
 separation of, from aluminium, cobalt, manganese, nickel, and zinc (MOORE), 1888, A., 631.  
 separation of, from calcium and manganese (RIGGS), 1892, A., 916.  
 separation of, from cobalt and nickel (MACINTOSH), 1887, A., 1141; (LEROY), 1891, A., 1139.  
 separation of, from cobalt, nickel, and manganese (CAMPBELL), 1892, A., 103.  
 separation of, from manganese (BLUM), 1887, A., 183; (MEINEKE), 1889, A., 441.  
 separation of, from manganese and allied metals (MEINEKE), 1889, A., 309.  
 separation of, from titanium (GOOCH), 1886, A., 492; (CLASSEN), 1888, A., 532.  
 separation of, from zinc (CARNOT), 1886, A., 650; (V. BERG), 1887, A., 182.  
 separation, electrolytic, of (SMITH and MUHR), 1892, A., 917.  
 separation, electrolytic, of, from aluminium and manganese (CLASSEN), 1885, A., 1094.  
**Iron group**, separation of, from calcium and magnesium (MEINEKE), 1889, A., 441.  
**Iron vessels**, nickel-plated, action of organic acids on (BIRNBAUM), 1884, A., 520.  
**Irrigation**. See Agricultural Chemistry.  
**Isatamidobenzamide** (SCHIFF), 1884, A., 455.  
**Isatin** (KOLBE), 1883, A., 1130; (GUMPERT), 1886, A., 342.  
 conversion of tetrahydroquinoline into (SCHOTTEN), 1891, A., 722.

**Isatin**, preparation of (ANON.), 1885, A., 167; (KNAPE), 1891, A., 909.  
 chemical constitution of (KOLBE), 1845, A., 665.  
 action of chromic acid on (KOLBE), 1885, A., 53.  
 action of hydrazine hydrate on (CURTIUS and THUN), 1891, A., 1360.  
 action of potassium cyanide on (JOURDAN), 1883, A., 805.  
 condensation products of (V. BAEYER and LAZARUS), 1886, A., 154.  
 ethers of (V. BAEYER and OECONOMIDES), 1883, A., 201.  
 substituted derivatives of, preparation of, and their conversion into substituted indigos (ANON.), 1884, A., 944.  
**Isatin**, *mono*- and *di*-brom-, ethers of (V. BAEYER and OECONOMIDES), 1883, A., 201.  
 bromonitro- (DORSCH), 1886, A., 360.  
*ψ*-Isatin (V. BAEYER), 1884, A., 73.  
**Isatin-blue** (SCHOTTEN), 1891, A., 928.  
 brom- (SCHOTTEN), 1891, A., 1491.  
**Isatinic acid**, quinoline derivatives from (PFITZINGER), 1886, A., 370; 1889, A., 412.  
*di*brom- (V. BAEYER and OECONOMIDES), 1883, A., 202.  
**Isatinoxime** (GABRIEL), 1883, A., 920; (V. BAEYER), 1883, A., 1131.  
*ψ*-Isatin-*α*-oxime (V. BAEYER), 1884, A., 74.  
**Isatinphenyl mercaptan** (BAUMANN), 1885, A., 749.  
**Isatoethyloxime** and its derivatives (V. BAEYER and COMSTOCK), 1883, A., 1131.  
**Isatoic acid** (FRIEDLÄNDER and WLEÜGEL), 1884, A., 61; (KOLBE), 1885, A., 58, 665; (V. MEYER), 1885, A., 666; (V. MEYER and BELLMANN), 1886, A., 358; (SCHMIDT), 1888, A., 371.  
 synthesis of (NIEMENTOWSKI and ROZAŃSKI), 1889, A., 996.  
 identity of, with anthranilcarboxylic acid (V. MEYER), 1885, A., 666; (SCHMIDT), 1888, A., 372.  
 derivatives (KOLBE), 1885, A., 665; (V. MEYER), 1885, A., 666.  
**Isatoic acid**, *m*-brom- (NIEMENTOWSKI and ROZAŃSKI), 1889, A., 996.  
*m*-brom- and chlor-, derivatives of (DORSCH), 1886, A., 359.  
**Isatoxime**, and its derivatives (GABRIEL), 1883, A., 920; (V. BAEYER), 1883, A., 1130.  
**Isatylenemethylquinoxaline** (HINSBERG), 1886, A., 562.

- Isethionic acid** (*hydroxyethanesulphonic acid*) in the body and thiosulphuric acid in the urine (SALKOWSKI), 1887, A., 68.  
 derivatives of (HUBNER), 1884, A., 126.  
 sodium salt of (JAMES), 1883, T., 44.  
 chlor-, anilide of (LEYMANN), 1885, A., 787.
- Isinglass**, heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.
- Iso-compounds**. See under the substance to which *iso* is prefixed.
- Isochoric lines** (RAMSAY and YOUNG), 1887, T., 773.
- Isodimorphism** of arsenious and antimonious compounds (RIDEAL), 1886, A., 503.
- Isoidiomatic compounds** (LADENBURG), 1892, A., 1366.
- Isologous compounds**, specific volumes of (WEGER), 1884, A., 12.
- Isomeric organic compounds**, heat of combustion of (OSSIFOFF), 1890, A., 680.  
 relation of the heat of combustion of, to their densities (MULLER-ERZBACH), 1883, A., 1044.  
 solubility of (CARNELLEY and THOMSON), 1888, T., 782; P., 80.  
 antiseptic powers of (CARNELLEY and FREW), 1890, T., 636; P., 90.
- Isomerism**, special case of (SCHIFF), 1892, A., 1067.  
 dynamical (AUWERS and JACKSON), 1890, A., 1098.  
 geometrical (MEYER), 1890, A., 719.  
 physical (LELLMANN), 1883, A., 343.  
 of position (COLSON), 1887, A., 420.  
 influence of, on etherification (MENSCHUTKIN), 1884, A., 726.  
 of acetylene hydrocarbons (FAWORSKY), 1885, A., 736.  
 in the benzene series (BERTHELOT and WERNER), 1885, A., 628; (BERTHELOT), 1885, A., 1177.  
 in the benzene series: phenols of complex function, thermochemistry of (BERTHELOT), 1886, A., 7.  
 use of Raoult's method for determining molecular weights, to distinguish between polymerism and (ANSCHÜTZ), 1889, A., 754.
- Isomorphism** (REUTERS), 1891, A., 146, 1151; 1892, A., 1048.  
 modification of the usual statement of the law of (KLEIN), 1883, A., 147.  
 of the chlorates of silver and the alkali metals (REUTERS), 1890, A., 1208.
- Isomorphism** of silver nitrate with the alkali nitrates (REUTERS), 1890, A., 328.  
 of sulphur, selenium and tellurium (MUTHMANN), 1891, A., 1417.
- Isomorphous groups** (REUTERS), 1891, A., 1152.
- Isomorphous mixtures**, freezing point of (KUSFER), 1890, A., 1209; 1892, A., 396.  
 specific gravity of (REUTERS), 1889, A., 931.
- Isomorphous salts**, expansion of (SPRING), 1883, A., 146.
- Isoprene** (*pentimene*) (TILDEN), 1883, A., 75; 1884, T., 415.  
 refraction and dispersion equivalents of (GLADSTONE), 1886, T., 619.  
 spontaneous conversion of, into caoutchouc (TILDEN), 1892, A., 1482.
- Isothermal curves** for carbonic anhydride (AMAGAT), 1892, A., 3.
- Isothermals**, theoretical and empirical, of mixtures, connection between (BLUMCKE), 1891, A., 375; 1892, A., 259.
- Itacolumite**, flexibility of (SPEZIA), 1887, A., 21.
- Itaconanilic acid** (ANSCHÜTZ), 1888, A., 277; (ANSCHÜTZ and REUTER), 1888, A., 594; 1890, A., 368; (SCHARFENBERG), 1890, A., 368.
- $\psi$ -**Itaconanilic acid** (MICHAEL and PALMER), 1888, A., 462; (ANSCHÜTZ and REUTER), 1888, A., 594; 1890, A., 368; (SCHARFENBERG), 1890, A., 368.
- $\psi$ -**Itaconanilic chloride** (ANSCHÜTZ and REUTER; SCHARFENBERG), 1890, A., 369.
- Itaconic acid**, a non-saturated acid isomeric with (FITTIG and ROEDER), 1883, A., 730.  
 molecular weight of (PATERNO and NASINI), 1888, A., 1059.  
 constitution of (KANONNIKOFF), 1886, A., 335; (MICHAEL), 1886, A., 688.  
 molecular refraction of (KNOPS), 1888, A., 938; 1889, A., 198.  
 heat of combustion of (LUGNIN), 1888, A., 893.  
 heats of neutralisation and of solution of (GAL and WERNER), 1887, A., 205.
- allo*-**Itaconic acid**. See Trimethylene-1:2-dicarboxylic acid.
- $\psi$ -**Itacon- $\alpha$ -naphthalic acid**, -phenyl-hydrazilic acid, and *p*-tolilic acid (ANSCHÜTZ and REUTER; SCHARFENBERG), 1890, A., 369.
- Itamalic acid**. See Hydroxypyrotartaric acid.

Ivory, bleaching and dyeing (KATNER), 1886, A., 188.  
 Ivy, essential oil of (MAQUENNE), 1886, A., 274.  
 Ivy berries, composition of (JANDOU), 1883, A., 499.

## J.

Jaborandi leaves, bases in (HARNACK), 1886, A., 85.  
 Jaboric acid (HARDY and CALMELS), 1886, A., 816.  
 Jaboridine (HARNACK), 1886, A., 85.  
 Jaborine (HARDY and CALMELS), 1886, A., 815.  
 Jacobsen's testing churn (FLEISCHMANN and SACHLEBEN), 1883, A., 253.  
 Jacobsite from Sweden (IGELSTROM), 1888, A., 562, 563; 1890, A., 1076; 1892, A., 1404.  
 Jade from Siberia (JANNETTAZ and MICHEL), 1883, A., 436.  
 analysis of (CLARKE and CHATARD), 1885, A., 491.  
 composition of two specimens of (ALLEN), 1883, A., 163.  
 See also Nephrite.  
 Jadeite (KRENNER), 1883, A., 1066; (CLARKE and MERRILL), 1890, A., 716.  
 so-called, from Switzerland (MEYER), 1889, A., 839.  
 unwrought, from Switzerland (MEYER), 1885, A., 1188.  
 from Thibet (COHEN), 1884, A., 407.  
 See also Nephrite.  
 Jadeite axe from Rabber, Hanover (ARZBUNI), 1883, A., 437.  
 Jalapin (POLECK and SAMELSON), 1885, A., 669.  
 physiological action of (DRAGENDORFF), 1887, A., 291.  
 Jalapinole and jalapinole acid (POLECK and SAMELSON), 1885, A., 669, 670.  
 Jamaica dogwood, piscidin, the active principle of (HART), 1884, A., 332.  
 Jambosa root (*Myrtus Jambosa*) crystalline substance (jambosin) from (GERRARD), 1885, A., 396.  
 Jameson coking process (JAMESON), 1886, A., 288.  
 Jamesonite, artificial production of (DOELTER), 1886, A., 209.  
 Japacocaine (MANDELIN), 1885, A., 911.  
 "Japanese belladonna" (EIJKMAN), 1885, A., 404.  
 Jarosite from Utah (HILLEBRAND), 1886, A., 517; (GENTH), 1890, A., 573.

"Jaune solide" (ANON.), 1884, A., 1450.  
 Jaundice, biliary acids in the urine during (BAELDE and LAVRAND), 1889, A., 637.  
 Jecorin (DRECHSEL), 1886, A., 636.  
 in the animal body (BALDI), 1888, A., 1313.  
 Jequirity (*Athrus pectoratus*), physiological action of the active principle of (MARTIN and WOLFENDEN; MARTIN), 1890, A., 398.  
 proteid poisons of (MARTIN), 1887, A., 990; 1889, A., 1026.  
 Jequirity zymase (BÉCHAMP and D'JARDIN), 1885, A., 1085.  
 Jeremejevite (DAMOUR), 1883, A., 719.  
 Jervic acid. See Chelidonic acid.  
 Jervine and  $\psi$ -jervine (PEKESCHEN), 1891, A., 88.  
 Johnstrupite (BRÜGGER), 1890, A., 1078.  
 Joints, vacuum (SHENSTONE), 1890, T., 958; P., 140.  
 Jordanite and meneghinite, isomorphism of (SCHMIDT), 1885, A., 639.  
 Juglone. See 4'-Hydroxy-1:4-naphthaquinone.  
 Juglonic acid (BERNTSEN and SEMPER), 1885, A., 548.  
 Julole (REISSERT), 1891, A., 736; 1892, A., 496; (KATNER and REISSERT), 1892, A., 833.  
 Julole-violet and its base (REISSERT), 1892, A., 498.  
 Julolidine (REISSERT), 1892, A., 1492.  
 Juniper, oil of (NICOLAYSEN), 1890, A., 902.  
 Jute fibre, constitution of (CROSS and BEVAN), 1889, T., 99; P., 30.  
 nitration of (CROSS and BEVAN), 1889, T., 201.  
 preparation of furfuraldehyde from (CROSS and BEVAN), 1889, T., 209.  
 discrimination of, from flax and hemp (LENZ), 1890, A., 928.

## K.

Kersutite from Greenland (LORENZEN), 1886, A., 519.  
 Kainite, synthesis of (DE SCHULTEN), 1891, A., 405.  
 working up the mother-liquors from picromerite in the production of (VORSTER and GRUNEBERG), 1885, A., 306.  
 separation of, from rock salt (LÖFASZ), 1885, A., 614.  
 See also Agricultural Chemistry.

- Kainosite**, a mineral from Hitterø, Norway (v. NORDENSKIÖLD), 1888, A., 234.
- Kairin** (*1-hydroxy-1'-methyltetrahydroquinoline*) (FISCHER), 1883, A., 1146; (FISCHER and RENOUF), 1884, A., 1049.  
physiological properties of (FILEHNE), 1884, A., 474.
- Kairocoll** (FISCHER), 1883, A., 1147.
- Kairolin** (*1'-methyltetrahydroquinoline*) and its derivatives (HOFFMANN and KOENIGS), 1883, A., 1144; (FEER and KOENIGS), 1885, A., 1245.  
physiological properties of (FILEHNE), 1884, A., 474.
- Kairolin-2-carboxylic acid** (*1'-methyltetrahydroquinoline-2-carboxylic acid*) (FISCHER and KÖRNER), 1884, A., 1197.
- Kaliborite** (FEIT), 1890, A., 341.
- Kallilite**, a nickel ore (LASPEYRES), 1891, A., 1167.
- Kamacite** (MEUNIER), 1889, A., 766.  
from the Welland meteoric iron (DAVISON), 1892, A., 24.
- Kamala** (A. G. and W. H. PERKIN), 1887, A., 272.  
crystalline substance from (JAWEIN), 1887, A., 498.
- Kamés**, relation between truffles and (CHATIN), 1892, A., 654.
- Kanarin**. See Canarin.
- Kaolin balls** for gas analysis by Bunsen's method (BUNGE), 1889, A., 544.
- Kaolinite** (*kaolin*) from Colorado (EAKINS), 1892, A., 1406.  
a variety of, from Nelson Co., Virginia (VALENTINE), 1886, A., 128.  
from the south-western provinces of Russia, geological and chemical examination of (WEINDERG), 1885, A., 879.  
occurrence of, in North Sweden (LINDSTRÖM), 1884, A., 273.  
composition of (VOGT), 1890, A., 1060.  
action of, on calcium chloride (GORGEU), 1888, A., 228.  
action of, on haloid salts of the alkalis (GORGEU), 1886, A., 664.  
estimation of, in arable soils (SACHSSE and BECKER), 1892, A., 1026.
- Karlsbad salts**, analysis of (KUBEL), 1892, A., 659.
- Karyinite** (LINDGREN), 1883, A., 434.
- Karyocerite** (BRÜGGER), 1890, A., 1079.
- Kaslinite** from Calhoun Co., Alabama (ROWAN), 1885, A., 228.
- Katapleite**, chemical composition of (SJÖGREN), 1886, A., 34.
- Katellagic acid** (SCHIFF), 1883, A., 335.
- Kawa-Kawa** (*Macropiper methysticum*), substance from the root of (DAVIDOFF), 1888, A., 1207.
- Kelp**, estimation of iodine in (STANFORD), 1884, A., 505.
- Kelyphite** (SCHRAUF), 1884, A., 972.
- Kephir** (KERN), 1883, A., 229; (v. STRUVE), 1884, A., 1086, 1235; (HACCIUS), 1885, A., 942.
- Keramohalite** (WEISBACH), 1883, A., 432.
- Keratin** of wool fibre, formula of (WHITELEY), 1886, P., 142; (MILLS), 1886, P., 147.  
do bones contain it? (SMITH), 1884, A., 1398.  
in animal tissues, diagnosis of (STEINBRÜGGE), 1886, A., 106.
- Kerosene**. See Petroleum.
- Kersantite** from Wustewaltersdorf, Silesia (DATHE), 1887, A., 562.  
vein of the Upper Harz (v. GRODECK), 1884, A., 409.
- Kersantites** of Southern Thuringia and the Frankenwald (PÖHLMANN), 1884, A., 1273.
- Kesso oil** from *Valeriana officinalis* (var. *angustifolia*) (BERTRAM and GILDEMEISTER), 1891, A., 238.
- Kessyl acetate and alcohol** (BERTRAM and GILDEMEISTER), 1891, A., 239.
- Ketazodiphenyl ketone** (CURTIUS), 1889, A., 1157.
- Ketinediacarboxylic acid and ketines** (OECONOMIDES), 1887, A., 29.
- Ketipic acid** (*dimethylidiketonecarboxylic acid*) (FITTIG and DAIMLER), 1887, A., 362; (FITTIG, DAIMLER and KELLER), 1889, A., 490.
- Ketoaldehydes** (CLAISEN and MRYEROWITZ), 1890, A., 357.
- $\alpha$ -Ketoaldehydes** (MÜLLER and v. PECHMANN), 1890, A., 51.
- Ketoallyldihydroquinazoline** (SÜDERBAUM and WIDMAN), 1889, A., 973; 1890, A., 178.
- $\alpha_1$ -Keto- $\gamma_1$ -benzoxymuloline** (KAYSER and REISSERT), 1892, A., 884.
- Ketobenzylmethylidihydroquinoxaline** (KEHRMANN and MESSINGER), 1892, A., 1108.
- Ketochlorides** (ZINCKE), 1888, A., 708.
- Keto-compounds**, nitro-, formation of (ARMSTRONG and ROSSITER), 1891, P., 89.
- $p$ -Ketodihydroquinazolybenzoic acid** (PAAL and BUSCH), 1890, A., 73.
- $\gamma$ -Ketodihydroquinoline** (REISSERT), 1888, A., 277.

- $\gamma$ -Ketodihydroquinoline**, derivatives of (REISSERT), 1888, A., 696.
- 3-Ketodihydroquinoline**, *tri*- and *tetra*-chloro- (ZINCKE), 1891, A., 1250.
- Ketodimethylidihydroquinoxaline** (KEHRMANN and MESSINGER), 1892, A., 1108.
- Ketohexahydrobenzenedicarboxylic acid** (v. BAEYER and TUTTEIN), 1889, A., 1181.
- m*-Ketohexahydrobenzoic acid** (v. BAEYER and TUTTEIN), 1889, A., 1180.
- Ketohydrindene**, *trichloro*- (*phenylene-trichloroethylene ketone*) (ZINCKE), 1888, A., 158.
- tetrachloro*- (*phenylenetetrachloroethylene ketone*) (ZINCKE and FRÖHLICH), 1887, A., 955.
- dichlorodibromo*- (ZINCKE and FRÖHLICH), 1887, A., 955.
- See also Hydrindone.
- Ketohydroxy**-. See Hydroxyketo-.
- Ketolindene**, *dibromo*- (ROSER), 1887, A., 729.
- $\alpha$ -Ketoluloline**,  $\gamma$ -chloro- (KAYSER and REISSERT), 1892, A., 884.
- Ketolactonic acid** (YOUNG), 1883, T., 175, 179; A., 457.
- constitution of (YOUNG), 1883, T., 181.
- action of barium hydrate on (YOUNG), 1883, T., 176.
- salts of (YOUNG), 1883, A., 457.
- Ketole**. See Indole.
- Ketomethylethylidihydroquinoxaline** (KEHRMANN and MESSINGER), 1892, A., 1108.
- $\alpha$ -Keto- $\gamma$ -methyl- $\beta$ -ethyljuloline** and its bromo- and nitro-derivatives (KAYSER and REISSERT), 1892, A., 883.
- $\alpha$ -Keto- $\gamma$ -methyljulolidine** (REISSERT), 1892, A., 497.
- $\alpha$ -Keto- $\gamma$ -methyljuloline**, oxidation and reduction of (REISSERT), 1892, A., 496.
- derivatives of (REISSERT), 1891, A., 787.
- dyes obtained from (REISSERT), 1892, A., 498.
- $\alpha$ -Ketonaphthalene**, *tri*- and *tetra*-chloro- (ZINCKE), 1888, A., 709, 710.
- $\beta$ -Ketonaphthalene**,  *$\alpha$ -di*-, *tri*-, *tetra*-, and *hexachloro*- (ZINCKE and KEGEL), 1889, A., 267, 268, 270.
- Ketonaphthol** (*3-acetyl- $\alpha$ -naphthol*) (ERDMANN), 1888, A., 488; 1890, A., 376.
- Ketone sulphites of organic bases** (SCHIFF), 1889, A., 234.
- Ketone thiocyanates**, conversion of, into oxythiazoles (ARAPIDES), 1889, A., 413.
- Ketones**, preparation of (HAMONER), 1889, A., 235.
- formation of, from the compounds resulting from the union of anhydrides and salts (PERKIN), 1886, T., 317; P., 165.
- from halogen derivatives of aromatic hydrocarbons (CLAUS), 1891, A., 911.
- synthesis of, from phenol ethers by Friedel and Crafts method (GATTERMANN, EHRLHARDT and MAISCH), 1890, A., 962.
- aromatic (STAEDEL), 1883, A., 990; (ELDS), 1886, A., 461; 1887, A., 940; (CLAUS), 1892, A., 985.
- isomeric (CHANCEL), 1885, A., 505.
- of the acetic series, formation of (CUMBER), 1887, A., 653.
- of the quinoline series (BEREND and THOMAS), 1892, A., 1483.
- of the thiophen group (SCHLEICHER), 1886, A., 539.
- constitution of aliphatic (FREER), 1891, A., 1181.
- heats of combustion of (LUGININ), 1884, A., 547.
- etheral salts and chloranhydrides, similarity of the boiling points of the corresponding (SCHRÜDER), 1883, A., 990.
- action of heat on (BARBIER and RUTX), 1886, A., 865.
- action of aldehydes on (CLAISEN), 1884, A., 445.
- action of ammonium formate on (LEUCKART), 1890, A., 783.
- action of yellow ammonium sulphide on (WILLGERODT), 1887, A., 1045.
- action of anhydrides on (FRANCHIMONT), 1883, A., 452.
- condensation of chloral with (KOFNIGS), 1892, A., 694.
- action of chlorine on fatty (VLADESCO), 1892, A., 424, 810.
- action of dimethyl-*p*-phenylenediamine on (VOGTHERR), 1892, A., 854.
- action of hydrazine hydrate on (CURTIUS and THUN), 1891, A., 1355.
- action of hydroxylamine and phenylhydrazine on aromatic (MÜNCHMEYER), 1887, A., 482.
- action of nitrous acid on (CLAISEN), 1887, A., 463.

**Ketones**, action of phenylhydrazine on unsaturated (KLINGEMANN), 1892, A., 995.  
 action of sodium on (BECKMANN), 1889, A., 781; (BECKMANN and PAUL), 1892, A., 169.  
 action of concentrated sulphuric acid on aromatic (CLAUS), 1887, A., 251.  
 action of zinc and ethylic chloracetate on (REFORMATSKY), 1891, A., 169.  
 application of Perkin's reaction to aromatic (TAHARA), 1891, A., 1223.  
 colour reaction of, with aromatic nitro-compounds (v. BITTÓ), 1892, A., 1263.  
 conversion of, into acids and acid amides by means of ammonium sulphide (WILLGERODT), 1888, A., 476.  
 conversion of, into nitrosoketones (CLAISEN and MANASSE), 1889, A., 584.  
 introduction of acid radicles into (CLAISEN), 1887, A., 575; 1890, A., 26; (BEYER and CLAISEN), 1887, A., 943.  
 oxidation of (WAGNER), 1885, A., 1197; (GLÜCKSMANN), 1890, A., 237, 1416.  
 oxidation of, with potassium ferricyanide (v. BUCHKA and IRISH), 1887, A., 825.  
 oxidation of aromatic (CLAUS), 1890, A., 769, 979; 1891, A., 199, 564, 1222.  
 oxidation of mixed fatty (WAGNER), 1892, A., 35.  
 oxidation of mixed fatty aromatic (CLAUS and NEUKRANZ), 1891, A., 1364.  
 passivity of certain, towards hydroxylamine and phenylhydrazine (HERZIG and ZEISEL), 1889, A., 254.  
 physiological action of (PANCHIKS and OBERMAYER), 1892, A., 1506.  
 synthesis of dihydric monobasic acids from (REFORMATSKY), 1887, A., 717; 1888, A., 819.  
 synthesis of tertiary alcohols from (SAYTZEFF), 1885, A., 381.  
 additive and condensation compounds of diketones with (JAPP and MILLER), 1885, T., 11.  
 condensation compounds of, with benzil (JAPP and BURTON), 1887, T., 431; P., 32.

**Ketones**, reduction products of (v. PECHMANN and DAHL), 1890, A., 1234.  
 compounds of, with dimethylaniline and diethylaniline (DOEBNER and PETSCHOW), 1888, A., 287.  
 compounds of the hydrazines with (REISENEGGER), 1883, A., 798.  
 compounds of, with mercaptans (BAUMANN), 1887, A., 126; (FASBENDER), 1887, A., 462.  
 compounds of, with mercuric chloride (VOLHARD), 1892, A., 828.  
 metallic compounds of aromatic (LOUISE and PERRIER), 1892, A., 1205.  
 compounds of sugars with (SCHIFF), 1888, A., 572.  
 halogen derivatives of, action of potassium cyanide on (ORRÉCIA), 1892, A., 324.  
 oximes of aromatic (CLAUS), 1892, A., 985.  
 oximes of asymmetrical (SCHÄFER), 1891, A., 1235.  
 isomeric oximes of unsymmetrical (AUWERS and MEYER), 1890, A., 1263.  
 ammonia as a reagent for double (KNORR), 1886, A., 331.  
 phenylhydrazine, a reagent for (FISCHER), 1884, A., 1150.  
 sodium nitroprusside as a reagent for (v. BITTÓ), 1892, A., 924.  
**Ketones**, bromo-, formation of, by the action of bromine on the alcohols of the ethyl series (ETARD), 1892, A., 809.  
 nitro-, preparation of (LANGE and ZUFALL), 1892, A., 1459.  
 nitroso- (TREADWELL and WESTENBERGER), 1883, A., 572; (SCHRAMM), 1883, A., 573; (CLAISEN), 1887, A., 463; (CLAISEN and MANASSE), 1887, A., 944.  
 decomposition of (v. PECHMANN), 1888, A., 248.  
 isonitroso-. See Ketoximes.  
 thio-derivatives of (BAUMANN and FROMM), 1889, A., 852; 1890, A., 26.  
**Ketonic acids** (SEISSL), 1889, A., 489.  
 synthesis of (BISCHOFF), 1883, A., 912; (WISLIGENUS), 1888, A., 1178.  
 synthesis of, by the action of acid chlorides on propionitrile (OTTO and TRÜGER), 1889, A., 957.  
 synthesis of, from aldehydes and ethylic diazoacetate (BUCHNER and CURTIUS), 1885, A., 1238.  
 analogy between sulphonecarboxylic acids and (RÖSSING), 1890, A., 781.

- Ketonic acids**, analogy between alkylsulphonated fatty acids and (R. OTTO), 1888, A., 360; (R. and W. OTTO), 1888, A., 577.  
 action of aldehydes on (CLAISEN), 1884, A., 445.  
 action of diazo-salts on (JAPP and KLINGEMANN), 1888, T., 538.  
 condensation of, with dibasic acids (FITTIG and PARKER), 1889, A., 1146.  
 condensation of, with dicarboxylic acids (FITTIG and PARKER), 1890, A., 1102.  
 action of hydrogen phosphide on (MESSINGER and ENGELS), 1888, A., 441; 1889, A., 35.  
 action of phenol on (BÖTTINGER), 1884, A., 55.  
 conversion of, into lactones (ROSER), 1885, A., 165.  
 conversion of, into unsaturated lactones (THORNE), 1885, A., 1200.  
 ethereal salts of, condensation of, with dibasic acids (FITTIG; v. EYERN; FEIST; DIETZEL; SCHLOESSER), 1889, A., 592, 593, 594.  
 ethylic salts of, synthesis of (WILLI-CENUS), 1887, A., 587.  
 oximes of (GARELLI), 1892, A., 327.  
 **$\alpha$ -Ketonic acids**, synthesis of (HALLER), 1889, A., 873.  
 condensation-products of (HOMOLKA), 1885, A., 758.  
 oximes of (HANTZSCH), 1891, A., 443.  
 **$\beta$ -Ketonic acids**, preparation of alkyl salts of (HAMONET), 1890, A., 235.  
 preparation of ethereal salts of (HAMONET), 1891, A., 1185.  
 **$\gamma$ -Ketonic acids** (DITTRICH and PAAL), 1889, A., 257; (PAAL and HOFFMANN), 1890, A., 1099.  
 constitution of (BREDT), 1887, A., 126; 1890, A., 863.  
**Ketonic chlorine-atoms**, displacement of, by hydrogen (LACHOWICZ), 1884, A., 1039.  
**Ketonic compounds**, magnetic rotation of (PERKIN), 1892, T., 800; P., 100.  
 **$\beta$ -Ketonic ethers**, synthesis of (BOUVEAULT), 1891, A., 41.  
**Ketonic nitriles**, action of aromatic amines on (BOUVEAULT), 1891, A., 51.  
 action of hydroxylamine on (HANNOT), 1892, A., 79.  
**Ketonic oxygen**, substitution of the azo-group for (CURTIUS), 1889, A., 1157; (CURTIUS and LANG), 1892, A., 451.
- Ketonic oxygen**, estimation of (STRACHE), 1892, A., 546, 1530.  
**Ketopentene**,  $\beta$ -*hexachloro*- [m.p. 31°] (ZINCKE and KÜSTER), 1888, A., 1278.  
 *$\gamma$ -hexachloro*- [m.p. 92°] (ZINCKE and KÜSTER), 1889, A., 599; 1890, A., 754, 1255.  
 *$\gamma$ -pentachlorobromo*- (ZINCKE and KÜSTER), 1890, A., 1256.  
**Ketophenylmethyldihydroquinoxaline** (KEHRMANN and MESSINGER), 1892, A., 1108.  
 **$\alpha$ -Ketophenyl- $\gamma$ -piperidone**, *pentachloro*- (ZINCKE and FUCHS), 1892, A., 449.  
**Ketopiperazines** (BISCHOFF and NAST-VOGEL), 1889, A., 1009.  
**Ketoquinazolines**, synthesis of (BUNCH), 1892, A., 1495.  
**Ketoquinoline**, *trichloro*- (HEBE BRAND), 1889, A., 61.  
*pentachloro*-, derivatives of (HEBE BRAND), 1889, A., 62.  
**Ketosulphides and ketosulphide acids** (DELISLE), 1889, A., 488.  
**Ketotetrahydrobenzoic acid**, *pentachloro*- and *hexachloro*- (ZINCKE and WALBAUM), 1891, A., 708, 710.  
 **$\alpha$ -Ketotetrahydronaphthalene**, *pentachloro*- and *hexachloro*- (ZINCKE), 1888, A., 711.  
 **$\beta$ -Ketotetrahydronaphthalene**, *tetrachloro*- (ZINCKE and KEGEL), 1889, A., 269.  
 *$\alpha$ -pentachloro*- [m.p. 123°] (ZINCKE), 1889, A., 886.  
 *$\beta$ -pentachloro*- [m.p. 116°] (ZINCKE and KEGEL), 1889, A., 269.  
 **$\beta$ -Ketotetrahydronaphthalene- $\alpha$ -oxime**, *trichloro*- (ZINCKE and SCHMUNK), 1890, A., 1148.  
**Ketotetrahydroquinoline hydrate**, *tetrachloro*- (ZINCKE), 1891, A., 1252.  
**Ketotetrahydroquinoxalines** (GEORGESCU), 1892, A., 886.  
**Ketoximodimethylbutyric acid** (WALLACH), 1889, A., 233.  
**Ketoximes** (*isouitrosoketones*) (TREADWELL and WESTENBERGER), 1883, A., 572; (SCHRAMM), 1883, A., 573.  
 aromatic (CLAUS), 1892, A., 985, 1200.  
 configuration of, influence of substituting radicles on the (SMITH), 1892, A., 487.  
 fatty, configuration of (HANTZSCH), 1892, A., 426.  
 stereoisomeric (HANTZSCH), 1891, A., 445.  
 configuration of (HANTZSCH), 1891, A., 440.

- Ketoximes** (*isonitrosoketones*), action of hydrogen chloride on (BECKMANN), 1888, A., 43.  
 action of hydroxylamine on (SCHOLL), 1891, A., 287.  
 action of nitric peroxide on aromatic (SCHOLL), 1891, A., 315.  
 conversion of, into  $\psi$ -nitroles (SCHOLL), 1888, A., 443.
- $\gamma$ -Ketoximic acids**, configuration of (DOLLFUS), 1892, A., 1202.
- Kidney**, analysis of the liquid from a tumour of the (PATEIN), 1891, A., 852.  
 composition of a, which had undergone waxy degeneration (LAMB-LING), 1889, A., 536.  
 fed with defibrinated blood, secretion by (ABELEN), 1883, A., 875.  
 histological chemistry in relation to the physiology of (DRESER), 1885, A., 923.
- Kidneys**, effect of partial extirpation of, on nutrition (BRADFORD), 1891, A., 1273.
- Kidney-cells**, proteids of (HALLIBUR-TON), 1890, A., 1015.
- Kidney-disease**, excretion of nitrogen in (KORNBLUM), 1892, A., 743;  
 (GUMMICH), 1892, A., 1504.  
 nature of the effusions in (HALLI-BURTON), 1890, A., 1174.
- Killinite** (BRUSH and DANA), 1883, A., 440.
- Kiln-smoke**, injury to plants by (PRE-VOST), 1888, A., 744.
- Kino** in Malabar kino (ERTI), 1885, A., 59.
- Kirschwasser**, analyses of (FRESSENIUS), 1890, A., 1195.
- "Ki-urushi"** (*raw lacquer*) (YOSHIDA), 1883, T., 473.
- Knebelite** (*igeltströmite*) from Sweden (WEIBULL), 1884, A., 409; 1886, A., 33, 928.
- Knoxvillite** (MELVILLE and LINDGREN), 1892, A., 1407.
- Kobellite** from Colorado (KELLER), 1890, A., 218.
- Koch's cultivating fluids**, alkaloid in (POTCHET), 1885, A., 1250.
- Kola**, chemical investigations on (HECKEL and SCHLAGDENHAUFFEN), 1884, A., 863.
- Kola bitter** (HECKEL and SCHLAGDEN-HAUFFEN), 1884, A., 864.
- Kola nuts** (*Sterculia acuminata*) (NAT-TON), 1885, A., 712.
- Kombic acid** (FRASER), 1887, A., 1115.
- Konichalcite** from Utah (HILLEBRAND), 1886, A., 516.
- Koninckite**, an hydrated phosphate of iron (CESARO), 1885, A., 878.
- Koppite**, analysis of (BAILEY), 1886, T., 153; P., 138.
- Kopsia**, alkaloids from (GRESHOFF), 1891, A., 337.
- Kornerupine** from Greenland (LOREN-ZEN), 1886, A., 519; (USSING), 1890, A., 19.
- Korting's apparatus**, use of, for forcing the gases through sulphuric acid chambers (SCHEUTER-KESTNER), 1885, A., 1166.
- Korynite** from Siegen (LAMPYRES), 1891, A., 1167.
- Koumiss** (MARCANO), 1883, A., 365.  
 composition of (VIETH), 1885, A., 849; (WILEY), 1886, A., 782.
- Krakatoa volcanic ashes** (REUNCH), 1884, A., 415.  
 analysis of (V. LAMAUUX; OEBBEKE), 1884, A., 974; (DE LOOS), 1884, A., 975.  
 minerals from (REIGERS), 1886, A., 602.
- Kreitonite** from Bodenmais (OEBBEKE), 1891, A., 527.
- Krennerite** (SPOCZ), 1886, A., 312.
- Kroehnkeite** (DARAPSKY), 1889, A., 680.
- Krokydolite**. See Crocidolite.
- Kryokonite** from Greenland (WÜLFING), 1891, A., 408.
- Kupfferite** from Greenland (LORENZEN), 1886, A., 519.
- Kuromoji oil** (KAWANICK), 1891, A., 464; 1892, A., 1480.
- Kusa-usu**, aconitine from (LUBBE), 1891, A., 91.
- Kyanite** (*kyanite*) from North Carolina (KUNZ), 1889, A., 24.  
 crystallographical examination of (PRIMICK), 1885, A., 733.
- Kyaphenine**. See Uryaphenine.
- Kynurenic acid**. See Hydroxyquinoline-carboxylic acid.
- Kynuric acid** (*kynuric acid*) (KRETSCHY), 1883, A., 674; 1884, A., 750.  
 synthesis of (KRETSCHY), 1884, A., 751.  
 salts of (KRETSCHY), 1884, A., 750.
- Kynurin** (*hydroxyquinoline*) (SKRAFT), 1890, A., 174.  
 oxidation of (KRETSCHY), 1883, A., 674.

## L.

- Laboratories**, improved method of ventilating (STUART), 1886, A., 15.
- Laboratory** at Dresden, apparatus and arrangements of (HEMPER), 1885, A., 951.

- Laboratory apparatus** (LANDOLT; HART; GIBSON), 1885, A., 481.  
 fittings (GIBSON), 1888, A., 26.
- Labradorite**, alteration of, into an albite and a zeolitic mineral (KLOOS), 1886, A., 128.  
 from the enstatite-porphyrite of the Cheviot Hills, analysis of (PETERSEN), 1886, A., 211.  
 from the basalt of Iceland (BRÉON), 1886, A., 602.  
 from the Krakatoa ashes, analysis of (SAUER), 1886, A., 211.  
 from the Lizard (TEALL), 1891, A., 276.  
 from Lower Silesia, analysis of (TRAUBE), 1886, A., 212.  
 from St. Paul Island, solubility of (JANNASCH), 1884, A., 971.  
 rock of the coasts of Labrador (COHEN), 1885, A., 644.  
 preparation of (MEUNIER), 1891, A., 22.
- Labrador-porphyrines** of the Vosges (OSANN), 1888, A., 569.
- Laccic acid** (SCHMIDT), 1887, A., 734.
- Lac-dye**, composition of (SCHMIDT), 1887, A., 734.
- Lacmoid** (*lakmouïl*) (TRAUB and HUCK), 1885, A., 148; (HARTLEY), 1888, A., 295; (FOERSTER), 1891, A., 241.  
 as a reagent for alkalis (DRAPER), 1885, A., 931.  
 and other indicators (THOMSON), 1885, A., 1157.
- Lacquer** (*urushi*), chemistry of (YOSHIDA), 1883, T., 472.  
 diastatic matter of, and its action on urushic acid (YOSHIDA), 1883, T., 483.
- Lactalbumin** (SEBELIEN), 1885, A., 1000; (HALLIBURTON), 1891, A., 340.  
 estimation of, in condensed milk (FABER), 1890, A., 92.
- Lactam** (V. BAEYER and OECUNOMIDES), 1883, A., 202.  
 formation in the fatty series (ANSCHUTZ), 1890, A., 774.
- Lactamidobenzoic acid** (PELLIZZARI), 1886, A., 548.
- Lactamine** (ENGEL), 1884, A., 725.
- Lactanilide** (LEIPEN), 1888, A., 580.
- Lactarius piperatus**, constituents of (BISSINGER), 1884, A., 480; (CHODAT and CHUIT), 1890, A., 80.  
 fats obtained from (GÉRARD), 1891, A., 606.
- Lactarius piperatus**, sugars in (BOURQUELOT), 1891, A., 103.
- Lacterius vellereus**, fats obtained from (GÉRARD), 1891, A., 606.
- Lactates** (MEYER), 1886, A., 1009.
- Lactation**, influence of pilocarpine and atropine on (HAMMERBACHER), 1884, A., 1396.
- Lactic acid** (*inactive ethylidenelactic acid*; *α-hydroxypropionic acid*), presence of, in blood (BERLINERBLAT), 1888, A., 974.  
 presence of, in pale and red muscle (GLEISS), 1889, A., 177.  
 presence of, in urine (GAUBE), 1890, A., 188.  
 preparation of (JACQUEMIN), 1891, A., 1454.  
 formation of, from levulose (SOROKIN), 1886, A., 141.  
 formation of, from molasses, from raffinose, and from cane sugar (BEYTHIEN, PARCUS and TOLLENS), 1890, A., 583, 582.  
 formation of, from sugars (CUISINIER and KILIANI), 1888, A., 42.  
 formation of, in organs with impeded circulation and in hydrocyanic acid poisoning (ZILLESSEN), 1891, A., 1126.  
 formation of, in the organism (BERLINERBLAU), 1888, A., 974; (ARAKI), 1891, A., 1125, 1392; 1892, A., 517, 1113.  
 action of the bacillus of malignant cedema on (KERRY and FRAENKEL), 1890, A., 1454; 1892, A., 91.  
 changes in, in the muscle during work (MONARI), 1890, A., 185.  
 resolution of, into its optically active components (PURDIE and WALKER), 1892, T., 754; P., 132.  
 resolution of, by *Penicillium glaucum* (LISSOISSIER), 1892, A., 297.  
 oxidation of (ARISTOFF), 1885, A., 752.  
 pyrogenic decomposition of (HANSBIOT), 1886, A., 224.  
 compounds of (LEIPEN), 1888, A., 580.  
 aluminium and barium salts of (MEYER), 1886, A., 1009.  
 ammonium salt of, action of heat on, in presence of ammonia gas (ENGEL), 1884, A., 725.  
 detection and estimation of (PALM), 1887, A., 307.  
 detection and estimation of, in wines (MACH and PORTELE), 1890, A., 1345.  
 estimation of small quantities of (WINDISCH), 1888, A., 199.

- Lactic acid**, chloro-, decomposition products of the sodium salts of (REISSE), 1890, A., 1097.
- trichloro-*, preparation of glyoxal derivatives from (PINNER), 1884, A., 1298.
- thio-*, and its salts (LOVÉN), 1884, A., 1298.
- preparation of (BÜTTINGER), 1885, A., 752.
- phenyl-derivatives of (BAUMANN), 1885, A., 514.
- Paralactic acid** (*dextrorotatory*) (*sarcoc-lactic acid*) (LEWKOWITSCH), 1884, A., 296.
- presence of, in animals (HIRSCHLER), 1887, A., 167.
- presence of, in blood (BERLINERBLAU), 1888, A., 974; (SALOMON), 1889, A., 64.
- presence of, in the urine of cold-blooded animals after extirpation of the liver (NEDELTHAU), 1888, A., 1323.
- formation of, during the artificial circulation of blood through the liver (WISSOKOWITSCH), 1888, A., 860.
- formation of, during the fermentation of sugar (NENCKI and SIEBER), 1890, A., 78.
- formation of, during muscular activity and its fate in the organism (MARCEUSE), 1887, A., 508.
- formation of, in muscles (WERTHER; BÜHM), 1891, A., 348.
- formation of, in the organism (BERLINERBLAU), 1888, A., 974.
- of the thymus and thyroid (MOSCATELLI), 1888, A., 860.
- in the urine of soldiers after a forced march (CULASANTI and MOSCATELLI), 1888, A., 1321.
- Lactic acid** (*laxuratory*) (SCHARDINGER), 1891, A., 666.
- β*-Lactic acid**. See *Hydraerylic acid*.
- Lactic ferment** occurring in malt wort (LINDNER), 1888, A., 622.
- in milk (HUEPPE), 1885, A., 1170.
- Lactic fermentation**. See *Fermentation*.
- Lactim** (v. BAAYER and OECONOMIDES), 1883, A., 202.
- Lactobionic acid** (FISCHER and MEYER), 1889, A., 485.
- Lactoisocitric acid** (FITTIG and MILLER), 1890, A., 537.
- Lactocrite** (FABER), 1887, A., 1144; (NILSON), 1892, A., 550.
- Lactoglobulin** (SEBELLEN), 1885, A., 1000.
- Lactone**, double, obtained in the preparation of diphthalylethane (ROSER), 1885, A., 267.
- Lactone formation** in the case of hydroxy-acids, velocity of (HJELT), 1891, A., 822.
- Lactone ring**, resolution of, by alcohol and hydro-acids (BREDT), 1886, A., 531.
- Lactones** (FITTIG), 1884, A., 744; 1888, A., 251; 1890, A., 533; 1892, A., 812, 956.
- conversion of ketonic acids into (ROSER), 1885, A., 165; (THORNE), 1885, A., 1200.
- conversion of lactonic acids into (ERDMANN), 1885, A., 963.
- conversion of unsaturated acids into the isomeric (FITTIG), 1883, A., 730.
- derived from allylmalonic, diallylmalonic and diallylacetic acids (HJELT), 1883, A., 456.
- derived from glycines (ABENICUS), 1888, A., 825; 1890, A., 245.
- action of ammonia on (FITTIG), 1890, A., 879.
- action of ethylic oxalate on (WISLICENUS), 1888, A., 1194.
- action of phenylhydrazine on (WISLICENUS), 1887, A., 489.
- action of sodium and sodium ethoxide on (FITTIG), 1890, A., 866.
- action of water on (FITTIG), 1883, A., 730.
- condensation-products of (FITTIG), 1885, A., 375.
- combinations of, with ethereal salts (WISLICENUS), 1887, A., 952.
- β*-Lactone** of the quinoline series (EINHORN and LEINKERING), 1888, A., 1208.
- β*-Lactones**, aromatic, substituted (BASLER), 1884, A., 603, 1172.
- Lactonic acids** (FITTIG), 1888, A., 251; 1890, A., 533; 1892, A., 812, 956.
- action of sodium and sodium ethoxide on the ethereal salts of (FITTIG), 1890, A., 866.
- conversion of, into lactones (ERDMANN), 1885, A., 963.
- reciprocal transformations of hydroxy-acids and (HENRY), 1892, A., 1303.
- Lactose** (*milk-sugar*) and its derivatives. See under *Carbohydrates*.
- Lactosecarboxylic acid** (FISCHER), 1890, A., 599.
- Lactosin** (MEYER), 1884, A., 980.
- Lactotoluidides**, *o*- and *p*- (LEIPEN), 1888, A., 580.
- Lactotoxins** (FIRTH), 1887, A., 389.

- Lactucerin** (HESSE), 1886, A., 1020; 1888, A., 722; (KASSNER), 1887, A., 605.
- Lactuceroles**,  $\alpha$ - and  $\beta$ - (HESSE), 1886, A., 1021.
- Lactuol** (KASSNER), 1887, A., 606.
- Lactylcarbamide**. See Methylhydantoin.
- Lævulinic acid**. See Levulinic acid.
- Lævulose**. See Levulose under Carbohydrates.
- Lake deposits** of Kolsnaren, Viren, and Högsjön, Södermanland, Sweden (CRONQVIST), 1883, A., 448.
- "Lakes,"** coloured, formation of (VIGNON), 1891, A., 807.
- Lakmoid**. See Lacmoid.
- Lallemantia iberica**, oil of (RICHTER), 1888, A., 83.
- Laminaria**, sugar-like compound from (BAUER), 1889, A., 687.
- "Lamprophyry"** (PÖHLMANN), 1884, A., 1273.
- Lamps**, electric, preparation of carbons for, from furfuraldehyde or fucusaldehyde (SMITH), 1885, A., 1267.
- incandescent. See Incandescent lamps.
- Lanarkite** from Leadhills (COLLIE), 1889, T., 92.
- See also Lead sulphate.
- Land**. See Agricultural Chemistry.
- Langbanite** (FLINK), 1887, A., 782.
- place of, in the mineral system (BÄCKSTRÖM), 1891, A., 1436.
- Langite** from Klausen, Tyrol (v. FOULON), 1888, A., 429.
- Lanolin** (BRAUN), 1884, A., 784; (LIEBREICH), 1891, A., 97.
- See also Cholesterol.
- Lansfordite** (GENTH), 1888, A., 793; (GENTH and PENFIELD), 1890, A., 571.
- Lanthana**. See Lanthanum oxide.
- Lanthanum**, atomic weight of (CLEVE), 1883, A., 553; (BRAUNER), 1891, A., 831.
- extraction of, from cerite (ARCHE), 1884, A., 557.
- phosphorescence of (BETTENDORFF), 1891, A., 985.
- Lanthanum oxide** (*lanthana*) (BETTENDORFF), 1890, A., 852.
- phosphorescent, sharp line spectrum of (CROOKES), 1887, A., 1070.
- action of magnesium on (WINKLER), 1890, A., 693.
- salts, molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.
- metaphosphate (JOHNSON), 1889, A., 756.
- Lanthanum phosphates** (OUVRARD), 1888, A., 1037.
- sulphate, phosphorescence of (CROOKES), 1887, A., 1067.
- sulphides of (DIDIER), 1885, A., 955.
- Lapachol** (*hydroxyamylcinnaphthaquinone*; *lapachic acid*) (PATERNO), 1883, A., 210.
- occurrence of, in Bethabarra wood (GREENE and HOOKER), 1889, A., 794.
- constitution of (PATERNO), 1883, A., 214; (HOOKER and GREENE), 1889, A., 999; (HOOKER), 1892, T., 611.
- action of concentrated acids and of reducing agents on (PATERNO), 1883, A., 212.
- derivatives of (PATERNO), 1883, A., 210; (PATERNO and MINUNNI), 1890, A., 1310; (HOOKER), 1891, A., 1239; (PATERNO and CABERTI), 1891, A., 1494.
- acetyl-derivatives of (PATERNO), 1883, A., 211.
- bromo- (PATERNO), 1883, A., 211; (HOOKER), 1892, T., 638; P., 125.
- Lapacholoxime** (PATERNO and MINUNNI), 1890, A., 1310.
- $\beta$ -Lapachone** (PATERNO), 1883, A., 213.
- constitution of (HOOKER and GREENE), 1889, A., 1000.
- condensation of, with: thiophen (PATERNO and CABERTI), 1891, A., 1494.
- $\beta$ -Lapachones**, bromo- (HOOKER), 1892, T., 638; P., 125.
- Lapachones**,  $\alpha$ - and  $\beta$ - (HOOKER), 1892, T., 635, 636.
- isoLapachone** and  **$\beta$ -lapachoneoxime** (PATERNO and MINUNNI), 1890, A., 1310.
- "Lapidolyd"** (BELLMER), 1884, A., 1087.
- Larch fungus**, constituents of (JAHNKE), 1884, A., 353.
- Lard**, adulteration of (AMBÜHL), 1889, A., 659; (GLADSTONE), 1890, A., 93; (WILEY), 1891, A., 1560.
- adulteration of, with cocoa-nut oil (ALLEN), 1889, A., 320.
- analysis of (MUTER and DE KONINGH), 1891, A., 130.
- detection of beef stearin in (PATTINSON), 1890, A., 428.
- detection of cotton-seed oil in (BISHOP and INGE), 1889, A., 194; (ALLEN; HEHNER), 1889, A., 319; (WILLIAMS; JONES), 1889, A., 320; (AMBÜHL), 1889, A., 659; (PATTINSON), 1890, A., 428.
- detection of vegetable oils in (WELMANS), 1892, A., 1133.

- Lard**, estimation of beef fat in (WILSON), 1889, A., 659.  
 estimation of cotton-seed oil in (WILSON), 1889, A., 659; (BOCKAIRY), 1890, A., 307.
- Lard-cream** (WILLARD), 1884, A., 536.
- Lard-oil**, specific gravity and refractive index of (LONG), 1889, A., 86.  
 iodine number of, by Hubl's method (HAINES), 1892, A., 664.
- Laserpitine**, and its derivatives (KULZ), 1884, A., 182.
- Lasia**, hydrocyanic acid in the fruit of (GRESHOFF), 1891, A., 338.
- Latent heat**. See Thermochemistry.
- Latex**, proteid substance in (GREEN), 1886, A., 828.  
 of *Ficus Carica* (MUSSI), 1892, A., 653.
- Lathyrus**, analyses of (NILSON), 1892, A., 522.
- Laubanite**, a zeolite (TRAUBE), 1887, A., 903.
- Laubenheimer's reaction** (ODERNHEIMER), 1884, A., 1038.
- Laudanine** (HEESE), 1884, A., 616.
- Laumontite** (CROSS and HILLEBRAND), 1883, A., 957.  
 from Monte Catini (BECHI), 1883, A., 442.  
 from Striegau (TRAUBE), 1887, A., 903.
- Laurel**, leaves and berries of, essential oil from (WALLACH), 1889, A., 1072.  
 oil of (BRÜHL and MÜLLER), 1892, A., 722.
- Laurel-nut oil** (HOOPER), 1889, A., 541.
- Laurene** (1:2-dimethyl-4-ethylbenzene) (BRÜHL), 1888, A., 377.  
 an isomeride of (RENARD), 1884, A., 173.  
 Fittig's (ARMSTRONG and MILLER), 1884, A., 43.
- Laurenes** (UHLHORN), 1890, A., 1248.
- Lauric acid** (*dodecoic acid*), descent of the series from myristic acid to (LUTZ), 1886, A., 685.  
 heat of combustion of (STOHMANN and RODATZ), 1885, A., 1176.  
 heats of combustion and formation of (STOHMANN and LANGBEIN), 1891, A., 11.  
 specific and latent heats of (STOHMANN and WILSING), 1885, A., 1177.  
 action of bromine on (KRAFFT and BEDDIES), 1892, A., 696.  
 bromo- (AUWERS and BERNHARDI), 1891, A., 1190.
- Laurone** and **lauroneoxime**, preparation of (KIPPING), 1890, T., 981, 983.
- Lauronic acid** (WÖRINGER), 1885, A., 669.
- Laurotetanine**, the active constituent of certain Lauraceæ (GRESHOFF), 1891, A., 387.
- Laurus Persea**, a sugar from (MUNTZ and MARCANO), 1884, A., 1285.
- Lauryl chloride** (KRAFFT and BURGER), 1884, A., 1125.
- Lautarite** (DIETZE), 1892, A., 124.
- Lauth's violet** (BERNTSEN), 1883, A., 916; 1884, A., 595, 1156; 1885, A., 259.
- Lautite**, from Lauta, Saxony (WEISBACH), 1883, A., 432.
- Lava current** from Etna, chemical composition of various layers of (RICCIARDI), 1883, A., 36.
- Lavas**, recent Vesuvian (FREDA), 1890, A., 573.
- Lavatera arborea** (v. T.), 1884, A., 100.
- Lavender**, oil of (SEMMLER and TIEMANN), 1892, A., 868; (BERTRAM and WALBAUM), 1892, A., 1235; (SCHIMMEL), 1892, A., 1347.
- Lavendol** (SEMMLER and TIEMANN), 1892, A., 868.
- Lavenite** (BRÖGGER), 1886, A., 34.
- Law of Avogadro** (KREBS), 1885, A., 13; (SCHALL), 1887, A., 698.  
 of Boyle applied to salts in solution (ADIE), 1891, T., 351.  
 deviations of oxygen from, at low pressures (BOHR), 1886, A., 591.  
 relation of gases to, at high temperature (PUSCHL), 1888, A., 547.  
 of chemical combination (DE LANDERO and PRIETO), 1887, A., 99.  
 of cooling (RIVIERE), 1883, A., 144.  
 of diffusion of liquids (VERNON), 1891, A., 383.  
 of emanation of light from incandescent substances (MOLLEK), 1885, A., 623.  
 of freezing of solvents (RAOULT), 1883, A., 278.  
 of heat of solution (OSTWALD), 1888, A., 1020.  
 of van't Hoff, applicability of Planck's proof to the (ARRHENIUS), 1892, A., 935.  
 of isomorphism, modification of the usual statement of (KLEIN), 1883, A., 147.  
 of Joule, validity of, for electrolytes (JAHN), 1885, A., 1029; 1888, A., 10.  
 of molecular volumes and of boiling-points (GULDBERG), 1890, A., 1043.  
 of smallest volumes (MÜLLER-ERZBACH), 1884, A., 12.  
 of Stokes, of fluorescence (HAGENBACH), 1883, A., 537.

**Law of thermal constants** (TOMMASI), 1883, A., 143; 1884, A., 883; 1885, A., 8; 1886, A., 408.  
 of thermo-chemical moduli or constants of substitution (BERTHELOT), 1884, A., 702.  
 of thermodynamical coincidence, and its application to the theory of solution (NATANSON), 1892, A., 557.  
 of thermodynamics, second, and its application to chemical phenomena (LE CHATELIER), 1892, A., 3.  
 of volumes (HUNT), 1887, A., 99.  
 of volumes, Gay-Lussac's (LEDUC), 1892, A., 1271.  
 periodic. See Periodic law.  
**Laws of Berthollet** (BERTHELOT), 1883, A., 10; (COLSON), 1890, A., 1367.  
 of Bouty and Faraday (WURTZ), 1884, A., 882.  
 of Mariotte and of Gay-Lussac, relation of gases to the (PRÜHL), 1888, A., 16, 18.  
 thermochemical (BECKER), 1886, A., 498; (BOLTZMANN), 1887, A., 1072.  
**Layers**, formation of, in mixtures of alcohol, water and salts (TRAUBE and NEUBERG), 1888, A., 783.  
 formation of, in solutions of salts in mixtures of water and organic liquids (LINEBARGER), 1892, A., 1146.  
 metallic, thin, optical properties of (VOIGT), 1885, A., 1026.  
**Laserin** (*laxerol*) (KÜTZ), 1884, A., 183.  
**Lead**, native, from the Andaman Islands (MALLET), 1885, A., 1185.  
 in Idaho (BLAKE), 1884, A., 563.  
 from Pajsberg, Sweden (IGELSTRÖM), 1890, A., 111; (HAMBERG), 1890, A., 337.  
 molecular weight of (RAMSAY), 1889, T., 531, 533.  
 (metal) extraction of, from ores occurring in the Upper Hartz (IXON), 1883, A., 891.  
 extraction of, from residues obtained in the manufacture of zinc (PROST), 1888, A., 915.  
 slags and their analysis (ILES), 1888, A., 416.  
 waste, assay of (STAHL), 1891, A., 365.  
 electrolytic refining of (FISCHER), 1884, A., 934.  
 electrolytic crystallisation of (LEHMANN), 1890, A., 437.  
 dimorphism of (LEHMANN), 1890, A., 437.  
 specific heat of (NACCARI), 1888, A., 1236.

**Lead** (metal), occlusion of hydrogen by (SHIELDS), 1892, A., 942.  
 action of nitric acid on (VELEY), 1892, A., 410; (MONTMARTINI), 1892, A., 1403.  
 action of nitric oxide on (SABATIER and SENDERENS), 1892, A., 1151.  
 action of nitrosyl chloride on (SUBBOROUGH), 1891, T., 658.  
 action of petroleum on (FOX), 1888, A., 1249.  
 action of concentrated sulphuric acid on (PITKIN), 1885, A., 460.  
 action of certain vegetable acids on (HALL), 1883, A., 1038.  
 action of water on (ALLEN), 1883, A., 128; (MULLER), 1888, A., 225.  
 co-operation of water in the slow oxidation of (TRAUBE), 1885, A., 1105.  
 spongy, reducing action of (GLADSTONE and TRIBE), 1883, T., 347.  
 reduction with (ŠTOLBA), 1888, A., 756.  
 desilvering of (HAMPE), 1883, A., 134.  
 effect of, on the freezing point of cadmium (HEYCOCK and NEVILLE), 1892, T., 903.  
 effect of, on the freezing point of sodium (HEYCOCK and NEVILLE), 1889, T., 675.  
 effect of, on the freezing-point of tin (HEYCOCK and NEVILLE), 1890, T., 381.  
 effect of various metals on the freezing-point of (HEYCOCK and NEVILLE), 1890, P., 160.  
 lowering of the freezing-point of, when alloyed with other metals (HEYCOCK and NEVILLE), 1892, T., 888, 904; P., 145.  
 physiological effect of, on ruminants (EILLENBERGER and HOFMEISTER), 1885, A., 74.  
 distribution of, in the brain in cases of lead poisoning (BLYTH), 1887, P., 71.  
 distribution and elimination of (LEHMANN), 1883, A., 1163.  
**Lead alloys**, action of concentrated sulphuric acid on (PITKIN), 1885, A., 460.  
 with cadmium (LAURIE), 1889, T., 679; P., 147.  
 with copper and tin (FRENCH), 1890, A., 335.  
 with gold, analysis of (HEYCOCK and NEVILLE), 1892, T., 912.  
 with potassium and with sodium (JOANNIS), 1892, A., 773.

**Lead alloys**, with thallium, analysis of (HEYCOCK and NEVILLE), 1892, T., 914.  
 with tin (LAURIE), 1889, T., 677; P., 147.  
   specific heat of (SPRING), 1886, A., 961.  
   melting points of (WELD), 1891, A., 644.  
   specific gravity and composition of (KLEINSTUCK), 1889, A., 1051.  
 with tin and zinc (WRIGHT and THOMPSON), 1890, A., 336; 1891, A., 267.  
 with zinc (LAURIE), 1889, T., 678; P., 147.  
 with zinc and silver (WRIGHT and THOMPSON), 1891, A., 267.  
**Lead salts**, retention of, by filter paper (O'SHEA), 1886, P., 206.  
   double (BERTHELOT), 1883, A., 275; (ANDRÉ), 1883, A., 717, 903.  
**Lead antimonate** (BEILSTEIN and v. BLASE), 1889, A., 1124; (EBEL), 1890, A., 216.  
   magnesium bromide (OTTO and DREWES), 1892, A., 566.  
   potassium bromide (HERTY), 1892, A., 779.  
   oxybromide (ANDRÉ), 1883, A., 903.  
   oxybromides, heats of formation of (ANDRÉ), 1884, A., 384.  
   calcium salt, basic (KLINGLER), 1883, A., 904.  
   carbonate, preparation of (KUBEL), 1887, A., 446.  
     See also Cerussite.  
   carbonate, basic (*white lead*), manufacture of (ANON.), 1884, A., 1232.  
     composition of (BOURGEOIS), 1889, A., 21.  
   chloride, action of carbonic oxide on (BLOXAM), 1886, A., 17.  
     solubility of, in solutions of mercuric chloride (FORMÁNEK), 1887, A., 772.  
     solubility of, influence of hydrochloric acid on the (ENGEL), 1890, A., 109.  
   double chlorides of ammonium and (ANDRÉ), 1883, A., 717.  
   magnesium chloride (OTTO and DREWES), 1891, A., 151.  
   tetrachloride (NIKOLIUKIN), 1886, A., 123; (FRIEDRICH), 1890, A., 699.  
   oxychloride (ANDRÉ), 1883, A., 717, 903; 1887, A., 446.  
   oxychlorides, heat of formation of (ANDRÉ), 1884, A., 384.  
   calcium and strontium oxychlorides (ANDRÉ), 1887, A., 446.

**Lead chromate** (LACHAUD and LEPIERRE), 1892, A., 567.  
   combustion with (DE ROODE), 1890, A., 926.  
   basic (LACHAUD and LEPIERRE), 1892, A., 567.  
     See also Crocoite.  
   chromates, double (LACHAUD and LEPIERRE), 1890, A., 1065.  
   halogen salts of, action of ammonia on the (WOOD and BORDEN), 1885, A., 1114.  
   double halogen salts of (HERTY), 1892, A., 779.  
   imidosulphonates (DIVERS and HAGA), 1892, T., 969.  
   periodates (KIMMINS), 1889, T., 149.  
   potassium iodide, equilibrium of, with its aqueous solution (SCHREINEMAKERS), 1892, A., 560.  
   potassium iodides (HERTY), 1892, A., 779.  
   double iodides of potassium and, heat of formation of (BERTHELOT), 1883, A., 275.  
   brom- and chlorobrom-iodides (GRISOM and THORP), 1888, A., 916.  
   oxyiodide (GROGER), 1892, A., 1280.  
   nitrate, action of phosphorus oxychloride on (WILLIAMS), 1886, T., 224.  
   nitrates, basic (SMOLKA), 1885, A., 725; (WAKEMAN and WELLS), 1887, A., 1080.  
   nitride (CURTIUS), 1892, A., 112.  
   copper potassium nitrite (VAN LIESSEN), 1891, A., 1157.  
   oxides (KASSNER), 1890, A., 699.  
   monoxide (*litharge*), yellow and red (GEURGER), 1884, A., 824.  
     process for preparing (ANON.), 1883, A., 891.  
     action of, on barium, strontium, calcium and magnesium chlorides (ANDRÉ), 1887, A., 446.  
     action of magnesium on (WINKLER), 1891, A., 802.  
   hydrated (LUEDEKING), 1891, A., 644.  
   compound of, with raffinose (BEYTHIEN and TOLLENS), 1890, A., 580.  
   compounds of, with silver oxide (ASTON), 1891, T., 1093; P., 133.  
   dioxide, preparation of (FEHRMANN), 1883, A., 157.  
   electrical conductivity of (SHIELDS), 1892, A., 672.  
   influence of, on the decomposition of potassium chlorate (FOWLER and GRANT), 1890, T., 279.

**Lead dioxide**, hydrated, dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 70, 85.  
 analysis of (OPIFICIUS), 1889, A., 137.  
 examination of (EBELL), 1886, A., 742.  
*triprismatic tetroxide (red lead)*, process for preparing (ANON.), 1883, A., 891.  
 See also Minium.  
**phosphates** (OUVRARD), 1890, A., 1056.  
**phosphite**, hydrogen phosphite, nitrophosphite and pyrophosphite (AMAT), 1890, A., 945.  
**selenate** (MICHEL), 1888, A., 650.  
**silicate**, artificial, from Bonne Terre, Missouri (WHEELER), 1887, A., 109.  
 artificial, crystallised (DANA and PENFIELD), 1886, A., 317.  
**sulphate**, crystalline (KLOBB), 1892, A., 1399.  
 phosphorescence of (CROOKES), 1887, A., 1068.  
 analysis of (BENEDIKT), 1892, A., 1522.  
 See also Anglesite and Lanarkite.  
**aluminium sulphate** (BAILEY), 1888, A., 110.  
**nitrososulphate**, existence of (DIVERS and HAGA), 1885, T., 364; P., 45.  
**persulphate** (MARSHALL), 1891, T., 782.  
**sulphide**, preparation of (DOELTER), 1886, A., 208.  
 synthesis of, by means of thiocarbamide and the deposition of, as a specular film (REYNOLDS), 1884, T., 162.  
**precipitated**, composition of (ANTONY and LUCCHESI), 1890, A., 1217.  
 action of ferric chloride on (GABBA), 1889, A., 947.  
 analysis of (JANNASCH and ASCHOFF), 1892, A., 662; (JANNASCH and BICKES), 1892, A., 663; (BENEDIKT), 1892, A., 1522.  
 estimation of sulphur in (JANNASCH and ASCHOFF), 1892, A., 658.  
 See also Galena.  
**bromo- and chloro-sulphides** (PARMENTIER), 1892, A., 685.  
**silver thiobismuthite** (FOSTER), 1886, A., 515.  
**dithionate**, optical phenomena of (WYRUBOFF), 1886, A., 958.  
**trithionate** (FOGH), 1890, A., 700.  
**thiosulphate** and its decomposition by heat (FOGH), 1890, A., 700.

**Lead sodium thiosulphate** (VORTMANN and PADBERG), 1890, A., 12; (FOGH), 1890, A., 700.

#### Lead organic compounds:—

**aromatic compounds** (POLIN), 1887, A., 572; 1888, A., 233; 1889, A., 400.  
**chlorocyanide** (GRISSEM and THORP), 1888, A., 916.

**ferricyanide compounds** (RAMMELBERG), 1889, A., 950.

**bromo-, chloro- and iodo-thiocyanates** (GRISSEM and THORP), 1888, A., 916.

**Lead ores**, assay of, by the cyanide process (WARWICK), 1891, A., 863, 962; (COOPER), 1891, A., 962.

#### Lead, detection, estimation and separation—

**detection of bismuth in** (GUYARD), 1884, A., 640.

**detection of, in the body in cases of poisoning** (LEHMANN), 1883, A., 687.

**detection of, in presence of iron** (DEROS), 1884, A., 367.

**detection, electrolytic, of** (KOHN), 1892, A., 541.

**microchemical test for** (V. HAUSHOFFER), 1887, A., 301.

**assaying in the wet way** (ROESSLER), 1885, A., 596.

**estimation of** (BAUMANN), 1892, A., 539; (MEDICUS), 1892, A., 1522.

**estimation of, as lead dioxide by means of the electric current** (TENNEY), 1884, A., 777.

**estimation of, by phosphomolybdic acid** (BEUF), 1891, A., 113.

**estimation of, in alloys** (WACHSMUTH), 1887, A., 304.

**estimation of, in presence of iron** (DEROS), 1884, A., 367.

**estimation of, in tin** (PERRON), 1890, A., 665.

**estimation of, in tin-lead alloys** (SCHWARTZ), 1888, A., 992; (WINKLER), 1889, A., 309.

**estimation of, in tinplate** (CARLES), 1884, A., 1078.

**estimation, electrolytic, of** (BRAND), 1890, A., 295.

**estimation, electrolytic, of, as amalgam** (VORTMANN), 1891, A., 1553.

**estimation, volumetric, of** (SCHINDLER), 1888, A., 757; (NAMIAS), 1892, A., 1875.

**estimation, volumetric, of, in the presence of tin** (YVON), 1889, A., 549.

**separation of bismuth from** (LEMME), 1890, A., 421; (REMMER), 1892, A., 385.

- Lead**, separation of bismuth and, by means of bromine vapour (JANNASCH and ETZ), 1892, A., 540, 754.  
 separation of copper from (CLASSEN), 1888, A., 529.  
 separation of copper from, by refining, in Freiberg (ANON.), 1883, A., 400.  
 separation of gold, silver, copper and, from sulphides, by air blast (ANON.), 1883, A., 400.  
 separation of, from mercury and palladium (ROSENBLADT), 1887, A., 302.  
 separation of silver and (BENEDIKT and GANS), 1892, A., 1522.  
 separation of silver, zinc and, in galena and blende (AUBIN), 1892, A., 1378.  
 separation of tin, bismuth, cadmium and (JANNASCH and ETZ), 1892, A., 754.
- Lead chamber** deposit from Japanese sulphuric acid (DIVERS and SHIMOSÉ), 1884, A., 392.
- Lead flux**, estimation of small quantities of silver in (HEPPE), 1891, A., 1292.
- Lead pipes**, action of water on (REICHARDT), 1883, A., 344, 544; (CARNELLEY and FEW), 1888, A., 555.
- Lead precipitate**, influence of, on polarisation (SACHS and DE BARBIERI), 1885, A. 694.
- Lead works**, Mechernich, crystalline sulphides from (BRAND), 1890, A., 335.
- Leadhillite** from Leadhills (COLLIE), 1889, T., 91.
- Leaf-green**, observations on (HARTLEY), 1891, T., 106; P., 161.
- Leather**, vegetable (BAUER, BROUARD and ANCEL), 1885, A., 851.  
 detection of grape sugar in (KOHNSTEIN), 1886, A., 745.  
 estimation of nitrogen in (DANGUY), 1885, A., 930.
- Leaves**. See Agricultural Chemistry.
- Lecithin** (*protagon*) (DANILEWSKY), 1884, A., 1388; (BAUMSTARK), 1885, A., 920; (GIBSON), 1888, A., 1214.  
 in plants (HECKEL and SCHLAGDENHAUFFEN), 1886, A., 1064.  
 in the liver (HEFFTER), 1891, A., 1275.  
 in red blood corpuscles (MANASSE), 1890, A., 1017.  
 preparation of, from plant seeds (SCHULZE and LIKIERNIK), 1891, A., 413.
- Lecithin** (*protagon*), synthesis of (HUNDESHAGEN), 1884, A., 280.  
 fate of, in the body (HASEBROEK), 1889, A., 173.  
 estimation of, in the seeds of plants (SCHULZE and STEIGER), 1889, A., 645.
- Lecithins**, estimation of, in vegetable organisms (MAXWELL), 1891, A., 511.  
 rôle of, in normal germination (MAXWELL), 1891, A., 489.
- Leclanché cell**, and the reactions of manganese oxides with ammonium chloride (DIVERS), 1883, A., 272.
- Lecture apparatus** (VALENTINI), 1885, A., 215.  
 for making sulphuric anhydride (HODGKINSON and LOWNDES), 1888, A., 647.
- Lecture experiments** (DIVERS), 1883, T., 447; (V. HOFMANN), 1883, A., 280; (SCHWARZ), 1883, A., 292; (LADENBURG), 1883, A., 1048; (ROSENFELD), 1884, A., 258; (MEYER), 1884, A., 552; (RUDORFF), 1885, A., 869; (MÜLLER), 1886, A., 976.  
 with hydriodic acid (AUSTEN), 1889, A., 754.  
 with nitric acid (AUSTEN), 1889, A., 672.  
 with nitrogen chloride (MEYER), 1888, A., 343.  
 conversion of carbon dioxide into carbon monoxide (LEPSIUS), 1890, A., 1048.  
 conversion of oxygen into carbon monoxide (LEPSIUS), 1890, A., 1048.  
 conversion of steam into water gas (LEPSIUS), 1890, A., 1049.  
 conversion of sulphurous anhydride into carbon monoxide (LEPSIUS), 1890, A., 1049.  
 formation of acetylene (CAZENÈVE), 1884, A., 419.  
 formation of chromammonium compounds (KRATT), 1886, A., 849.  
 formation and decomposition of sulphurous anhydride (LEPSIUS), 1890, A., 1049.  
 preparation of ferrates (BLOXAM), 1886, A., 848.  
 preparation of potassium ferrate (MERMET), 1887, A., 769.  
 preparation of silicon hydride (MERMET), 1887, A., 769.  
 synthesis of ammonia (VALENTINI), 1887, A., 442.  
 composition of hydrochloric acid and other gases (ALESSI), 1889, A., 567.

- Lecture experiments**, composition, volumetric, of certain gaseous compounds (HAWKIDGE), 1889, A., 336.
- composition, volumetric. of nitrous and nitric oxides (KEISER), 1886, A., 660.
- on spectrum analysis (CLEMINSHAW), 1885, A., 1035.
- action of the electric arc on gases (LEPSIUS), 1890, A., 1047.
- electrolysis of ammonia (IRVING), 1886, A., 848.
- electrolysis of hydrochloric acid (ROSENFELD), 1886, A., 848; 1887, A., 633.
- delicate thermometer for (YOUNG), 1888, A., 410.
- the evolution and absorption of heat (FRANCHIMONT), 1883, A., 454.
- combustion of air in coal gas (CRAIG), 1888, A., 1244.
- combustion of hydrogen in nitric acid (HODGKINSON and LOWNDES), 1888, A., 1244.
- combustion of magnesium in water vapour (MOODY), 1891, P., 20.
- combustion of oxygen in ammonia (HODGKINSON and LOWNDES), 1888, A., 1244.
- explosion (OETTEL), 1888, A., 910.
- to illustrate the phenomena of coal dust explosions (THORPE), 1892, T., 414; P., 53.
- on flame (ANSCHUTZ and KEKULÉ), 1885, A., 1035.
- continuous flame of nitric oxide and carbon disulphide (VALENTINI), 1887, A., 442.
- decomposition of carbon disulphide by shock (THORPE), 1889, T., 220; P., 33.
- effusion of gases (FREER), 1892, A., 1150.
- dissociation of ammonium chloride (R. and G. F. R. BLOCHMANN), 1891, A., 1415.
- dissociation of phosphonium bromide (NEWTH), 1892, A., 401.
- demonstration of Avogadro's law (SCHALL), 1887, A., 698.
- demonstration of Dulong and Petit's law (SCHALL), 1887, A., 634.
- demonstration of Raoult's law (CIAMICIAN), 1889, A., 336.
- demonstration of valency (LEPSIUS), 1888, A., 410; 1890, A., 1050.
- coefficient of expansion of a gas (SCHIFF), 1887, A., 1013.
- diffusion of gases (BLITZ), 1892, A., 562.
- Lecture experiments**, occlusion of hydrogen by palladium (SCHIFF), 1885, A., 1035; (WILM), 1892, A., 563.
- burning sulphur in oxygen (NOYES), 1892, A., 679.
- combination of electrolytic gas (MEYER), 1892, A., 562.
- combination of nitric oxide and oxygen (AUSTEN), 1889, A., 754.
- Ledum camphor** (HJELT and COLLAN), 1883, A., 346.
- Ledum palustre*, camphor from the ethereal oil of (RIZZA), 1888, A., 845.
- Leech**, medicinal, action of a secretion obtained from (HATCHCRAFT), 1885, A., 571.
- extract, effect of, on blood (DICKINSON), 1891, A., 482.
- Leidenfrost's experiment** reversed, a lecture experiment (V. HOFMANN), 1883, A., 281.
- Legumin** (RITTHAUSEN), 1883, A., 675.
- Leguminosae**. See Agricultural Chemistry.
- Leguminous seeds**, composition of (WÄLGE), 1887, A., 991.
- Leken**, the paraffin from ozokerite (BEILSTEIN and WIEGAND), 1883, A., 1073.
- Lemon grass oil** (DODGE), 1891, A., 286.
- Lemon-juice**, production of ether by the action of *Aspergillus glaucus* on (PHIPSON), 1884, A., 855.
- concentrated, estimation of free and precipitable acid in (GROSJEAN), 1883, T., 333.
- estimation of citric acid in (WILLIAMS), 1890, A., 88.
- Lemon oil**. See Oil.
- Lemons**, Californian, analyses of (COLBY and DYER), 1892, A., 1511.
- essence of, and detection of oil of turpentine in (OLIVERI), 1891, A., 1496.
- Lepiden**. See Tetraphenylfurfuran.
- "*isoLepiden*," reduction of (JAPP and KLINGEMANN), 1889, P., 139; 1890, T., 691.
- Lepidine**. See 4'-Methylquinoline.
- Lepidium sativum*, influence of salt on the quantity of starch contained in the vegetating organs of (LESAGE), 1891, A., 1133.
- Lepidolite** (*lithia mica*), extraction of lithium from (ANON.), 1889, A., 344.
- See also Mica.
- Lepidolites** of Maine (CLARKE), 1887, A., 347.

- Lepidomelane** from Baltimore and Maine (CLARK), 1886, A., 678; 1888, A., 118.  
See also Mica.
- Lepidone-violet** and its base (REUSER), 1892, A., 499.
- Lepidote** from India, estimation of alkalis in (PAGE), 1884, A., 27.
- Lettsomite** from Arizona and from Utah (GENTH), 1891, A., 156.
- Lettuce**, existence of hyoscyamine in (DYMOND), 1891, F., 165; 1892, T., 90.  
cooked, composition of (WILLIAM), 1892, T., 227.
- Leucæmia**, excretion of uric acid and nitrogen in cases of (BOHLAND and SCHURZ), 1891, A., 483.
- Leucæmic patients**, peptones in the blood and organs of (V. JAKSCH), 1892, A., 519.
- Leucaniline** (RENOUF), 1883, A., 981.
- Paraleucaniline** (*trianidoditriphenylmethane*) and its compounds (RENOUF), 1883, A., 981.
- Leucotropic acid** (KUNZ), 1886, A., 266.
- Leucazocamphene** (TANRET), 1888, A., 720.
- Leucindigo**. See Indigo-white.
- Leucine** ( *$\alpha$ -amido-n-leucic acid*) (DUVILLIER), 1884, A., 664.  
constitution of (SCHULZE and LIKIERNIK), 1891, A., 681.  
optical rotatory power of (LEWKOWITSCH), 1884, A., 1115.  
heats of combustion and formation of (BERTHELOT and ANDRÉ), 1890, A., 936.  
condensation of, with benzene-sulphonic chloride (HEDIN), 1891, A., 202.  
action of methylic iodide on (KÖRNER and MENOZZI), 1884, A., 425.
- $\alpha$ -Leucinphthalic acid** (REED), 1888, A., 369.
- Leucinphthalic acids** (REED), 1888, A., 149.
- Leucite** (*white garnet*) (SCHUBERT), 1883, A., 35.  
from Wakefield, Canada (KUNZ), 1884, A., 328.  
metamorphism of (FREDA), 1884, A., 272.  
artificial reproduction of (C. and G. FRIEDEL), 1890, A., 1080; (MEUNIER), 1891, A., 22; (DUBOIN), 1892, A., 1161.  
analysis of (DOBLTER), 1883, A., 721.
- Leucite-basalt** from the Vogelsberg (SOMMERLAD), 1885, A., 33.
- Leucitophyre** from Persia (STEINECKE), 1890, A., 220.
- Leuco-compounds** from anthraquinone-dyes (LIEBERMANN), 1888, A., 492.
- Leuco-*o*-bromoquinonephenolimide** (MOHLAT), 1884, A., 594.
- Leucocythæmia**, the blood in (FREUND and OBERMAYER), 1891, A., 1124.
- Leucocytosis**, production of, in mammals (HORBACZEWSKI), 1891, A., 1340.
- Leucodextrin** (WIJMAN), 1890, A., 998.
- Leucogallol** (WEBSTER), 1884, T., 207.
- Leuco-indophenol**, preparation of (ANON.), 1883, A., 759.
- Leucoline**. See Quinoline.
- Leucomaines**. See Ptomaines.
- Leucomalachite-green** (*tetramethyldianidoditriphenylmethane*), preparation of (ELBS), 1884, A., 1619; (DOEBNER and PETSCHOW), 1888, A., 288; (NENCKI), 1889, A., 510.  
aldehyde (LOW), 1886, A., 461.  
*o*-nitro- (FISCHER and SCHMIDT), 1884, A., 1315.
- Leucomanganite** (v. SANDBERGER), 1885, A., 640.
- Leucomethylene colouring matters**.  
See under Colouring matters.
- Leuconditolylenequinoxaline** (NIETZKI and BENCKISER), 1886, A., 540.
- Leuconic acid** (*hydropyrocronic acid*) (NIETZKI and BENCKISER), 1886, A., 450, 540.  
oximes of, and their reduction products (NIETZKI and ROSEMAN), 1889, A., 769.
- Leuconotis eugenifolius**, alkaloid from (GRENHOF), 1891, A., 336.
- Leucophane** (BRUGGER), 1890, A., 1079.
- Leucophenosafrafrine**, constitution of (BERNTHSEN), 1887, A., 140.
- Leucosafranine** (WITT; NIETZKI), 1887, A., 250.
- Leucothionine** (BERNTHSEN), 1885, A., 259; 1886, A., 53.
- Leucoisothionine** (BERNTHSEN), 1886, A., 53.
- Leucothional** and **leucothionaline** (BERNTHSEN), 1886, A., 56.
- p*-Leucotoxinidine** (KLINGER and PITTSCHKE), 1885, A., 151.
- Leucoxene** (CATHREIN), 1885, A., 28.
- "Levain de chef"** (MARCANO), 1884, A., 532.
- Level** for gas analysis (LUNGE), 1892, A., 400.
- Levels**, ether (WEBER), 1889, A., 207.

- Levonic acid**, and its salts (WIEDERHOLD), 1885, A., 653.
- Levosin**, a carbohydrate from cereals (TANRET), 1891, A., 661.
- Levulinic acid** ( *$\beta$ -acetylpropionic acid*) (WOLFF), 1885, A., 1123; (MICHAEL), 1891, A., 1337.
- preparation of (RISCHBIETH), 1887, A., 799.
- formation of, as a test for carbohydrates (WEHMER and TOLLENS), 1886, A., 532; 1888, A., 535.
- constitution of (MICHAEL), 1888, A., 134.
- magnetic rotation of (PERKIN), 1892, T., 800.
- action of acetic anhydride on (MAGNANINI), 1888, A., 819.
- condensation of, with aldehydes (ERDMANN), 1892, A., 147.
- action of bromine on (HELL and KEHRER), 1884, A., 1297.
- condensation of, with furfuraldehyde (KEHRER), 1892, A., 142.
- action of iodic acid on (ANGELI and CHITSI), 1892, A., 1179.
- derivatives of (WOLFF), 1885, A., 1123; (MICHAEL), 1891, A., 1337.
- oxime of (THAL), 1892, A., 1074.
- phenylhydrazone (BENDER), 1888, A., 1188.
- p*-nitrophenylhydrazone (FISCHER and ACH), 1890, A., 41.
- salts of (BLOCK and TOLLENS), 1887, A., 800.
- reactions for (SELIWANOFF), 1887, A., 459.
- Levulinic acid**,  $\alpha$ -bromo- and  $\alpha\beta$ -dibromo- (WOLFF), 1891, A., 1187.
- $\beta$ -bromo- (WOLFF), 1887, A., 464.
- $\beta\beta$ -dibromo- (WOLFF), 1891, A., 417.
- chloro- and dichloro- (SEISSL), 1889, A., 489.
- Levulinic anhydride** phenylhydrazone (ACH), 1890, A., 70.
- p*-nitrophenylhydrazone (FISCHER and ACH), 1890, A., 41.
- Levulinic oxime** (DOLLFUS), 1892, A., 1202.
- phenylhydrazide, hydrazone of (BREDT), 1890, A., 864; (VOLHARD), 1892, A., 436.
- phenylhydrazonazobenzene (VOLHARD), 1892, A., 436.
- Levulose** and its derivatives. See Carbohydrates.
- Levulosecarboxylic acid**, preparation of (KILLIANI and DÜLL), 1890, A., 596.
- derivatives of (DÜLL), 1891, A., 547.
- lactone of (KILLIANI), 1886, A., 869.
- Levulo/lithiodiglycollic acid** (BONGARTZ), 1888, A., 479.
- Leyden batteries**, electric discharge of (DVOŘÁK), 1883, A., 763.
- Licarene** (MORIN), 1888, A., 1308.
- Licareol** and **licareone** (BARBIER), 1892, A., 1236.
- Licari kandi*, essential oil of (BARBIER), 1892, A., 1236.
- Licaryl methyl and ethyl ethers** (BARBIER), 1892, A., 1236.
- Lichenin** (HÖNIG and SCHUBERT), 1888, A., 127.
- Lichenin sugar** (BAUER), 1886, A., 869.
- Lichens**, assimilation by (JUMELLE), 1891, A., 1132.
- exchange of gases between, and the atmosphere (BONNIER and MANGIN), 1885, A., 580.
- Lichen-starch** (HÖNIG and SCHUBERT), 1888, A., 127.
- Lichenstearic acid**, preparation of (HILGER and BUCHNER), 1890, A., 600.
- Liebig** memorial statue at Munich (V. PETTENKÖFER; V. BAeyer and ZIMMERMANN), 1884, A., 880.
- Liebig's condenser**, a modified form of (SHENSTONE), 1883, T., 123.
- Liebig's extract of meat**, physiological action of (LEHMANN), 1886, A., 89.
- Liebigite**, so-called, from Joachimsthal (SCHRAUF), 1883, A., 955.
- Lievrite**. See Ilvaite.
- Life**, test for (KRETZSCHMAR), 1883, A., 489.
- Ligamentum nuchæ**, action of digestive fluids on (EWALD), 1889, A., 912.
- Light**, electric. See Electric Light under Electrochemistry.
- emitted by comets (BERTHELOT), 1886, A., 261.
- monochromatic, production of (FLEISCHL v. MARXOW), 1890, A., 549.
- simple burner for (NOACK), 1886, A., 14.
- for the determination of the magnetic rotary polarisation of compounds (PERKIN), 1884, T., 424.
- white, production of, by mixing the colours of the spectrum (STROUMBO), 1887, A., 1.
- law of emanation of, from incandescent substances (MÜLLER), 1885, A., 623.
- change in colour in felspar, due to the action of (ERDMANN), 1883, A., 438; 1886, A., 27.

- Light**, phosphorescence of minerals under the influence of (BLANCHARD), 1891, A., 776.  
 ultra-violet, influence of, on the electric discharge (HERIZ), 1888, A., 13.  
 influence of, on the electrical resistances of metals (BOSTWICK), 1885, A., 469.  
 influence of, on the electrical conductivity of selenium (KALISCHER), 1888, A., 99.  
 electromotive force produced by the action of, on selenium (KALISCHER), 1887, A., 693; 1889, A., 3; (V. ULJANIN), 1888, A., 583; 1889, A., 202; (RICHIE), 1889, A., 555.  
 sensitiveness of selenium and sulphur cells to (BIDWELL), 1886, A., 2.  
 influence of, on the heat conductivity of selenium (BELLATI and LUSIGNA), 1888, A., 98.  
 resistance to, of dyes fixed in tissues (JOFFRE), 1889, A., 12.  
 dessicator for substances sensitive to (LIEBERMANN), 1888, A., 1155.  
 influence of, on the development of bacteria (JAMIESON), 1884, A., 475.  
 influence of, on the growth of yeast (KEY), 1886, A., 387.  
 variation with temperature of the velocity of, in metals (KUNDT), 1889, A., 719.  
 velocity of, in carbon disulphide (GOUY), 1886, A., 957.  
 velocity of, in quartz (EXNLI), 1886, A., 653.  
 absolute unit of (VIOLE), 1885, A., 622.  
 a unit for the measurement of (V. SIEMENS), 1885, A., 1.  
 measurement of the quantity of, that enters water (REGNARD), 1891, A., 2.  
 See also Photochemistry.
- Lighting**, artificial, influence of, on the atmosphere of dwellings (FISCHER), 1884, A., 122.
- Lignic acids** (LANGR), 1890, A., 228.
- Lignification**, chemistry of (CROSS and BEVAN), 1883, T., 18; 1889, T., 199; P., 80.  
 technical aspects of (CROSS), 1883, A., 694.
- Lignin** (LANGE), 1889, A., 1235; 1890, A., 228; (LINDSEY and TOLLENS), 1892, A., 802.  
 quantitative reaction for (BENEDIKT and BAMBERGER), 1890, A., 1474.
- Lignite tar** (HULSTLER), 1892, A., 1075.
- Lignocellulose**, action of, with ferric ferriocyanide (ISAAC), 1892, A., 1421.
- Lignocelluloses** (CROSS and BEVAN), 1892, A., 693.  
 constitution of (CROSS and BEVAN), 1892, A., 129.  
 action of nitric acid on (CROSS and BEVAN), 1891, P., 61.
- Lignoceric acid**, occurrence of, in earth nut oil (KNEILING), 1888, A., 578.
- Lignose** (*wood-cellulose*), manufacture of (ANON.), 1884, A., 1451.  
 constitution of (CROSS and BEVAN), 1883, T., 20.
- Liliaceæ**, presence of salicylic acid in certain genera of the (GRIFFITHS), 1889, P., 122.
- Lily of the valley** (*Convallaria majalis*) (LANGEBLER), 1885, A., 271.
- Limburgite**, analysis of (DOLLIER), 1883, A., 722.
- Lime**, process for rendering cement and, less subject to atmospheric influences (PUSCHER), 1883, A., 398, 530.  
 "chloride of." See Calcium hypochlorite and Bleaching powder.  
 gas-. See Gas-lime.  
 milk of. See Calcium hydroxide.  
 osmose process, Dubrunfaut's (DE PUYDR), 1884, A., 941.  
 raffinose (BEYTHIEN and TOLLENS), 1890, A., 580.  
 saccharate, influence of chlorides of the alkalis and alkaline earths on the precipitation of, from warm solutions (DUGENER), 1883, A., 692.  
 "waste" from sugar factories as manure (STROHMER), 1884, A., 925; (HOLDFELDS and STROHMER), 1886, A., 647.  
 water. See Calcium hydroxide.  
 See also Calcium oxide.
- "Lime of Theil,"** action of water on (LANDRIN), 1883, A., 830.
- Lime-dialogite** (WEIBULL), 1884, A., 110.
- Lime juice**, estimations of free and precipitable acid in (GROSJEAN), 1883, T., 333.
- Lime leaves** (*Citrus Limetta*), essential oil of (WATIS), 1886, T., 316; P., 158.
- "Lime diphosphate"** (HASENGLEVER), 1885, A., 615.
- Lime-seed**, oil of (MUELLER), 1892, A., 92.
- Limestone** from the "Montagnola Senese" (FUNARO), 1890, A., 712.

- Limestone**, granular, of Stainz in Styria (HUSSAK), 1887, A., 780.  
older, of the secondary series, origin of iron, manganese, and zinc minerals in (DIEULAFAIT), 1885, A., 644.  
erosion of (EWING), 1885, A., 358.  
See also Calcium carbonate.
- Limettin** (TILDEN and BECK), 1890, T., 323; (TILDEN), 1892, T., 344; P., 33.  
action of hydrating agents on (TILDEN), 1892, T., 351.  
action of hydriodic acid on (TILDEN), 1892, T., 350.  
oxidation of (TILDEN), 1892, T., 346, 349.  
*di*bromo-, *tri*chloro-, and nitro- (TILDEN), 1892, T., 348, 349, 350.
- Limonene** (*citrene*, *hesperidene*) and its derivatives. See Terpenes.
- Limonetrol** (WAGNER), 1890, A., 1314.
- Limonite** (WELCH), 1885, A., 1116.  
from South Africa, composition of (RUSCOE), 1885, A., 132.  
in Texas (PENROSE), 1892, A., 1405.  
See also Ferric hydroxide under Iron.
- Limonite-pseudomorphs** after iron pyrites (SMITH), 1886, A., 992; (MEEM), 1887, A., 116.
- Linaloe oil** (SEMMLER), 1891, A., 540.
- Linalool** (SEMMLER), 1891, A., 540; (SEMMLER and TIEMANN), 1892, A., 868; (SCHIMMEL), 1892, A., 1347.
- Linamarin** (JURISSEN and HAIJES), 1892, A., 502.
- Linarite**, occurrence of, in slag (DUDGEON), 1885, A., 226.  
from Leadhills (COLLIE), 1889, T., 93.  
Russian (v. JEREMÉEFF), 1885, A., 1186.
- Linalra sericea**, ethereal oil of (KWASNICK), 1891, A., 464; 1892, A., 1480.
- Line spectra**. See Photochemistry.
- Linin** (SCHWARTZ), 1888, A., 983.
- Linkage**, double, theory of (SKRAUP), 1891, A., 1320.
- Linoleic acid** (*linolic acid*) (BAUER and HAZURA), 1886, A., 868; (PETERS), 1887, A., 126; (HAZURA), 1887, A., 913; 1888, A., 817; (NORTON and RICHARDSON), 1888, A., 44; (HAZURA and GRÜSSNER), 1888, A., 817; (REFORMATSKY), 1890, A., 362.
- Linoleic acid** (*linolic acid*), examination of commercial olein for (HAZURA), 1890, A., 306.  
falsification of oleic acid by (GRANVAL and VALSER), 1889, A., 799.  
oxidation of (HAZURA), 1887, A., 359; (DIEFF and REFORMATSKY), 1887, A., 716; (HAZURA and FRIEDREICH), 1887, A., 798.
- Linolenic acid** (HAZURA), 1887, A., 913; 1888, A., 817; (HAZURA and GRÜSSNER), 1888, A., 817.
- isoLinolenic acid** (HAZURA), 1888, A., 816; (HAZURA and GRÜSSNER), 1888, A., 817.
- Linolic acid**. See Linoleic acid.
- Linseed**, sugar from (BAUER), 1892, A., 1293.  
See also Agricultural Chemistry.
- Linseed oil**, adulteration of (AIGNAN), 1890, A., 1198.  
and linseed oil varnish, points of difference between (FINKNER), 1888, A., 327.
- Linusic acid** (*hexa-oxysearic acid*) (HAZURA), 1887, A., 359; 1888, A., 817; (HAZURA and FRIEDREICH), 1887, A., 798; (HAZURA and GRÜSSNER), 1888, A., 817.  
derivatives of (HAZURA), 1887, A., 359; (HAZURA and FRIEDREICH), 1887, A., 798.
- isoLinusic acid** (HAZURA), 1888, A., 816; (HAZURA and GRÜSSNER), 1888, A., 817.
- Lipaciduria** (v. JAKSCH), 1886, A., 1056.
- Liparites**, eutaxitic glasses of (WENCKOFF), 1891, A., 649.  
so-called, from the Siebengebirge (v. LASAULX), 1886, A., 603.
- Lipic acid** (CABETTE), 1886, A., 611.
- Liquid state**, limit of (HANNAY), 1883, A., 145.  
continuous changes from the gaseous to, at all temperatures (RAMSAY and YOUNG), 1887, A., 763; 1888, A., 18.  
influence of change from, to solid state, on vapour pressures (RAMSAY and YOUNG), 1885, A., 629; 1887, A., 430.  
and gaseous state of matter, representation of the connection between, by isopycnics (v. WROBLEWSKI), 1887, A., 432.
- Liquid**, a pathological, composition of (REGNAULD and VILLEJEAN), 1884, A., 1060.

- Liquids**, relation between solids, gases and (SPRING), 1884, A., 256.  
bouquet of fermented (JACQUEMIN), 1890, A., 1180.  
crystalline (LEHMANN), 1891, A., 219.  
atomic weights and densities of (MOULIN), 1891, A., 1315.  
molecular weights of, solids and (PICKERING), 1886, A., 198.  
molecular weights of, as evinced by their boiling points (VERNON), 1892, A., 107.  
relation between molecular weight of, and rate of evaporation of (SCHALL), 1884, A., 551, 950; 1885, A., 112; (SCHALL and KOSSAKOWSKY), 1891, A., 1317.  
constitution of (SCHROEDER), 1888, A., 422.  
nature of, as shown by a study of the thermal properties of stable and dissociable substances (RAMSAY and YOUNG), 1886, P., 226; 1887, A., 100, 430.  
theory of (KONOWALOFF), 1888, A., 1019; (GHIMALDI), 1888, A., 1143.  
composition of the vapour of mixed (WINKELMANN), 1890, A., 554.  
method of determining the purity of volatile (DUCLAUX), 1886, A., 322.  
free surface of (LIEBREICH), 1891, A., 1150.  
free surface of, increase of chemical energy at the (SPRING; BECHHOLD), 1890, A., 328.  
refractive indices of, instrument for comparing (SONDÉN), 1891, A., 959.  
refractive indices of, relation between compressibility and (QUINCKE), 1892, A., 669.  
refraction of, between wide limits of temperature (KETTELER), 1888, A., 511.  
double refraction of (FLEISCHL v. MARXOW), 1885, A., 318.  
electrical conductivity of, effect of pressure on the (BARUS), 1891, A., 250.  
insulating, dielectric constants of (QUINCKE), 1883, A., 945.  
behaviour of dielectric, under strong electric charges (QUINCKE), 1886, A., 959.  
specific inductive capacity of (NEGREANU), 1887, A., 413; (COHN and ARONS), 1888, A., 394, 395; (TOMASZEWSKI), 1888, A., 395.
- Liquids**, influence of magnetisation on the resistance of magnetic (NEESEN), 1885, A., 213.  
conduction of heat in (CHREE), 1888, A., 641.  
evolution of gases from homogeneous (VELEY), 1889, A., 94.  
heat of solution of gases in (PICKERING), 1892, A., 1042.  
mutual solution of (ALEXÉEFF), 1883, A., 11; 1885, A., 340.  
See also Solution.  
comparison of the latent heat of vaporisation of, in relation to their molecular weight (SCHALL), 1884, A., 551.  
specific heat of, at temperatures above the boiling point (GHIMALDI), 1892, A., 761.  
specific heat of, calculation of (HINRICHS), 1892, A., 2.  
thermal effect of mixing (KONOWALOFF), 1884, A., 1244.  
temperatures of saturated vapours of various, under the same pressure (COLOR), 1892, A., 1143.  
mixed, of constant boiling point (KONOWALOFF), 1884, A., 1247.  
evaporation of (HEMPER), 1888, A., 546.  
quantitative evaporation of, in the spheroidal state (BOHLIG), 1886, A., 647.  
boiling of, in a vessel contained in a water-bath (TOMLINSON), 1885, A., 474.  
relations between the boiling points, molecular volumes and chemical characters of (MASON; YOUNG), 1891, A., 379.  
critical state of, data for the (HEILBORN), 1891, A., 969.  
connection between the critical data of liquids and their chemical constitution (HEILBORN), 1891, A., 380.  
critical temperatures of mixed (SCHMIDT), 1892, A., 262.  
critical volumes of (DEWAR), 1885, A., 331.  
specific volumes of, method of determining the (YOUNG), 1890, P., 157; 1891, T., 37.  
specific gravity of, a function of their boiling points and molecular weights (RICHARDSON), 1891, A., 780.  
specific gravity of, determination of (PAGLIANI), 1884, A., 213.  
specific gravity of, easy method of finding (TAYLOR), 1888, A., 547.

- Liquids**, vapour tension of, influence of small amounts of impurities on (TAMMANN), 1888, A., 213.
- specific molecular volumes of (LOSSEN; ZANDER), 1883, A., 13; (BLASERNA and CANNIZZARO), 1883, A., 279; (SCHIFF), 1883, A., 1044; 1884, A., 386; (KOPF), 1884, A., 147; 1889, A., 566; (LOSSEN and ZANDER), 1884, A., 1252.
- specific molecular volumes and absolute boiling points of, relation between the (GRONHANS), 1886, A., 590.
- instruments for measuring (GREINER and FRIEDRICH), 1888, A., 1332.
- relation of volume, pressure and temperature in the case of (BARTUS), 1890, A., 321.
- alteration in the volume and specific gravity of, produced by the absorption of gases (ÅNGSTRÖM), 1888, A., 401.
- constants of capillarity of, at their boiling-point (SCHIFF), 1883, A., 549; 1884, A., 803; 1885, A., 717.
- influence of capillarity and diffusion on the solvent action of (V. KLOBUKOFF), 1890, A., 555.
- mean depression coefficient of (SCHIFF), 1884, A., 811.
- cohesion and adhesion of (SCHALL), 1885, A., 111.
- internal friction of (TRAUBE), 1886, A., 657; (GRAETZ), 1888, A., 776; (WAGNER), 1890, A., 441; (HANDL and PRIBRAM), 1892, A., 1143.
- law of diffusion of (VERNON), 1891, A., 383.
- compressibility of (AMAGAT), 1888, A., 215; 1891, A., 378.
- compressibility of, attempt to eliminate the influence of the change in volume of the vessel when measuring (V. BOGUSKI), 1888, A., 1019.
- expansibility of general law which governs the (DE HEEN), 1884, T., 408.
- expansion of (MENDELÉEFF), 1884, T., 126; (AMAGAT), 1888, A., 215; (NADESHDIN), 1888, A., 775; (KONOWALOFF), 1888, A., 1019; (GRIMALDI), 1888, A., 1143; (PICKERING), 1889, P., 89; 1891, A., 8.
- thermal expansion of, at various pressures (GRIMALDI), 1887, A., 626.
- expansion of, measuring (V. BOGUSKI), 1888, A., 1237.
- Liquids**, Mendeléeff's formula for the expansion of, and Thorpe and Rücker's formula for determining the critical temperature of, from their coefficient of expansion (BARTOLI and SFRAUCCIATI), 1885, A., 859.
- solidification of, by pressure (AMAGAT), 1887, A., 1013.
- dissociation of (ROOZEBOOM), 1886, A., 499.
- passage of alcoholic, through membranes (GAL), 1883, A., 549.
- passage of alcoholic, through porous vessels (GAL), 1883, A., 279.
- sterilisation of, by means of Papin's digester (HEYDENREICH), 1884, A., 864.
- sterilisation of fermentable, in the cold (GAUTIER), 1885, A., 287.
- organic, as solvents for metallic salts (ETARD), 1892, A., 558.
- opaque, burette float for (REY), 1891, A., 1288.
- examination and valuation of alcoholic (FRIESENICH), 1890, A., 1191.
- analysis of, application of capillary phenomena to (GOSSART), 1892, A., 236.
- analysis of volatile organic (REINHARDT), 1889, A., 1088.
- analysis, elementary, of highly volatile organic (KASNER), 1888, A., 197.
- analysis of pathological (HALLIBURTON), 1890, A., 1173; (PATEIN), 1891, A., 851.
- detection of bases in alcoholic (LINDER), 1888, A., 634.
- estimation of glycerol in fermented (LEGLER), 1887, A., 1142.
- See also Fluids.
- "**Liquor sodæ chloratæ**," constitution of (DUNSTAN and RANSOM), 1883, A., 647.
- Liquors**, alcoholic, purification of (NAUDIN), 1884, A., 645.
- estimation of (NESSLER and BARTH), 1883, A., 518.
- saccharine (NAUDIN), 1884, A., 645; (ANON.), 1884, A., 791.
- Liquoscope** (SONDÉN), 1891, A., 959.
- Liskeardite** (FLIGHT), 1883, T., 140.
- Listwaenite** from the Poroschnaja Mountain, near Nischne-Tagilsk (V. MIKLUCHO-MACLAY), 1885, A., 224.
- Litharge**. See Lead monoxide.
- Lithia**. See Lithium oxide.
- Lithia mica**. See Lepidolite.
- Lithionite-granites** (V. SANDBERGER), 1891, A., 652.
- Lithiophilite**, analyses of (PENFIELD), 1884, A., 26.

- Lithium**, occurrence of, in psilomelane (V. SANDBLBERG), 1887, A., 222.  
 molecular weight of (RAMSAY), 1889, T., 530, 532.  
 (metal), extraction of, from its minerals (ANON.), 1889, A., 344.  
 spectrum of (KAYSER and RUNGE), 1891, A., 137.  
 lines, order of reversibility of (LIVING and DEWAR), 1883, A., 839.  
 magnetic rotation of (PERKIN), 1890, P., 142.  
 effect of, on the freezing point of sodium (HAYCOCK and NEWELL), 1889, T., 675.
- Lithium salts**, molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
 phosphorescence of, in vacua (BROOKS), 1891, A., 249.  
 action of (HAGER), 1885, A., 411.  
 poisoning of plants by (GAUNERSDORFER), 1887, A., 991.  
 physiological action of (RICHTER), 1886, A., 88, 385; (BLAKE), 1886, A., 385.
- Lithium antimonate** (BEILSTEIN and V. BLÄSE), 1889, A., 1124.  
 arsenate, normal, crystalline, preparation of (DE SCHULTEN), 1890, A., 10.  
 bromate (POTILIZIN), 1892, A., 1275.  
 bromide, anhydrous, heat of solution of (BODISCO), 1889, A., 1093.  
 stannibromide (LETEUR), 1892, A., 121.  
 carbonate (FLUCKIGER), 1887, A., 1000.  
 preparation of, from lepidolite (THOMPSON), 1883, A., 1086.  
 solubility of (BEWAD), 1883, A., 634; (DRAFER), 1887, A., 699.  
 detection of sodium in (SYMONS), 1890, A., 547.  
 chlorate and perchlorate, decomposition of, by heat (POTILIZIN), 1889, A., 338, 339.  
 chloride, boiling-points of solutions of (SKINNER), 1892, T., 341.  
 copper chloride (CHASSEVANT), 1892, A., 118.  
 double chlorides of, with metals of the magnesium group (CHASSEVANT), 1892, A., 1275.  
 oxychloride (KRAUT), 1883, A., 17; 1884, A., 16; (LUNGE), 1884, A., 820.  
 lead chromates (LACHAUD and LEPERRE), 1890, A., 1065.  
 chromiodate (BERG), 1887, A., 777.  
 halogen salts, molecular refraction of (WEGNER), 1890, A., 549.  
 hydroxide, formation of hydrates of, from alcoholic solutions (GÜRRIG), 1888, A., 106.
- Lithium hypochlorite** (KRAUT), 1883, A., 17.  
 hypophosphate (RAMMELBERG), 1892, A., 403.  
 iodide, anhydrous, heat of solution of (BODISCO), 1889, A., 329.  
 molybdate, combination of, with tartaric acid (GERNETZ), 1889, A., 860.  
 rotatory power of compounds of malic acid with (GERNETZ), 1890, A., 744.  
 nitride (OUVRARD), 1892, A., 565.  
 oxide (*lithia*) (BEKETOFF), 1888, A., 1244.  
 heat of formation of (BEKETOFF), 1884, A., 1247; (MÜLLER), 1889, A., 811.  
 reduction of, by magnesium (WINKLER), 1890, A., 331.  
 phosphate, normal crystalline, preparation of (DE SCHULTEN), 1890, A., 10.  
 phosphates (RAMMELBERG), 1883, A., 424; (OUVRARD), 1890, A., 1055.  
 silicates (HAUTEFEUILLE and MARGOTTE), 1883, A., 559.  
 sulphate, solubility of (EGARD), 1888, A., 645.  
 anhydrous, heat of solution of (PICKERING), 1885, T., 98; 1886, T., 309.  
 monohydrated, heat of solution of (PICKERING), 1886, T., 310.  
 tungstates (FEIT), 1883, A., 344.  
 vanadates (DIRT), 1887, A., 705.  
 zirconate (OUVRARD), 1891, A., 1431.
- Lithium, estimation:**—  
 estimation of sodium and, in mixtures of their carbonates (HOLDERMANN), 1887, A., 864.  
 estimation of, as fluoride (CARNOT), 1888, A., 1312.  
 estimation of, in iron and slags (WARREN), 1888, A., 1256.  
 estimation of, in mineral waters (CARNOT), 1883, A., 1342; (WALLER), 1891, A., 1292.  
 estimation, quantitative, of (GORTIG), 1888, A., 106.  
 estimation, spectroscopic, of (BELL), 1885, A., 1012; (HOFMANN), 1886, A., 173.  
 estimation, indirect, of alkalis in presence of (KRAUT), 1883, A., 195.
- Lithomarge** from New South Wales (LIVERSIDGE), 1886, A., 774.
- Litmin** (HARTLEY), 1883, A., 295.
- Litmus** as an indicator (THOMSON), 1883, A., 682, 824; 1884, A., 691, 869.

- Litmus**, purification of (FOERSTER), 1889, A., 1086.  
 tincture of, decolouration of, in closed vessels (DUBOIS), 1889, A., 67.  
 action of acids on (MARSH), 1890, A., 792.  
 decolouration and recolouration of, by light (BELLAMY), 1889, A., 199.  
**Litmus paper**, neutral (MAYN), 1891, A., 1549.  
**Litre**, the true or Mohr's for volumetric analysis (FRIESENJUS), 1891, A., 1548.  
*Litsea chrysocoma*, alkaloid from (GRENHOF), 1891, A., 337.  
**Litter**. See Agricultural Chemistry.  
**Liver**, composition of, under varying conditions (WEISKE), 1887, A., 855.  
 so-called, of *Helix pomatia* (LEVY), 1891, A., 235.  
 of *Putilla vulgata* (GRIFFITHS), 1888, A., 178.  
 cephalopod, pancreatic functions of (GRIFFITHS), 1885, A., 829.  
 diastatic ferment of (KAUFMANN), 1890, A., 185.  
 disease, nature of the effusions in (HALLIBURTON), 1890, A., 1174.  
 excretion of urea in diseases of the (MORNER and SJOGUET), 1891, A., 758.  
 carbohydrates in human (KRATSCHEMER), 1885, A., 679.  
 cystin and xanthine in the horse's (DRECHSEL), 1892, A., 516.  
 formation of glycogen in (HERGENHAHN), 1890, A., 1334; (NEBELTHAU), 1891, A., 1526.  
 importance of ammonia in the formation of glycogen in (RÜHMANN), 1887, A., 68.  
 influence of alkalis on the glycogen of (DUFOUR), 1891, A., 758.  
 influence of arsenic and antimony on the glycogenic function and fatty degeneration of the (CHITTENDEN and BLAKE), 1889, A., 537.  
 influence of starvation on the glycogen of (ALDEHOFF), 1889, A., 427.  
 hemoglobin in blood passing to and from (V. MIDDENDORFF), 1889, A., 1023.  
 iron in the (DELÉPINE), 1890, A., 1177.  
 jecorin in the (DRECHSEL), 1886, A., 636.  
 production of lactic acid during the artificial circulation of blood through the (WISSOKOWITSCH), 1888, A., 860.  
 lactic acid in the urine of cold-blooded animals after extirpation of (NEBELTHAU), 1888, A., 1923.  
**Liver**, lecithin in the (HEFFTER), 1891, A., 1275.  
 conversion of peptone by the (SEEGEN), 1886, A., 382.  
 peptone the source of sugar in (SEEGEN), 1883, A., 818; 1888, A., 172.  
 post mortem formation of sugar in the (SEEGEN), 1888, A., 172; (GIRARD), 1889, A., 176.  
 power of the, to form sugar from fat (SEEGEN), 1887, A., 67.  
 of new-born dogs, estimation of glycogen in (DEMAINT), 1887, A., 167.  
 estimation of iron in the (V. ZALENSKI), 1886, A., 1054; (KRÜGER, MEYER and PERNOT), 1891, A., 848; (BUNGE), 1892, A., 1503.  
 of young animals, estimation of iron in (LAPORTE), 1890, A., 185.  
**Liver-cells**, crystals in the nuclei of (GRANDIS), 1891, A., 587.  
 proteins of (HALLIBURTON), 1890, A., 1014.  
**Live-weight**, influence of various salts on (WEISKE), 1892, A., 647.  
**Loam**, heavy, fertility of, increased by lime (JOHNSTONE), 1892, A., 523.  
**Lobelia**, alkaloids of (DRAGENDORFF and V. ROSEN), 1887, A., 854.  
**Lobeline** (PASCHKIS and SMITA), 1890, A., 1169.  
**Locust-bean**, the shells of, as a condiment (VOELCKER), 1884, A., 631.  
**Löllingite** from St. Andreasberg (LOUZKA), 1886, A., 513.  
 and other minerals from Colorado (HILLEBRAND), 1884, A., 826.  
**Loganetin and loganin** (DUNSTAN and SHORT), 1885, A., 396.  
**Logwood extract**, action of chlorine on (MACFARLANE and CLARKSON), 1890, A., 905.  
 extracts, testing (PALMER), 1889, A., 1091.  
**Lokanic and lokaonic acids** (KAYSER), 1886, A., 255.  
**Lokao** (*Chinese-green*) and lokaose (KAYSER), 1886, A., 254, 255.  
**"Longrain"** and measure of the foliation in schistose rocks by means of their thermic properties, study of (JANNETTAZ), 1883, A., 300.  
**Long-wool**, composition of (CHLUDINSKY), 1886, A., 105.  
**Lophin**. See Triphenylglyoxaline.  
*Lotus corniculatus* and *L. uliginosus*, composition of (NILSON), 1892, A., 522.  
**Lubricating oil**. See Oil.  
**Lucasite**, a variety of vermiculite (CHATARD), 1887, A., 349.  
**Lucerne**. See Agricultural Chemistry.

- Ludwigite** (WHITFIELD), 1888, A., 347.
- Lugano eruptive district** (HARAD), 1883, A., 167.
- Lungs**, influence of oxygen on the separation of carbonic anhydride in the (WERIGO), 1892, A., 1369.
- Lupanine**, the alkaloid of the blue lupine (HAGEN), 1886, A., 163; (SIEBERT), 1892, A., 223.
- Lupeol** (LIKIERNIK), 1891, A., 551, 1446.
- Lupoose**. See  $\beta$ -Galactan under Carbohydrates.
- Lupetidine**. See 2:6-Dimethylhexahydropyridine.
- $\alpha$ -Lupetidylalkine**. See Hydroxypropylpiperidine.
- Lupines**. See Agricultural Chemistry.
- Lupinidine**. See Alkaloids.
- Lupiniin** (BAUMERT), 1888, A., 1222.
- Lupinidine** (BAUMERT), 1884, A., 1387.
- Lupinine**. See Alkaloids.
- Lupinus albus***, alkaloids of (SOLDANI), 1892, A., 892.  
vanillin in the seeds of (CAMPANI and GRIMALDI), 1888, A., 983.
- Lupinus angustifolius*** an alkaloid (*lupanine*) from the seed of (HAGEN), 1886, A., 163; (SIEBERT), 1892, A., 223.
- Lupinus luteus***, base from (SCHULZE and STEIGER), 1886, A., 725.  
carbohydrate from the seed of (STEIGER), 1886, A., 608.  
composition of the seeds of (SCHULZE, STEIGER and MAXWELL), 1891, A., 1541.  
the liquid alkaloid from (BAUMERT), 1884, A., 1387.  
non-nitrogenous reserve substances of the seeds of (SCHULZE and STEIGER), 1890, A., 284.
- Lupulic acid** (BUNGENER), 1886, A., 509.
- Lupulin** (STOCKBRIDGE), 1890, A., 657.  
volatile fatty acids present in commercial (OSIPOFF), 1886, A., 1007.  
estimation of, in hops (REINITZER), 1890, A., 431.
- Lussatite**, a form of silica (MALLARD), 1890, A., 569.
- Lustre**, metallic (SPRING), 1889, A., 206.
- Lutecite** (MICHEL-LÉVY and MUNIER-CHALMAS), 1890, A., 712.
- Lutein** (MACMUNN), 1884, A., 196.
- Luteo- and roseo-salts**, relation between (JÜRGENSEN), 1884, A., 1093.
- Luteo-chromium-, cobalt and -rhodium salts**. See under Chromium, cobalt and rhodium.
- Lutidine** [b.p. 173°] (SCHTILONE and MAGNANIMI), 1883, A., 99.  
behaviour of, with metallic salts (OECHSNER DE CONINCK), 1885, A., 671.  
See also Dimethylpyridine.
- $\beta$ -Lutidine**. See 4-Ethylpyridine.
- hexahydride**. See Ethylpiperidine.
- $\psi$ -Lutidinecarbostyryl** (COLLIE), 1887, A., 502.
- Lutidinic acid**. See Pyridine-2:4-dicarboxylic acid.
- Lutidone**. See 2:6-Dimethylpyridone.
- $\psi$ -Lutidostyryl** (2:4-dimethylpyridone) and its derivatives (HANTZSCH), 1885, A., 397.
- $\psi$ -Lutidostyryl-mono- and -di-carboxylic acids** (NIEME and V. PECHMANN), 1891, A., 676.
- $\alpha$ -Lutidylalkine**. See Hydroxypropylpyridine.
- Lutidylquinoline**. See Dimethylpyridylquinoline.
- Luting** for conduct-pipes (ANON.), 1883, A., 536.
- Luzonite** from the Argentine (KLOCKMANN), 1891, A., 1435.
- Lycaconine and lycaconitine** (DRAGENDORFF and SPOHN), 1885, A., 403.
- Lycium barbarum***, alkaloids of (SCHÜTTE), 1892, A., 232.
- Lycoc tonic acid and lycoc tonicine** (DRAGENDORFF and SPOHN), 1885, A., 403.
- Lycopersicum esculentum***, composition of the fruit of (BRIOSI and GIGLI), 1891, A., 955; (PASSERINI), 1891, A., 956.
- Lycopodium***, acids from (LANGER), 1889, A., 1059.  
spores, constituents of (LANGER), 1889, A., 741.
- Lycopodium Saururus***, alkaloids from (ARATA and CANZONERI), 1892, A., 894.
- Lymph**, effect of peptone on the clotting of (SHORE), 1891, A., 481.  
human (MUNK and ROSENSTEIN), 1891, A., 755, 849.
- Lysatine and lysatinine** (DRECHSEL), 1891, A., 95.
- Lysine** (DRECHSEL and KRÜGER), 1892, A., 1500.

## M.

- Macassar oil** (THUMMEL and KWASNICK), 1891, A., 1133.
- Mace oil** (WALLACH), 1889, A., 1072; (SEMMLER), 1890, A., 1150.
- Macleaya cordata***, alkaloid of (ELJEMAN), 1885, A., 404.

**Macleayine** (ELFKMAN), 1885, A., 404.  
*Maclura aurantiaca*, composition of the leaves of (PIZZI), 1891, A., 490, 954.  
*Macropiper methysticum* (*Kauu-kauu*), substance from the root of (DAVIDOFF), 1888, A., 1207.  
**Madder**, Caucasian, examination of (BERGAMI), 1887, A., 1061.  
**Madder colours** (WURTZ), 1883, A., 598.  
**Magdala red and magenta**. See under Colouring Matters.  
**Magnas**, fused, action of, on various minerals (DOELTER and HUSSAK), 1884, A., 401.  
**Magnesia**. See Magnesium oxide.  
**"Magnesia alba"** (KRAUT), 1883, A., 153.  
**Magnesia industry** (SCHLESING), 1885, A., 1166.  
**Magnesia-knebelite** from Dalecarlia (IGELSTRÖM), 1890, A., 1075.  
**Magnesia-mica**, artificial (VOGT), 1888, A., 1260; (V. CHRUSTSCHOFF), 1890, A., 343.  
**Magnesium**, presence of, in calcium and sodium phosphates (SCHLAGDENHAUFFEN), 1890, A., 664.  
 atomic weight of (MARIGNAC), 1884, A., 815; (BURTON and VORCE), 1890, A., 850.  
 molecular weight of (RAMSAY), 1889, A., 531, 533.  
 (metal), preparation of (WALTER), 1884, A., 1231; (V. PÜTTNER), 1885, A., 1112.  
 production, electrolytic, of (GROTH), 1885, A., 940; (FISCHER), 1885, A., 942.  
 burnt, ammonia in (ASLANOĞLU), 1890, A., 1209.  
 spectrum of (HARTLEY), 1883, T., 392; (LIVEING and DEWAR), 1883, A., 2; 1889, A., 89; (AMES), 1891, A., 1.  
 mathematical analysis of the (GRÜNWARD), 1888, A., 389, 882.  
 heats of combination of bromine and iodine with (BEKETOFF), 1892, A., 762.  
 melting point of (MEYER), 1887, A., 445.  
 combustion of, in water vapour (MOODY), 1891, P., 20.  
 action of alkaline carbonates and dicarbonates on (BALLÓ), 1883, A., 574.  
 action of ammonia on (WARREN), 1889, A., 345; (MERZ), 1892, A., 409.

**Magnesium** (metal), action of bromine on (GAUTIER and CHARPY), 1892, A., 118.  
 action of, on chlorides (SEUBERT and SCHMIDT), 1892, A., 776.  
 action of chlorine on (COWPER), 1883, T., 154; (GAUTIER and CHARPY), 1892, A., 118.  
 action of ethylic and methylic iodides on (LÖHR), 1891, A., 683.  
 action of hydrogen peroxide and of water saturated with carbonic anhydride on (GIORGIS), 1892, A., 17.  
 action of nitric acid on (MONTE-MARTINI), 1892, A., 1403.  
 action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 656.  
 action of propylic iodide on (LÖHR), 1891, A., 684.  
 as a reagent (WARREN), 1890, A., 195.  
 reduction of oxygen compounds by (WINKLER), 1890, A., 331, 451, 693, 1372; 1891, A., 801, 1155.  
 platinised, as a reducing agent (BALLÓ), 1883, A., 1053.  
 use of, in primary batteries (HEIM), 1883, A., 1002.  
 use of, for Bengal lights (ANON.), 1885, A., 1172.  
 effect of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 381.  
 lowering of the freezing point of lead by (HEYCOCK and NEVILLE), 1892, T., 904.  
**Magnesium halogen compounds** (CROSS and BEVAN), 1888, P., 91.  
 compounds of, with hydrocarbon radicals, experiments on the existence of (MANSON and WILSMORE), 1891, P., 16.  
 salts, magnetic rotation of (PERKIN), 1890, P., 142.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
 and ammonia, thermochemistry of reactions between (BERTHELOT), 1887, A., 96.  
 acetate, basic ("sinidor") (ANON.), 1883, A., 396.  
 arsenate (DE SCHULTEN), 1885, A., 724.  
 ammonium arsenate (BLAREZ), 1887, A., 204.  
 potassium and sodium arsenates (LEFÈVRE), 1890, A., 562, 563.  
 orthoborate [ $Mg_3B_2O_7$ ] (LE CHATELIER), 1892, A., 404.

**Magnesium boride** (WINKLER), 1890, A., 693.  
 bromide and ammonium bromide (LEROY), 1884, A., 262, 263.  
 lead bromide (OTTO and DREWES), 1892, A., 566.  
 manganese bromide (SAUNDER), 1892, A., 781.  
 potassium bromide (LEROY), 1884, A., 262; (FIET), 1889, A., 827.  
 stannibromide (LETEUR), 1892, A., 121.  
 carbonate, solubility of, in carbonic acid (ENGEL), 1885, A., 484.  
   and its combination with potassium hydrogen carbonate (ENGEL), 1886, A., 121.  
   and potassium hydrogen carbonates, limit to the combination of (ENGEL), 1885, A., 872.  
 hydrocarbonate (ENGEL), 1885, A., 724.  
 chloride, anhydrous (HEMPEL), 1888, A., 554.  
   solubility of, in water at 0° (ENGEL), 1887, A., 771.  
   decomposition of, in solution (FOUSSEREAU), 1886, A., 975.  
   solutions, boiling points of (SKINNER), 1892, T., 341.  
   solutions, electrolysis of (CROSS and BEVAN), 1888, P., 91.  
   manufacture of chlorine from (DEWAR), 1888, A., 411.  
 lead chloride (OTTO and DREWES), 1891, A., 151.  
 manganese chloride (SAUNDER), 1892, A., 781.  
 sodium chromate (STANLEY), 1887, A., 111.  
 chromiodate (BERG), 1890, A., 1378.  
 chromites, basic (VIAUD), 1891, A., 987.  
 mercury bromo- and iodo-cyanides (VARET), 1891, A., 1442.  
 hydride (WINKLER), 1891, A., 1156.  
 hydrosulphide solution and its use in chemico-legal cases as a source of hydrogen sulphide (DIVERS and SHIMIDZU), 1884, T., 699.  
 hydroxide, crystallised, formation of (DE SCHULTEN), 1885, A., 1183.  
 iodide and potassium iodide (LEROY), 1884, A., 262.  
 molybdate, rotatory power of compounds of malic acid with (GERNEZ), 1890, A., 744.  
   combination of, with tartaric acid (GERNEZ), 1889, A., 859.  
 permolybdate (PÉCHARD), 1892, A., 1160.

**Magnesium nitride** (WINKLER), 1890, A., 451; (MERZ), 1892, A., 409.  
 suboxide (GORT), 1885, A., 123.  
 oxide (*magnesia*), containing rare earths (JOHNSON), 1886, A., 980.  
 crystalline (BRUGELMAN), 1890, A., 850.  
 effects of the presence of, in Portland cement (LECHARTIER), 1886, A., 770.  
 fluorescence of (LECOQ DE BOISBAUDRAN), 1887, A., 409.  
 phosphorescence of (CROOKES), 1887, A., 1068.  
 action of hydrogen peroxide on (KURILOFF), 1892, A., 1278.  
 action of magnesium and hydrogen on (WINKLER), 1891, A., 1156.  
 dissociation of, by means of metallic magnesium (MORSE and WHITE), 1891, A., 643.  
 saturation of arsenic acid by (BLAREZ), 1887, A., 204.  
 See also Periclase.  
 peroxide (GIBSON and MORRISON), 1886, A., 305.  
 hypophosphate (RAMMELBERG), 1892, A., 404.  
 phosphate, crystallised (DE SCHULTEN), 1885, A., 724.  
 ammonium phosphate (GAWALOWSKI), 1886, A., 204; (BERTHELOT), 1887, A., 202.  
 crystals of, in urine (WEISKE), 1883, A., 609.  
 solubility of, in alcohol (WAKEMAN), 1888, A., 1131.  
 estimation of nitrogen in (MAISEN and ROSSI), 1890, A., 291.  
 potassium and sodium phosphates (OUVRARD), 1888, A., 1035.  
 selenites (BOUZOUHEANT), 1891, A., 262.  
 silicates, action of sea-water on (JOHNSTON), 1890, A., 451.  
 silicide (WINKLER), 1890, A., 1372.  
 preparation of (GÄFFERMAN), 1889, A., 342.  
 sulphate (BAILEY), 1887, T., 682.  
   anhydrous, monohydrated, and heptahydrated, heats of solution of (PICKERING), 1885, T., 100; 1886, T., 291.  
   solubility of (ETARD), 1883, A., 645.  
 See also Epsomite.  
 ammonium sulphate, form of crystals of, after expulsion of the ammonia (WARINGTON), 1888, P., 65.  
 copper potassium sulphate (ROY), 1887, P., 53.

- Magnesium** iron sulphate, native (BLAAS), 1884, A., 269.  
 potassium sulphate. See Potassium magnesium sulphate.  
 sulphite (HARTOG), 1887, A., 886.  
 use of, in sugar factories (BERGREEN and LICHT), 1884, A., 939.  
 ammonium sulphite (HARTOG), 1887, A., 887.  
 ammonium and potassium thio-sulphates (FOCK and KLÜSS), 1890, A., 564.  
 vanadates (MANASSE), 1887, A., 339.
- Magnesium**, cyanogen compounds of (VARET), 1891, A., 1442.  
 dimethyl (LOHR), 1891, A., 683.  
 ethyl, attempts to prepare (MASSON and WILMORE), 1891, P., 17.
- Magnesium**, estimation and separation:—  
 precipitation of (BLUM), 1889, A., 1087.  
 estimation of (BROCKMANN), 1883, A., 380; (BRIANT), 1886, A., 490.  
 estimation of, in guncotton (SCHJERNING), 1892, A., 1520.  
 estimation of, in presence of manganese (ŠTOLBA), 1887, A., 865.  
 separation of aluminium, calcium and (BLUM), 1889, A., 652.
- Magnesium** copper group, isomorphous mixtures of sulphates of (ROY), 1887, P., 53.  
 mixed double sulphates of (RÄY), 1889, A., 346.
- Magnesium** zinc group, peroxides of (HAASS), 1885, A., 20.
- Magnet**, action of a, on chemical action (ROWLAND and BELL), 1839, A., 9.  
 iron, electrochemical effects with (ANDREWS), 1890, A., 678.
- Magnetic field**, chemical behaviour of iron in (NICHOLS), 1886, A., 668.  
 influence of, on the electrical resistance of gases (WITZ), 1890, A., 1359.  
 effect of, on the thermoelectric properties of bismuth (GRIMALDI), 1888, A., 102.  
 influence of temperature and state of aggregation on the behaviour of bismuth in (DRUDE and NERNST), 1891, A., 779.  
 thermal and electrical behaviour of some bismuth-tin alloys in the (v. ETTINGSHAUSEN and NERNST), 1883, A., 546.  
 variations in the electric resistance of antimony and cobalt in (FAK), 1887, A., 760.
- Magnetic forces**, influence of, on the nature of the heat conductivity of bismuth (v. ETTINGSHAUSEN), 1888, A., 400.
- Magnetic intensity**, absolute, new method of directly measuring (LEDUC), 1884, A., 1243.
- Magnetic iron ore**. See Magnetite.
- Magnetic pyrites**. See Pyrrhotite.
- Magnetic rotation**. See Photochemistry.
- Magnetisation**, influence of, on the resistance of magnetic liquids (NEESSEN), 1885, A., 213.
- Magnetism**, relation between atomic weight and (ERRERA), 1891, A., 518; (BACHMETIEFF), 1892, A., 672.  
 effect of, on chemical action (LOEB), 1891, A., 1145.  
 of organic compounds (WLEÜGEL and HENRICHSSEN), 1884, A., 1243; (HENRICHSSEN), 1888, A., 769; 1892, A., 672.  
 of salts of metals of the iron group, effect of temperature on the (PLECHNER), 1890, A., 678.  
 units of (CLAUSIUS), 1883, A., 764.
- Magnetite** (*magnetic iron ore*), compact, from Cogne, Valley of Aosta (ZECCHINI), 1883, A., 429.  
 from Scalotta (CATHREIN), 1886, A., 928.  
 artificial production of (GORGEU), 1887, A., 708.  
 magnetism of (HORNSTEIN), 1886, A., 654.  
 association of, with sphene and rutile (CATHREIN), 1885, A., 27.  
 ore districts in Brazil (DERBY), 1891, A., 994.  
 See also Ferrosferic oxide under Iron.
- Magnitudes**, molecular (RÜCKER), 1888, T., 260; P., 10.
- Mahwa flowers** (CHURCH), 1886, A., 389; (HECKEL and SCHLAGDENHAUFFEN), 1889, A., 434.
- Mairogallol** (WEBSTER), 1884, T., 208.
- Maize**. See Agricultural Chemistry.
- Maize-fibrin** (CHITTENDEN and OSBORNE), 1892, A., 749.
- Maize-kernel**, proteids of the (CHITTENDEN and OSBORNE), 1892, A., 379, 746, 749.
- Maize-myosin and -vitellin** (CHITTENDEN and OSBORNE), 1892, A., 747.
- Maize-starch**, absorption spectrum of (HARTLEY), 1887, T., 59.  
 manufacture of (v. WÄGNER), 1884, A., 528.

- Malachite**, artificial formation of (DE SCHULTEN), 1890, A., 454.
- Malachite-green**. See Colouring matters.
- Malacolite** from the Lizard (TEALL), 1891, A., 276.
- Malamic acid**. See Maleinamic acid.
- Malamidobenzoic acids** (SCHIFF), 1886, A., 621.
- Malanilic acid**. See Maleinanilic acid.
- Maleates**, ethereal (OSSIPPOFF), 1889, A., 237.  
action of sodic alcoholates on (PURDIE), 1885, T., 855.
- Maleic acid**, molecular weight of (PATERNO and NASINI), 1888, A., 1059.  
conversion of fumaric acid into (TANATAR), 1892, A., 1306.  
constitution of (ANSCHUTZ), 1887, A., 916; (MICHAEL), 1888, A., 134; (WISLIZENUS), 1888, A., 1058.  
geometrical formula of, deduced from its products of oxidation (LE BEL), 1883, A., 44.  
isomerism of fumaric acid and (PETRIEFF), 1884, A., 1301; (ANSCHUTZ), 1887, A., 916; 1888, A., 448; 1890, A., 363; (OSSIPPOFF), 1889, A., 124.  
magnetic rotatory power of (PERKIN), 1888, T., 572, 591.  
molecular refraction of (KNOPS), 1888, A., 938; 1889, A., 198.  
heat of combustion of (LUGININ), 1888, A., 893.  
thermochemistry of (GAL and WERNER), 1887, A., 205; (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (STOHMANN and KLEBER), 1892, A., 1041.  
action of, on aniline (OSSIPPOFF), 1889, A., 124.  
action of bromine on (FITTIG), 1891, A., 39.  
conversion of, into aspartic acid (ENGEL), 1887, A., 917; (KÖRNER and MENOZZI), 1887, A., 1100.  
transformation of, into aspartic acid and asparagine (KÖRNER and MENOZZI), 1887, A., 1100.  
conversion of, into fumaric acid (SEMENTOFF), 1889, A., 1146; (SKRAUP), 1890, A., 1897; 1891, A., 1338; (DELISLE), 1892, A., 297; (TANATAR), 1892, A., 1305.  
homologues of (BISCHOFF), 1891, A., 291.
- Maleic acid**, bromo-, action of aniline on (MICHAEL), 1886, A., 698.
- Maleic acid**, dibromo- (CIAMICIAN and SILBER), 1884, A., 1117.  
chloro- (KAUDER), 1885, A., 652; (PERKIN), 1888, T., 706; P., 75.  
dichloro-, and its anhydride (KAUDER), 1885, A., 652.
- Maleic anhydride**, preparation of (VOLHARD), 1892, A., 963.  
rate of formation of (REICHER), 1885, A., 757.  
magnetic rotatory power of (PERKIN), 1888, T., 568, 596.  
heat of hydration of (OSSIPPOFF), 1890, A., 680.  
action of phosphorus pentachloride on (ANSCHUTZ and WIRTZ), 1885, T., 899.  
chloro- (PERKIN), 1888, T., 703.
- Maleic anilide** (MICHAEL and PALMER), 1888, A., 461.  
bromide, bromo- (HILL and SANGER), 1884, A., 1305.  
tetrachloride,  $\alpha$ - and  $\beta$ -dichloro- (KAUDER), 1885, A., 652.  
dianilide (ANSCHUTZ and WIRTZ), 1887, A., 934; (MICHAEL and PALMER), 1888, A., 461.  
phenylimide (*malcinanil*) (ANSCHUTZ and WIRTZ), 1887, A., 934; (OSSIPPOFF), 1889, A., 124.  
dichloro- (KAUDER), 1885, A., 652.  
chloride of, dichloro- (ANSCHUTZ and BEAVIS), 1891, A., 1047.  
diethyl and dimethyl ethers, dichloro- (ANSCHUTZ and BEAVIS), 1891, A., 1048.
- Maleimide**. See Maleinimide.
- Maleinamic acid** (*malamic acid*) (CURTIUS and KOCH), 1887, A., 34; (ANSCHUTZ), 1891, A., 176.  
dichloro- (CIAMICIAN and SILBER), 1890, A., 25.
- Maleinanil**. See Maleic phenylimide.
- Maleinanilic acid** (*malanilic acid*) (ANSCHUTZ), 1891, A., 176.
- Maleinimide** (*maleimide*), derivatives of (CIAMICIAN and SILBER), 1889, A., 384.  
dibromo- (CIAMICIAN and SILBER), 1884, A., 1116; 1885, A., 993.  
chloro- (CIAMICIAN and SILBER), 1884, A., 293.  
dichloro- (CIAMICIAN and SILBER), 1884, A., 293, 1115.  
action of phosphorus pentachloride on (CIAMICIAN and SILBER), 1884, A., 1116.  
derivatives of (CIAMICIAN and SILBER), 1890, A., 24.  
chloramido- (CIAMICIAN and SILBER), 1890, A., 25.

- Maleinmethylimide**, *di*bromo- (DE VARDA), 1889, A., 57.
- Maleylphenylhydrazide** (ANSCHÜTZ), 1885, A., 1049; (HÜTTE), 1887, A., 671.
- Malic acid** (VAN'T HOFF), 1885, A., 1201; 1886, A., 48; (SCHMIDT), 1886, A., 869.  
in suint (A. and P. BUISINE), 1888, A., 976.  
synthesis of (V. GARZAROLLI-THURNLACKH), 1892, A., 429.  
obtained from fumaric acid, decomposition of (BREMER), 1886, A., 48.  
optical properties of (BELL), 1886, A., 1.  
heat of neutralisation of (GAL and WERNER), 1887, A., 96, 205.  
thermochemistry of (MASSOL), 1892, A., 260.  
action of, on ammonium molybdate (GERNEZ), 1889, A., 1147.  
condensation product of (V. PECHMANN), 1884, A., 1124; (V. PECHMANN and WELSH), 1885, A., 174.  
combination of, with alkaline phosphomolybdates (GERNEZ), 1891, A., 545.  
combination of, with potassium sodium molybdate and with acid sodium molybdate (GERNEZ), 1891, A., 291.  
combination of, with normal potassium and sodium tungstates (GERNEZ), 1890, A., 1102.  
rotatory power of compounds of, with normal lithium and magnesium molybdates (GERNEZ), 1890, A., 744.  
calcium salts of (IWIG and HECHT), 1886, A., 870.  
ethereal salts of (ANSCHÜTZ), 1885, A., 1049.  
homologues of (MICHAEL and TISSOT), 1891, A., 1455.  
estimation of, in wine (GANS), 1890, A., 427; (NIEDERHAUSER), 1891, A., 128; (SCHNEIDER), 1891, A., 371.  
separation of, from citric, succinic and tartaric acids (MICKO), 1892, A., 1531.
- isoMalic acid**. See Citric acid.
- Malic  $\alpha$ -dinaphthalide** (BISCHOFF and NASTVOGEL), 1890, A., 1163.  
**diphenylhydrazide** (BULOW), 1887, A., 138.  
action of carbonyl chloride on (FREUND), 1892, A., 511.
- Malic di-*o*- and -*p*-toluidides** (BISCHOFF and NASTVOGEL), 1890, A., 1163.  
***β*-naphthyl and *o*-toluid** (BISCHOFF and NASTVOGEL), 1890, A., 1163.
- Mallotoxin** (A. G. and W. H. PERKIN), 1887, A., 272; (JAWEIN), 1887, A., 498.
- Malonamide** (HENRY), 1885, A., 886.  
preparation of (FREUND), 1884, A., 728.  
*diamido*- (CONRAD and BRUCKNER), 1892, A., 40.  
*di*bromo- (FREUND), 1884, A., 1124.  
*imido*- (CONRAD and BRUCKNER), 1892, A., 40.
- Malonamidobenzoic acid** (SCHIFF), 1886, A., 549.
- Malonanilic acid** (*phenylmalonanilic acid*) (SEMENT), 1885, A., 983.  
and some of its salts (RUGHEIMER), 1884, A., 729.
- Malonanilide** (FREUND), 1884, A., 728.
- Malonates**, solubilities of (KLEEMANN), 1886, A., 935.  
ethereal, action of zinc and ethylic or allylic iodide on (MARTINOFF and SCHUKOWSKI), 1888, A., 820.
- Malonic acid** (KOMNENOS), 1884, A., 422; (FREUND), 1884, A., 728, 1123.  
magnetic rotatory power of (PERKIN), 1888, T., 562, 587.  
heat of neutralisation of (GAL and WERNER), 1887, A., 96; (MASSOL), 1888, A., 1240; 1889, A., 857.  
specific heat of (HESN), 1889, A., 93.  
thermochemistry of (LUGININ), 1889, A., 5; (STOHMANN, KLEBER and LANGEIN), 1889, A., 1097; (MASSOL), 1891, A., 963.  
behaviour of, on heating (KRAFFT and NOERDLINGER), 1889, A., 690.  
peculiar reaction of (KLEEMANN), 1886, A., 935.  
action of aldehydes on (KOMNENOS), 1884, A., 422; (CLAISEN), 1884, A., 445.  
action of benzaldehyde on (CLAISEN and CRISMER), 1884, A., 444.  
condensation-products formed by benzaldehyde with (STUART), 1883, T., 403.  
action of cinnamic and salicylic aldehydes on (STUART), 1886, T., 365.  
action of *o*-nitrocinnamaldehyde on (EINHORN and GEHRENBEC), 1890, A., 163.  
action of phosphorus pentachloride on (BEHAL and AUGER), 1889, A., 958.

- Malonic acid derivatives** (FREUND), 1884, A., 728, 1123; (RUGHEIMER), 1884, A., 729.  
 substituted derivatives of, action of nitric acid on (FRANCHIMONI), 1886, A., 533.  
*phenylhydrazide* (FISCHER and PASSMORE), 1890, A., 155.  
 ammonium salts of (MASSOL), 1889, A., 857.  
 barium salts of, heats of formation and solution of (MASSOL), 1889, A., 958.  
 calcium salt of (MASSOL), 1889, A., 691.  
 lithium salts of, and their heats of formation (MASSOL), 1890, A., 1396.  
 potassium salt of, thermochemistry of (MASSOL), 1888, A., 1239.  
 potassium hydrogen salt of (MASSOL), 1890, A., 740.  
 silver salt of, heat of formation of (MASSOL), 1890, A., 1397.  
 sodium salt of, thermochemistry of (MASSOL), 1888, A., 1239.  
 strontium salt of (MASSOL), 1889, A., 691.  
**Malonic acid, halogen derivatives of** (CONRAD and BRUCKNER), 1892, A., 89.  
*di-bromo-* (MASSOL), 1892, A., 1140.  
 cyano-, ethereal salts of (HALLER), 1889, A., 858.  
 nitroso-, constitution of (MEYER and MULLER), 1883, A., 790.  
**Malonic chloride, thermochemistry of** (BERTHELOT), 1891, A., 967.  
**Malonobisphenylhydrazide** (FREUND and GOLDSMITH), 1888, A., 686.  
*s-Malonotribromanilide* (FREUND), 1884, A., 1123.  
**Malonodianilide** (RUGHEIMER), 1884, A., 729; (QUENDL), 1892, A., 1072.  
**Malonodinitrile** (HENRY), 1886, A., 786, 860.  
 heats of combustion and formation of (BERTHELOT and PETIT), 1889, A., 812.  
**Malonophenylhydrazide** (FISCHER and PASSMORE), 1890, A., 155.  
**Malonyldibenzamic acid** (SCHIFF), 1884, A., 906; 1886, A., 549.  
**Malonyl-p-toluidic acid** (RUGHEIMER and HOFFMANN), 1884, A., 1023.  
**Malonyltoluidic acids, isomeric, and their salts** (RUGHEIMER and HOFFMANN), 1886, A., 147.  
**Malt** (ANON.), 1883, A., 631.  
 stored (ANON.), 1885, A., 1169.  
 preparation of (BERNHEUTHER), 1885, A., 1278.  
**Malt, albuminoids in, behaviour of tannin in hops towards** (MORITZ and LEE), 1884, A., 527.  
 nitrogenous constituents of (ULLIE), 1883, A., 821; 1884, A., 526; (LINTNER), 1884, A., 790; (BUNGENER and PHIES), 1884, A., 1446.  
 non-nitrogenous extract-substance from (LINTNER), 1891, A., 957.  
 distribution of diastase in (BROWN and MORRIS), 1890, T., 508.  
 oxalic acid in (SIEWERT), 1883, A., 232.  
 from 1877 barley, composition of (ANON.), 1883, A., 111.  
 and barley, and analyses of (ANON.), 1884, A., 233.  
 biological test for (FAULKNER and VIRTUE), 1888, A., 1223.  
 estimation of acidity of (PRION), 1887, A., 87.  
 See also Barley and Brewing.  
**Maltase** (WISSMAN), 1890, A., 998.  
**Malt-combings, utilisation of, in the manufacture of pressed yeast** (HAY-DUCK), 1884, A., 790.  
 and the amides contained in them, influence of, on the yield of milk (SCHRODT and HANSEN), 1885, A., 920.  
**Malt-extract by different waters** (MORITZ and HARTLEY), 1884, A., 1445.  
 diastasic power of (CRIPPS), 1890, A., 432.  
 analysis of (JUNGK), 1884, A., 529.  
 estimation of (KRUIS), 1884, A., 1439.  
**Maltic acid** (CUISINIER and KILIANI), 1883, A., 42.  
**Malto- $\gamma$ -diamidobenzoic acid** (GRIEN and HARROW), 1887, A., 931.  
**Maltobionic acid** (FISCHER and MEYER), 1889, A., 1132.  
**Maltodextrin** (BROWN and MORRIS), 1889, T., 560; (HLEZFELD), 1896, A., 221; (BROWN), 1886, A., 438.  
 molecular weight of (BROWN and MORRIS), 1889, T., 465; P., 96.  
**Maltosaccharin** (CUISINIER and KILIANI), 1883, A., 42.  
**Maltose and its derivatives.** See Carbohydrates.  
**Malt-peptone** (SZYMANSKI), 1885, A., 822.  
**Malt-residues, formation of arabinose and xylose from** (STONE and TOLLENS), 1889, A., 480.  
**Malt-wort, lactic ferment occurring in** (LINDNER), 1888, A., 622.  
**Malyldibenzamic acid** (SCHIFF), 1886, A., 622.  
**Mammals, formation of uric acid in the blood of** (MAREŠ), 1892, A., 1257.

- Mammals**, origin of uric acid in (HOR-  
BACZEWSKI), 1890, A., 184.  
production of leucocytosis in (HOR-  
BACZEWSKI), 1891, A., 1840.
- Manchester yellow** (*Martius' yellow*;  
*dinitro- $\alpha$ -naphthol*), physiological  
action of (WEYL), 1888, A., 1122.  
toxic effect of (CAZENEUVE and LE-  
PINE), 1886, A., 273.
- Mandelamide** (BEYER), 1884, A., 65;  
(PULVERMACHER), 1892, A., 1203.
- Mandelic acid** ( *$\alpha$ -hydroxyphenylacetic  
acid*; *phenylglycollic acid*) (MICHAEL  
and JEANPRÉTRE), 1892, A.,  
1088.  
preparation of (ENGLER and WOHRLE),  
1887, A., 948.  
action of nitric acid on (PRATESI),  
1892, A., 607.  
active, conversion of, into inactive  
(LEWKOWITSCH), 1884, A., 318.  
derivatives of (THATE), 1884, A.,  
1170; (BEYER), 1885, A., 982.  
derivatives, preparation of (ENGLER  
and WOHRLE), 1887, A., 948.  
preparation of the amide, anilide and  
phenylhydrazide of (BIEDERMANN),  
1892, A., 473.  
nitrile of (MICHAEL and JEANPRÉTRE),  
1892, A., 1088.
- Mandelic acid**, 4-iodo- (SCHWEITZER),  
1891, A., 831.  
*o*-nitro- (ENGLER and WOHRLE), 1887,  
A., 948; (ENGLER and ZIELKE),  
1889, A., 508.  
action of reducing agents on  
(THATE), 1884, A., 1170.  
reduction of (DUPARC), 1887, A.,  
948.  
*p*-nitro-, preparation of (ENGLER and  
ZIELKE), 1889, A., 508.  
*o-p*-dinitro- (PRATESI), 1892, A., 607,  
1333.
- i*-Mandelic acid, separation of, into two  
optically active isomerides (LEW-  
KOWITSCH), 1883, A., 1124.
- l*-Mandelic acid (LEWKOWITSCH), 1883,  
A., 1124.
- Mandelic anilide** (REISSERT and KAY-  
SER), 1891, A., 438.
- Mandelic tropeine** (*homatropine*), salts  
of (LADENBURG), 1883, A., 671.
- Mandelic  $\psi$ -tropine** ( *$\psi$ -homatropine*)  
(LIEBERMANN and LIMPACH), 1892,  
A., 891.
- Mandragora**, alkaloids of (AHRENS),  
1889, A., 1074, 1222.
- Mandragorine** (AHRENS), 1889, A.,  
1074, 1222.
- Manganese** in marine muds (IRVINE  
and GILSON), 1891, A., 995.
- Manganese** in sea-water and in certain  
marine deposits (DIEULAFAIT),  
1883, A., 725.  
on the surfaces of rocks (BOUSSIN-  
GAULT), 1883, A., 170.  
existence of, in plants and animals  
(MAUMENÉ), 1885, A., 421.  
in wines and other vegetable and  
animal products (MAUMENÉ), 1884,  
A., 879.  
substitution of, for iron in plant  
nutrition (SPAMPANI), 1891, A.,  
1394.  
fluorescence of (LECOQ DE BOISBAU-  
DRAN), 1887, A., 189, 873, 1006.  
fluorescence of compounds of, in a  
vacuum under the influence of  
the silent discharge (LECOQ DE  
BOISBAUDRAN), 1887, A., 3.  
in fluorescent mixtures (LECOQ DE  
BOISBAUDRAN), 1888, A., 1229.  
in fluorescent mixtures, degree of  
oxidation of (LECOQ DE BOISBAU-  
DRAN), 1888, A., 329, 544, 1001,  
1229; 1889, A., 2.  
phosphorescence of, in the sulphides  
of the alkaline earth metals  
(KLATT and LENARD), 1890, A., 201.  
atomic weight of (DEWAR and SCOTT),  
1883, A., 856; (MARGNAC), 1884,  
A., 814.  
molecular weight of (RAMSAY), 1889,  
T., 532, 533.  
(metal) extraction of, from its ores  
(ANON.), 1884, A., 1233.  
preparation of (GLATZEL), 1890, A.,  
110.  
magnetic properties of (WARREN),  
1887, A., 1081.  
specific gravity of (GLATZEL), 1890,  
A., 110.  
chemistry of (CHRISTENSEN), 1886,  
A., 854.  
action of carbonic oxide on (GUNTZ),  
1892, A., 568.  
action of nitric acid on (MONTE-  
MARTINI), 1892, A., 1404.  
action of nitrosyl chloride on (SUN-  
BOROUGH), 1891, T., 660.  
effect of, on the properties of steel  
(OSMOND), 1887, A., 639.  
effect of, on the phosphorescence of  
calcium carbonate (BECQUEREL),  
1887, A., 190.
- Manganese alloy** with iron. See  
Ferromanganese.
- Manganese compounds** (FRAYKE), 1887,  
A., 1016; 1888, A., 229; (SCHJERN-  
ING), 1892, A., 1052.
- Manganese**, salts of, effect of roasting  
on (GORGUT), 1888, A., 653.

- Manganese antimonate** (BEILSTEIN and V. BLASÉ), 1889, A., 1124; (EBEL), 1890, A., 216.
- arsenate** (CHRISTENSEN), 1884, A., 399; (COLORIANU), 1886, A., 771; (LEFÈVRE), 1890, A., 563.
- arsenates from Nordmarken in Weimland** (SJOEGREN), 1885, A., 959.
- potassium and sodium arsenates** (LEFÈVRE), 1890, A., 563.
- carbonate, action of air on** (GORGEU), 1889, A., 830.
- See also Rhodochrosite.
- chloride** (CHRISTENSEN), 1887, A., 335; (SAUNDERS), 1892, A., 780.
- electrolytic conductivity of** (HAMPE), 1888, A., 889.
- action of metallic oxides on** (ANDRI), 1888, A., 651.
- double chlorides** (SAUNDERS), 1892, A., 780.
- tetrachloride** (VERNON), 1890, P., 58; 1892, A., 19; (PICKERING), 1892, A., 687.
- ammonium and potassium chromates** (HENSEN), 1886, A., 426.
- fluoride** (CHRISTENSEN), 1887, A., 335.
- ammonium fluoride** (CHRISTENSEN), 1887, A., 448, 892.
- potassium fluorides** (CHRISTENSEN), 1887, A., 336.
- sodium fluoride** (CHRISTENSEN), 1887, A., 448.
- hydroxide** (*manganic hydroxide*) from the Euganean, Italy (DI BOCARD), 1892, A., 689.
- action of aluminium sulphite on** (SCURATI-MANZONI), 1884, A., 700.
- See also Manganite.
- molybdate** (COLORIANU), 1880, A., 760.
- oxides** (CHRISTENSEN), 1884, A., 397; (RAMMELBERG), 1888, A., 232; (GORGEU), 1890, A., 570.
- formation of deposits of** (DUNNINGTON), 1889, A., 21.
- formation of, in the wet way** (GORGEU), 1889, A., 829.
- effect of roasting on** (GORGEU), 1888, A., 653.
- actions of, with ammonium chloride** (DIVERS), 1883, A., 272.
- action of hydrogen peroxide on** (GORGEU), 1890, A., 946.
- monoxide** (*manganous oxide*), **action of nitric oxide on** (SABATIER and SENDERENS), 1892, A., 1152.
- Manganous acid** (FRANKE), 1888, A., 229; (GORGEU), 1890, A., 1060.
- Manganites of the alkaline earths** (ROUSSEAU), 1885, A., 1114; 1886, A., 425.
- Manganese dioxide** (*peroxide*) (GORGEU), 1891, A., 270.
- natural formation of** (BERGHELOI), 1883, A., 425.
- constitution of** (SPRING and LUCION), 1890, A., 566.
- action of hydrochloric acid on** (VERNON), 1890, P., 58.
- action of selenious acid on** (LATIGIER), 1887, A., 775.
- influence of, on the decomposition of potassium chlorate** (MCLEOD), 1889, T., 184; P., 26; (FOWLER and GRANT), 1890, T., 277.
- estimation of, by means of hydrogen peroxide** (CHARPENIER), 1885, A., 1162; (BAUMANN), 1891, A., 245.
- estimation, volumetric, of** (HARVEY), 1883, A., 513; (LUNGE), 1890, A., 1470.
- titration of, in Weldon muds** (M'KELLAR), 1890, A., 548.
- See also Pyrolusite.
- hydrated** (FRANKE), 1888, A., 229; (GORGEU), 1890, A., 1060.
- See also Psilomelane.
- Manganic acid** (FRANKE), 1887, A., 894.
- sulphur derivatives of** (KRÜSS), 1884, A., 1269.
- Manganates, formation of, from permanganates** (ROUSSEAU), 1887, A., 552.
- sesquioxide, compound of, with cupric oxide** (SCHNEIDER), 1887, A., 1081.
- See also Braunitz.
- trioxide** (FRANKL), 1887, A., 893; (THORPE and HAMBLY), 1888, T., 175; P., 2.
- trimanganic trioxide** ( $Mn_2O_4$ ) (FRANKE), 1887, A., 1016.
- See also Hausmannite.
- heptoxide** (THORPE and HAMBLY), 1888, T., 177.
- Permanganic acid, action of hydrogen peroxide on** (GORGEU), 1890, A., 1062.
- Permanganates, action of hydrogen peroxide on** (GORGEU), 1890, A., 1062; (ENGEL), 1892, A., 277.
- formation of manganates and manganites from** (ROUSSEAU), 1887, A., 552.
- compounds of ammonia with** (KLOBB), 1886, A., 983; 1888, A., 230; 1890, A., 947.

**Permanganates**, titration of, with hydrogen peroxide (VANINO), 1891, A., 246.

**Manganic manganous oxide** ( $Mn_2O_3$ ) (FRANKE), 1887, A., 1016.

**Manganese soluble oxide** (SPRING and DE BOECK), 1888, A., 228.

**phosphate** (CHRISTENSEN), 1884, A., 399.

**sodium metaphosphate** (SCHJERNING), 1892, A., 1053.

**hydrogen and potassium pyrophosphates** (SCHJERNING), 1892, A., 1052.

**sodium pyrophosphate** (CHRISTENSEN), 1884, A., 399.

**alkali phosphates** (O'VARRA), 1888, A., 1035.

**selenites** (BOUTZOREANT), 1888, A., 220; 1891, A., 262.

**silicates** (DES LOIZELATX), 1886, A., 320.

See also Manganese-spar and Rhodonite.

**chloro- and iodo-silicates** (GORGU), 1884, A., 562, 563.

**sulphate** (CLAASSEN), 1887, A., 774.

**aluminium sulphate**, a new hydrous, from Sevier Co., Tennessee (BROWN), 1885, A., 226.

**zinc ammonium sulphate** (ROY), 1887, P., 53.

**oxysulphate** (FRANKE), 1887, A., 893.

**sulphide**, solubility of, in fused potassium sulphide (CLAASSEN), 1887, A., 449.

**sodium sulphide** (BRUNNER), 1890, A., 215.

**sulphides** (GAUTIER and HALLOPEAU), 1889, A., 677.

**sulphite** (GORGU), 1883, A., 558.

**double sulphites of, with the alkalis** (GORGU), 1883, A., 718.

**thiosulphate** (VORTMANN and PADBERG), 1890, A., 12; (FOCK and KLUSS), 1890, A., 564.

**sodium thiosulphate** (VORTMANN and PADBERG), 1890, A., 12.

**paratungstate** (GONZALEZ), 1887, A., 895.

**Manganese compounds analogous to ferro- and ferri-cyanide of potassium**, preparation of (CHRISTENSEN), 1885, A., 737.

**ammonium ferrocyanide** (BLUM), 1891, A., 1293.

**Manganese, detection, estimation and separation:—**

microchemical test for (V. HAUSHOFER), 1887, A., 300.

detection of (KLEIN), 1889, A., 653.

**Manganese, detection, estimation and separation:—**

detection of, in commercial zinc-dross and in calamine (GUYARD), 1884, A., 640.

detection of, in presence of zinc by electrolysis (GUYARD), 1884, A., 368.

precipitation of, with bromine (WOLFF), 1884, A., 640; (HOLTHOF), 1885, A., 690.

precipitation of, as ammonium manganous phosphate (MCKENNA), 1891, A., 1138.

precipitation of, as peroxide (ALT), 1890, A., 419.

estimation of (ANON.), 1885, A., 1264; (DIEHL), 1886, A., 101; (BARLOW), 1886, A., 393; (ATKINSON), 1887, A., 399; (MEINKE), 1887, A., 1139; (SCHNEIDER), 1888, A., 878.

estimation of, as sulphide (MEINKE), 1888, A., 1132.

estimation of, by the chlorate method (V. REIS), 1892, A., 1132.

estimation of, by means of hydrogen peroxide (CARNOT), 1889, A., 443.

estimation of, with potassium permanganate (JOLLES), 1889, A., 798.

estimation of small quantities of, by Chatard's method (THORPE and HAMBLY), 1888, T., 182.

estimation of, in foods (STEIN), 1889, A., 188.

estimation of, in ferromanganese, spiegeleisen, etc. (BLOXAM), 1885, A., 84; (KALMANN and SMOLKA), 1885, A., 690.

estimation of, in cast iron or spiegeleisen (BLOXAM), 1885, A., 84.

estimation of small quantities of, in iron rich in silicon (REINHARDT), 1883, A., 1132.

estimation of, in iron ores (ANON.), 1883, A., 383; (ZULKOWSKI), 1884, A., 116.

estimation of, in iron and steel (SCHOFFEL and DONATH), 1884, A., 116; (TROILIUS), 1885, A., 597; (BABBITT), 1887, A., 619; (MORGAN), 1887, A., 1140; (WEISSMANN), 1888, A., 992; (BLUM), 1891, A., 963; (RURUP), 1892, A., 916; (RUBRICIUS), 1892, A., 1030, 1524.

estimation of, in pig iron, effect of silica on (DEANE), 1887, A., 183.

estimation of, in its ores and alloys (J. and H. S. PATTERSON), 1892, A., 536.

estimation of, in ores, slags, etc. (MYHLERTZ), 1891, A., 366; (NORRIS), 1892, A., 355.

**Manganese, estimation and separation:—**

estimation of, in soils (VAN BEMMELLEN), 1890, A., 833.

estimation of zinc in the presence of (NEUMANN), 1888, A., 549.

estimation, colorimetric, of (LEDEBUR), 1883, A., 242; (OSMOND), 1885, A., 690.

estimation, electrolytic, of (MOORE), 1886, A., 921; (BRAND), 1890, A., 294; (SMITH), 1890, A., 1020.

estimation, volumetric, of (MACKINTOSH), 1884, A., 220; (SPONN), 1884, A., 499; (SCHLAGDENHAUFFEN), 1885, A., 442; (RALMOND), 1885, A., 840; (SCHOFFEL and DONATH), 1887, A., 399; (MEINEKE), 1887, A., 531; (VORTMANN), 1890, A., 1470; (MOORE), 1891, A., 962; (BLUM), 1891, A., 1293.

estimation, volumetric, of, by means of potassium chlorate (HAMPE), 1886, A., 101; (V. REIS), 1892, A., 1132.

estimation, volumetric, of, influence of organic matter and iron on (MACKINTOSH), 1885, A., 85.

separation of, from calcium and iron (RÜRUP), 1892, A., 916.

separation of, from much lime, error in (BLUM), 1889, A., 1087.

separation of, from iron (BLUM), 1887, A., 133; (MEINEKE), 1889, A., 441; (CAMPBELL), 1892, A., 193.

separation of, from iron and nickel (CARNOT), 1886, A., 650.

separation of nickel and cobalt from (JANNASCH and FRANZKE), 1892, A., 240.

separation of, from the sesquioxide group and phosphoric acid (MEINEKE), 1889, A., 309.

separation of, from zinc (BAYLEY), 1888, A., 388; (JANNASCH and MACGREGORY), 1891, A., 963; (DONATH), 1892, A., 384; (JANNASCH and NIEDERHOFHEIM), 1892, A., 537.

separation of, from zinc, aluminium, iron, nickel, and cobalt (MOORE), 1888, A., 631.

**Manganese-apatite** (WEIBULL), 1887, A., 781.

from Saxony (V. SANDBERGER), 1886, A., 432.

**Manganese-blende.** See Alabandite.**Manganese-epidote.** See Piedmontite.**Manganese-garnet.** See Spessartite.**Manganese-hedenbergite** (GORGU), 1884, A., 410.

**Manganese-hisingerite**, analysis of (WEIBULL), 1886, A., 34.

**Manganese-iron-olivine**, artificial crystals of (LASPEYRES), 1884, A., 410.

**Manganese minerals** from Vester-Silberg in Dalaine (WEIBULL), 1884, A., 409.

from Vermland (IGELSTROM), 1886, A., 34.

origin of (DIEULAFAIT), 1885, A., 644, 1119.

**Manganese-ochre** from Upsala (DE GIER), 1883, A., 429.

**Manganese-ores** (SCHUBERT), 1883, A., 36.

from Dillenburg (SCHNEIDER), 1888, A., 1260; 1890, A., 459.

in Ekaterinoslav (KOZOWSKI), 1891, A., 648.

of Transcaucasia (KOZOWSKI), 1891, A., 647.

analyses of (V. LILL and SCHNEIDER), 1884, A., 24.

estimation of cobalt in (MOORE), 1892, A., 917.

**Manganese-spar** from Arzberg (V. SANDBERGER), 1892, A., 1406.

from Scharfenberg (ZINKERSEN), 1892, A., 1406.

See also Manganese silicate.

**Manganese-steel** (GAUTIER), 1885, A., 307.

**Manganese-zinc-serpentine** from Franklin, New Jersey (KÖNIG), 1887, A., 646; 1888, A., 565.

**Manganiferous spring waters** (MASON), 1890, A., 854.

**Manganite** from Oberstein (BRAUNS), 1886, A., 675.

pseudomorph of (GORGU), 1888, A., 792.

See also Manganese hydroxide.

**Manganocalcite** (WEIBULL), 1886, A., 33; (DES CLOISMAUX), 1886, A., 320.

**Manganomagnesian magnetite** (CHASTET), 1891, A., 274.

**Manganopsectolite** from Arkansas (WILLIAMS), 1891, A., 407.

**Manganophyllite** from Harstigen Mine, Sweden (HAMBURG), 1892, A., 1411.

from Långban (FLINK), 1889, A., 221.

**Manganostibiite**, a mineral from Vermland (IGELSTROM), 1886, A., 25.

**Manganotantalite** from the Ural (ARZRUNI), 1888, A., 234.

**Manganous oxide.** See Manganese monoxide.

**Mangel wurzel.** See Agricultural Chemistry.

**Mangostin** and *isomangostin* (LIECHTI), 1892, A., 205, 206.

**Manna**, eucalyptus, melitose from (TOLLENS), 1886, A., 527.

Turkestan (*torondjabin*) (MARKOWNIKOFF), 1885, A., 943.

**$\beta$ -Mannide** (SIWOLOBOFF), 1885, A., 367; 1886, A., 682.

**isoMannide** (FAUCONNIER), 1883, A., 305; 1884, A., 573, 1111; 1885, A., 743; (ALBUCHIN), 1885, A., 744. derivatives of (FAUCONNIER), 1884, A., 1111.

**Mannite** and its derivatives. See Mannitol under Carbohydrates.

**Mannitine**, an alkaloid obtained from mannitol (SCHILONE and DINARO), 1883, A., 50.

**Mannitoids** (MEYNIER), 1883, A., 1019.

**$\alpha$ -Mannoctitol** (FISCHER and PASSMORE), 1890, A., 1233.

**Mannoctolactone** (FISCHER), 1890, A., 598; (FISCHER and PASSMORE), 1890, A., 1232.

**Mannoctonic acid** and **mannoctose** (FISCHER), 1890, A., 598.

**$\alpha$ -Mannoctose** (FISCHER and PASSMORE), 1890, A., 1232.

**Mannoheptitol** (FISCHER), 1890, A., 598.

**$\alpha$ -Mannoheptonic acid** (*mannoseurobooglic acid*) (FISCHER and HIRSCHBERGER), 1889, A., 462; (FISCHER and PASSMORE), 1890, A., 1230.

reduction of (FISCHER), 1889, A., 1149.

derivatives of (FISCHER and HIRSCHBERGER), 1889, A., 482.

phenylhydrazide (FISCHER and PASSMORE), 1890, A., 154.

**Mannoheptose** (FISCHER), 1890, A., 598.

**$\alpha$ -Mannoheptose** and derivatives (FISCHER and PASSMORE), 1890, A., 1230.

**Mannonic acid** and its derivatives (FISCHER and HIRSCHBERGER), 1890, A., 225.

**$i$ -Mannonic acid** (FISCHER), 1890, A., 467.

**$l$ -Mannonic acid**. See Arabinosecarboxylic acid.

**$\alpha$ -Mannonic lactone** and  **$\alpha$ -mannonose** (FISCHER and PASSMORE), 1890, A., 1233.

**$i$ -Mannosaccharic acid** (FISCHER), 1891, A., 679.

**$\alpha$ -Mannosaccharic acid** (EASTERFIELD), 1891, T., 306; P., 44; (FISCHER), 1891, A., 678.

configuration of (FISCHER), 1891, A., 1176.

phenylhydrazides of (FISCHER), 1891, A., 679.

**$l$ -Mannosaccharic acid** (*metasaccharic acid*) (KILLIAN), 1888, A., 821; 1889, A., 590.

**$l$ -Mannosaccharic acid** (*metasaccharic acid*), configuration of (FISCHER), 1891, A., 1176.

diphenylhydrazide (KILLIAN), 1888, A., 46.

double lactone of (KILLIAN), 1887, A., 466; 1888, A., 46.

**$\alpha$ -Mannosaccharodiamide** (FISCHER), 1891, A., 679.

**Mannose** and its derivatives. See Carbohydrates.

**Mannosecarboxylic acid**. See Mannoheptonic acid.

**Mannoso-cellulose** (SCHULZE), 1891, A., 1179.

**Manometers**, alterations in the arrangement of (OLZEWICKI), 1885, A., 475. compressed gas, correction of the numerical results given in a former paper on (AMAGAT), 1885, A., 341.

**Manures**. See Agricultural Chemistry.

**Maple syrups**, composition of (WILEY), 1885, A., 499.

*Murasinus orearum* (LAWES, GILBERT and WARINGTON), 1883, T., 212.

**Marble**, black, of Kilkenny (HARLEY), 1888, A., 119.

influence of temperature on the rapidity of the action of acid on (SPRING), 1887, A., 882.

rate of the action between hydrochloric acid and (v. BOGUSKI), 1888, A., 900.

solubility of, in sea water (THOULET), 1889, A., 682.

See also Calcium carbonate.

**Marbles**, cipolin, of primary formations, manganese in (DIEULAFAIT), 1884, A., 716.

**Marcasite** from the Apfel mine and from Bleisharley, analyses of (KOSMANN), 1884, A., 969.

recent formation of (PALLA), 1887, A., 901.

artificial production of (DOELTER), 1886, A., 208.

pseudomorphs after (COHEN), 1888, A., 563.

See also Ferric sulphide under Iron.

**Margarimeter** of Leune and Harbult (GABEL), 1883, A., 247.

**Margarine**, addition of phenolphthalein to (HOLM), 1891, A., 872.

analysis of (BRILLÉ), 1891, A., 506.

tests for (HORSLEY), 1885, A., 696.

detection of, in butter (PIANCHON), 1889, A., 316; (LEZÉ), 1891, A., 1300; (RODEWALD), 1892, A., 1034.

estimation of fat in (LEZÉ and ALLARD), 1892, A., 392.

- Margarine** and butter, discrimination of (VIOLETTE), 1891, A., 130.
- Margarite** from Gainesville, analysis of (CLARKE and CHATARD), 1885, A., 491.
- Markgräfer** of different districts and vintages, analyses of (WACHTER), 1883, A., 631.
- Marmalite** from Himmelfahrt Mine, Freiberg (BRUCE), 1885, A., 222.
- Marrow**, bone-, fat of (MOHR), 1890, A., 652.
- cattle (THUMMEL), 1890, A., 1172.
- Marsh-gas**. See Methane.
- Marsh-gas fermentation**. See Fermentation.
- Martinite** from the West Indies (KLOON), 1888, A., 233.
- Martite** from Brazil (DUBBY), 1883, A., 559; (LAVENIR), 1892, A., 1055.
- of the Cerro de Mercado, or Iron Mountain of Durango, Mexico, and certain iron ores of Sinaloa (SILLIMAN), 1883, A., 162.
- Martius' yellow**. See Manchester yellow.
- Mash**, loss of sugar by long steaming of (GRIENSMAYER), 1883, A., 136.
- sweet, estimation of undissolved starch in (SPIZZER), 1886, A., 746.
- Mashing temperature** (SPENGLER), 1884, A., 789.
- Masrite and masrium** (RICHMOND and OFF), 1892, T., 494; P., 87.
- Mass**, influence of, on chemical processes (SPRING), 1885, A., 490; (KEHRMANN), 1891, A., 257; (MAGNANINI), 1891, A., 430.
- influence of, on the chlorination of combustible gases (ROMER), 1886, A., 845.
- Massoy bark oil** (WOY), 1890, A., 638.
- Massoyene** (WOY), 1890, A., 638; 1891, A., 464; (WALLACH), 1890, A., 1316; 1891, A., 935.
- Maté** (SILLIN), 1884, A., 354; (PERKOLT), 1884, A., 479.
- Matezite**. See  $\beta$ -Pinite under Carbohydrides.
- Matezodambrose**. See  $\beta$ -Inosite under Carbohydrates.
- Matice-camphor** (KUGLER), 1884, A., 611.
- Matter**, continuous transition from the liquid to the gaseous state of, at all temperatures (RAMSAY and YOUNG), 1887, A., 763.
- properties of, in the gaseous and liquid state under various conditions of temperature and pressure (ANDREWS), 1889, A., 95.
- organic. See Organic matter.
- Mattes**, estimation of arsenic in (LEHMANN and MAGER), 1886, A., 100, 920.
- Mazapilite** from North America (KONIG), 1890, A., 218.
- Meadow**. See Agricultural Chemistry.
- Meat**, digestibility of (HONTSBERG), 1883, A., 815.
- boiled and raw, digestibility of (STUTZER), 1892, A., 1367.
- time required for digestion of (JESSEN), 1884, A., 470.
- peptonic fermentation of (MARCANO), 1888, A., 1318.
- and fish, comparative absorption of, in the alimentary canal (ARWATER), 1887, A., 1130.
- Meat-extract** from South America (NIEDERSTADT), 1883, A., 406.
- influence of, on the temperature of the body (RUBNER), 1885, A., 409.
- Meat-peptones**, nutritive value of (ZUNTZ), 1886, A., 378.
- Mecenic acid**, chloro-, and its salts (HILSEBEIN), 1885, A., 1202.
- Meconamic acid** and its ammonium salt (MENNEL), 1883, A., 657.
- Meconarceine** (MERCK), 1889, A., 906.
- Meconic acid** (MENNEL), 1883, A., 656.
- heat of neutralisation of (BERTHELOT), 1886, A., 8; (GAL and WERNER), 1887, A., 206.
- heat of solution of (BERTHELOT), 1886, A., 8.
- action of hydroxylamine on (MEYER), 1884, A., 993; (ODERHEIMER), 1884, A., 1302.
- action of phosphoric chloride on (HILSEBEIN), 1885, A., 1202.
- derivatives of (MENNEL), 1883, A., 656.
- derivatives of, containing nitrogen, and their conversion into pyridine (OST), 1883, A., 791.
- nitrogenous derivatives of (OST), 1885, A., 48.
- Meconine** (WEGSCHEIDER), 1883, A., 596.
- action of potassium cyanide on (BOWMAN), 1887, A., 586.
- $\psi$ -**Meconine** and its derivatives (SALOMON), 1887, A., 585; (PERKIN), 1890, T., 1072.
- Meconineacetic acid** and *o*-nitro- (LIEBERMANN and KLEEMANN), 1887, A., 47, 48.
- $\psi$ -**Meconinic acid** (PERKIN), 1890, T., 1073.
- Mecylene**, perchloro- (OST), 1883, A., 796.
- Medicago**, analyses of different varieties of (NILSON), 1892, A., 522.
- Medicagol** (ETARD), 1892, A., 746.

- Medullie acid** (MOHR), 1890, A., 652.
- Meerschaaum** (DAMOUR), 1886, A., 316.
- Meionite**, artificial production of (BOUR-GEIS), 1883, A., 561; 1884, A., 564.
- Vesuvian, formula of (KENNGOTT), 1892, A., 417.
- Melan compounds** (KLASON), 1886, A., 524.
- Melamine** (*cyanuramide*), formation of (SMOLKA and FRIEDRICH), 1889, A., 951; (RAHKE), 1890, A., 1052.
- constitution of (V. HOFMANN), 1886, A., 41; (RATHKE), 1886, A., 217.
- derivatives (V. HOFMANN), 1886, A., 38; (KLASON), 1886, A., 522.
- constitution of (V. HOFMANN), 1886, A., 41; 1887, A., 630.
- iso*Melamines, alkyl, derived from the alkyl cyanamides (V. HOFMANN), 1886, A., 41.
- Melampyrum pratense*, assimilation of (KUCH), 1888, A., 739.
- Melanin** (MOHRER), 1887, A., 168; (MIURA), 1887, A., 555; (BRANDL and PREIFFER), 1890, A., 803.
- artificial (POUCHET), 1891, A., 1123.
- as a precursor of hemoglobin (DELLPINE), 1891, A., 480.
- Melanins**, animal (NENKI and SIEBER), 1888, A., 976; (ABEL), 1890, A., 1452.
- Melanite** from the Kaiserstuhl (SOLTMANN), 1891, A., 651.
- from Lantigne, Rhône (LAROIX), 1883, A., 438.
- Melanophlogite** (SPEZIA), 1884, A., 1104; (FRIEDER), 1891, A., 648.
- o*-**Melanose** (NEUMANN), 1888, A., 864.
- Melanothallite** (*melanotillo*) from Vesuvius (SCHUCHT), 1886, A., 600.
- Melanurenic acid**. See Aminellide.
- Melanuria**, urine in (V. JAKSCH), 1889, A., 637.
- Melaphyres** of the Little Carpathians (STEIN), 1883, A., 447.
- of Lower Silesia (COLEMAN), 1883, A., 563.
- "**Meldometer**" (JOLY), 1892, A., 414.
- Melem** (KLASON), 1886, A., 324.
- and its decomposition by alkalis (KLASON), 1886, A., 524.
- Melezitose** (ALECHIN), 1890, A., 733.
- and its acetyl and phenylhydrazine derivatives (ALECHIN), 1886, A., 683.
- Melibiose** (SCHEIBLER and MITTELMEIER), 1889, A., 953; 1890, A., 226, 1065.
- Meliosephenylhydrazine** (SCHEIBLER and MITTELMEIER), 1890, A., 1085.
- Melibiotite** (SCHEIBLER and MITTELMEIER), 1890, A., 227.
- Melicitose**, thermochemistry of (STOHMANN and LANGLEIN), 1892, A., 764.
- Melidoacetic acid**, derivatives of (KREGER), 1891, A., 162.
- Melilite** STIELZNER, 1883, A., 719.
- artificial production of (BOURGEIS), 1884, A., 564.
- formation of, during the burning of Portland cement (BODLANDER), 1892, A., 416.
- composition of (VOGEL), 1892, A., 1410.
- basalts (STIELZNER), 1883, A., 719.
- Melilite-bearing rock** from Canada (ADAMS), 1892, A., 1058.
- Mellitic acid**. See Hydrocoumaric acid.
- Melilotus alba* and *M. officinalis*, composition of (NILSON), 1892, A., 522.
- Melilotus leucantha* (MINRO), 1886, A., 828.
- Melinotrisulphonic acid**, and its salts TRACINSKI, 1884, A., 390, 1185.
- Meliphane** (*melinophan*) (BROGGER), 1890, A., 1070.
- Melisse oil**, German (SEMMLER), 1891, A., 540.
- Melissic acid** (STURKE), 1884, A., 1281.
- Melissylmellisate** (KISSLING), 1884, A., 173.
- Melitose** or **melitriose**. See Raffinose under Carbohydrates.
- Mellite**, artificial production of (FRIEDEL and BALSCHN), 1883, A., 427.
- specific heat of (BARTOLI and SIRACIANT), 1884, A., 1214.
- Mellitic acid** (BARTOLI and PAPANOGGI), 1883, A., 593.
- thermochemistry of (BERTHELOT), 1886, A., 8; (GAL and WERNER), 1887, A., 206; (STOHMANN, KLEBER and LANGLEIN), 1889, A., 1096.
- action of aniline and of methylamine on HUIE, 1885, A., 1220.
- Mellityl acetate**, alcohol and chloride (JACOBSEN), 1889, A., 876.
- Mellogen**, analyses of (BARTOLI and PAPANOGGI), 1883, A., 592.
- incomplete oxidation of (BARTOLI and PAPANOGGI), 1886, A., 469.
- Mellone**, action of alkalis on (KLASON), 1886, A., 524.
- Melolinus laurigatus*, alkaloid from (GRIEHOFF), 1891, A., 336.
- Melon-juice**, alcohol from (LEVAT), 1884, A., 233.

- Melon seeds**, presence of cholesterol and a soluble carbohydrate in (FORTI), 1891, A., 357.
- Melting point**, depression of, by phenol (JUILLARD and CURECHON), 1892, A., 556.
- and their relation to the solubility of hydrated salts (TILDEN), 1884, T., 266.
- and boiling point as related to chemical composition (MILLS), 1885, A., 329.
- of minerals, determination of (JOLY), 1892, A., 414.
- of mixtures (MIOLATI), 1892, A., 1139.
- of nitrates (MAUMENÉ), 1884, A., 384.
- of organic compounds (LANDOLT), 1890, A., 1; (REINERT), 1890, A., 1204.
- of salts (MAUMENÉ), 1884, A., 3.
- of haloïd salts in relation to the contraction occurring during their formation from their elements (MULLER-ERZBACH), 1884, A., 709.
- of substances in contact (LEHMANN), 1885, A., 330.
- of certain inorganic substances (CARNELLEY and O'SHEA), 1884, T., 409.
- apparatus for estimating (ROTH), 1886, A., 1070; (CHRISTOMANOS), 1890, A., 939.
- calculation of (GROSHANS), 1886, A., 411.
- determination of (LOVITON), 1886, A., 417.
- determination of errors in (CHAFER), 1883, A., 844.
- Membranes**, living, osmotic experiments with (DE VRIES), 1888, A., 1153.
- living and dead, osmosis with (REID), 1890, A., 207, 277, 1176.
- precipitated, electrical behaviour of (OBERBECK), 1891, A., 517.
- electrical conductivity of (TAMMANN), 1891, A., 140.
- permeability of (TAMMANN), 1892, A., 1383.
- vegetable, permeability of, for air (LIETZMANN), 1888, A., 1023.
- Men**, healthy, proteid requirement of (STUEDEMUND), 1891, A., 1272.
- influence of saline materials on gaseous metabolism in (LOEWY), 1889, A., 533.
- Menaccanite** from Lancaster Co., Pa. (SMITH), 1885, A., 960.
- Meneghinite** and jordanite, isomorphism of (SCHMIDT), 1883, A., 639.
- Menilite** (DANOUR), 1886, A., 775.
- Meniscus angle** and capillary constants (TRAUB), 1887, A., 101.
- Mentha Pulegium*, oil of (BECKMANN; PLEISSNER), 1891, A., 936.
- Menthene**, menthol and menthone. See Terpenes.
- Menthodicarboxylic acid** (BRUHL), 1892, A., 202.
- Menthonaphthene** (BERKENHEIM), 1892, A., 866.
- Menthyl ethyl ether** (BRUHL), 1892, A., 200, 348.
- Menthylamine** (WALLACH), 1892, A., 500; (ANDRES and ANDRÉEFF), 1892, A., 723.
- Menthyl benzoate** and carbonate (ARTH), 1886, A., 893.
- chloride (ARTH), 1884, A., 167.
- phenylamidoformate (LEUCKART), 1887, A., 376.
- Menthylurethane** (ARTH), 1883, A., 892.
- Menthylxanthic acid** (BAMBERGER), 1890, A., 517.
- Menyanthes trifoliata*, constituents of (LENDRICH), 1892, A., 1262.
- Menyanthin** and **menyanthole** (LENDRICH), 1892, A., 1262.
- Mercaptals** (*thioacetals*) (BAUMANN), 1885, A., 748.
- Mercaptan**. See Ethyl mercaptan.
- Mercaptans** (STADLER), 1884, A., 1328.
- aromatic (LEUCKART), 1890, A., 603.
- synthesis of (LUSTIG), 1891, A., 1850.
- amido- (JACOBSON), 1887, A., 961; 1888, A., 1306.
- compounds of, with aldehydes and ketones (FASBENDER), 1887, A., 462.
- compounds of, with aldehydes, ketones and ketonic acids (BAUMANN), 1885, A., 748.
- reagents for (DENIGES), 1889, A., 655.
- Mercaptoles** (BAUMANN), 1885, A., 749.
- $\mu\beta$ -Mercaptomethylthiazoline. See Sulphydromethylthiazoline.
- $\mu$ -Mercaptopenthiathiazoline. See Sulphydropenthiathiazoline.
- Mercaptophthalimide**. See Sulphydroethylphthalimide.
- $\beta$ -Mercatopropylphthalimide. See Sulphydropropylphthalimide.
- $\mu$ -Mercaptothiazoline. See Sulphydrothiazoline.

**Mercapturic acid**, formation of, in the organism, and its detection in the urine (BAUMANN), 1884, A., 1395.

**Mercapturic acids**, oxidation of (BAUMANN), 1886, A., 514.

oxidation products of (KÖNIG), 1892, A., 1090.

**Mercurial trough** (LADENBURG), 1883, A., 1048.

**Mercury**, native, occurrence of, in the alluvium in Louisiana (WILKINSON), 1885, A., 876.

from Servia (SCHAFARZIK), 1885, A., 730.

occurrence of, in tapeworms (OELKERS), 1890, A., 396.

relations of, to other metals (COTTEINS), 1887, A., 1080.

(metal), purification of (MICHAELIS), 1885, A., 322; (CRAFTS), 1889, A., 17.

purification of, by distillation in a vacuum (CLARK), 1885, A., 350.

impurities in, sensitive test for (GORE), 1890, A., 827.

impure, electric conductivity of (MICHAELIS), 1885, A., 322.

solid, electrical conductivity of (WEBER), 1889, A., 557; (GRÜNMACHER), 1890, A., 98.

electrical conductivity of, at low temperatures (CAILLETET and BOUTY), 1885, A., 855.

electric conductivity and temperature coefficient of (WEBER), 1885, A., 1028.

electrical resistance of (KOHLEBAUSCH), 1889, A., 201; (GRÜNMACHER), 1889, A., 202.

development of E.M.F. between an electrolyte and (PASCHEN), 1891, A., 374.

estimation of potential differences between electrolytes and (BLONDEL and BICHAR), 1888, A., 1005.

polarised, surface tension of, in different electrolytes (PASCHEN), 1890, A., 552, 1036.

specific heat of (HEILBORN), 1891, A., 632.

variation in the specific heat of, with temperature (MILTHALER), 1889, A., 750.

expansion of (MENDELÉEFF), 1884, T., 132.

expansion of, between 0° and 39° (AYRTON and PERRY), 1887, A., 317.

vapour-density of, at a white heat (BILTZ and MEYER), 1889, A., 674.

**Mercury** (metal), vapour pressures of (RAMSAY and YOUNG), 1885, T., 656; P., 115; 1886, T., 37; (YOUNG), 1891, T., 629; P., 120.

vapour pressure of, at ordinary temperatures (MCLEOD), 1884, A., 385; (VAN DER PLAATN), 1886, A., 963.

volatility of (BERTHELOT), 1885, A., 953.

vapour, conductivity of, for heat (BERGET), 1888, A., 1237; (SCHLEIERMACHER), 1889, A., 559.

absorption of, by platinum black, etc. (IMMORI), 1886, A., 766.

action of chlorine on (COWPER), 1883, T., 155.

action of hydrogen chloride, bromide and iodide on, in presence of oxygen (BAILEY and FOWLER), 1888, T., 759, 760; P., 79.

action of nitric acid on (MONTMARTINI), 1892, A., 1403.

action of nitric acid on, conditions of (VELEY), 1891, A., 525.

action of nitric peroxide on (DIVERS and SHIMIDZU), 1885, T., 631; P., 93.

action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 659.

action of silicon on (WARREN), 1889, A., 1125.

spontaneous oxidation of (MACALUSO), 1884, A., 263.

adhesion of, to glass in presence of halogens (SHENSTONE), 1892, T., 452; P., 70.

effect of, on the freezing point of sodium (HEYCOCK and NEVILLE), 1889, T., 672.

effect of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 383; P., 38.

lowering of the freezing points of bismuth, cadmium and lead by (HEYCOCK and NEVILLE), 1892, T., 897, 903, 910; P., 145.

**Mercury alloys** (*amalgams*) (LEBLANC), 1890, A., 1204; (SCHUMANN), 1891, A., 936.

change of property of, by repeated fusion (GORE), 1891, A., 80.

electric conductivity of (WEBER), 1885, A., 211; 1887, A., 757.

electromotive force of (LINDBECK), 1889, A., 2.

with tin (mirror alloy), composition of (HARRISON), 1887, A., 447.

with tin and lead, melting point of (WELD), 1891, A., 644.

**Mercurammonium** compounds (RAMMELSBERG), 1889, A., 347;  
(PESCI), 1891, A., 268; 1892, A., 685; (BALESTRA), 1892, A., 276.  
reaction for (PESCI), 1890, A., 1211.  
bromide (PESCI), 1890, A., 1212.  
chloride, mercurichromate (JAGER and KRÜSS), 1889, A., 1120.  
chlorides (ANDRÉ), 1889, A., 570, 827; 1891, A., 986.  
chromates (HENSSEN), 1887, A., 218.  
hydroxide, hydrate of (RAMMELSBERG), 1889, A., 347.  
iodides, nitrates and sulphates (PESCI), 1891, A., 270, 268, 269.  
**Mercuricobaltammonium** salts (VORTMANN and MORGULIS), 1890, A., 13;  
(VORTMANN and BORSBACH), 1890, A., 1377.  
**Mercury** compounds, heat of formation  
of (THOMSEN), 1888, A., 1011;  
(NERNST), 1888, A., 1012.  
action of the haloid compounds of  
the alkalis on (DITTE), 1890, A., 1059.  
haloid salts of, crystallised (SIEVERS),  
1888, A., 419.  
action of, with zinc haloid salts  
(VARET), 1890, A., 224.  
salts, action of sodium thiosulphate  
on (VORTMANN), 1889, A., 1108.  
**Mercury** arsenates (HACK), 1891, A., 400.  
thioarsenate (PREIS), 1890, A., 1053.  
calcium chloride, basic (KLINGER),  
1883, A., 904.  
dichloride. See Mercuric chloride.  
barium, calcium and strontium oxy-  
chlorides (ANDRÉ), 1887, A., 447.  
hyposulphides (LINDER and PICTON),  
1890, P., 51; 1891, P., 176; 1892,  
T., 123.  
imidosulphonates and their constitu-  
tion (DIVERS and HAGA), 1892,  
T., 976.  
barium imidosulphonate (DIVERS and  
HAGA), 1892, T., 977.  
dihydrogenimidosulphonates (DIVERS  
and HAGA), 1892, T., 977.  
potassium imidosulphonates (DIVERS  
and HAGA), 1892, T., 976.  
sodium imidosulphonates (DIVERS  
and HAGA), 1892, T., 960.  
barium iodide (ROHRBACH), 1883, A.,  
1060.  
phosphide (GRANGER), 1892, A.,  
1398.

**Mercurysulphate**, basic (ATHANASESCU),  
1886, A., 982.  
oxysulphides (POLECK), 1890, A.,  
109.  
sulphites (DIVERS and SHIMIDZU),  
1886, T., 533; P., 139.  
constitution of (DIVERS and  
SHIMIDZU), 1886, T., 574.  
reduction of, with sulphurous acid  
(DIVERS and SHIMIDZU), 1886,  
T., 575.  
**Mercuric acids**, halogen (NEUMANN),  
1889, A., 1049.  
**Mercuric** salts, action of acetylenic  
hydrocarbons on (KUTSCHEROFF),  
1883, A., 172; 1884, A., 572,  
719.  
antimonate (BEILSTEIN and v.  
BLÄSE), 1889, A., 1124.  
bromide, crystallised (SIEVERS),  
1888, A., 419.  
oxybromides, heat of formation of  
(ANDRÉ), 1884, A., 707.  
chloride (*mercury dichloride*; *corrosive  
sublimite*), crystallised (SIEVERS),  
1888, A., 419.  
behaviour of, with hydrogen am-  
monium carbonate (THUMMEL),  
1887, A., 774.  
solubility of, in various organic  
liquids (ETARD), 1892, A., 558.  
solution, stability of (MEYER),  
1887, A., 774; 1888, A., 228.  
boiling points of solutions of  
(SKINNER), 1892, T., 340; P.,  
28.  
specific gravity of aqueous and  
alcoholic solutions of (SCHÜRDEN),  
1886, A., 412.  
compounds of, with chromates  
(JAGER and KRÜSS), 1889, A.,  
1120.  
antiseptic properties of (CHIBRETI),  
1888, A., 1327.  
poisoning by (FALKENBERG), 1891,  
A., 853.  
detection of, in toxicological cases  
(LECOQ), 1886, A., 743.  
estimation, volumetric, of (KASS-  
NER), 1889, A., 78.  
ammonium chloride (*white precipitate*)  
(RAMMELSBERG), 1889, A.,  
347.  
solubility of, in solution of am-  
monia containing ammonium  
carbonate (JOHNSON), 1889, A.,  
755.  
oxychloride (ANDRÉ), 1887, A.,  
447.  
crystalline (VOLHARD), 1890, A.,  
565.

- Mercuric oxychlorides** (THÜMMEL), 1889, A., 1050.  
 thermochemistry of (ANDRÉ), 1884, A., 884.  
 hydroxide, dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 64, 80.  
 iodide, crystallised (SIEVERS), 1888, A., 419.  
   action of nitric acid on (KRATT), 1886, A., 204.  
   solubility of, in fatty compounds and other solvents (MEHT), 1886, A., 110.  
   solubility of, in water and alcohol (BOURGOIN), 1885, A., 350.  
 oxide, action of, on soluble chlorides (ANDRÉ), 1887, A., 447.  
   action of, on potassium chloride (BERSCH), 1891, A., 1413.  
   action of the hydrocarbons of the acetylene series on (KUTSCHEROFF), 1884, A., 719.  
   action of magnesium on (WINKLER), 1890, A., 452.  
   influence of, on the decomposition of potassium chlorate (FOWLER and GRANT), 1890, T., 279; P., 20.  
   combinations of, with acids, and Berthollet's laws (BERTHELOT), 1883, A., 10.  
   testing for chlorides (FELS), 1888, A., 873.  
 phosphate (HAAK), 1891, A., 400.  
 sulphates from a furnace at Idria (SEYFRIEDSBERGER), 1890, A., 710.  
 sulphide, colloidal state of (WINSINGER), 1888, A., 911.  
   colloidal solutions of (PICTON), 1892, T., 138.  
   action of nitric acid on (HOWE), 1886, A., 595.  
   action of potassium sulphide on (DITTE), 1884, A., 893, 964.  
   separation of, from the sulphides of the arsenic and copper groups (POLSTORFF and BLOW), 1891, A., 1292.  
   See also Cinnabar and Vermilion.  
 potassium sulphide (DITTE), 1884, A., 964.  
 chlorosulphide (POLECK and GOERNIK), 1888, A., 1166.  
 sulphite: "normal" (DIVERS and SHIMIDZU), 1886, T., 535; P., 140.  
 hydrogen sulphite (DIVERS and SHIMIDZU), 1886, T., 554; P., 139.
- Mercuric sodium sulphite** (DIVERS and SHIMIDZU), 1886, T., 538; P., 140.  
 oxysulphite (DIVERS and SHIMIDZU), 1886, T., 546; P., 140.  
 dithionate (KLUS), 1888, A., 1156.  
 potassium thiosulphates (FOCK and KLUS), 1891, A., 579.
- Mercurous and hypomercurous sulphites** (DIVERS and SHIMIDZU), 1886, T., 535, 559, 567.
- Mercurous salts**, action of ammonia on (BARFORD), 1889, A., 675; (PÉCI), 1892, A., 686.  
   action of hydrogen cyanide on (VITALI), 1892, A., 1416.  
   action of soda on (BARFORD), 1889, A., 346.  
   action of sulphur on (VORTMANN and PADBERG), 1890, A., 9.
- Mercurous bromide**, crystallised (STROMAN), 1888, A., 112.  
 chloride (*calomel*), crystallised (SIEVERS), 1888, A., 419.  
   action of hydrocyanic acid on (FOUQUET), 1890, A., 223.  
   influence of, on fermentation and on the life of micro-organisms (WASSILIEFF), 1883, A., 743.  
 chromates (LUPTON), 1888, P., 83.  
 hydroxide (BRID), 1887, A., 447.  
 iodide, crystallised (STROMAN), 1888, A., 111.  
   action of light on (EDER), 1885, A., 1173; (YVON), 1886, A., 17.  
 permolybdate (PÉCHARD), 1892, A., 1160.  
 nitrate, action of, on nitric oxide and nitrites (DIVERS and HAGA), 1885, P., 95.  
 nitride (CURTIUS), 1892, A., 112.  
 oxide (BRUNS and V. DER PFORDFEN), 1888, A., 1037.  
   action of sulphur on (SENDERENS), 1892, A., 770.  
 sulphate (BUCHNER), 1886, A., 852.  
   preparation of (DIVERS and SHIMIDZU), 1885, T., 639; P., 93.  
 sulphite, anhydrous (DIVERS and SHIMIDZU), 1886, T., 566; P., 140.  
 hypochlorosulphite (GILPIN), 1892, A., 780.
- Mercury organic compounds:—**
- Mercurammonium cyanides** (VAREL), 1890, A., 223.
- Mercury compounds**, aromatic (MICHAELIS and RABINERSON), 1890, A., 1269.  
   of acetylene (PLIMPTON), 1892, P., 110.  
 salts, compounds of pyridine with (GROOS), 1890, A., 643.

**Mercury** anisole oxide and salts (MICHAELIS and RABINERSON), 1890, A., 1270.

dianisole (MICHAELIS and RABINERSON), 1890, A., 1269.

diethyl, oxidation of, with potassium permanganate (SEIDEL), 1884, A., 1135.

dimethylaniline (SCHENK and MICHAELIS), 1888, A., 834.

dimethylaniline salts (MICHAELIS and RABINERSON), 1890, A., 1269.

dipentamethylphenyl (JACOBSEN), 1889, A. 876.

diphenyl and ditolyl, action of potassium permanganate on (OTTO), 1884, A., 1135.

di-*o*-xylene (JACOBSEN), 1885, A., 144.

dixyl (WELLER), 1887, A., 824.

phenylamine and its derivatives (PESER), 1892, A., 1448.

propylphenyl (MEYER), 1886, A., 945.

**Mercuric** cyanide, boiling-points of solutions of (SKINNER), 1892, T., 340; P., 27.

action of aluminium and of nickel, etc. on, dissolved in water and in organic solvents (VARET), 1892, A., 797.

action of ammonia on (VARET), 1891, A., 1441; 1892, A., 575.

action of copper salts on (VARET), 1889, A., 359; 1890, A., 464.

action of, on silver nitrate, in presence of ammonia (BLOXAM), 1884, A., 163.

antiseptic properties of (CHIBRET), 1888, A., 1327.

ammoniacal derivatives of (VARET), 1891, A., 655.

combination of, with cadmium salts (VARET), 1891, A., 161.

combinations of, with lithium salts (VARET), 1891, A., 28.

compounds of, with metallic chlorides, action of ammonia on (VARET), 1890, A., 351.

detection of, in toxicological investigations (VITALI), 1890, A., 198.

cadmium cyanide (DUNSTAN), 1892, T., 687; P., 51.

zinc cyanide (DUNSTAN), 1890, A., 855; 1892, T., 666; P., 51.

barium chlorocyanide, action of ammonia on (VARET), 1891, A., 1442.

cadmium iodocyanide, action of ammonia on (VARET), 1891, A., 1441.

magnesium bromo- and iodo-cyanides (VARET), 1891, A., 1442.

**Mercuric** oxycyanide, antiseptic properties of (CHIBRET), 1888, A., 1327.

thiocyanate, double salts of, with other thiocyanates (BEHRENS), 1892, A., 10.

chlorothiocyanate (MCMURTRY), 1888, P., 116; 1889, T., 50.

**Mercury**, detection, estimation, and separation:—

blowpipe test for (CHARLTON), 1890, A., 1343.

microchemical test for (v. HAUSHOFFER), 1887, A., 300.

detection of (KROUPA), 1886, A., 921; (KLEIN), 1889, A., 651.

detection of, in animal tissues (PASCHKIS), 1883, A., 1169.

detection of, in corpses (SEYDA), 1891, A., 120.

detection of, in minerals (JOHNSTONE), 1889, A., 797.

detection of, in organic liquids (ALMEN), 1887, A., 302; (BRUGNATELLI), 1890, A., 926; (BÖHM), 1891, A., 351.

detection of, in toxicological investigations (LEHMANN), 1883, A., 687; (LECCO), 1886, A., 743; 1891, A., 864.

detection of, in urine (ALT), 1888, A., 630.

detection, electrolytic, of (ZIEGELER), 1883, A., 1344; (WOLFF), 1889, A., 441.

estimation of (FERT), 1889, A., 927; (VOLHARD), 1890, A., 565.

estimation of, in animal tissues (LUDWIG and ZILLNER), 1891, A., 962.

estimation of, in corpses (SEYDA), 1891, A., 120.

estimation of, in organic mixtures (BÖHM), 1891, A., 351.

estimation of, in urine (BRASSE), 1888, A., 196.

estimation, electrolytic, of (GLANSEN and LUDWIG), 1886, A., 493; (DE LA ESCOSURA), 1886, A., 650; (SMITH and KERN), 1886, A., 923; (BRAND), 1890, A., 294; (VORTMANN), 1891, A., 1553.

estimation, electrolytic, of metals as alloys of (VORTMANN), 1891, A., 1553; (GIBBS), 1892, A., 753.

estimation, volumetric, of (KROUPA), 1884, A., 695; (CARNOT), 1889, A., 1246; (JONES), 1892, T., 364; P., 46; (NAMIAS), 1892, A., 663.

estimation, volumetric, of, by Haswell's method (v. JÜPTNER), 1883, A., 242.

**Mercury, separation:—**

- separation of, from arsenic, phosphoric and nitric acids and from chlorine and sodium (HAAKE), 1892, A., 530.
- separation of, from palladium, lead, copper and bismuth (ROSENBLADT), 1887, A., 302.
- separation, electrolytic, of (SMITH and MACCAULEY), 1892, A., 239; (KOHN), 1892, A., 541; (SMITH and WALLACE), 1892, A., 920.
- separation, electrolytic, of, from arsenic, molybdenum, palladium and tungsten (SMITH and FRANKEL), 1890, A., 1029.
- separation, electrolytic, of, from cobalt, nickel and zinc (SMITH and FRANKEL), 1890, A., 664.
- separation, electrolytic, of, from copper (SMITH and FRANKEL), 1889, A., 797; (SMITH and MACCAULEY), 1892, A., 239.
- separation, electrolytic, of, from osmium (SMITH and WALLACE), 1892, A., 920.
- Mercury unit**, Siemens', reproduction of (STRECKER), 1885, A., 1027, 1099.
- Merino fleeces**, composition of (CHLUSINSKY), 1886, A., 105.
- Mesaconanilic acid** (REINERT), 1889, A., 1174; (ANSCHUTZ and REUTER; SCHARFENBERG), 1890, A., 368.
- Mesaconic acid** (*oxytetric acid*) (GURBOFF), 1888, A., 1179.
- and its homologues (WALDEN), 1891, A., 1187.
- molecular weight of (PATERNO and NASINI), 1888, A., 1059.
- synthesis of, from ethylic propanetricarboxylate (BISCHOFF), 1890, A., 1101.
- real nature of (WALDEN), 1891, A., 1188.
- constitution of (KANONNIKOFF), 1886, A., 335; (ANSCHUTZ), 1887, A., 917.
- molecular refraction of (KNOPE), 1888, A., 938; 1889, A., 198.
- heat of combustion of (LUGNIN), 1888, A., 893.
- heat of neutralisation and of solution of (GAL and WERNER), 1887, A., 205.
- conversion of, into its isomerides by soda (DELISLE), 1892, A., 297.
- "*Mesembryanthemum crystallinum*" (*ice plant*) (MANGON), 1883, A., 499; (HECKEL), 1883, A., 680.
- Mesidic acid**. See Uvic acid.
- Mesidine**, nitration of (NÖLTING and STOECKLIN), 1891, A., 693.
- nitramine from (KLOBBIE), 1888, A., 466.

- Mesitene lactone** (ANSCHUTZ, BENDIX and KERP), 1891, A., 172.
- Mesitol**, bromo- (SCHRAMM), 1886, A., 451.
- Mesitonic acid** (*di- $\alpha$ -methyl- $\beta$ -acetylpropionic acid*), constitution of (ANSCHUTZ and GILLER), 1888, A., 1272.
- Mesityl methyl ketone** (CLAUS), 1890, A., 981; (DITTRICH and MEYER), 1891, A., 1224.
- Mesitylacetic acid** (DITTRICH and MEYER), 1891, A., 1224.
- nitro-, and its salts (WISPEK), 1883, A., 1096.
- d*-nitro- (DITTRICH and MEYER), 1891, A., 1224.
- Mesitylene**, presence of, in different mineral oils (ENGLER), 1885, A., 1209.
- preparation of (VARENNE), 1884, A., 588.
- action of bromine on (COLSON), 1883, A., 734; (SCHRAMM), 1886, A., 451.
- derivatives of (ROBINET), 1883, A., 577; (WISPEK), 1883, A., 1095; (FEITH), 1892, A., 329.
- benzoyl-derivatives of, formation of (LOUISI), 1884, A., 1000.
- Mesitylene**, dibromo-, from coal-tar oil (SUSSENGUTH), 1883, A., 469.
- bromo/nitro- (SUSSENGUTH), 1883, A., 470.
- trichloro- (FRIEDEL and CRAFTS), 1887, A., 1101.
- fluoro- (TÖHL), 1892, A., 968.
- iodo- (TÖHL), 1892, A., 967.
- nitro-, oxidation of (EMERSON), 1887, A., 132.
- Mesitylenic acid** (3:5-*dimethylbenzoic acid*), thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.
- bromo-, preparation of, from bromomesitylene (SUSSENGUTH), 1883, A., 469.
- d*-bromo-, and its salts (SUSSENGUTH), 1883, A., 470.
- Mesitylenic diacetate** (ROBINET and COLSON), 1883, A., 1095.
- methylnitramide, *d*-nitro- (KLOBBIE), 1888, A., 467.
- Mesityl glycollic acid** and chloralide (FEITH), 1892, A., 329.
- Mesityl glyoxylic acid** (CLAUS), 1890, A., 981; (DITTRICH and MEYER), 1891, A., 1224.
- salts of (FEITH), 1892, A., 329.
- d*-nitro- (DITTRICH and MEYER), 1891, A., 1224.
- Mesitylic acetate** (ROBINET), 1883, A., 577; (WISPEK), 1883, A., 1095.

- Metals, action of, on mixtures of**  
 acetylene and air (BELLAMY), 1885, A., 951.  
 action of acids on (ARMSTRONG), 1886, P., 189; 1889, P., 66; (VELEY), 1889, T., 361; P., 65; (MONTMARTINI), 1892, A., 1402.  
 action of anhydrous ammoniacal ammonium nitrate on (ARTH), 1885, A., 1039.  
 action of carbon disulphide on (CAVAZZI), 1888, A., 106.  
 action of dry chlorine on (COWPER), 1883, T., 153.  
 velocity of action between halogens and (STSCHUKAUFF), 1891, A., 1149.  
 action of dry hydrogen sulphide on (LORENZ), 1891, A., 990.  
 action of nitric oxide on (SABATIER and SENDERENS), 1892, A., 1151.  
 action of nitric peroxide on (SABATIER and SENDERENS), 1892, A., 1390.  
 action of nitrogen on (WARREN), 1887, A., 702.  
 action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 655.  
 action of, on oils (LIVACHE), 1883, A., 756.  
 action of pyrosulphuric acid on (DIVERS and SHIMIDZU), 1885, T., 636; P., 92.  
 action of, on salts dissolved in organic liquids (VAHET), 1892, A., 797.  
 action of, on sulphuric acid (VELEY), 1888, A., 104; (DIRTE), 1891, A., 260.  
 comparative poisonous action of, on bacteria (RICHER), 1884, A., 351.  
 lowering of the freezing point of sodium by the addition of other (HEYCOCK and NEVILLE), 1889, T., 666.  
 direct combination of bromine with (GAUTIER and CHARPY), 1892, A., 118.  
 direct combination of chlorine with (GAUTIER and CHARPY), 1892, A., 118; (KREUSLER), 1892, A., 401.  
 and their salts, contact potential of (PELLAT), 1889, A., 661.  
 salts of heavy, acid character of the (LACHOWITZ), 1889, A., 569.  
 nitro- (SABATIER and SENDERENS), 1892, A., 1390.
- Metals, detection, estimation and separation:—**  
 detection of, not precipitated by hydrogen sulphide, in the precipitate produced by ammonia (BLOXAM), 1885, A., 1264.
- Metals, estimation and separation:—**  
 estimation of oxygen in (MULLER), 1885, A., 1167.  
 estimation of, by means of sodium pyrophosphate (VORTMANN), 1888, A., 755.  
 estimation, electrolytic, of, apparatus for (LEVOIR), 1889, A., 543.  
 estimation, electrolytic, of, as amalgams (VORTMANN), 1891, A., 1553; (GIBBS), 1892, A., 753.  
 estimation, qualitative, of, without hydrogen sulphide (EYSTER), 1885, A., 1012.  
 estimation, volumetric, of heavy (VITALI), 1892, A., 1521.  
 separation of, precipitated by hydrochloric acid (BARNES), 1885, A., 597.  
 separation of, by oxalic acid (LUC-KOW), 1886, A., 922; 1887, A., 529.  
 separation of, by means of sodium pyrophosphate (VORTMANN), 1888, A., 755.  
 separation, electrolytic, of (FREDENBERG), 1892, A., 1521.
- Metameric bodies, comparative effect of, on the growth of *Nicotiana longiflora*** (REYNOLDS), 1888, A., 495.
- Metamorphic rocks.** See Rocks.
- Metamorphism produced by pressure** (JUND), 1890, T., 410; P., 35.  
 of massive crystalline rocks (DANA), 1883, A., 562.
- Metapectic acid** (HERZFELD), 1892, A., 291.
- Metaphosphates and metaphosphoric acid.** See under Phosphorus.
- Metasaccharic acid.** See *l*-Mannosaccharic acid.
- Metastannic acid.** See under Tin.
- Metastasis in leaves** (v. SACHS), 1885, A., 831.
- Metatartaric acid in factory liquors** (GROSJEAN), 1883, T., 336.
- Metatungstic acid.** See under Tungsten.
- Metaxin** (SCHWARTZ), 1888, A., 933.
- Meteoric dust** (TACCHINI), 1884, A., 165.
- Meteoric iron** (RIGGS), 1888, A., 121; (KUNZ), 1889, A., 358.  
 crystalline structure of (HUNTINGTON), 1887, A., 119.  
 peculiar concretions in (SMITH), 1884, A., 976.  
 discovery of diamonds in (FOOTE), 1892, A., 284.  
 selenium in (WARREN), 1888, A., 435.  
 Pallas (MEUNIER), 1884, A., 416.  
 from Augusta Co., Virginia (KUNZ), 1887, A., 454.

**Meteoric iron** from Batesville, Independence Co., Arkansas (HIDDEN), 1886, A., 995.  
 from Bridgewater, Burke Co., North Carolina (KUNZ), 1891, A., 278.  
 from Coahuila, Mexico (LUDWIG), 1885, A., 880.  
 from Colfax Township, North Carolina (KUNZ), 1892, A., 1039.  
 from East Tennessee (GENTH), 1890, A., 115.  
 at Foit Duncan, Texas (MEYNIER), 1887, A., 647.  
 from Georgia (SHEPARD), 1884, A., 30.  
 from Golieta Mt., New Mexico (KUNZ), 1886, A., 321; 1887, A., 120.  
 from Greenbrier Co., West Virginia (FLEICHER), 1888, A., 662.  
 from Hamilton Co., Texas (HOWELL), 1891, A., 277.  
 from Henly Co., Virginia (VENABLE), 1891, A., 159.  
 from Laurens Co., South Carolina (HIDDEN), 1886, A., 996.  
 of Lenarto, hydrogen in (WILLIAMS), 1885, A., 634.  
 from Magura, Hungary (BERTHELOT and FRIEDEL), 1890, A., 1384; (WEINSCHENK), 1891, A., 27.  
 from Maryland (FOOTE), 1892, A., 794.  
 the Mazapil (HIDDEN), 1887, A., 564.  
 from Nejed, Central Arabia (FLEICHER), 1888, A., 662.  
 from North Carolina (BAKINS), 1890, A., 1081.  
 from North Dakota (HUNTINGTON), 1891, A., 531.  
 from Portugal (COHEN), 1889, A., 839.  
 from Puquios, Chili (HOWELL), 1891, A., 277.  
 from Rockingham Co., North Carolina (VENABLE), 1891, A., 159.  
 from Santa Rosa, Columbia, 1810 (v. LASAULX), 1886, A., 133.  
 from Summit, Blount Co., Alabama (KUNZ), 1891, A., 279.  
 from Texas (HIDDEN), 1887, A., 119.  
 from Trinity Co., California (SHEPARD), 1886, A., 320.  
 from Waldron Ridge, Claiborne Co., Tennessee (KUNZ), 1888, A., 354.  
 from West Virginia (KUNZ), 1888, A., 520.  
 from Wichita Co., Texas (MALLET), 1885, A., 493.  
 Welland, kamacite, tenite and plessite from (DAVISON), 1892, A., 24.  
 See also Meteorites.  
**Meteoric sand** (MAUGINI), 1885, A., 231.

**Meteoric stone** from Haywood Co., North Carolina (KUNZ), 1891, A., 278.  
**Meteoric stones** from Utah and Cape Girardeau, Missouri (DANZ), 1887, A., 120.  
**Meteorite** in a tertiary lignite (GURLF; DAUBRIE), 1887, A., 22.  
 of Alfanello (GALLIA; BREZINA), 1883, A., 1071; (FLIGHT), 1884, A., 276; (MAITSEN), 1884, A., 415; (v. FOULLON and FLIGHT), 1884, A., 976; (FRIEDHEIM), 1890, A., 115.  
 from Angia dos Reis (LUDWIG and TCHIRKAK), 1887, A., 1087.  
 from Atacama, Chili (HOWELL), 1892, A., 1413.  
 supposed, found in Augusta Co., Virginia (SEAMON), 1883, A., 37.  
 Bingela (LIVERSIDGE), 1886, A., 133.  
 Bishopville and Waterville (WADSWORTH), 1884, A., 976.  
 from Brenham Township, Kiowa Co., Kansas (KUNZ), 1891, A., 278.  
 from California (MERRILL), 1888, A., 1046.  
 from Caricote, Chili (v. SANDBERGER), 1890, A., 547; (WILL and PINNOW), 1890, A., 462.  
 the Chattooga Co., Georgia (KUNZ), 1888, A., 353.  
 Coahuila (HUNTINGTON), 1887, A., 455.  
 from Collescipoli (TROTTARELLI), 1891, A., 533.  
 the Cranbourne (FLIGHT), 1884, A., 416.  
 Denliquin or Barratta (LIVERSIDGE), 1886, A., 134; 1891, A., 279.  
 from Djati Pengilon, Java (DAUBRIE), 1887, A., 1024.  
 from Durango (HÄPKE), 1885, A., 230.  
 at Eagle Station, Kentucky (MEYNIER), 1889, A., 765.  
 Eli Elwah, New South Wales (LIVERSIDGE), 1891, A., 279.  
 of Estherville, Emmet Co., Iowa (10th May, 1879), lithological determination of (MEYNIER), 1883, A., 37.  
 of Fomatlán, Jalisco, Mexico (SHEPARD), 1886, A., 321.  
 Gilgoin, New South Wales (LIVERSIDGE), 1891, A., 279.  
 from Grand Rapids, Michigan (EASTMAN), 1885, A., 494; (RIGGS), 1886, A., 321.  
 from Green Co., Tennessee (BLAKE), 1886, A., 433.  
 supposed metallic, from Highland Co., Virginia (MILES), 1887, A., 455.  
 of Jelica (LOSIWITSCH), 1892, A., 795.

**Meteorite** from Kansas (KUNZ and WEINSCHENK), 1892, A., 795.  
 of Karang-Modjo or Magetan in Java (BOSSCHA), 1887, A., 710.  
 from Kentucky and Mexico (KUNZ), 1887, A., 564.  
 Klausenburg (v. HAUSER), 1883, A., 1070.  
 of Ljungby (NORDENSKIÖLD), 1892, A., 1060.  
 of Louans, Indre-et-Loire (DAUBRÉE), 1883, A., 449.  
 from Mexico (WHITFIELD), 1890, A., 346.  
 from Mighei, Russia (MEUNIER), 1890, A., 346.  
 of Misshof in Kurland, Russia (DOSS), 1892, A., 1059.  
 Ngawi (v. BAUMHAUER), 1885, A., 1190.  
 Nogoya (WEBERKY; DAUBRÉE), 1884, A., 977; (FRIEDHELM), 1890, A., 115.  
 Northport, so-called (ROBINSON), 1888, A., 662.  
 from Novo-Urei (JEROFÉEFF and LATSCHEW), 1889, A., 224.  
 from Ochansk (TICHOМИROFF and PETROFF), 1889, A., 358; (v. SIEMASCHKO), 1891, A., 532.  
 from Phu-Hong (MEUNIER), 1890, A., 222.  
 from Pipe Creek (LEDoux), 1891, A., 532.  
 the Powder Mill Creek (KUNZ), 1888, A., 353.  
 from Rensselaer Co., N.Y. (BAILEY), 1888, A., 121.  
 the Rockwood (WHITFIELD), 1888, A., 352.  
 Rowton and Middlesbrough, analyses of (FLIGHT), 1884, A., 977.  
 from St. Croix Co., Wisconsin (FISHER), 1888, A., 352.  
 of Saint-Denis-Westrem (KLEMENT), 1888, A., 238.  
 Santa Catharina (DERBY), 1885, A., 362.  
 of Sewrjukowo (EBERHARD), 1884, A., 417.  
 of Shalka and Maubhoom (v. FOULON), 1889, A., 574.  
 the Taney Co., Missouri (KUNZ), 1888, A., 353.  
 from Thunda, Queensland (LIVERSIDGE), 1891, A., 279.  
 the Tonganoxie (BAILEY), 1892, A., 284.  
 of Turgaisk (KISLAKOWSKY), 1892, A., 418.  
 Tysnes (REUSCH), 1886, A., 927.

**Meteorite** from Winnebago Co., Iowa (KUNZ), 1891, A., 278.  
**Meteorites** (EAKINS), 1890, A., 574; (HOWELL), 1892, A., 1413.  
 classification of (TSCHERMAK), 1884, A., 975.  
 gaseous constituents of (ANSDALL and DEWAR), 1887, A., 351.  
 spectra of (LOCKYER), 1888, A., 638.  
 examination of certain (FLIGHT), 1883, A., 169.  
 in the public collections of Mexico (VOM RATII), 1886, A., 133.  
 See also Meteoric iron.  
**Methacrylic acid.** See Methylacrylic acid.  
**Methæmoglobin.** See under Hæmoglobin.  
**Methaldehyde.** See Formaldehyde.  
**Methane** (*marsh-gas*), formation of, from cellulose (HOPPE-SEYLER), 1886, A., 577, 932.  
 preparation of (GLADSTONE and TRIBE), 1884, T., 154; (WRIGHT), 1885, T., 200; P., 21.  
 preparation of, from sodic acetate and from zinc methyl (FRANKLAND), 1884, T., 31.  
 flame, experiments on (LEWES), 1892, T., 210; P., 2.  
 illuminating power of (WRIGHT), 1885, T., 200; P., 21.  
 heat of formation of (THOMSEN), 1883, A., 544.  
 solidification of (OLSZEWSKI), 1885, A., 860.  
 absorption coefficient of, in water and in alcohol (HENRICH), 1892, A., 1044.  
 liquefaction of (OLSZEWSKI), 1885, A., 860.  
 liquid, properties of, and its use as a refrigerator (v. WRÓBLEWSKI), 1884, A., 1275.  
 density of (OLSZEWSKI), 1887, A., 694.  
 action of heat on (LEWES), 1892, T., 328.  
 action of the electric spark on mixtures of nitric oxide and (COOKE), 1889, A., 15.  
 explosion of oxygen and, under diminished pressure (MEYER and SEUBERT), 1884, T., 583, 591.  
 derivatives, volatility of (HENRY), 1887, A., 24.  
 hydrate (VILLARD), 1888, A., 1020, 1241.  
 estimation of (WINKLER), 1889, A., 924.

- Methane, dibromo-**. See *Methylene dibromide*.  
 bromido- (*methylene bromide*). (HENRY), 1886, A., 44.  
 bromonitro-, action of zinc ethyl on (BEWAD), 1889, A., 1128.  
 bromodinitro- (KACHLER and SPITZER), 1883, A., 961.  
 dibromodinitro- (LOANITSCHE), 1884, A., 277.  
 formation of (LOANITSCHE), 1883, A., 531.  
 chlorine derivatives of (LOANITSCHE), 1884, A., 1107.  
 chloro- and bromo-derivatives of, comparison of (HENRY), 1884, A., 718.  
 chloro-. See *Methylene chloride*.  
 dichloro-. See *Methylene dichloride*.  
 trichloro-. See *Chloroform*.  
 tetrachloro-. See *Carbon tetrachloride*.  
 chlorobromo- (*methylene chlorobromide*) (HENRY), 1886, A., 43.  
 chlorodibromo- (DYSON), 1883, T., 36.  
 chlorodinitro-, reduction of (RUSANOFF), 1886, A., 323.  
 dichlorodinitro- (LOANITSCHE), 1884, A., 1108.  
 trichloronitro-. See *Chloropierin*.  
 diiodo-. See *Methylene diiodide*.  
 iodonitro-, preparation of (RUSANOFF), 1892, A., 1415.  
 nitro-, magnetic rotatory power of (PERKINS), 1889, T., 687.  
 reactions with (PFUNG), 1885, A., 1197.  
 action of alkalis on (DUNSTAN and DYMOND), 1891, T., 430.  
 action of ammonia on (SOKOLOFF), 1889, A., 365.  
 action of benzaldehyde on (PRIEDS), 1885, A., 160.  
 action of, on chlorhydrins (PFUNG), 1886, A., 862.  
 action of zinc methyl on (BEWAD), 1889, A., 113.  
 action of, on animals (GIBBS and REINHART), 1891, A., 1393.
- Methane series of hydrocarbons**, nitration of (KONOWALOFF), 1892, A., 575.
- Methaneazobenzene**, iodonitro- (RUSANOFF), 1892, A., 1416.
- Methaneazobenzoic acid**, nitro- (GRIEBS), 1885, A., 783.
- Methaneazotoluene**, iodonitro- (RUSANOFF), 1892, A., 1416.
- Methanedisulphonic acid** (*methylene-disulphonic acid*), action of nitric acid on (FRANCHIMONT and KLOBBE), 1891, A., 426.  
 salts of (MONARI), 1895, A., 970.
- Methanedisulphonic acid** (*methylene-disulphonic acid*), chloro- (ANDREASCH), 1886, A., 787.
- Methanesulphonic acid** (*methylsulphonic acid*), derivatives of (McGOWAN), 1885, A., 367.  
 salts of (NICHOL), 1883, A., 972.  
 dibromo-, and chlorobromo-, barium salts of (ANDREASCH), 1886, A., 786.
- Methanesulphonic chloride**, trichloro- (McGOWAN), 1885, A., 367.  
 preparation of (BASSETT), 1886, A., 1009.  
 dissociation of (NOLLING), 1883, A., 38.  
 action of ammonia on (McGOWAN), 1884, A., 1126.
- Methanetriquinol** (NOLLING and SCHWARTZ), 1891, A., 1106;  
 (RHODOSPOULOS), 1891, A., 1261.  
 hydriodide (RHODOSPOULOS), 1883, A., 600.
- Methanetrissulphonic acid**, action of nitric acid on (FRANCHIMONT and KLOBBE), 1891, A., 426.
- Methenylamidine** (*formamidine*) hydrochloride (PINNER), 1883, A., 731.  
 picrate (DIECKMANN), 1892, A., 705.
- Methenylamidinenaphenyl-m-carboxylic acid** (ZEHLA), 1891, A., 304.
- Methenylamido- $\alpha$ -naphthyl mercaptan** (v. HOFMANN), 1887, A., 839.
- Methenylamidoximeacethydroxamic acid** (MODEEN), 1892, A., 139.
- Methenylamidoxyl mercaptan** (GUDEMAN), 1888, A., 1282.
- Methenylanilidoxime** (MILLER), 1890, A., 44.
- Methenylisotolylenediamine** and its bromo-derivative (HUBNER and SCHUPPACH), 1884, A., 1143.
- Methose** (LOEW), 1889, A., 583.  
 molecular weight of (v. KLOBBE), 1890, A., 466.
- Methothiothiophen**. See *Methoxythiophen*, thio-.
- Methoxide**, potassium, heat of formation of (DE FORCRAND), 1887, A., 204.  
 sodium, heat of formation and of solution of (DE FORCRAND), 1885, A., 1031.  
 elimination of carbonic anhydride by aid of (MUI), 1889, A., 1126.  
 oxidation of, by atmospheric oxygen (v. HEMMELMAYR), 1891, A., 1332.
- o-Methoxyacetophenone** (TAHARA), 1892, A., 845.
- Methoxyacetophenonecarboxylic acid** (ZINCKE and LATTE), 1892, A., 1231.

- o*-Methoxybenzaldehyde** (*o*-methylsulcylaldehyde) (VOSWINCKEL), 1883, A., 190.
- nitro-** [m.p. 102°] (v. MILLER and KINKELIN), 1889, A., 989.
- [m.p. 90°] and its derivatives (VOSWINCKEL), 1883, A., 190; (SCHNELL), 1884, A., 1164; 1887, A., 140.
- triethio-** (BAUMANN and FROMM), 1891, A., 1051.
- m*-Methoxybenzaldehyde** (TIEMANN and LUDWIG), 1883, A., 189, 586.
- $\alpha$ - and  $\beta$ -nitro-** (ULRICH), 1886, A., 60.
- p*-nitro-** (ULRICH), 1886, A., 60; (LANDSBERG), 1887, A., 483.
- preparation of** (TIEMANN), 1891, A., 703.
- m*-Methoxybenzaldehydes**, nitro-, the four isomeric (RIECHÉ), 1889, A., 1169.
- p*-Methoxybenzaldehyde**, *m*-nitro- (EINHORN and GRADFIELD), 1888, A., 478.
- triethio-** (BAUMANN and FROMM), 1891, A., 1050.
- See also** Anisaldehyde.
- p*-Methoxybenzaldehyde** (MILLER), 1889, A., 254.
- p*-Methoxybenzamide**. See Anisamide.
- Methoxybenzene**, 3,4-nitramido- (SCHEIDEL), 1886, A., 1046.
- See also** Anisole.
- p*-Methoxybenzenylacetylamidoxime** (MILLER), 1889, A., 254.
- o*-Methoxybenzenylamidoxime** (MILLER), 1889, A., 255; 1890, A., 146.
- p*-Methoxybenzenylamidoxime** (*anisnylamidoxime*) (MILLER), 1889, A., 254; 1890, A., 144; (HOCHHEIM), 1890, A., 1265.
- ethyl ether** (MILLER), 1889, A., 254.
- o*-Methoxybenzenylazoximebenzenyl** (MILLER), 1889, A., 254; 1890, A., 146.
- p*-Methoxybenzenylazoximebenzenyl** (MILLER), 1889, A., 254.
- p*-Methoxybenzenylazoxime-ethenyl** (MILLER), 1889, A., 254.
- p*-Methoxybenzenylazoximepropenyl- $\alpha$ -carboxylic acid** (MILLER), 1889, A., 255.
- p*-Methoxybenzenyl-ethylideneimidoxime and -imidoximecarbonyl** (MILLER), 1889, A., 254.
- Methoxybenzhydrylamine**. See Methoxydiphenylcarbonylamine.
- o*-Methoxybenzoic acid**, dibromo- (PERATONER), 1887, A., 487.
- m*-Methoxybenzoic acid**, *o*- and *m*-nitro- (RIECHÉ), 1889, A., 1169, 1170.
- p*-Methoxybenzoic acid**. See Anisic acid.
- Methoxybenzonitriles**, *o*- and *p*- (*anisnitriles*) (MILLER), 1889, A., 255, 254; 1890, A., 146; (HOCHHEIM), 1890, A., 1265; (GARELLI), 1891, A., 712.
- 6-Methoxybenzo-1-nitrile**, 2-nitro- (LOBBY DE BRUYN), 1885, A., 657.
- Methoxybenzophenone and its ketoximes** (HANTZSCH), 1891, A., 445.
- p*-Methoxybenzophenone** chloride (HANTZSCH and KRAFT), 1892, A., 339.
- hydrazones of** (HANTZSCH and KRAFT), 1892, A., 340; (AUWERS and MEYER), 1892, A., 598.
- p*-Methoxybenzophenone-*p*-amidobenzoic acid** (HANTZSCH and KRAFT), 1892, A., 340.
- p*-Methoxybenzophenone- $\beta$ -naphthylamine and -*p*-toluidine** (HANTZSCH and KRAFT), 1892, A., 339.
- o*-Methoxybenzoylacetic acid** (TAHARA), 1892, A., 844.
- Methoxybenzylacetamide**. See *o*-Anisylacetamide.
- p*-Methoxybenzyl cyanide** (SALKOWSKI), 1889, A., 1173.
- p*-Methoxybenzylidenesamidodimethylaniline** (NUTH), 1885, A., 784.
- o*-Methoxybenzylidenesamidophenols** (HAEGBELD), 1892, A., 1451.
- o*-Methoxybenzylidenecamphor** (*methylsulcylalcamphor*) (HALLER), 1891, A., 1498.
- o*-Methoxybenzylidene-dimethyl-*p*-phenylenediamine and - $\beta$ -naphthylamine** (STEINHART), 1888, A., 52.
- o*-Methoxybenzylidenemalononic acid** (STUART), 1887, P., 118; 1888, T., 142.
- o*-Methoxybenzylidene chloride** (STUART), 1888, T., 404; P., 25.
- p*-Methoxybenzylidene ethylenic disulphide** (FARBENDER), 1888, A., 805.
- o*-Methoxybenzyl- $\beta$ -naphthylamine and -*p*-toluidine** (EMMERICH), 1888, A., 51, 50.
- Methoxycarballylic acid** (SULATZKI), 1885, A., 512.
- Methoxycarbostryl** (*2'-hydroxy-3-methoxyguanine*) (EICHENGRÜN and EINHORN), 1891, A., 1101.
- Methoxycinnamaldehyde** (*methylcoumarinaldehyde*), nitro- (v. MILLER and KINKELIN), 1889, A., 990.
- Methoxycinnamic acid** (*methylcoumaric acid*), *o*-nitro- (v. MILLER and KINKELIN), 1889, A., 989.
- m*-Methoxycinnamic acid** (TIEMANN and LUDWIG), 1883, A., 189.
- o*-nitro-** (EICHENGRÜN and EINHORN), 1890, A., 1127; 1891, A., 1101.

- o*-Methoxycinnamic acid, derivatives of (SCHNELL, 1884, A., 1165; 1887, A., 140.  
*m*-amido- and *m*-nitro- (SCHNELL, 1884, A., 1165; 1887, A., 140.  
*p*-Methoxycinnamic acid (VALENTINI, 1885, A., 264; (MAGSANIMI, 1886, A., 467.  
*d*bromide and its derivatives EIGEL, 1887, A., 1110.  
*m*-nitro- (EINHORN and GRAEFELD, 1888, A., 478.  
*p*-Methoxy-coumarilic acid and coumarone WILL and BECK, 1886, A., 881.  
Methoxycresol (LIMPACH), 1892, A., 447.  
6-Methoxy- $\psi$ -cumene, 2:5-*d*bromo- and *m*-nitro- (ATWELL, 1886, A., 144.  
Methoxycymene and its nitro-derivative (JENKIN), 1886, A., 696.  
Methoxydeoxybenzoin (NEY), 1888, A., 1197.  
Methoxydiallylacetic acid and its ethylic salt (SCHRAZKI, 1885, A., 512; (BRATIAEFF, 1887, A., 359.  
*p*-Methoxydiazobenzenesulphonic acid, salts of (ALTSCHUL, 1892, A., 1051.  
4-Methoxy-2:6-dimethylpyridine (*methoxyglutidin*) (CONRAD and ECKHARDT, 1889, A., 520.  
3-Methoxy-2':4'-dimethylquinoline (CONRAD and LIMPACH, 1888, A., 853.  
*p*-Methoxydiphenylcarbinylamine (*p-methoxyglucosylamine*) (HANTZSCH and KRAFF, 1892, A., 338.  
*o*-Methoxy-1:3-diphenylpyrazolone (TAHARA), 1892, A., 844.  
Methoxydiquinolyls. See Methoxyquinolylquinoline.  
Methoxyethane, *tetra*-chloro- (MAGSANIMI), 1887, A., 28.  
3-Methoxy-4-ethoxyallylbenzene (*allyl ethyl ether*), tribromide (WOLFF, 1890, A., 638.  
Methoxyethylbenzoic acid, *o*-chloro-nitro- (ZINCKE and LAPIEN), 1892, A., 1231.  
Methoxyhydrocotarnine methiodide (ROSER), 1890, A., 531.  
*p*-Methoxyhydrocoumarilic acid (WILL and BECK), 1886, A., 881.  
*p*-Methoxyjulolidine (PINKUS, 1892, A., 1492.  
Methoxyl, estimation of (ZEISEL), 1886, A., 493, 1079; (BENEDIKT and GRUSNLER), 1890, A., 209.  
interference of substances containing sulphur with Zeisel's method for the estimation of (BENEDIKT and BAMBERGER), 1891, A., 1296.  
Methoxylepidine. See Methoxy-4'-methylquinoline.  
*o*-Methoxymandelic acid (VOSWINCKEL, 1883, A., 190.  
Methoxymethyl butyl ketone (JAMES), 1885, P., 115; 1886, T., 55.  
Methoxy-*m*-methylbenzanilides, *o*- and *p*- (LEUCKART, 1890, A., 760.  
*g*-Methoxymethyl- $\beta$ -carbostyryl (FRIEDLANDER and MÜLLER, 1887, A., 977.  
Methoxymethylethylacetone (JAMES, 1885, P., 115; T., 55.  
Methoxy- $\beta$ -methylhydrocoumaric anhydride (v. PECHMANN and COHEN, 1884, A., 1332.  
6-Methoxymethyl-*p*-phenylenediamine (BESL, 1890, A., 608.  
Methoxymethylphthalic acid, *d*bromide (WILL and LEYMAN, 1886, A., 254.  
Methoxymethylpropyl-benzanilide and -benzoic acid (LEUCKART, 1890, A., 760.  
Methoxymethylquinolines (HERZELD, 1884, A., 1199.  
Methoxy-2'-methylquinoline (CONRAD and LIMPACH), 1887, A., 680.  
4'-Methoxy-2'-methylquinoline methiodide (CONRAD and ECKHARDT), 1889, A., 520.  
3-Methoxy-2'-methylquinoline, 4'-chloro- (CONRAD and LIMPACH, 1888, A., 853.  
Methoxy-4'-methylquinoline (*methoxyglutidin*) (KNORR), 1887, A., 159.  
3-Methoxy-4'-methylquinoline (KUEHNIG), 1890, A., 1433.  
1-Methoxy-2'-methyltetrahydroquinoline (DOEBNER and v. MÜLLER, 1884, A., 1374.  
1-Methoxy-1'-methyltrihydroquinoline (KOHN), 1886, T., 501; P., 210.  
methiodide and hydroxide (KOHN, 1886, T., 503; P., 210.  
1-Methoxynaphthalene, 2:4-dibromo-nitro- (MEDOLA), 1885, T., 502.  
Methoxynaphthalenes,  $\alpha$ - and  $\beta$ - (SFAEDLL), 1883, A., 585.  
 $\beta$ -Methoxynaphthalenesulphonic acids (PERCIVAL), 1889, P., 73.  
Methoxynaphthaphenazine (KEHRMANN and MESSINGER), 1891, A., 1213.  
Methoxynaphthoic acids, anilides of (LEUCKART and SCHMIDT, 1885, A., 1224.  
*p*-Methoxynicotinic acid (v. PECHMANN and WELSH), 1885, T., 154; P., 6; A., 175.

- p*-Methoxynicotinic acid, constitution of (V. PECHMANN), 1885, A., 558.
- Methoxyiso-oxazolidicarboxylic acid (V. PECHMANN), 1891, A., 739.
- p*-Methoxyphenoxybenzoic acid (VALENTINI), 1885, A., 264.
- p*-Methoxyphenylacetamide- and -acetonitrile (SALKOWSKI), 1889, A., 1173.
- p*-Methoxyphenylacetic acid (SALKOWSKI), 1884, A., 1176.
- p*-bromo- (SALKOWSKI), 1889, A., 1174.
- p*-Methoxyphenylacryl methyl ketone (EINHORN and GRABFIELD), 1888, A., 477.
- p*-Methoxyphenylacrylic acid (EINHORN and GRABFIELD), 1888, A., 477.
- m*-Methoxyphenyl- $\beta$ -bromopropionic acid, *o*-nitro- (EICHENGRÜN and EINHORN), 1890, A., 1127.
- o*-Methoxy- $\alpha$ -phenylcinchoninic acid (DOEBNER), 1889, A., 411.
- 1-*p*-Methoxyphenyl-2:3-dimethylpyrazolone (ALTSCHUL), 1892, A., 1082.
- p*-Methoxyphenylethylene, *m*-nitro- (EINHORN and GRABFIELD), 1888, A., 477.
- p*-Methoxyphenylglyoxylic acid (GARELLI), 1891, A., 711.
- p*-Methoxyphenylhydrazine (ALTSCHUL), 1892, A., 1082.
- p*-Methoxyphenylhydrazinesulphonic acid, salts of (ALTSCHUL), 1892, A., 1081.
- 3-Methoxy-2'-phenylhydroquinoline, 2-amido- (V. MILLER and KINKELIN), 1887, A., 978.
- m*-Methoxyphenyllactamide, *o*-nitro- (EICHENGRÜN and EINHORN), 1890, A., 1128.
- m*-Methoxyphenyllactic acid, *o*-nitro- (EICHENGRÜN and EINHORN), 1890, A., 1127; 1891, A., 1100.
- 4-Methoxy-1-phenyl-3-methylphenylamine (PHILIP and CALM), 1885, A., 155.
- $\alpha$ -Methoxy- $\nu$ -phenyl- $\beta$ -methyl- $\mu$ -thio-methylglyoxaline (MARCKWALD, NEUMARK and STELZNER), 1892, A., 152.
- p*-Methoxyphenyloximidoacetic acid (GARELLI), 1892, A., 328.
- o*-Methoxyphenylphenamidoacetic acid, nitrile of (VOSWINCKEL), 1883, A., 190.
- $\alpha$ -*o*-Methoxyphenylaldehydephenylphthalazine (MELDOLA and FORSTER), 1891, T., 697.
- p*-Methoxyphenylpropionic acid, dibromo-*m*-nitro- (EINHORN and GRABFIELD), 1888, A., 478.
- 1-Methoxy-2'-phenylquinoline (DOEBNER), 1889, A., 411.
- 3-Methoxy-2'-phenylquinoline (DOEBNER), 1889, A., 411.
- 2-nitro-, and its derivatives (V. MILLER and KINKELIN), 1887, A., 978.
- Methoxyphenylthiocarbamide (TIE-MANN), 1889, A., 1165; (VOLTMER), 1890, A., 1126; 1891, A., 558.
- p*-Methoxyphenyl-*p*-tolylmethylamine (HATSCHKE and ZEGA), 1886, A., 457.
- Methoxyisopropylstilbene (MAGNANI), 1886, A., 468.
- 2-Methoxypyridine (V. PECHMANN and BALTZER), 1892, A., 209.
- 4-Methoxypyridine (HATTINGER and LIEBEN), 1885, A., 811.
- Methoxyquinine methiodide (GRIMATX), 1892, A., 1363.
- Methoxyquinol (WILL), 1888, A., 458; (SCHWEITZER), 1889, A., 390.
- 1-Methoxyquinoline (SKRAUP), 1883, A., 93.
- 2-Methoxyquinoline (FISCHER), 1883, A., 91.
- 3-Methoxyquinoline (VULPIUS), 1885, A., 398; (SKRAUP), 1886, A., 79.
- 1'-Methoxyisoquinoline, 3'-chloro-[m. p. 73°-74°] (GABRIEL), 1887, A., 62.
- 3-Methoxyquinoline-4'-carboxylic acid (*quininic acid*) (SKRAUP), 1884, A., 86.
- 6-Methoxy-2:3-quinolinic acid (FEER and KOENIGS), 1885, A., 1235.
- 1-Methoxyquinolyl-1-hydroxyquinoline methiodide (LIPPMANN and FLEISSNER), 1890, A., 174.
- p*-Methoxyquinolylquinolines (*methoxyquinolylines*),  $\alpha$ - and  $\beta$ - (V. MILLER and KINKELIN), 1887, A., 979.
- Methoxyquinone, derivatives of (SCHWEITZER), 1889, A., 389.
- 2-Methoxyquinone (WILL), 1888, A., 458.
- Methoxyquinonedioxime (BEST), 1890, A., 608.
- Methoxysalicylic acid, dibromo- (PERRONER), 1887, A., 487.
- Methoxysuccinamide (PURDIE and MARSHALL), 1891, T., 470; P., 82.
- Methoxysuccinic acid (BREDT), 1883, A., 176; (PURDIE and MARSHALL), 1891, T., 471; P., 82.
- and its salts, properties of (PURDIE), 1885, T., 863.
- 1-Methoxystyrylpyridine (SCHUFFAN), 1890, A., 1438.
- 3-Methoxytetrahydroquinoline (*tetrahydro-p-quinonisoil*; "thallin") (SKRAUP), 1886, A., 80; (DRAGENDORFF and BLUMENBACH), 1887, A., 871.

- 3-Methoxytetrahydroquinoline (*tetrahydro-p-quinazolinol*; "thallin"), preparation of (ANON.), 1885, A., 1023.
- physiological action of (PARENTI), 1888, A., 311.
- derivatives of (SKRAUP), 1886, A., 80.
- methyl- and ethyl- derivatives of, preparation of (ANON.), 1882, A., 871.
- sulphate (VULPIUS), 1885, A., 308.
- influence of, on digestion (CHITTENDEN and STEWART), 1889, A., 534.
- tartrate (VULPIUS), 1885, A., 308.
- $\alpha$ -Methoxy- $\mu$ -thiomethoxy- $\mu\beta$ -dimethylglyoxaline MARKWALD, NEUMARK and STELZNER, 1892, A., 153.
- $\alpha$ -Methoxy- $\mu$ -thiomethoxy- $\beta$ -methyl- $\mu\alpha$ - and - $\mu$ -tolylglyoxalines MARKWALD, NEUMARK and STELZNER, 1892, A., 152.
- Methoxythiophen, thio- (MEYER and NEURE), 1887, A., 805.
- p*-Methoxytoluene (*tolyl methyl ether*), amido-derivatives of (LIMPACH), 1889, A., 698.
- m*-amido- (LIMPACH), 1889, A., 499.
- 3-bromo- (SCHALL and DRALLE), 1885, A., 146.
- chloro- (SCHALL and DRALLE), 1885, A., 146; (LIMPACH), 1889, A., 499.
- iodo- (SCHALL and DRALLE), 1885, A., 146.
- Methoxytoluenesulphonic acid (HEFFTER), 1884, A., 454.
- 4-Methoxy-*m*-toluonitrile (*homomethylsalicylonitrile*) (LIMPACH), 1889, A., 499.
- Methoxytriphenylmethane, diamido- (MAZZARA and POSSETTO), 1885, A., 1141.
- Methronene (ERDMANN), 1885, A., 528.
- Methronic acid (*methylfurancarboxylic acid*; *sylvancarboxylic acid*) (FITTIG), 1886, A., 225; (POLONOWSKY), 1888, A., 1067; (FITTIG and HANTZSCH), 1889, A., 126; (v. EYERN), 1889, A., 592.
- See also Carbonyltriuric acid.
- Methyl amyl ketone (*methylisopropylacetone*) (VAN ROMBERGH), 1887, A., 232.
- synthesis of (DÉHAL), 1886, A., 45.
- Methyl isoamyl ketone (SOKOLOFF), 1888, A., 125.
- oxidation of (WAGNER), 1892, A., 36.
- Methyl bromobutyl ketone, preparation of (LIPP), 1886, A., 219.
- Methyl bromopropyl ketone (LIPP), 1889, A., 844.
- Methyl butyl pinacone (KABLUKOFF), 1888, A., 1170.
- Methyl isobutenyl ketone (*mesityl oxide*; *isopropylideneacetone*), magnetic rotatory power of (PERKIN), 1887, P., 98; 1888, T., 586, 591.
- compound of phenylhydrazine with (FISCHER and KNOEVENAGEL), 1887, A., 932.
- nitroso- (CLAISEN and MANASSE), 1889, A., 585.
- Methyl isobutenyl ketoxime (*mesityloxime*; *isopropylideneacetoneoxime*) (NAGELI), 1883, A., 728.
- Methyl butyl ether (HENRY), 1892, A., 27.
- Methyl butyl ketone, oxidation of (WAGNER), 1885, A., 1197; 1892, A., 36.
- Methyl isobutyl ketone (KIRWENOFF), 1888, A., 125; (WAGNER), 1892, A., 36.
- Methyl isobutyl diketone (*diketolopentane*) (ORIE and v. PEHMANN), 1889, A., 1138.
- Methyl *sec*-butyl ketone and its derivatives (WILHELMUS), 1883, A., 966.
- Methyl *tert*-butyl ketone (*pinacolone*), oxidation of (GUTERMANN), 1890, A., 237.
- Methyl butyl ketoxime (JANNY), 1883, A., 580.
- Methyl  $\beta$ -butyl pinacone (WILHELMUS), 1883, A., 966.
- Methyl *tetrachlorethyl ether* (MAGNANINI), 1887, A., 28.
- Methyl chlorethyl ketone (VLADESCO), 1891, A., 1183; 1892, A., 810.
- reactions of (VLADESCO), 1892, A., 810.
- action of sodium on (VLADESCO), 1892, A., 810.
- Methyl dichlorethyl ketone (VLADESCO), 1891, A., 1183.
- Methyl chlorovinyl *o*-diketone, *dichloro-* (ZINKE and RABINOWITCH), 1891, A., 690.
- Methyl dichlorovinyl ether (DENARO), 1884, A., 1822.
- Methyl coumaroneketone. See *o*-Hydroxystyryl methyl ketone.
- Methyl dimethylthienyl ketoxime (MESSINGER), 1885, A., 1205.
- Methyl ethyl ketone (*methylacetone*), action of chlorine on (VLADESCO), 1891, A., 1183; 1892, A., 425.
- action of sodium on (SCHRAMM), 1883, A., 1079.
- nitroso- (CERESOLE), 1883, A., 41.
- Methyl ethyl ketoxime (JANNY), 1883, A., 580.

- Methyl ethyl ketoxime**, action of hydrocyanic acid on (V. MILLER and PLOCHL), 1892, A., 1196.  
 action of phosphoric chloride on (HANTZSCH), 1892, A., 426.
- Methyl ethyl pinacone** (SCHRAMM), 1883, A., 1080.
- Methyl hexyl ketone** [b.p. 208°—210°] (POETSCH), 1883, A., 729.  
 normal [b.p. 172°] (BÉHAL), 1887, A., 788; 1892, A., 298.
- Methyl hexyl ketoxime** (BÉHAL), 1887, A., 795; (SCHOLL), 1888, A., 443; (HANTZSCH), 1892, A., 427; (HOLLEMAN), 1892, A., 971.
- Methyl ketones**, aromatic, and their oxidation (CLATS), 1886, A., 462.
- Methyl mercaptan** and its derivatives (OBERMEYER), 1888, A., 124.  
 in human intestinal gases (NENCKI), 1890, A., 540.  
*p*-chloro-. See Thiocarbonyl tetrachloride.
- Methyl mercaptides** (KLASON), 1888, A., 356.
- Methyl nonyl ketone** from *Citrus Limetta* (WATTS), 1886, T., 317; P., 158.
- Methyl nonyl ketoxime** (SPIGLER), 1881, A., 1115.
- Methyl propyl ether** (HENRY), 1892, A., 27.
- Methyl propyl ketone** (*ethylacetone*) (LIEBEN and ZEISEL), 1883, A., 570.  
*iso*- and *hepta*-chloro- (ZINCKE and FUCHS), 1892, A., 1462, 1463.  
 nitroso- (CLAISEN and MANASSE), 1889, A., 565.  
 thio- (AUTENRIETH), 1891, A., 541.
- Methyl isopropyl ketone** (*dimethylacetone*) (ELTEKOFF), 1883, A., 566.  
 action of hydroxylamine on (NAGELI), 1884, A., 611.
- Methyl propyl and isopropyl diketones** (*diketohexanes*) (OTTE and V. PICHMANN), 1889, A., 1138.
- Methyl propyl ketoxime**, action of phosphoric chloride on (HANTZSCH), 1892, A., 427.
- Methyl isopropyl ketoxime** (NAGELI), 1884, A., 611.  
 action of phosphoric chloride on (HANTZSCH), 1892, A., 427.
- Methyl trimethylene ketone** (PERKIN), 1885, T., 835.
- Methylacetanilide** (GIRAUD), 1889, A., 704; (PICTET), 1890, A., 758.  
 action of zinc chloride on (PICTET and FERT), 1890, A., 1112.
- Methylacetoacetamide** (PETERS), 1890, A., 1097.
- Methylacetoacetanilide** (KNORN), 1888, A., 1111.
- Methylacetoacetic acid** (CERESOLE), 1883, A., 41.  
 action of diazobenzene chloride on (JAPP and KLINGEMANN), 1888, T., 539; P., 11.
- Methylacetone**. See Methyl ethyl ketone.
- Methylacetothienone**. See Methylthienyl methyl ketone.
- p-Methylacetotoluidide**, *m* nitro- (NIE-MENTOWSKI), 1887, A., 937.
- Methylacetylacetone** (COMBES), 1888, A., 128.  
 refractive and dispersive powers of (PERKIN), 1892, T., 850, 852; P., 100.  
 magnetic rotation of (PERKIN), 1892, T., 813, 842, 848; P., 100.
- Methylacetyl-acetonitrile and -carbinol** (VLADESCO), 1892, A., 810.
- Methylacetylcarbinyl acetate and butyrate** (VLADESCO), 1892, A., 810.
- $\alpha$ -Methyl- $\beta$ -acetylpropionic acid**, distillation of (THORNE), 1885, A., 1200.
- Methylacetyl-**. See also Acetylmethyl-.
- Methylacridine** (BERNTSEN and BENDER), 1883, A., 1133; (FISCHER), 1883, A., 1134.  
 action of methylic iodide on (BERNTSEN), 1884, A., 1356.
- Methylacridinechloral** ( *$\omega$ -trichloro- $\beta$ -hydroxypropylacridine*) (BERNTSEN and MÜHLERT), 1887, A., 849.
- Methylacridone** (DECKER), 1892, A., 881.
- Methylacrylic acid** (*methacrylic acid*), brom-addition derivatives of (KOLBE), 1883, A., 573.
- Methylacrylic anilide** (BISCHOFF), 1891, A., 828.
- Methylasculetin** (TIEMANN and WILL), 1883, A., 199.
- Methylal**, physiological action of (MAIRET and COMBEMALE), 1887, A., 391, 684.
- Methylals** (ARNHOLD), 1887, A., 911.
- Methylalloxazine** (KÜHLING), 1892, A., 70.
- Methylallylbenzene** (ERRERA), 1885, A., 772.
- Methylallylcarbinol**, oxidation of (WAGNER), 1889, A., 231.
- Methylallylene** (NORTON and NOYES), 1889, A., 361.
- Methylallylsuccinic acids** (HJELT), 1892, A., 697.
- Methylallylthiocarbamide** (HECHT), 1890, A., 477; (AVENARIUS), 1891, A., 549.

- Methylallyl- $\psi$ -thiocarbamide** (AYEN-ARIUS), 1891, A., 549.
- Methylallylthiohydantoin** (MARK-WALD, NEUMARK and SILLZNER), 1892, A., 151.
- Methylamarine** (CLAUSS and SCHERBEL), 1886, A., 237.
- Methylamidoacetic acid.** See Sarcosine.
- Methylamidoazobenzene** (*benzenazo-methylaniline*), and its acetyl-derivative (BERITZ), 1884, A., 1149.
- p*-nitro-** (NÖLTING), 1888, A., 273.
- Methylamidoazobenzenesulphonic acid**, sodium salt of. See Helianthin.
- Methylamidobenzamide**, *o*-nitroso- (FINGER), 1888, A., 948.
- o*-Methylamidobenzene**, nitroso- (MEYER), 1886, A., 63.
- p*-Methyl-*o*-amidobenzenylamidoxime** (WEISL), 1890, A., 47.
- 2-Methylamidobenzmethylamide**, 5-nitro- (THIEME), 1891, A., 917.
- Methylamidobenzoic acid** (ZACHARIAS), 1891, A., 913.
- Methylamidobenzoic acids**, chloro- (LA-COUE and BODEWIG), 1885, A., 793.
- nitro-** (THIEME), 1891, A., 916, 917.
- Methylamido- $\alpha$ -butyrocyamidine** (DUVILLIER), 1883, A., 220.
- Methylamidocarbimidocyanamido-benzoyl** (GRILS), 1885, A., 1227.
- $\beta$ -Methylamidocrotonilide** (KNORR and TAUFKIRCH), 1892, A., 705; (BRILL), 1892, A., 730, 1106; (LEDERER), 1892, A., 965.
- Methyl-*mono*- and -*di*-amido-cyanidines**, *dip*erchloro- (WEDDIGE), 1886, A., 323, 324.
- Methylamido-*p*-diketohexene**, *pent*achloro- (ANGELI), 1892, A., 449.
- Methyl-*p*-amidodiphenylmethane** (MANN), 1889, A., 261.
- Methylamidoformic chloride** GATTERMANN and SCHMIDT, 1887, A., 358.
- Methylamido- $\alpha$ -hexoic acid**, and its derivatives (DUVILLIER), 1884, A., 604.
- Methylamido- $\alpha$ -hexoic cyamidine** (DUVILLIER), 1883, A., 1153.
- Methylamidohydroxybutyric acid** (FELINSKY), 1885, A., 752.
- Methylamidomethoxycyanuric chloride** (V. Hofmann), 1886, A., 40.
- Methylamidomethylnitramidobenzene**, 2:4:6, *trinitro*- (VAN ROUMBURGH), 1889, A., 1154.
- Methylamidomethylsuccinamic acid** (KORNER and MENOZZI), 1890, A., 870.
- Methylamidomethylthiazole** HANTZSCH and WEBER, 1888, A., 257.
- Methyl- $\beta$ -amidonaphthylhydroquinoline** (RLIN), 1887, A., 682.
- Methylamidoperezone** MYLLIUS, 1885, A., 778.
- Methylamidophenylethane**, nitroso- (HEUMANN and WILENIK), 1887, A., 1039.
- $\alpha$  $\beta$ -Methyl-*m*-amidophenylpropionic acid** (V. MÜLLER and RUDHE), 1890, A., 1140.
- Methyl-*o*-amidostyrene**, *o*-chloro- (LIPPI), 1885, A., 167.
- Methylamidosuccinamic acid** (KORNER and MENOZZI), 1890, A., 871.
- $\beta$ -Methyl- $\mu$ -amidothiazole** (HUBSCHER), 1891, A., 222.
- $\alpha$ -Methylamidovaleric acid** and its derivatives (MENOZZI and BELLONI), 1887, A., 797.
- Methylamidoisovalerocyamidine** (DUVILLIER), 1883, A., 221.
- Methylamine**, properties of (V. Hofmann), 1889, A., 688.
- heat of formation of** (MÜLLER), 1889, A., 811.
- commercial**, extraction of amines from (MÜLLER), 1885, A., 501.
- chlororhodate** (VINCENT), 1886, A., 311.
- hydroferrocyanide**, crystalline form of (HORTDAHL), 1886, A., 522.
- hydrogen diaminechromium thiocyanate** (CHRISTENSEN), 1892, A., 1000.
- hydrogen malate**, action of heat on (GIUSFINIANI), 1892, A., 820.
- platinothiocyanate** (GUARESCI), 1892, A., 286.
- trimethylacetic acid** (FRANCHIMONT and KLOBBE), 1888, A., 1062.
- vanadates** (BAILEY), 1884, T., 692, 694; (DITRE), 1887, A., 899.
- Methylammoniochelidonic acid** (LIEBEN and HAITINGER), 1884, A., 1196.
- Methylammonium rhodiochlorides** (VINCENT), 1885, A., 1116.
- salts**, compounds of, with thiocarbamide (REYNOLDS), 1891, T., 392; P., 79.
- Methylamylacetylene** (BLHAL and DESGREZ), 1892, A., 1065.
- hydration of** (BLHAL), 1889, A., 227.
- hexylacetylene from** (BLHAL), 1889, A., 950.
- Methylamylheptenylcarbinol** and its acetate [ $C_{14}H_{28}O$ ] (PERKIN), 1883, T., 56, 76.

- Methylisoamylquinol** (FIALA), 1886, A., 454.
- Methylanhydroacetonebenzil** (JAPP and BURTON), 1887, T., 431; P., 32.
- Methylanhydroecgonine methiodide** (EINHORN), 1889, A., 170.
- Methylanilalloxan** (PELLIZZARI), 1888, A., 143, 682.
- Methylanilidoacetamide** and its hydrochloride (SILBERSTEIN), 1885, A., 160.
- Methylanilidoacetic acid**, hydrochloride of (SILBERSTEIN), 1885, A., 160.
- Methylanilidoazotribromobenzene** (SILBERSTEIN), 1883, A., 683.
- Methylanilidoacarbamidophenol** (KALCKHOFF), 1883, A., 1110.
- Methylanilidodimethylpyrroline** (KNORR), 1887, A., 276.
- Methylanilidoethylphthalimide** (NEWMAN), 1891, A., 575.
- Methylanilidoformylcamphor** (CLAISEN), 1891, A., 575.
- Methylaniline** (PICTET), 1890, A., 758.  
preparation of (REINHARDT and STAEDL), 1883, A., 578.  
heat of formation of (PETIT), 1888, A., 1239.  
action of picric chloride on (TURPIN), 1891, T., 716.  
action of sulphur on (MÜHLAU and KROHN), 1888, A., 364.  
estimation of (REVERDIN and DE LA HARPE), 1889, A., 1038.  
acetyl-derivative of, preparation of (REINHARDT and STAEDL), 1883, A., 578.
- Methylaniline**, *p*-bromo-, action of diazotised *m*- and *p*-nitranilines on (MELDOLA and STREATFEILD), 1889, T., 425, 418; P., 98.  
action of diazotised *p*-toluidine on (MELDOLA and STREATFEILD), 1889, T., 433, P., 98.  
6-bromo-2:4-*d*-nitro- (NORTON and ALLEN), 1885, A., 1214.  
*p*-chloro-, action of diazotised *p*-toluidine on (MELDOLA and STREATFEILD), 1889, T., 436; P., 98.  
*o*-nitro- (HEMPEL), 1890, A., 612.  
*m*-nitro- (NÖLTING and STRICKER), 1886, A., 544; (MELDOLA and SALMON), 1888, T., 777.  
action of diazotised *p*-bromaniline on (MELDOLA and STREATFEILD), 1889, T., 426; P., 98.  
action of diazotised *p*-nitraniline on (MELDOLA and STREATFEILD), 1888, T., 667; P., 63.  
*p*-nitro- (MELDOLA and SALMON), 1888, T., 775.
- Methylaniline**, *p*-nitro-, action of diazotised *p*-bromaniline on (MELDOLA and STREATFEILD), 1889, T., 419; P., 98.  
action of diazotised *m*-nitraniline on (MELDOLA and STREATFEILD), 1888, T., 668; P., 63.  
*d*-nitro- (NORTON and ALLEN), 1885, A., 1214.  
action of potassium cyanide on (LIPPMANN and FLEISSNER), 1886, A., 235.  
*tetranitro*- (v. ROMBURGH), 1885, A., 660; 1889, A., 971; (MERTENS), 1886, A., 1022.  
*o*-nitronitroso- (HEMPEL), 1890, A., 612.  
1:4-nitroso- (FISCHER and HEPP), 1887, A., 244.  
See also Phenylmethylnitrosamine.  
nitrosothio-, and thio- (MICHAELIS and GODCHAUX), 1891, A., 75.  
nitrosothionyl- (MICHAELIS and GODCHAUX), 1891, A., 74.  
thionyl- (MICHAELIS and GODCHAUX), 1891, A., 74.
- Methylanilines**, analysis of (GIRARD), 1890, A., 309; (REVERDIN and DE LA HARPE), 1890, A., 430.  
nitration of (MERTENS), 1886, A., 1022.
- Methylaniline-fumaride and -succinide** (PICTET), 1886, A., 792.
- Methyl-*n*- and -*iso*-anisaldoximes** (GOLDSCHMIDT), 1890, A., 1261.
- Methyl-*o*-anisidine** (BEST), 1890, A., 607.
- tr*-nitro- (GRIMAUZ and LEFEVRE), 1891, A., 1032.  
*p*-nitroso- (BEST), 1890, A., 607.
- $\alpha$ -Methylanthraccene** [Me=1] (DIRUKOFF), 1887, A., 965.
- $\beta$ -Methylanthraccene** (ELBS), 1890, A., 511.
- Methylanthraccenes**, conversion of cinnamene derivatives of aromatic hydrocarbons into (KRAEMER, SPILKER and EBERHARDT), 1891, A., 207.
- Methylanthrallols** and their derivatives (CAHN), 1887, A., 57.
- p*-Methylantranil-amidoanilide, -anilide and -imide** (PANAYOTOVICH), 1886, A., 361.
- Methylantranol**, amido- (ROEMER; ROEMER and LINK), 1883, A., 1137.  
diacetyl-derivative of (ROEMER and LINK), 1883, A., 1138.
- $\alpha$ -Methylantraquinone** (DIRUKOFF), 1887, A., 965.  
and some of its derivatives (BÜRNSTEIN), 1883, A., 70.

- β*-Methylantraquinone** (ELDS), 1886, A., 557; 1890, A., 511.  
 amido- (ROEMER), 1883, A., 1137;  
 (ROEMER and LINK), 1883, A., 1135.  
 nitro- (ROEMER and LINK), 1883, A., 1138.
- Methylarabinose** (WILL and PEIERL), 1889, A., 952.
- Methylarbutin** (SCHIFF), 1888, A., 60, 347.  
 synthesis of (MICHAEL), 1881, A., 489; 1885, A., 521.  
 separation of, from arbutin (SCHIFF), 1884, A., 432.
- Methylarsacaine** (JAHNS), 1892, A., 739.
- Methylarsen disulphide** (KLINGE and KREUTZ), 1889, A., 363.
- Methylasparagine** (KÖRNER and MENOZZI), 1890, A., 871.
- Methylaspartic acid and dimethylamide** (KÖRNER and MENOZZI), 1890, A., 871, 870.
- Methylatropic acid** (OGIALLOLO-TODARO), 1886, A., 468.  
 derivatives of (CABELLA), 1888, A., 694.
- Methylazaurolic acid** (MEYER and CONSTANT), 1883, A., 41.
- Methylazelaic acid** (*octadecarboxylic acid*) (FREER and PERKIN), 1888, T., 218.
- Methylazimidobenzene, trichlorobromo-** (ZINCKE and ARZBERGER), 1889, A., 502.
- Methylazimidothiazolecarboxylic acid** (WOHMANN), 1891, A., 226.
- Methylazobenzene, tetramitro-** (MERTENS), 1886, A., 1022.
- Methylazophenine** (REICHOLD), 1890, A., 610.
- Methylisobarbituric acid** (LEHMANN), 1890, A., 32.
- Methylisobenzaldoxime** (GOLDSCHMIDT and KJELLIN), 1891, A., 1478.  
*m*-nitro- (GOLDSCHMIDT), 1890, A., 1262; (GOLDSCHMIDT and KJELLIN), 1891, A., 1477.  
*p*-nitro- (GOLDSCHMIDT and KJELLIN), 1891, A., 1477.
- Methylbenzamide, *o*-chloro-** (GABRIEL), 1887, A., 1038.  
 nitro- (VAN ROMBURGH), 1886, A., 546.
- p*-Methylbenzamide, *o*-nitro-**. See *p*-Toluamide, 3-nitro-.
- Methylbenzene**. See Toluene.  
 derivatives, condensation of, with cinnamene (KRAEMER and SPILKER), 1891, A., 206.  
 compounds, nitroso-, so-called (GABRIEL), 1883, A., 581.  
 nitro-. See Phenylnitromethane.
- Methylbenzenes**, action of methylenic chloride on, in presence of aluminium chloride (FRIEDEL and CRAFIS), 1887, A., 1102.  
 condensation products of allylic alcohol and (KLAUMER and SPILKER), 1891, A., 1462; 1892, A., 156.
- μ*-Methylbenzenylamidoxime, *o*-nitro-**. See *μ*-Toluenylamidoxime, 3-nitro-.
- m*-Methylbenzhydrazoin** (CORNELIUS and HOMOLKA), 1886, A., 1026.
- o*-Methylbenzidine** (HIRSCH), 1891, A., 210.
- μ*-Methylbenzil** (*phenyl tolyl ketone*) (BUCHER), 1890, A., 168.
- Methylbenzoic acid**. See Toluic acid.
- μ*-Methylbenzonitrile, *o*-nitro-**. See *μ*-Toluenitrile, 3-nitro-.
- Methylbenzophenone**. See Phenyl tolyl ketone.
- o*-Methylbenzylamine and its salts** (STRASSMANN), 1883, A., 474; (BAMBERGER and MÜLLER), 1889, A., 950.
- m*-Methylbenzylamine** (BRÜMMER), 1888, A., 1295.
- μ*-Methylbenzylamine** (BAMBERGER and LOEBER), 1887, A., 719; (ZACHSCHIRM), 1888, A., 1077; (HINSBERG), 1892, A., 65.
- Methylbenzylhydroamarine** (CLAUS), 1883, A., 203.
- Methylbenzylidene, *dithio-*** (DONGARRZ), 1888, A., 479.
- Methylbenzylidenic chloride, conversion of, into triphenylbenzene** (BÉRAL), 1889, A., 998.
- Methylbergaptic acid** (POMERANZ), 1892, A., 71.
- Methylbismuthine dibromide, dichloride and diiodide** (MARQUARDT), 1887, A., 802.  
 oxide (MARQUARDT), 1887, A., 803.
- Methylbornylcarbamide** (LEUCKART and BACH), 1887, A., 377.
- Methylbromodiketohydrindene** (WISLITZUS and KOTZLE), 1889, A., 1068.
- β*-Methylbromumbelliferone dibromide** (v. PERCHMANN and COHEN), 1884, A., 1331.
- Methylbrucine, ammonium base** obtained from (HANSEN), 1885, A., 819.
- Methylbutylcarbinamine** (MERLING), 1891, A., 1507.
- Methylbutylcarbinol oxide, hydrated**. See Trihydroxyhexane.
- Methylbutylacetic acid** (*heptic acid*) (KILLIAN), 1886, A., 438.
- Methylbutylacetylene**. See Heptinene.
- Methyl-*β*-butylcarbinol** (*sec-heptylic alcohol*) (WISLITZUS), 1883, A., 966.

- Methylisobutylcarbinol** (*heptylic alcohol*) (KUNDSCHNOFF), 1888, A., 125.
- Methylisobutylethylene**. See Heptylene.
- Methylisobutylglyoxaline** (*oxal-methylisocamylane*) (RADZISZEWSKI and SZUL), 1884, A., 986.
- Methylisobutylparaconic acids**,  $\alpha$ - and  $\beta$ - (FITTING and FEIST), 1890, A., 592.
- Methylisobutylphenylacetic acid** (BEHAL and AUGER), 1890, A., 388.
- Methylisobutylphenyldimethylamine** (*dimethyl-o-toluisobutylamine*) (EFFRONT), 1885, A., 153.
- Methylisobutylquinol** (FIALA), 1884, A., 1139.
- s-Methylisobutylthiocarbamide** (HECHT), 1892, A., 702.
- Methylcafeidine** (WERNECKE), 1888, A., 69.
- Methylcaffuric acid** (SCHMIDT and SCHILLING), 1885, A., 995.
- Methylcamphor** (MINGUN), 1891, A., 1500; 1892, A., 1343.
- Methylcarbamide**, nitroso- (v. BRUNING), 1888, A., 936.
- Methylcarbamido-**. See Methyluramido-.
- Methylcarbazaclidine** (BIZZARRI), 1892, A., 343.
- Methylcarbodinicotinic acid**. See Picolinetricarboxylic acid.
- Methylcarbophenylutidylumdehydride** (HANTSCH), 1885, A., 398.
- Methylcarbostyryl**, amido-, and nitro- (FEER and KOENIGS), 1885, A., 1235.
- 1-Methylcarbostyryl** (*o-tolucarbostyryl*), 3'-4'-dichloro- (RÜGHEIMER and HOFFMANN), 1886, A., 160.
- 3-Methylcarbostyryl** (*p-tolucarbostyryl*), 3':4'-dichloro-, and 3':4'-dichloro-nitro- (RÜGHEIMER and HOFFMANN), 1886, A., 160.
- 4-Methylcarbostyryl**, and derivatives (KNORR), 1884, A., 334, 1198; 1887, A., 159; (ANON.), 1884, A., 757; (FISCHER and WITTMACK), 1884, A., 1052.
- reduction of (KNORR and KLOTZ), 1887, A., 278.
- nitroso- (FISCHER and WITTMACK), 1884, A., 1052.
- Methyl- $\psi$ -carbostyryl** and its derivatives (FRIEDLANDER and MÜLLER), 1887, A., 977.
- Methylcarboxyphenylacetic acid** (BEHAL and AUGER), 1890, A., 389.
- Methylcarvoxime** (GOLDSCHMIDT and ZÜRER), 1885, A., 1038.
- Methylchlorallylcarbinol** (GARZAROLLI-THURNLACKER), 1884, A., 1118.
- 2'-Methyltrichlorethylidenequinoline** (EINHORN), 1886, A., 264.
- Methyltrichlorobromazimidobenzene** (ZINCKE and ARZBERGER), 1889, A., 502.
- Methylchloroform**. See triChloroethane.
- Methylchrysoidine** (NÜLTING and STRICKER), 1886, A., 544.
- Methylapocinchonic acid** (COMSTOCK and KOENIGS), 1885, A., 1249.
- Methylapocinchonine** and its hydrochloride (COMSTOCK and KOENIGS), 1885, A., 1248.
- Methylcinchonamine** (HESSE), 1885, A., 66.
- 1'-Methylcinchoninic acid** (v. MILLER), 1891, A., 1097.
- 3'-Methylcinchoninic acid** (v. MILLER), 1890, A., 1325.
- Methylcinnamene**. See Tolyacetylene.
- $\alpha$ -Methylcinnamic acid**. See Phenylcrotonic acid.
- Methylcinnamic acids**. See Tolyacrylic acids.
- Methylcinnamoyldextroecgonine** (DEYKERS and EINHORN), 1891, A., 475.
- Methylcinnolinecarboxylic acid** (WIDMANN), 1884, A., 1022.
- Methylcitraconic acid** (FITTING and FRANKEL), 1890, A., 585; (BINCHOFF), 1891, A., 1221.
- Methylcocaine** (LIEBERMANN and GIESSEL), 1890, A., 647, 803; (EINHORN and MARQUARDT), 1890, A., 913; (GIESEL), 1890, A., 1011.
- Methylcodeine** and its derivatives (GRIMAUD), 1888, A., 359; (HESSE), 1884, A., 614.
- Methylcolchicine** (JOHANNY and ZIESEL), 1889, A., 282.
- Methylconiine** (PASSON), 1891, A., 1118.
- Methylcopellidine**. See Tetramethylpiperidine.
- Methylcoumaraldehyde** (*methoxycinnamaldehyde*), nitro- (v. MILLER and KINKELIN), 1889, A., 990.
- Methyl-o-coumaric acid** derivatives (SCHNELL), 1884, A., 1165; 1887, A., 140.
- m-amido- (SCHNELL), 1884, A., 1165; 1887, A., 140.
- 3-nitro- (v. MILLER and KINKELIN), 1889, A., 989.
- 5-nitro- (SCHNELL), 1884, A., 1165; 1887, A., 140.
- Methyl-m-coumaric acid** (*methoxycinnamic acid*) (TIEMANN and LUDWIG), 1883, A., 189.
- 6-nitro- (EICHENGRÜN and EINHORN), 1890, A., 1127; 1891, A., 1101.

- Methyl-*p*-coumaric acid** (VALENTINI), 1885, A., 264; MAGNANI, 1886, A., 467.
- n*-Ironide and its derivatives** (ENGEL), 1887, A., 1110.
- 3-nitro-** (EINHORN and GRABFILLD), 1888, A., 478.
- $\beta$ -Methylcoumarilamide** (HANTZSCH), 1886, A., 1014.
- $\beta$ -Methylcoumarilic acid** (HANTZSCH), 1886, A., 707.
- $\alpha$ -Methylcoumarin, thio-** (ALDRINGEN), 1890, A., 624.
- $\beta$ -Methylcoumarin, and its derivatives** (V. PECHMANN and DUBERRE), 1884, A., 67.
- $\beta$ -Methylcoumarone** HANTZSCH, 1886, A., 707.
- $\alpha$ -Methylcoumaroxime** ALDRINGEN, 1890, A., 624; 1892, A., 330.  
acetate (ALDRINGEN, 1890, A., 624.
- Methyl-*o*-coumarylic alcohol** (HARRIS), 1892, A., 169.
- $\beta$ -Methylcrotonanilide, derivatives of** BRILL, 1892, A., 1106.
- Methylcrotonic acid.** See Tiglic acid.
- Methylcumazonic acid, and its derivatives** (WIDMAN), 1884, A., 303.
- Methyl- $\psi$ -cumidine** (V. HOFMANN), 1883, A., 324.
- Methylcuminaldoxime** (GOLD-SHMIDT), 1890, A., 1262.
- o*-Methyleyanacetophenone** (HALLER), 1889, A., 874.
- Methyleyanethine** (V. MEYER), 1883, A., 352.
- Methyleyanobutene hydriodide** (TROGER), 1888, A., 802.
- Methyleyanocamphor** (HALLER), 1891, A., 1499.
- Methyleytisine** (V. BUCHKA and MAGALHAES), 1891, A., 750.
- $\beta$ -Methyldaphnetin** (V. PECHMANN and COHEN), 1885, A., 56.
- Methyldehydrohexone** (PERKIN), 1887, T., 723.
- Methyldehydrohexone-mono- and -dicarboxylic acids** (PERKIN), 1887, T., 715, 717, 744, 747.
- Methyldehydropentone and methyldehydropentonecarboxylic acid** (MARSHALL and PERKIN), 1890, P., 133; 1891, T., 873, 880.
- Methyldeoxybenzoin** (MEYER and OELKER), 1888, A., 703.
- Methyldeoxybenzoins, isomeric** (STRASSMANN), 1889, A., 883.
- Methyldeoxybenzoincarboxylamide** (HEILMANN), 1890, A., 625; 1891, A., 201.
- m*-Methyldeoxybenzoin-*o*-carboxylic acid** HEILMANN, 1890, A., 625.
- $\mu$ -Methyldeoxybenzoin-*o* carboxylic acid** HEILMANN, 1892, A., 473.
- Methyldeoxystrychnine** TAPPA, 1892, A., 1011.
- Methyl-*ac*-diacetyl-pentane** (KIPPING and PERKIN), 1889, T., 346; P., 79.
- Methyldiazoamidobenzene** *diacetylcumethylanilide*, (FRISWELL and GREEN), 1886, T., 743; NOLLING and BINDER, 1888, A., 273.
- Methyldibutyltetrahydrophenanthroline** SCHIFF and VANSI, 1890, A., 138.
- Methyldicarbocollidylumdehydride, and the action of acids on** HANTZSCH, 1884, A., 1046.
- 3-Methyl-2:3- or -4-diethoxyquinoline, chloro-** (RUGHEIMER and HOFFMANN), 1886, A., 160.
- Methyldiethylamine** (PASSON), 1891, A., 1118.
- Methyldiethylcarbinol** (REFORMATSKY), 1888, A., 244.
- 5-Methyl-2:4-diethyl-*m*-diazine, 6-amido-** See Cyanethine.
- Methyldiethylmethane.** See *ac*-Hexane.
- Methyldiethylphenylenediamine** (WILBERG), 1892, A., 1078.
- Methyldiethylphosphine** (COLLIE), 1888, T., 719.
- Methyldiethylphosphonium platinochloride** (ZIMATIS), 1883, A., 58.
- Methyldiethylsulphine platinochloride** (NASINI and SCATA), 1889, A., 115.
- Methyldiethylthiocarbamide** (NOAH), 1890, A., 1211.
- Methyldiethyluracil** (BEHREND; HOFFMANN), 1890, A., 31.
- Methyldiguanide and its compounds** (RIEBSCHNEIDER), 1883, A., 974.
- Methyldihydroanthracene, amido-, and its derivatives** (ROEMER), 1883, A., 1137.
- Methyldihydroindole, 1', 2', and 3', and their derivatives** (WENZING), 1887, A., 957.
- 2'-Methyldihydroindole, actions of** (BAMBERGER), 1891, A., 1097.  
action of methylic iodide on ZATSI and FERRAINTI, 1891, A., 311.
- 2'-Methyldihydronaphthindole** (SCHIEPER), 1887, A., 154.
- Methyldihydropentene methyl ketone** (PERKIN), 1889, P., 142; 1890, T., 232; (MARSHALL and PERKIN), 1890, P., 143; 1890, T., 242.  
pinacene of (MARSHALL and PERKIN), 1890, P., 113; 1890, T., 243.

- Methyldihydropentene methyl ketoxime** (PERKIN), 1889, P., 141; 1890, T., 236.
- Methyldihydropentenedicarboxylic acid** (PERKIN), 1889, P., 142; 1890, T., 233.  
action of bromine and of hydrobromic acid on (PERKIN), 1889, P., 141; 1890, T., 235.
- 1-Methyldihydropyrroline** (MAGNAGHI), 1885, A., 809.
- 2'-Methyldihydroquinazoline** (GABRIEL and JANSEN), 1890, A., 1443.
- 3'-Methyldihydroquinazoline, 2'-thio-** (SODERBAUM and WIDMAN), 1890, A., 178.
- Methyldiodamine** (RASCHIG), 1886, A., 44.
- Methyl-2':4'-diketodihydroquinazolines, 1'- and 3'-** (ADI), 1889, A., 610.
- $\beta$ -Methyl- $\alpha$ -diketohydrindene** (WILLIGENS and KOTZEL), 1889, A., 1068.
- $\alpha$ -Methyldinicotinic acid.** See 2-Methylpyridine-3,5-dicarboxylic acid.
- Methyldiosphenol** (SHIMOMURA), 1888, A., 1205.
- 1'-Methyldioxindole** (COLMAN), 1888, P., 96; 1889, T., 8.
- $\nu$ -Methyl- $\psi$ -dioxithiazole** (ARAFIDE), 1889, A., 414.
- 1:3-Methyldiphenyl** (*phenyltoluene*) (ADAM), 1888, A., 959; (PERRIER), 1892, A., 851.
- Methyldiphenylcarbinyl.** See Phenyltolylcarbinyl.
- Methyldiphenylene ketone oxide** (PHOMINA), 1890, A., 901.  
See also Methylxanthone.
- Methyldiphenylformamidine** (COMSTOCK and WHEELER), 1892, A., 707.
- Methyldipropylamine** (PASSON), 1891, A., 1118.
- Methyldipropylcarbinol** (*mytilic alcohol*) (GORFALOFF and SAYITZEF, 1886, A., 437.
- Methyldiisopropylidihydroquinolines** (DENNSTEDT), 1889, A., 402.
- $\alpha$ -Methyldipyridyl and  $\alpha$ -methyldipyridyl- $\alpha$ -carboxylic acid** (HEICLER and GROEHR), 1891, A., 81; 1892, A., 75.
- Methylsegonine** (LIEBERMANN and GIESER), 1890, A., 647; (EINHORN and MARQUARDT), 1890, A., 913.
- Methylemetonium hydroxide** (KUNZ), 1887, A., 981.
- Methylene, derivatives of** (HENRY), 1886, A., 43.  
iodo-, action of, on silver nitrate (MEYER), 1892, A., 575.  
*trioxime* (SCHOLL), 1891, A., 663.
- Methylene-azure** (BERNTSEN), 1886, A., 55.
- 4-Methylenebis-1-phenyl-3-methylpyrazolone** (PELLIZZARI), 1890, A., 646.
- Methylene-blue.** See Colouring matters.
- Methylenecarbamide** (v. DEMMELMAYR), 1891, A., 1340.
- Methylenecarbazole** (PULVERMACHER and LOB), 1892, A., 1466.
- Methylene-cinchonic and -cinchoxinic acids** (CLAUS), 1892, A., 1489, 1490.
- Methylenediacetamide** (PULVERMACHER), 1892, A., 579.
- Methylenediamines, substituted** (EHRNBERG), 1887, A., 1026.
- Methylenedibenzamide** (PINNER), 1891, A., 469; (THIESING), 1892, A., 467; (PULVERMACHER), 1892, A., 580.
- Methylenedibenzylamine.** See Dibenzylmethylenediamine.
- Methylenedigallic acid** (CARO), 1892, A., 856.
- Methylene-3:4-dihydroxybenzylic glycol** (TIEMANN), 1892, A., 17; (WAGNER), 1892, A., 310.
- Methylenedimalonic acid.** See Propane-tetracarboxylic acid.
- Methylenedi- $\beta$ -naphthyl oxide** (CLARK and RUPPEL), 1890, A., 511.
- Methylenediphenyldiamine** (PRATTI), 1885, A., 782.
- $\gamma$ -Methylenediphenylene** (HODGKINSON and MATTHEWS), 1883, T., 164.
- $\gamma$ -Methylenediphenylenesulphone.** See Diphenylenemethanesulphone.
- $\alpha$ -Methylenediphenylenesulphonic acid, and the fusion of its potassium salt with potash** (HODGKINSON and MATTHEWS), 1883, T., 166.
- $\gamma$ -Methylenediphenylenic sulphide** (TRAUBE and SCHULTZ), 1891, A., 1059.
- Methylenediphenylic oxide** (RICHTER), 1884, A., 324.
- Methylenediphthalimide** (NEUMANN), 1890, A., 890.
- Methylenedipiperidine** (ESCHWEILER), 1890, A., 955; (KRAUT, ESCHWEILER and GROSSMANN), 1890, A., 1092.
- Methylenedipyrogallol** (CARO), 1892, A., 856.
- Methylenediquinoid.** See Methylenequinolyquinoline.
- Methylene-diresorcinol and -diresorcylic acid** (CARO), 1892, A., 856.
- Methylenedisalicylic acid** (CARO), 1892, A., 855.  
condensation of, with  $\beta$ -resorcylic acid, with gallic acid, and with phenol (CARO), 1892, A., 856.

- Methylenedisulphonic acid.** See Methanedisulphonic acid.
- Methylenedi-*o*- and -*p*-toluidines** (GRUNHAGEN), 1890, A., 888.
- Methylenedi-*α*-toluoylamide** (THIESING), 1892, A., 467.
- Methylenedi-*o*- and -*p*-toluoylamides** (THIESING), 1892, A., 467.
- Methylene-ethylamine** (KOLLOFF), 1886, A., 189.
- Methylene group**, replacement of the hydrogen atoms in (WALLACE), 1891, A., 189.
- Methylene-*i*-, -*m*- and -*p*-nitranilines** (PULVERMACHER), 1892, A., 1450.
- Methylene-/nitrodiibenzamide** (THIESING), 1892, A., 467.
- Methylenephthalaldehyde** (MERTENS), 1887, A., 51.
- Methylenephthalide** (GABRIEL), 1885, A., 1223.  
and its bromide and oxide (GABRIEL), 1885, A., 164.  
bromo- (GABRIEL, 1885, A., 165.  
nitro- (ZINKE and LAMEN, 1892, A., 1231.
- Methylenephthalomethimidine** (GABRIEL), 1885, A., 1228.
- Methylenephthalphenimidine** (MERTENS), 1887, A., 52.
- Methylenequinolylquinoline** (*methyl-enequinol*) hydrochloride (RHOUSSOPOULOS), 1883, A., 1150.
- Methylene-red and -violet** (BERNTHSEN), 1886, A., 54.
- Methylenethiocarbamide** (v. HEMMELMAYR), 1891, A., 1339.
- Methylenedithiodiacetamide** (PULVERMACHER), 1892, A., 550.
- Methylene-white.** See Leucomethylene-blue under Colouring matters.
- Methylene dibromide** (*dibromomethane*) (HENRY), 1884, A., 718.  
bromiodide (*bromiodomethane*) (HENRY), 1886, A., 41.  
dichloride (*dichloromethane*), preparation of (GREENE), 1885, A., 38.  
action of benzylamine on (KEMPF), 1890, A., 887.  
action of, on methylbenzenes in presence of aluminium chloride (FRIDEL and CRAFTS), 1887, A., 1102.  
action of water and ammonia on (ANDRE), 1886, A., 861.  
physiological action of, compared with that of chloroform (RENAULD and VILLEJEAN), 1885, A., 285, 926.  
substitution derivatives of (HOLLAND), 1887, A., 905.
- Methylene dichloride** (*dichloromethane*), mono- and diiodo- (HOLLAND), 1887, A., 905.  
chloriodide (SAKURAI), 1885, T., 198; P., 20.  
chlorobromide (*chlorobromomethane*) (HENRY), 1886, A., 13.  
chlorofluoride (COLLIE), 1889, T., 112; P., 16.  
cyanide. See Malonodinitile.  
ethylenic disulphide,  $\mu$ -imido- salts of (MIOLARI, 1891, A., 891.  
difluoride (CHABRIE), 1880, A., 1053.  
antiseptic action of (CHABRIE, 1891, A., 353.  
diiodide (*diiodomethane*), formation of, from iodoform (CAZLÉVEU, 1884, A., 896.  
refractive power of, at different temperatures (PERKIN), 1891, P., 116; 1892, T., 296.  
molecular refraction and dispersion of (GLADSTONE, 1891, T., 295.  
action of aniline on (BIRHOFF and NASTROGEL, 1890, A., 1164.  
action of ethylenic malonate on (TANAKI), 1891, A., 175; 1892, A., 1304.  
action of silver nitrite on (RUSANOFF), 1892, A., 1415.  
action of sodium ethoxide on (MILBER), 1889, A., 363.  
action of sodium phenylsulphinate on (MICHAEL and PALMER), 1885, A., 538.  
oxysulphide (BARTOLI and PAPA-SOGLI), 1884, A., 170.  
phenylimidophenylthiocarbamate (FOERSTER), 1889, A., 917.  
propylenic disulphide,  $\mu$ -imido- (MIOLARI), 1891, A., 895.
- Methylenitan.** See Carbohydrates.
- Methylenyl.** See Methyleneonyl.
- Methylethyrohydroxyanthraquinone** (BIRKOFF), 1887, A., 961.
- Methylethylenyltolylenediamine** and its methiodide (NEMENTOWSKI), 1887, A., 937, 938.
- Methylethylacetal** (RUBENCAMP), 1885, A., 136.  
*trichloro-* (MAGNANIMI), 1887, A., 23.
- Methylethylacetates**, solubility of (SEDLITZKY), 1885, A., 250.
- Methylethylacetic acid**, zinc salt of (SCHMIDT), 1886, A., 867.
- Methylethylacetoximic acid** (SCHRAMM), 1883, A., 573.

**Methylethylacetylene** (*putanone*, conversion of, into propylacetylene (FAWORSKI), 1888, A., 1168.

**$\beta$ -Methyl- $\alpha$ -ethylacetylpropionic acid**, distillation of (THORNE), 1885, A., 1200.

**$\alpha$ -Methyl- $\beta$ -ethylacraldehyde** (*hexenoic aldehyde*) (LIEBEN and ZEISEL), 1883, A., 570; (SOLONINA), 1888, A., 806.

action of ammonia on (HOPPE), 1889, A., 120.

action of sulphuric acid on (LUDWIG), 1892, A., 951.

action of sulphurous acid on (LUDWIG), 1889, A., 121.

oxidation of (LIEBEN and ZEISEL), 1883, A., 570.

derivatives of (LIEBEN and ZEISEL), 1883, A., 570.

**Methylethylacrylic acid**. See Hexenoic acid.

**Methylethylamido-*iso*-oxazole**. See Methylethyl-*iso*-oxazole.

**Methylethylamine** (SKRAUP and WIEGMANN), 1889, A., 1018; (HINSBERG), 1892, A., 64.

**Methylethylaniline and its derivatives** (CLAUS and HOWITZ), 1884, A., 1005; (CLAUS and HINZEL), 1887, A., 135.

***o*-Methylethylbenzene** (*ethyltoluene*), preparation of (CLAUS and MANN), 1885, A., 888.

oxidation of (CLAUS and MANN), 1885, A., 888; (CLAUS and PIEZCZEK), 1887, A., 240.

bromo- (CLAUS and PIEZCZEK), 1887, A., 240.

*mono*- and *di*-nitro- (CLAUS and PIEZCZEK), 1887, A., 240.

***p*-Methylethylbenzene** (ANSCHÜTZ and ROMIG), 1885, A., 769.

*m*-*di*amido- (ERRERA and BALDRACCO), 1892, A., 606.

***o*-Methylethylbenzene- $\beta$ -sulphonic acid and chloride** (CLAUS and PIEZCZEK), 1887, A., 240.

**Methylethylbromaniline** (CLAUS and HOWITZ), 1884, A., 1006.

**Methylethylbromoxazolone**. See Methylethylloxazolone.

**Methylethylcarbinol** (LIEBEN and ZEISEL), 1886, A., 781.

**Methylethylcarboxylglutaric acid** (BISCHOFF), 1891, A., 829.

**3-Methyl-2'-ethylcinchoninic acid** (v. MILLER), 1890, A., 1326.

**1:3-Methylethyl-*m*-diazine and *di*-chloronitro-** (PINNER), 1889, A., 1007.

**Methylethylidicarboxylglutaric acids** (BISCHOFF), 1891, A., 829.

**1-Methylethylidihydronaphthaquinone** (BIRBAL and AUGER), 1890, A., 388.

**Methylethylidihydropentene methyl ketone** (MARSHALL and PERKIN), 1890, T., 251.

**4-Methyl-3-ethylidihydropyridine** ( *$\beta$ -dihydrocollidine*) (ODENNER DE CONINCK), 1884, A., 1047.

**1':3'-Methylethylidihydroquinoline** (FISCHER and STECHE), 1888, A., 299.

**1-Methyl-2-ethylenetetrahydropyridine**. See Tripidine.

**Methylethylene- $\psi$ -thiocarbamide** (GABRIEL), 1889, A., 849.

**Methylethylenetolylaminodimethyltolylammonium iodide** (HÜDNER, TOLIE and AHNENFANT), 1884, A., 1818.

***as*-Methylethylethylene**. See  $\gamma$ -Amylene.

**Methylethylglutaric acids, *p*- and *meso*-** (BISCHOFF), 1891, A., 829.

**1:2-Methylethylglyoxaline *normal*ethyl-propyl** (RADZISZEWSKI), 1883, A., 729.

**2:1-Methylethylglyoxaline (*normal*ethyl-ethyl)** (RADZISZEWSKI), 1883, A., 729.

(*normal*ethyl), properties of (WALLACH), 1883, A., 910.

chloro-, and its derivatives (WALLACH), 1883, A., 49.

**Methylethylglyoxime** (SCHRAMM), 1883, A., 590.

diacetyl-derivative of (SCHRAMM), 1884, A., 52.

peroxide (SCHOLI), 1891, A., 316.

**Methylethylhexahydropyridine**. See Methylethylpiperidine.

**Methylethylhexamethylene**, formation of (KIPPING and PERKIN), 1889, T., 143.

***o*-iodo-** (KIPPING and PERKIN), 1890, T., 23.

**2'-Methylethylideneindole** (FISCHER), 1888, A., 251.

**3':2'-Methylethylindazine and 3':1'-methylethylindazine** (FISCHER and TAPPE), 1885, A., 541, 542.

**2':1'-Methylethylindole** (FISCHER and STECHE), 1887, A., 976.

**2':3'-Methylethylindole** (FISCHER), 1886, A., 805; 1887, A., 149.

***p*-Methyl-1'-ethylindole** (*ethyl-p-tolindole*) and ***p*-methyl-1'-ethylindole-2'-carboxylic acid** (HEGEL), 1886, A., 552.

**Methylethylketol** (v. PECHMANN and DAHL), 1890, A., 1235.

**Methylethylketole**. See 2':1'-Methylethylindole.

- Methylethylmaleic acid** FITZG and PARKER, 1892, A., 514.
- Methylethylmaleic anhydride** (BISCHOFF), 1891, A., 291; (MIRHAEL and TISSOT), 1891, A., 1456.
- Methylethylmalic acid** (MIRHAEL and TISSOT), 1891, A., 1455.
- Methylethylmalonic acid** OITO and BECKURTS, 1885, A., 754; (OITO and ROSING), 1888, A., 45.  
thermochemistry of (STOHMAN, KLEBER and LANGBEIN, 1882, A., 1097.
- Methylethylnitroureacil** (LEHMANN), 1890, A., 32.
- Methylethyliso-oxazole, amide-** (BURN), 1891, A., 889; (HENDRIOT, 1891, A., 1108; 1892, A., 79.
- Methylethylloxazolone, bromo-** (HENDRIOT), 1891, A., 1108; 1892, A., 79.
- 1:2-Methylethylpentamethylene** (MARSHALL and PERKIN), 1889, P., 143; 1890, T., 250.
- Methylethyl-p-phenylenediamine (p-amidoethyl-o-toluidine)** (WEINBERG), 1892, A., 1075.
- 2-Methyl-4-ethylpiperidine (copullidine)** (SCHULTZ), 1888, A., 64.
- 2-Methyl-5-ethylpiperidine (aldehydicollidine hexahydrate; copullidine)**, and its derivatives (DURKOFF), 1884, A., 1054; 1885, A., 817.
- 2-Methyl-6-ethylpiperidine** (SCHULTZ), 1888, A., 64.
- 4-Methyl-3-ethylpiperidine (β-collidine hexahydrate)** (OECHNER DE CONINCK), 1884, A., 1048.  
physiological action of (BOCHEFEX-TAINE and OECHNER DE CONINCK), 1885, A., 681.
- 2:5-Methylethylpiperidylalkine.** See 5-Hydroxyethyl-2-ethylpiperidine.
- ββ-Methylethylpropionic acid (hectic acid)** (VAN ROMBURGH), 1887, A., 228; 1888, A., 447.
- Methylethylpropylisobutylammonium chloride, optical isomerides of** (LEBEL), 1891, A., 1002.
- Methylethylpropylcarbinol (tert-heptylic alcohol)** (SOKOLOFF), 1888, A., 1170.
- Methylethylisopropyl-m-diazine, amido-** (V. MEYER), 1889, A., 578.
- α-Methylethylpropylene (hexylene)** (WILCENUS), 1883, A., 967.
- Methylethylpropylic alcohol (heptylic alcohol)** from essence of chamomile (VAN ROMBURGH), 1887, A., 228.
- 2-Methyl-4-ethylpyridine (ethylpicoline)** (SCHULTZ), 1885, A., 61.
- 2-Methyl-5-ethylpyridine (old hydrocollidine)** (DURKOFF), 1886, A., 257.  
constitution of (DURKOFF, 1886, A., 257; (DURKOFF and SCHULTZ, 1887, A., 737; 1888, A., 499.  
reduction and oxidation-products of (DURKOFF, 1885, A., 817.
- 2-Methyl-6-ethylpyridine (ethylpicoline)** (SCHULTZ), 1888, A., 64.
- 4-Methyl-3-ethylpyridine (β-collidine)** (HANTZSCH, 1883, A., 83; OECHNER DE CONINCK), 1883, A., 739.  
physiological action of (MARUS and OECHNER DE CONINCK), 1883, A., 104.  
hydrate of (OECHNER DE CONINCK), 1883, A., 220.
- 6-Methyl-4-ethylpyridine (α-collidine)** (WILDLI and PICK, 1885, A., 557.
- Methylethylpyridines (collidines, preparation of** (MAR and BISCHOFF, 1892, A., 725.
- Methylethylpyridylalkine.** See 2-Hydroxyethyl-5-ethylpyridine.
- 2-Methyl-1-ethylpyrrolidone-2-carboxthioxyamide and -2-carboxylamide** (KUEHLING), 1890, A., 793.
- 2-Methyl-1-ethylpyrrolidone-2-carboxylic acid** (KUEHLING), 1890, A., 793.
- Methylethylquinol and its derivatives** (FRALA), 1884, A., 1138; 1886, A., 454; (NOLTING and WERNER), 1891, A., 209.
- 3'-Methyl-2'-ethylquinoline and its salts** (DOEBNER and V. MILLER), 1884, A., 1376; (HARZ), 1886, A., 262; (ELIASBERG and FRIEDLANDER), 1892, A., 1107.
- 3'-Methyl-2'-ethylquinoline-1-carboxylic acid** (V. MILLER), 1890, A., 1326.
- 3-Methyl-2'-ethylquinoline-3'-carboxylic acid** (HARZ), 1886, A., 261.
- α-Methylethylsuccinic acid** (BISCHOFF), 1891, A., 829; (HELL), 1891, A., 1018.
- β-Methylethylsuccinic acid** (YOUNG), 1883, T., 180; (BISCHOFF and WARDEN), 1889, A., 959; (BISCHOFF and MINZ), 1890, A., 743.
- Methylethylsuccinic acids** (BISCHOFF and ZELINSKY), 1890, A., 741.
- 2'-Methyl-1'-ethyltetrahydroquinoline** (MOLLER), 1888, A., 297.
- α-Methyl-μ-ethylthiazole** (HUBACHER), 1891, A., 220.
- μ-Methyl-α-ethylthiazole** (HANTZSCH), 1890, A., 1235; (RUBLEFF), 1891, A., 223.

- m*-Methyl-*p*-ethyltoluene (CLAUS), 1892, A., 985.
- Methylethyltriphenyl*l*i thiobiuret (BILLETER and STROHL), 1888, A., 365.
- Methylethyluracil (BEHREND; HOFFMANN), 1890, A., 31.
- $\beta$ -Methyl- $\alpha$ -ethylvalerolactone (YOUNG), 1883, T., 172, 178; A., 456.
- Methyleugenol, glycol from (WAGNER), 1892, A., 310.
- Methylisoeugenol, glycol from (WAGNER), 1892, A., 311.
- dibromide (CIAMICIAN and SILBER), 1890, A., 967.
- nitrosite of (ANGELI), 1892, A., 447.
- Methylfenchylamine (WALLACH and GRLEPENKERT), 1892, A., 1239.
- Methylflavolinium hydroxide. See 2'-Phenyl-1':4'-dimethylquinolinium hydroxide.
- Methylformanilide (PINNER), 1883, A., 1090; (NORTON and LIVERMORE), 1887, A., 1038; (BARBIER and VIGNON), 1888, A., 689; (PICTET), 1890, A., 758.
- m*-nitro- (COMSTOCK and WHEELER), 1892, A., 706.
- Methylisoformanilide (COMSTOCK), 1890, A., 1258; (COMSTOCK and KLEEGER), 1890, A., 1414.
- m*-nitro- (COMSTOCK and WHEELER), 1892, A., 706.
- Methylformimide hydrochloride (PINNER), 1883, A., 1089.
- Methylisoformo- $\alpha$ -naphthalide (COMSTOCK and WHEELER), 1892, A., 705.
- Methylformo-*p*-toluidide (BAMBERGER and WITZ), 1891, A., 1202.
- Methylisoformo-*o*- and -*p*-toluidides (COMSTOCK and CLAPP), 1892, A., 707, 708.
- Methyl-fumaramic acid and -fumarimide (GIUSTINIANI), 1892, A., 821.
- Methylfurfuraldehyde (HILL), 1890, A., 695; (MAQUENNE), 1890, A., 33.
- Methylfurfurancarboxylic acid. See Methronic acid.
- Methylfurfurine (BIELEK and TOLLENS), 1890, A., 1105.
- $\alpha$ -Methylglutaric acid (*butanedicarboxylic acid*) (KILLANI), 1883, A., 962.
- thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097.
- $\beta$ -Methylglutaric acid (*butanedicarboxylic acid*; *ethylidenediacetic acid*) (KOMENOS), 1884, A., 422; (AUWERS, KÖBNER and v. MEYENBURG), 1892, A., 41.
- $\beta$ -Methylglutaric acid (*butanedicarboxylic acid*; *ethylidenediacetic acid*), dibromo- (AUWERS and BERNHARDI), 1891, A., 1191.
- $\alpha$ -Methylglyceric acid and its salts (MELIKOFF), 1885, A., 651.
- $\beta$ -Methylisoglyceric acid (MELIKOFF and PETRENKO-KRITSCHENKO), 1892, A., 296.
- $\beta$ -Methylglycidamide, trichloro- (LEVY, WITTE and CURECHOD), 1890, A., 234.
- $\beta$ -Methylglycidic acid and its salts (*propylenecarboxylic acid*) (MELIKOFF), 1884, A., 1301; 1885, A., 650.
- additive product of methylamine and (FIELINSKY), 1885, A., 752.
- $\beta$ -Methylisoglycidic acid (MELIKOFF and PETRENKO-KRITSCHENKO), 1892, A., 296.
- $\gamma$ -Methylglycidic acid. See Butylglycidic acid.
- Methylglycocaine. See Sarcosine.
- Methylglyoxalbisphenylhydrazone (v. PECHMANN and WEHSARG), 1887, A., 1104; 1889, A., 47.
- Methylglyoxal- $\alpha$ -hydrazoxime (v. PECHMANN and WEHSARG), 1889, A., 47.
- 1-Methylglyoxaline (*oxalmethyline*) (WALLACH), 1883, A., 50; (WOHL and MARKWALD), 1889, A., 867.
- formula of (JAPPE), 1883, T., 198.
- action of ethylic chloracetate on (RUNG and BEHREND), 1892, A., 1493.
- mercaptan and methylic sulphide (WOHL and MARKWALD), 1889, A., 866.
- 2-Methylglyoxaline (*glyoxymethyline*; *p-oxalmethyline*) (WALLACH), 1883, A., 50, 911; (RADZISZEWSKI), 1883, A., 308.
- synthesis of (JAPPE), 1883, T., 17; 198; (RADZISZEWSKI), 1883, A., 728.
- trichloro- (WALLACH), 1883, A., 911.
- 2-Methylglyoxaline-4:5-dicarboxylic acid (MAQUENNE), 1890, A., 1439.
- Methylglyoxal- $\alpha$ -methylphenylhydrazoxime (v. PECHMANN and WEHSARG), 1889, A., 48.
- Methylglyoxalosotetrazone (v. PECHMANN), 1888, A., 1288.
- Methylglyoxime (SCHOLL), 1891, A., 287.
- action of nitric peroxide on (SCHOLL), 1891, A., 316.
- diacetyl-derivative of (SCHRAMM), 1884, A., 52.

- Methylspanglyoximecarboxylic acid** (HANTZSCH), 1892, A., 1176.
- Methylglyoximecarboxylic acids**, dissociation constants of (HANTZSCH and MIGOLATI), 1892, A., 1268.
- Methylguanecil** (CURATOLO), 1891, A., 539.
- Methylguvacine** (JAHNS), 1892, A., 740.
- Methylheptonic acid and lactone** (FISCHER), 1890, A., 599.
- Methylheptose** (FISCHER), 1890, A., 599.
- Methylhesperidin** (WHIT), 1885, A., 906.
- Methylhexadecylbenzenes** (*isomethyltoluenes*), *o*-, *m*- and *p*- (KRAFFT and GOTTIG), 1889, A., 129.
- p*-Methylhexadecylbenzene, amido-** (KRAFFT and GOTTIG), 1889, A., 130.
- p*-Methylhexadecylbenzenesulphonic acid**, sodium salt of (KRAFFT and GOTTIG), 1889, A., 130.
- p*-Methylhexadecylphenetol and methylhexadecylphenol** (KRAFFT and GOTTIG), 1889, A., 130.
- α*-Methylhexahydroanthracene** (GRAEBE and JULLARD), 1888, A., 156.
- 1-Methylhexahydronicotinic acid** (JAHNS), 1892, A., 740.
- Methylhexamethylene methyl ketone** (FREER and PERKIN), 1888, T., 213.
- Methylhexamethylene-mono- and -dicarboxylic acids** (FRIER and PERKIN), 1888, T., 207.
- o*-Methylhexamethylenemethylcarbinol** (KIPPING and PERKIN), 1889, P., 144.
- Methylhexane.** See Heptane.
- Methylhexyloarbinyl cyanide** (FREUND and SCHONFELD), 1892, A., 132.
- Methylhexyldiphenolmethane** (DIANIN), 1889, A., 1187.
- β*-Methylhexylethylene** (FREUND and SCHONFELD), 1892, A., 133.
- 1:2-Methylhexylglyoxaline** (*o*-*isomethyl-oxanthylin*) (KIRBY), 1887, A., 911.
- Methylhexylhydroxypyrotartaric acids *α*- and *β*-**, salts of (FITTIG and RIECHELMANN), 1890, A., 593; (FITTIG and RIECHELMANN), 1890, A., 593, 594.
- Methylhexylparaconic acids, *α*- and *β*-** (FITTIG and RIECHELMANN), 1890, A., 593, 594.
- α*-Methylhomo-*o*-phthalimide and -*o*-phthalonitrile** (GABRIEL), 1887, A., 1112.
- α*-Methylhomopiperidic acid** (ASCHAN), 1891, A., 1246.
- α*-Methylhomoterephthalic acid** (ERRERA), 1891, A., 1021.
- Methylhydantoin** (*isopropylcarbamide*) (FRANCHIMONT and KLOBBE), 1889, A., 1143.
- nitro-** (FRANCHIMONT and KLOBBE), 1889, A., 1180; 1889, A., 123, 1143.
- γ*-Methylhydantoin** (GUARENCHI), 1892, A., 828.
- Methyl-hydrastallylamide and -hydrast-*ro*amylamide** (FREUND and HEIM), 1891, A., 92, 93.
- Methylhydrast-*am*ide and -*im*ide and its methiodide** (FREUND and HEIM), 1891, A., 92.
- Methylhydrast-*ro*amylimide** (FREUND and HEIM), 1891, A., 93.
- Methylhydrasteine** (FREUND and ROSENBERG), 1890, A., 533.
- Methylhydrastine** (FREUND and ROSENBERG), 1890, A., 532; (SCHMIDT), 1890, A., 1167.
- alcoholate and hydroxide** (SCHMIDT), 1890, A., 1165.
- methiodide** (FREUND and ROSENBERG), 1890, A., 533; (SCHMIDT), 1890, A., 1168.
- Methylhydrasto-methyl- and -ethylamides** (FREUND and HEIM), 1891, A., 93.
- Methylhydratropaldehyde.** See Tolypropaldehyde.
- Methylhydrazidobenzenesulphonic acid** (PEULF), 1887, A., 934.
- Methylhydrazine** (v. BRUNING), 1888, A., 936; 1890, A., 23.
- action of, on dialdehydes and diketones** (KOHLETSCH), 1890, A., 24.
- Methylhydrazomethylenecarboxylic acid**, ammonium salt of (CURTIS and LANG), 1892, A., 452.
- γ*-Methylhydrindene-*β*-carboxylic acid** (ROSENER), 1887, A., 896; 1888, A., 1303.
- o*-Methylhydrindone and its phenylhydrazone** (YOUNG), 1892, A., 1221.
- Methylhydrindones, *m*- and *p*-** (v. MILLER and ROHDE), 1890, A., 1140.
- β*-Methylhydrindone and its phenylhydrazone** (v. MILLER and ROHDE), 1890, A., 1139.
- m*-chloro-** (v. MILLER and ROHDE), 1890, A., 1140.
- Methylhydroacridine** (BERNTHSEN and BENDER), 1888, A., 1134.
- Methylhydroberberine** (GIACOSA and SOAVE), 1890, A., 920; (GAZE), 1890, A., 1012.

- Methylhydrobergaptic acid** (POMERANZ), 1892, A., 72.
- Methylhydrocarbostyryl, 2-amido-** (EDLEMAN), 1888, T., 560; P., 55.
- Methylhydrocinnamaldehydes,  $\alpha$ - and  $\beta$ -** (V. MILLER and ROHDE), 1890, A., 979.
- $\alpha$ -Methylhydrocinnamic acid.** See Phenylisobutyric acid.
- $\beta$ -Methylhydrocinnamic acid** (KROBER), 1890, A., 969; (V. MILLER and ROHDE), 1890, A., 1140.
- Methylhydrocinnamic acids,  $\alpha$ - and  $m$ -**. See Tolypropionic acids.
- Methylhydrocotoin** (CIAMICIAN and SILBER), 1891, A., 578.  
action of phosphoric chloride on (BARTOLOTTI), 1892, A., 1314.
- Methylhydro- $m$ -coumaric acid** (TIE-MANN and LUDWIG), 1883, A., 189.
- Methylhydro- $p$ -coumaric acid,  $d$ -nitro-** (STOEHR), 1884, A., 1850.
- Methylhydrohydrastinine and its derivatives** (FREUND and DORMEYER), 1891, A., 1519.  
bromo- (FREUND and DORMEYER), 1892, A., 223.
- Methylhydroquinaldine.** See Dimethyl-tetrahydroquinoline.
- $\beta$ -Methylhydroxylamine** (DITTRICH), 1891, A., 317; (HOFFMANN and MEYER), 1892, A., 291; (KIRPAL), 1892, A., 1067.
- Methylic alcohol, occurrence of, in the products of the dry distillation of colophony** (KELBE and LWOFF), 1883, A., 738.  
from plants (MAQUENNE), 1886, A., 274.  
purification of (REGNAULD and VILLEJEAN), 1884, A., 1279.  
physical properties of (DITTMAR and FAWSITT), 1889, A., 578.  
thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.  
specific heats of solutions of (TIMOFEEFF), 1891, A., 1406.  
vapour pressures of (RICHARDSON), 1886, T., 762, 768, 771, 773; (SCHMIDT), 1892, A., 397.  
decomposition of, by the silent discharge (MAQUENNE), 1884, A., 542.  
action of *Bacterium aceti* on (BROWN), 1886, T., 177; P., 136.  
action of metallic alkyl oxides on mixtures of ethereal salts and (PURDIE), 1887, T., 629.  
combination of, with barium oxide (DE FORCRAND), 1886, A., 781, 861.
- Methylic alcohol, compound of, with copper sulphate** (DE FORCRAND), 1886, A., 524.  
compound of, with potash (GÜTTIG), 1888, A., 933.  
compounds of, with sodium hydroxide (GÜTTIG), 1888, A., 437.  
estimation of acetone in (HINTZ), 1888, A., 759; (MESSINGER), 1889, A., 313; (VIGNON), 1890, A., 837.  
estimation of, in presence of ethylic alcohol (DE PONGY), 1885, A., 298; (VAN DE VYVERE), 1885, A., 600; (HEHNER), 1887, A., 1142.  
estimation of, in wood spirit (HABERMANN), 1889, A., 84.  
See also Wood-naphtha and Wood-spirit.
- Methylic salts of abnormal structure** (WEGSCHEIDER), 1892, A., 1208.  
of normal fatty acids, boiling points and specific volumes of (GARTENMEISTER), 1886, A., 966.  
acetamidoformate (KLOBBIE), 1891, A., 292.  
acetate, action of acids on (OSTWALD), 1884, A., 581.  
action of, on isoamylic and isobutylic alcohols (PURDIE and MARSHALL), 1888, T., 394, 395; P., 25.  
influence of normal salts on the hydrolysis of (TREY), 1887, A., 102.  
acetoacetate, action of aldehyde ammonia on (HANTZSCH), 1883, A., 1082.  
acetoneoxalate and acetophenoneoxalate, magnetic rotation of (PERKIN), 1892, T., 822, 833, 853, 863; P., 100.  
acetylcarbamate (FRANCHIMONT and KLOBBIE), 1889, A., 1144.  
acetylenedicarboxylodiazacetate (BUCHNER), 1889, A., 694.  
acrylate, action of methylic alcohol on (PURDIE and MARSHALL), 1891, T., 474; P., 82.  
acrylates, three, refractive indices of (KAHLBAUM), 1885, A., 1173.  
allylic sulphide (OBERMEYER), 1888, A., 124.  
amidoacetate and its hydrochloride (CURTIUS and GOEBEL), 1888, A., 576.  
 $\alpha$ -amidobenzoate, action of ammonia on derivatives of (ZACHARIAS), 1891, A., 912.  
 $m$ -amidocumate (ABENIUS), 1890, A., 269.

**Methylic  $\beta$ -amidoethylcrotonate and "amidomethylacetoacetate"** (CONRAD and EPSTEIN), 1888, A., 253.  
 amidoformate, action of nitrous acid on (KLOBBE), 1891, A., 292.  
 $\alpha$ -amidopropionate hydrochloride (CURTIUS and LANG), 1892, A., 453.  
 diamidopyromellitate (NEF), 1890, A., 987.  
 amidosulphobenzoate (HENTSCHER), 1885, A., 792.  
 amidoterephthalate (AHRENS), 1886, A., 802.  
 ammonium sulphate (KRAFFT and BOURGEOIS), 1892, A., 700.  
 amylic sulphide (OBERMEYER), 1883, A., 124.  
 anacardate (RUEHMANN and SKINNER), 1887, T., 665; P., 102.  
 anhydroberberilate (PERKIN), 1890, T., 1039; P., 120.  
 anisate, thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.  
 anisylimidoanisylthiocarbamate and anisyl/ithiocarbamate (FOERSTER), 1888, A., 944, 945.  
 anthracene- $\gamma$ -carboxylate (BEHLA), 1887, A., 594.  
 apionylglyoxylate (GARELLI), 1892, A., 328.  
 azimethylenedicarboxylate (CURTIUS and LANG), 1892, A., 452.  
 azinsuccinate (CURTIUS and KOCH), 1885, A., 886.  
 benzeneazocamphocarboxylate (HALLER), 1892, A., 1344.  
 benzeneazocyanacetate (HALLER), 1888, A., 824.  
 benzeneazodinitrophenylacetate (MEYER), 1888, A., 693.  
 benzenesulphonate (KRAFFT and ROOS), 1892, A., 1220.  
 benzilate (KLINGER and SPANDKE), 1889, A., 885.  
 benzoylcocoylhydroxyacetate (EINHORN), 1889, A., 420.  
 benzoylcyanacetate (BARFHE), 1888, A., 951.  
 benzylidenedibenzoylacetate (BUCHNER and CURTIUS), 1885, A., 1238.  
 benzyl- $p$ -nitrobenzoylacetate (PERKIN and BELLENOT), 1886, T., 446; P., 193.  
 $m$ -bromacetamidocumate (ABENIUS), 1890, A., 270.  
 dibromacetylcarbopyrrolate (CIAMICIAN and SILBER), 1888, A., 62.  
 dibromanilate (BALBIANO), 1883, A., 1125.

**Methylic  $\beta$ -bromohydroxycrotonate** (v. BAeyer and RUPPE), 1890, A., 876.  
 $\mu$ -bromobenzenesulphonate (KRAFFT and ROOS), 1892, A., 1220.  
 dibromomaleate (PTM), 1888, A., 1058.  
 bromophenoxy nicotinate (v. Pechmann), 1885, A., 176.  
 bromo/isopropylphenylic oxide, oxidation of (PERATONER), 1887, A., 472.  
 dibromopyrrolone-2:5-dicarboxylate (CIAMICIAN and SILBER), 1888, A., 61.  
 bromosalicylate (PERATONER), 1887, A., 486.  
 bromo- $p$ -terephthalate (FILEH, 1887, A., 52.  
 bromotetramethylenecarboxylate (PERKIN and SINCLAIR), 1891, P., 191; 1892, T., 43.  
 bromundecylenate (NOERDLINGER), 1890, A., 1237.  
 $\beta$ -isobutoxyquartenylate (ENKE), 1890, A., 805.  
 isobutylpropionylpropionate (PINGEL), 1888, A., 819.  
 butyrylcarbamate (FRANCHIMONT and KLOBBE), 1889, A., 1114.  
 camphocarboxylates (MINGTIN), 1892, A., 1343; (HALLER), 1892, A., 1344.  
 camphorate (HALLER), 1892, A., 1346.  
 carbamate. See Methylurethane.  
 carbanilate, derivatives of (HENTSCHER), 1887, A., 143.  
 carbonate, action of potassium ethoxide on (LOSSEN and KÜHLER), 1891, A., 1014.  
 carboxymethylacetoacetate (CLAISEN), 1892, A., 1070.  
 $m$ -chloracetamidocumate (ABENIUS), 1890, A., 270.  
 chloranilate (KEHEMANN), 1890, A., 136.  
 $\omega$ -chlorethylpiperonylcarboxylate (PERKIN), 1890, T., 1032; P., 117.  
 chloride (*chloromethane*), inhalation of (REGNAULD and VILLIJEAN), 1885, A., 926.  
 action of, on *o*-dichlorobenzene in presence of aluminium chloride (FRIEDEL and CRAFIS), 1887, A., 1101.  
 hydrate of (DE FORCRAND and VILLARD), 1888, A., 897.  
 chlorimidocarbonate (SANDMEYER), 1886, A., 611.

**Methylic** *p*-chlorobenzenesulphonate (KRAFFT and ROOS), 1892, A., 1920.  
 chlorodichloromethylcarbinyl chloride (v. GANZAROLLI-THURNLACKH), 1884, A., 1118.  
 chlorocarbonate, preparation of (KLEPI), 1883, A., 311.  
 chloroformate, preparation of (HENTSCHEL), 1885, A., 883.  
 chlorofumarate (KAUDER), 1885, A., 652.  
 tetrachloro- $\alpha$ -hydroxyhydriindene-carboxylate (ZINCKE and ARNOLD), 1892, A., 858.  
 $\beta$ -chlorophthalate (GRAEBE and REE), 1886, T., 529; P., 212.  
 tetrachlorophthalate, crystalline form of (SORER), 1886, A., 620.  
 $\beta$ -chloroquartenylate (ENKE), 1890, A., 865.  
*p*-dichloroterephthalate (LEVY and ANDREOCCHI), 1888, A., 1091; (LEVY and CURCHOD), 1889, A., 1179.  
 chlorothioformate (KATHEKE), 1888, A., 1169.  
 chloroxalate (ANSCHUTZ), 1890, A., 236.  
 cineolate (WALLACH), 1890, A., 1314.  
 cinnamate, thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.  
 $\alpha$ -laccinnamate (LIEBERMANN), 1891, A., 833.  
 citraconate, magnetic rotatory power of (PERKIN), 1888, T., 583, 592.  
 citrate, thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.  
 collidinedicarboxylate. See Methylic 2:4:6-trimethylpyridinedicarboxylate.  
 coumalanilidate (v. PECHMANN and WELSH), 1885, A., 175.  
 coumalinate (v. PECHMANN), 1884, A., 1124.  
 coumalmethamate (v. PECHMANN), 1885, T., 154.  
 cresolcarboxylate (WENDE), 1887, A., 45.  
 crotonate, action of methylic alcohol on (PURDIE and MARSHALL), 1891, T., 476; P., 82.  
 cumylamidocrotonate (CONRAD and LIMPACH), 1888, A., 504.  
 $\alpha$ -cyanacetate (HALLER), 1890, A., 1395.  
 $\alpha$ -cyanacetoacetate (HALLER and HELD), 1888, A., 579.  
 $\gamma$ -cyanacetoacetate (HALLER and HELD), 1891, A., 171.

**Methylic** cyanide (*acrylin cyanide*) (FREUND and SCHONFELD), 1892, A., 132.  
 polymeride of (HOLTZWART), 1889, A., 118, 653.  
 cyanomalonate (HALLER), 1889, A., 859.  
 cyanosuccinate (BARTHE), 1891, A., 42.  
 cyanotricarballylate (BARTHE), 1891, A., 43.  
*n*- and *iso*-cyanurates (v. HOFMANN), 1886, A., 929, 931.  
 dehydracetate (PERKIN), 1885, A., 515; 1887, T., 496; P., 35.  
 action of aniline on (HAITINGER; PERKIN), 1885, A., 761, 762.  
 isodehydracetate (ANSCHUTZ, BENDIX and KERP), 1891, A., 172.  
 dehydromucate (ZENONI), 1891, A., 295.  
 diacetoxydihydropyromellitate and diacetoxyipyromellitate (NEF), 1890, A., 985.  
 diacetyltartrate, crystalline form of (SORER), 1886, A., 619.  
 diazo-compounds. See under Azo.  
 dibenzyllic phosphate (LOSSEN and KOHLER), 1891, A., 1015.  
 dicarboxyglutarate, thermochemistry of (STOHMANN and KLEBER), 1892, A., 1041.  
 diethylic phosphate (LOSSEN and KOHLER), 1891, A., 1015.  
 dihydrogen trimesate (v. PECHMANN), 1891, A., 1459.  
 dihydroterephthalate and its dibromide (v. BAEYER), 1888, A., 1072, 1073.  
 $\Delta^1$  dihydroterephthalate dibromide and dihydrobromide (v. BAEYER and HERB), 1890, A., 1132.  
 $\Delta^1$  dihydroterephthalate tetrabromide (v. BAEYER and HERB), 1890, A., 1132.  
 $\Delta^{2,5}$  cis-trans-dihydroterephthalate di- and tetra-bromides (v. BAEYER and HERB), 1890, A., 1131.  
 dihydroxyipyromellitate and dihydroxydihydropyromellitate (NEF), 1890, A., 987.  
*p*-diketohexamethylenetetracarboxylate (NEF), 1890, A., 987.  
*m*:*o*-dimethoxycinnamate (SCHNELL), 1887, A., 140.  
 dimethoxyipyromellitate (NEF), 1890, A., 985.  
 1:2 4-dimethoxyumbellate (TIEMANN and WILL), 1883, A., 200.  
*p*-dimethylamidobenzoate (BISCHOFF), 1889, A., 512.

- Methylic dimethylcarbamate** (FRANCHIMONT and KLOBBIE), 1889, A., 1144.
- dimethylgentisate** (SCHNELL), 1887, A., 140.
- dimethyl- $\beta$ -methylumbellate** (v. PECHMANN and COHEN), 1884, A., 1831.
- dimethylpropionylacetate** (BOUVEAULT), 1891, A., 42.
- di- $\beta$ -naphthylcarbamate** (RIS), 1888, A., 57.
- dioxymethylenepheryl-glyoxylate and -oximidoacetate** (GARELLI), 1892, A., 327.
- diphenylacetate** (RATTNER), 1888, A., 704.
- diphthalate** (GRAEBE and JULLARD), 1888, A., 154.
- $\beta$ -ethoxy- $\alpha$ -methyltetraacrylate** (KOLL), 1889, A., 488.
- $\beta$ -ethoxyquartenylate** (ENKE), 1890, A., 865.
- ethylacetoacetate, action of ammonia on** (PETERS), 1890, A., 1097.
- ethylamidoformate, action of nitrous acid on** (KLOBBIE), 1891, A., 292.
- ethylenebisamidoformate and its nitro-derivative** (FRANCHIMONT and KLOBBIE), 1889, A., 124.
- alloethylic camphorate** (BRÜHL), 1892, A., 1102.
- ethylic carbopyrotritate** (KNORR and CAYALLO), 1889, A., 385.
- ethylic succinate, hydrolysis of** (LOSSEN and KÜHLER), 1891, A., 1013.
- sulphide, preparation of** (KLASON), 1888, A., 356; (CAERARA), 1892, A., 1422.
- ethylpropionpropionate** (PINGEL), 1888, A., 819.
- fluoride** (COLLIE), 1889, T., 110; P., 16; (MOISSAN and MESLANS), 1889, A., 364.
- action of chlorine on** (COLLIE), 1889, T., 111; P., 16.
- hydrate of** (VILLARD), 1890, A., 1386.
- formate, decomposition of, by the silent discharge** (MAQUENNE), 1884, A., 548.
- formates, chlorinated** (HENTSCHEL), 1885, A., 883; 1887, A., 1027, 1099; 1888, A., 248, 249.
- fumarate** (CURTIUS and KOCH), 1887, A., 34.
- fumarate, thermochemistry of** (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.
- Methylic fumariate, action of sodium methoxide and methylic alcohol on** (PURDIE and MARSHALL), 1891, T., 468, 472; P., 82.
- fumaricdiazoacetate** (BUCHNER), 1888, A., 1274.
- furfuraerylate** (GIBSON and KAHNWEILER), 1890, A., 959.
- gallate** (WILL), 1888, A., 1090.
- thermochemistry of** (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.
- glycol. See  $\alpha\beta$ -Propylenic glycol.**
- hexamethylenecarboxylate** (ASCHAN), 1890, A., 737.
- hexamethylene-*m*-dicarboxylate** (PERKIN), 1891, T., 806.
- $\alpha$ -hydrazinepropionate** (CURTIUS), 1891, A., 39.
- hydrocarbostyryl-2-carboxylate** (WIDMAN), 1889, A., 1192.
- hydrogen camphorates, *o*- and *allo*-** (WALKER), 1892, T., 1088, 1093; P., 156; (BRÜHL), 1892, A., 1102; (HALLER), 1892, A., 1346.
- crystallography of** (WALKER), 1892, T., 1090, 1094; P., 156.
- action of phenylcarbimide on** (HALLER), 1892, A., 1347.
- hydrogen carboxylanthranilate** (SCHMIDT), 1888, A., 371.
- hydrogen hydroxyisophthalate** (HÄBLE), 1891, A., 1363.
- hydrogen maleate, action of sodium methoxide on** (PURDIE), 1885, T., 869.
- hydrogen oxalate** (ANSCHÜTZ and SCHÖNFELD), 1886, A., 786.
- hydrogen phthalate, preparation of** (HALLER), 1892, A., 1204.
- dissociation constant of** (WALKER), 1892, T., 717; P., 137.
- hydrogen succinate, dissociation constant of** (WALKER), 1892, T., 716; P., 137.
- hydrogen sulphate, non-existence of supposed modification of** (REB), 1888, A., 1156.
- hydrogen sulphide** (KLASON), 1888, A., 356.
- p*-hydroxybenzoate, thermochemistry of** (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.
- $\alpha$ -hydroxy- $\beta$ -naphthoate** (SCHMITT and BURKARD), 1888, A., 59.
- p*-hydroxyphenylacetate** (SALKOWSKI), 1889, A., 1173.
- $\beta$ -hydroxyphthalate** (GRAEBE and REB), 1886, T., 524; P., 211.

- Methylic  $\alpha$ -hydroxypropionate**, nitro-derivative of (DE VANDA), 1892, A., 533.  
 hypochlorite (SANDMEYER), 1886, A., 608.  
 imidocarbonate (SANDMEYER), 1886, A., 612.  
 imidodiformate (KLOBBIE), 1891, A., 293.  
 imidomethylphenylthiocarbamate and imidophenylthiocarbamate (BERTRAM), 1890, A., 1291; 1892, A., 465, 466.  
 iodide, formation of, from iodoform (CAZENEUVE), 1884, A., 896.  
 molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
 action of, on sodium arsenite (MEYER), 1883, A., 1078; (KLINGER and KREUTZ), 1889, A., 363.  
 action of, on stannous chloride (MEYER), 1883, A., 1078.  
 $\beta$ -,  $\gamma$ -, and  $\delta$ -isotropates (LIEBERMANN), 1888, A., 1211.  
 malamate (CURTIUS and KOCH), 1887, A., 34.  
 mellitate, thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.  
 mesaconate, magnetic rotatory power of (PERKIN), 1888, T., 586, 593.  
 mesitylenecarboxylate (FEITH), 1892, A., 329, 715.  
 methoxybromosalicylate (PERATONER), 1887, A., 487.  
 $\beta$ -methoxyquartenylate (ENKE), 1890, A., 865.  
 methoxysuccinate (PURDIE and MARSHALL), 1891, T., 468; P., 82.  
 methylamidoformate, action of nitrous acid on (KLOBBIE), 1891, A., 292.  
*p*-methylanthranilate (PANAGOTOVICH), 1886, A., 361.  
 methylaspartate (KÖRNER and MENOZZI), 1890, A., 870.  
 methyl/*di*-biomo-*p*-coumarate (VALENTINI), 1887, A., 488.  
 methylcamphocarboxylate (MINGUIN), 1891, A., 1500; (HALLER), 1892, A., 1344.  
 $\alpha$ -methyl- $\beta$ -chlorotetracrylate (KOLL), 1889, A., 488.  
 methylcyanosuccinate (BARTHE), 1891, A., 1017.  
 methylethenyltricarboxylate. See Methylic propanetricarboxylate.  
 methylimidomethylphenylthiocarbamate (BERTRAM), 1890, A., 1291; 1892, A., 466.
- Methylic methylnaringenate** (WILL), 1885, A., 907.  
 methylnitrocarbamate (FRANCHIMONT and KLOBBIE), 1889, A., 1144.  
 methylloxamate (FRANCHIMONT and KLOBBIE), 1889, A., 1145.  
 methylpropionylacetate (BOUVEAULT), 1891, A., 41.  
 methylpropionpropionate (PINGEL), 1888, A., 819.  
 methyltetrahydropyridyl- $\beta$ -benzoyl-hydroxypropionate. See Cocaine under Alkaloids.  
 $\beta$ -naphthalenesulphinat and naphthylsulphoneformate (OTTO and RÖSSING), 1892, A., 623.  
 $\alpha$ - and  $\beta$ -naphthalenesulphonates (KRAFFT and ROOS), 1892, A., 1220.  
 $\beta$ -naphthoate, thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.  
 $\alpha$ - and  $\beta$ -naphthylimidonaphthylthiocarbamates (EVERS), 1888, A., 600, 601.  
 $\alpha$ -naphthyl-*mono*- and *di*-thiocarbamates (EVERS), 1888, A., 602.  
 nicotinate, methiodide of (HANTZSCH), 1886, A., 369.  
 nitrate, magnetic rotatory power of (PERKIN), 1889, T., 682.  
 action of ammonia gas on (DUVILLIER and MALBUT), 1884, A., 577.  
*p*-nitrobenzoylacetate (PERKIN and BELLENOT), 1886, T., 444; P., 193.  
*d*-nitrocinnamate, additive-compounds of (FRIEDLÄNDER and MAHL), 1885, A., 1139.  
 3-nitrocumate (ABENIUS), 1890, A., 269.  
 nitromalonate (FRANCHIMONT and KLOBBIE), 1889, A., 1143.  
 2:3:4-*tri*-nitromethylnitramidophenat (VAN ROMBURGH), 1889, A., 1154.  
*d*-nitrophenylacetate (MEYER), 1888, A., 693.  
 $\alpha$ -*p*-*d*-nitrophenyl- $\beta$ -hydroxypropionate (REBUFFAT), 1885, A., 1137.  
 nitropiperonylacrylate (PERKIN), 1891, T., 156; P., 27.  
*d*-nitropyromellitate (NEF), 1890, A., 987.  
 nitropyrraline- $\alpha$ -carboxylates (ANDERLINI), 1890, A., 66.  
 nitrosocyanacetate (MULLER), 1891, A., 1450.  
 nitroso-*p*-dimethylamidobenzoate (BIRSCHOFF), 1869, A., 512.

**Methylic** nitrosophenolcarboxylate (WALKER), 1884, A., 1003.  
 nitrososuccinate (FRANCHIMONT and KLOBBIE), 1889, A., 1143.  
 nitroterephthalate (AHRENS), 1886, A., 802.  
*di*nitro-*o*-toluate (RACINE), 1887, A., 945.  
 opianates, *n*- and  $\psi$ - (WEGSCHEIDER), 1892, A., 1209.  
 oxalacetate phenylhydrazone (BUCHNER), 1890, A., 156.  
 oxalate (ANSCHÜTZ), 1890, A., 236.  
 thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.  
 oxymenthylate (ARTH), 1886, A., 892.  
 pentamethylbenzoate (JACOBSEN), 1889, A., 876.  
 pentamethylene-bisamidoformate and -bisnitramidoformate (FRANCHIMONT and KLOBBIE), 1889, A., 492.  
 phenaceturate (HOTTER), 1888, A., 1299.  
 phenylamidoacetate (KOSSEL), 1892, A., 468.  
 phenylamidocrotonate (CONRAD and LIMPACH), 1888, A., 1109.  
 $\beta$ -phenylamidophenylacrylate (KNORR), 1888, A., 1112.  
 phenylbenzoylacetate (RATTNER), 1888, A., 704.  
 phenylcarbamate, nitration of (VAN ROMBURGH), 1892, A., 711.  
 sulphonic acid of (NÜLTING), 1889, A., 144.  
 phenylcarbazate (HELLER), 1891, A., 1213.  
 phenylcinnamate, and its bromine-derivative (CABELLA), 1884, A., 1348.  
 phenylenedicarboxy-*m-p*-dicarbamate (ZEHLA), 1891, A., 304.  
*m*- and *p*-phenylenedipropionates (KIPPING), 1888, T., 33, 40.  
 phenylimidomethylphenylthiocarbamate (BERTRAM), 1890, A., 1291; 1892, A., 466.  
 phenyllutidonecarboxylate (PERKIN), 1887, T., 498; P., 35.  
 phenylmethyl-*mono*- and -*di*-thiocarbamates (BERTRAM), 1890, A., 1291; 1892, A., 466.  
 phenylmethyltriazolecarboxylate (BLADIN), 1892, A., 638.  
 phenyloxamate (ANSCHÜTZ), 1890, A., 235.  
 phenylthiocarbamate (BERTRAM), 1890, A., 1291.  
 phloroglucinoltricarboxylate (V. BAeyer), 1886, A., 223.

**Methylic** phosphate (HALL), 1887, T., 751.  
 phosphite (JAEHNKE), 1890, A., 859.  
*n*- and *iso*-phthalates, thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.  
 $\alpha$ -piperidinecarboxylate, derivatives of (LADENBURG), 1891, A., 735.  
 propanetricarboxylate (BARTHE), 1891, A., 1017.  
 propiopropionate (PINGEL), 1888, A., 819.  
 $\beta$ -propoxy- $\alpha$ -methyltetraerylate (KOLL), 1889, A., 488.  
 $\beta$ -propoxyquartenylate (ENKE), 1890, A., 865.  
*n*- and *iso*-propylamidoformates (SIMON-THOMAS), 1891, A., 167.  
*isopropyl*ic sulphide (OBERMEYER), 1888, A., 124.  
 propylic xanthate (SCALA), 1887, A., 800.  
*n*- and *iso*-propylnitramidoformates (SIMON-THOMAS), 1891, A., 167.  
 propylpropionpropionate (PINGEL), 1888, A., 819.  
 propylpyrogallate (NIEDERIS; PAS-TRITCH), 1888, A., 1005.  
 $\alpha$ -pyridylactate (EINHORN), 1892, A., 76.  
 pyrogallalcarboxylate (WILL), 1888, A., 1090.  
 pyrotritate (KNORR and CAYALLO), 1889, A., 384.  
 $\alpha$ -pyrrolinocarboxylate, molecular weight of (MAGNANINI), 1890, A., 906.  
 pyrrolinoglyoxylate (CIAMICIAN and DENNSTEDT), 1885, A., 378.  
 quinonepyromellitate (NEF), 1890, A., 987.  
 racemate, formation of, from methylic *d*- and *l*-tartrates (ANSCHÜTZ), 1885, A., 966.  
 salicylate, vapour-pressures of (RAMSAY and YOUNG), 1885, T., 649, 655.  
 toxic action of (LABORDE and MAGNAN), 1888, A., 737.  
 phenylcarbamate (SNAPE), 1885, T., 775.  
 See also Oil of wintergreen.  
 selenio-cyanate and -cyanurate (STOLTE), 1886, A., 781.  
 silver phosphate (LÖWSEN and KÜHLER), 1891, A., 1015.  
 succinate, thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.  
*o*-sulphaminebenzoate (REMSEN and DOHME), 1889, A., 992.

**Methylic sulphate**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 296.  
**sulphide** (KLASON), 1888, A., 356.  
 platinum compounds of (ENEBUSKE), 1889, A., 229.  
*d*- and *l*-tartrates, formation of methylic racemate from (ANSCHUTZ), 1885, A., 966.  
 telluride, preparation of (DEMARÇAY), 1884, A., 663.  
 terephthalate, thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.  
 tetrahydrobenzoate (ASCHAN), 1891, A., 1054.  
 $\Delta^1$ -tetrahydrophthalate (v. BAeyer), 1890, A., 1281.  
 tetrahydroquinolinecarboxylate (SCHOTTEN and SCHLÖMANN), 1892, A., 355.  
 $\Delta^2$ -*cis*-tetrahydroterephthalate dibromides (v. BAeyer and HERB), 1890, A., 1133.  
 tetrahydroterephthalate hydrobromide (v. BAeyer), 1888, A., 1074.  
 tetrahydrothiophendicarboxylate (ERNST), 1887, A., 238.  
 tetramethylene-bisamido- and -bisnitramido-formates (DEKKER), 1891, A., 164.  
 $\alpha$ -thiobenzoate and thiobutyrate (OBERMEYER), 1888, A., 124.  
 thiocyanate, action of chlorine on (JAMES), 1887, T., 268; P., 15.  
 thiocyanurate (v. HOFMANN), 1885, A., 1193.  
 action of ammonia and amines on (v. HOFMANN), 1886, A., 38.  
 thiophentricarboxylate (MEISINGER), 1885, A., 1205.  
 thiopropionate (OBERMEYER), 1888, A., 124.  
 toluenazoocyanacetates, 1:2- and 1:4- (HALLER), 1888, A., 824.  
*m*-tolylacetate (SENKOWSKI), 1889, A., 255.  
*n*- and *p*-tolylamidocrotonates (CONRAD and LIMPACH), 1888, A., 503.  
 trimesate (PIUTTI), 1887, A., 491, 588.  
 thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.  
 trimethylascutolate (TIEMANN and WILL), 1883, A., 200; (TAKAHASHI), 1889, A., 256.  
 2:4:6-trimethyldihydropyridine-3:5-dicarboxylate (HANTZSCH), 1883, A., 1082.

**Methylic trimethylene-bisamido- and -bisnitramido-formates** (FRANCHIMONT and KLOBBE), 1889, A., 492.  
 trimethylenetetra-carboxylate [1:1:2:2] (STOHMANN and KLEBER), 1892, A., 1040.  
 trimethylenetetra-carboxylate [1:1:2:3] (BUCHNER and WITTER), 1890, A., 1398.  
 trimethylgallate (WILL), 1888, A., 1090.  
 2:4:6-trimethylpyridine-3:5-dicarboxylate (*methylic collidinedicarboxylate*) and its salts (HANTZSCH), 1883, A., 1082.  
 trimethylpyrogallocarboxylate (WILL), 1888, A., 1090.  
 tropate (LIEBERMANN), 1891, A., 749.  
 $\beta$ -truxillate (LIEBERMANN), 1889, A., 1194.  
 undecylenate (NOERDLINGER), 1890, A., 1237.  
 vanadate (HALL), 1887, T., 751.  
*p*-Methylimesatin. See *p*-Methylisatinimide.  
**Methylimidazole**. See Methylglyoxaline.  
**Methylimidomethylene ethylenic disulphide** (MIOLATI), 1891, A., 894.  
 $\nu$ -Methyl- $\mu$ -imidothiazolidine (GABRIEL), 1889, A., 849.  
**Methylimidothiazolines** and their nitroso-derivatives (NÄR), 1891, A., 1515, 1516.  
**Methylimidouracil** (JAEGER), 1891, A., 1007.  
**Methylindazine** (*quinazole*) (FISCHER and TAFEL), 1885, A., 541.  
 compounds (FISCHER and KUZEL), 1883, A., 512.  
**Methylindene** (*methylinonaphthene*) chloro- (v. MILLER and ROHDE), 1889, A., 984.  
 3'-Methylindene (ROSER), 1888, A., 1303; (v. MILLER and ROHDE), 1890, A., 1138.  
 2'-Methylindene-3'-carboxylic acid and its derivatives (ROSER), 1887, A., 836; 1888, A., 1303.  
**Methylindigo** (ANON.), 1884, A., 237.  
**Methylisindoleucine** (ENGLER and HASSENKAMP), 1885, A., 1223.  
 3-Methylindole (*tolindole*) (RASCHEN), 1887, A., 956.  
 1'-Methylindole (FISCHER), 1887, A., 148; (COLMAN), 1888, P., 95; 1889, T., 1.  
 synthesis of (FISCHER and HESS), 1884, A., 1181; (FISCHER), 1886, A., 805.  
 action of aldehydes, anhydrides and diazo-compounds on (FISCHER), 1887, A., 265.

- 2'-Methylindole** (*methylskatol*) (FISCHER), 1887, A., 148; 1888, A., 283.  
behaviour of (CIAMICIAN), 1887, A., 273.  
action of aldehydes, anhydrides and diazo-compounds on (FISCHER), 1887, A., 265.  
action of methyl iodide on (ZATTI and FERRATINI), 1892, A., 614.  
conversion of, into quinaldine (MAGNANINI), 1888, A., 957.  
azo- and amido-derivatives of (WAGNER), 1888, A., 284.  
*dinitro-* (ZATTI), 1890, A., 897.
- 3'-Methylindole** (*scatole*) (FISCHER), 1887, A., 148.  
in the vegetable kingdom (DUNFAN), 1890, A., 191.  
from strychnine (SIOEHR), 1897, A., 682.  
formation of (E. and H. SALKOWSKI), 1885, A., 567.  
synthesis of (FISCHER and GERMAN), 1888, A., 1132; (FILETTI), 1884, A., 438; (FISCHER), 1886, A., 805.  
action of aldehydes, anhydrides and diazo-compounds on (FISCHER), 1887, A., 265.  
transformation of, into indole (FILETTI), 1884, A., 458.  
derivatives (WENZING), 1887, A., 957.  
pigment (MEYER), 1888, A., 174.
- 2'-Methylindoleacetic acid** (FISCHER), 1886, A., 806; 1887, A., 149.
- 3'-Methylindoleacetic acid** (NENCKI), 1890, A., 78.
- 2'-Methylindoleazobenzene** (WAGNER), 1888, A., 284.
- 3-Methylindole-2'-carboxylic acid** (RASCHEN), 1887, A., 956.
- 1'-Methylindole-3'-carboxylic acid**, synthesis of (FISCHER and HESS), 1884, A., 1181.
- 2'-Methylindole 3'-carboxylic acid** (CIAMICIAN and MAGNANINI), 1888, A., 483, 958.
- 3'-Methylindole-2'-carboxylic acid** ( *$\beta$ -scatolcarboxylic acid*), a product of the putrefaction of albumin (E. and H. SALKOWSKI), 1885, A., 569.  
behaviour of, in the organism (SALKOWSKI), 1885, A., 575.
- 3'-Methylindole-2'-carboxylic acid** ( *$\alpha$ -scatolcarboxylic acid*) (WILLIGENS and ARNOLD), 1888, A., 361; (CIAMICIAN and MAGNANINI), 1888, A., 958.
- Methylindonaphthene**. See Methylindene.
- p-Methylindophenine** (MEYER), 1884, A., 48.
- 3'-Methylindoxyl** (*straturyl*), occurrence of, in human sweat (KATZ), 1887, A., 1183.
- 3'-Methylindoxylsulphuric acid** (MEYER), 1888, A., 174.
- Methyl- $\alpha$ -iodoethylpentamethylene** (MARSHALL and PERKIN), 1889, P., 143; 1890, T., 249.
- Methyliodoform**. See triIodoethane.
- p-Methylisatin** and its oxime (MEYER), 1884, A., 48.  
*mono* and *di*-phenylhydrazines of (PANAYOTOV), 1886, A., 362.
- Methyl- $\psi$ -isatin** (COLMAN), 1888, P., 96; 1889, T., 5.  
synthesis of (FISCHER and HESS), 1884, A., 1181.  
chloro- (LA COSSE and BODEWIG), 1885, A., 792.
- Methyl- $\psi$ -isatinoxime** and **- $\psi$ -isatin-phenylhydrazone** (COLMAN), 1888, P., 96; 1889, T., 6, 5.
- p-Methyl- $\psi$ -isatin**, derivatives of (DUBBERG), 1885, A., 544.  
phenylimide, *o*- and *p*-tolylimides of (MEYER), 1884, A., 18.
- p-Methyl- $\psi$ -isatinimide** (*p-methyl-imesatin*) (MEYER), 1884, A., 48.
- p-Methylisatoic acid** and its derivatives (PANAYOTOV), 1885, A., 666; 1886, A., 361.
- Methylisatoid** and its bromo-derivative (V. BAEYER and OECONOMIDES), 1883, A., 201.
- Methylitaconic acid** (FITZG and FRANKEL), 1890, A., 586.  
formation of (BIRCHOFF), 1891, A., 1221.
- Methylitamic acid**. See Hydroxymethylpyrotartaric acid.
- $\gamma$ -Methyljulolidine** (REISSER), 1892, A., 498.
- Methylketine**. See Tetramethylpyrazine.
- Methyl-ketodehydroheptamethylene and -ketodehydroheptamethylene-carboxylic acid** (PERKIN and OBREMSKY), 1886, A., 937.
- 3-Methyl-2'-ketodihydroquinazoline** (SODERBAUM and WIDMAN), 1890, A., 178.  
oxidation of (SODERBAUM), 1890, A., 1254.
- Methylketole**. See 2'-Methylindole.
- Methylketomethyltetrahydroquinoxaline** and **methylketotetrahydroquinoxaline** (GEORGESE), 1892, A., 887.
- Methyl- $\gamma$ -ketoximepropionic acid** (DOLLEUS), 1892, A., 1202.

- 1':4' 2'-Methyllepidone (1':4'-dimethyl-quinolone) (KNORR and ANTRICK), 1885, A., 271; (KNORR), 1887, A., 159.  
 dyes obtained from (REISSERT), 1892, A., 498.  
 reduction of (KNORR and KLOTZ), 1887, A., 278.  
 bromo- (KNORR), 1887, A., 160.  
 $\alpha$ -Methyllevulindioxime (CIAMICIAN and ZANETTI), 1890, A., 1155; 1891, A., 1503.  
 Methyllutidone. See 1:2:6-Trimethylpyridone.  
 Methyl- $\psi$ -lutidostyrene ("methyl- $\psi$ -lutidostyrol"). See 1:2:4-Trimethylpyridone.  
 $\beta$ -Methylmalic acid (WISLICIENUS), 1892, A., 589, 963.  
 Methylmalonic acid. See *iso*Succinic acid.  
*m*-Methylmandelic acid and *m*-methylmandelonitrile (BORNEMANN), 1884, A., 1162.  
 Methylmercaptomethylthiazoline. See Methylsulphydomethylthiazoline.  
 Methylmethronic acid (DIETZEL), 1889, A., 593.  
 $\alpha$ -Methyl- $\mu$ -methylamidothiazole (TRAUMANN), 1889, A., 415.  
 Methylmethylenetri-bromopyrogallol (ROSER), 1890, A., 530.  
 Methylmethylene-gallic acid and gallo-carboxylic acid (ROSER), 1890, A., 530.  
 Methylmethylenetrihydroxyphthalic acid (ROSER), 1890, A., 530.  
 Methylmorphinethine. See Codomethine under Alkaloids.  
 Methylmorphine. See Codeine under Alkaloids.  
 Methylmorpholine and methylmorpholinemethylammonium hydroxide (KNORR), 1889, A., 1218, 1219.  
 Methyl- $\alpha$ - and - $\beta$ -naphthafurfuran (HANTZSCH and PFEIFFER), 1886, A., 717.  
 Methyl- $\alpha$ - and - $\beta$ -naphthafurfuran-carboxylic acids (HANTZSCH and PFEIFFER), 1886, A., 717.  
 $\alpha$ -Methylnaphthalene (BOESSENCK), 1883, A., 1135.  
 nitro- (SCHERLER), 1892, A., 494.  
 Methylnaphthalenes,  $\alpha$ - and  $\beta$ -, and their derivatives (SCHULZE), 1884, A., 1183, 1184; (WICHELHAUS), 1892, A., 492.  
 action of chlorine and of nitric acid on (SCHERLER), 1892, A., 493.  
 chloro-derivatives of (SCHERLER), 1892, A., 493.  
 Methylnaphthaloxazine (KÜHLING), 1892, A., 70.  
 2'-Methyl- $\alpha$ -naphthaquinoline ( $\alpha$ -naphthaquinolone) and its derivatives (DOERNER and v. MILLER), 1884, A., 1875.  
 2'-Methyl- $\beta$ -naphthaquinoline (SEITZ), 1889, A., 525.  
 tetrahydro-derivatives of (BAMBERGER and MÜLLER), 1891, A., 1510.  
 octahydro-derivatives of (BAMBERGER and STRASSER), 1891, A., 1513.  
 chloro- (EPHRAÏM), 1892, A., 1488.  
 4'-Methyl- $\beta$ -naphthaquinoline (REED), 1887, A., 682.  
 Methyl- $\beta$ -naphthaquinoneoxime (GOLDSCHMIDT and SCHMID), 1885, A., 1238.  
 Methylnaphthaquinoxaline, amido- (WITT), 1886, T., 400.  
 2'-Methyl- $\alpha$ -naphthindole (SCHLIEPER), 1887, A., 964.  
 3'-Methyl- $\alpha$ -naphthindole (CLEVE), 1892, A., 1479.  
 2'-Methyl- $\beta$ -naphthindole (SCHLIEPER), 1887, A., 154.  
 3'-Methyl- $\beta$ -naphthindole-2'-acetic acid (STRECHT), 1888, A., 285.  
 Methyl- $\alpha$ -naphthol,  $\beta$ -nitroso- (GOLDSCHMIDT and SCHMID), 1885, A., 1238.  
 $\beta$ -Methyl- $\alpha$ -naphthols [2:1- and 2:4-] (FITTIG), 1888, A., 252; (FITTIG and LIEBMANN), 1890, A., 775.  
 Methyl- $\alpha$ - and - $\beta$ -naphthols, trinitro- (STAEDEL), 1883, A., 863.  
 Methylnarceine, and its salts (CLAFS and RITZELFELI), 1885, A., 997.  
 Methylnitramine (FRANCHIMONT and KLOBBE), 1889, A., 492, 1144.  
 Methylnitraniline. See Methylaniline.  
 Methyl-*o*-nitro-*p*-diazobenzene chloride, nitroso- (*o*-nitro- $\alpha$ -nitroso-*p*-diazotoluene chloride) (MEYER), 1886, A., 63.  
 Methyl-dinitrophenylacetateazo-. See Azo-.  
 Methylnitrosoacetonehydrazone (v. PECHMANN and WEHARG), 1889, A., 47.  
 Methylnonylacetylene (KRAFFT and REUTER), 1892, A., 1164.  
 Methylnonylketonephenylhydrazone (GRIMALDI), 1890, A., 1394.  
 2'-Methyloctahydro- $\beta$ -naphthaquinolines (*ar*- and *ac*-octahydro- $\beta$ -naphthaquinolones) and their compounds (BAMBERGER and STRASSER), 1891, A., 1513.  
 2:5-Methyloctylthiophen and its bromo-derivative (v. SCHWEINITZ), 1886, A., 536.

- Methylcenantaldoxime** (GOLDSCHMIDT and ZANOLI), 1892, A., 1436.
- Methyl-orange.** See Helianthin.
- Methyloxalacetic acid** (ARNOLD, 1888, A., 1179).
- Methyloxalacetophenylimide** (WILCOX and SATTLER), 1891, A., 908.
- Methyloxamic acid** (HANTZSCH), 1885, A., 398.
- Methyloxanilide** (NORTON and LIVERMORE), 1887, A., 1038.
- Methyl-iso-oxazoles,  $\alpha$ - and  $\gamma$ -** (CLAYTON), 1892, A., 1073.
- Methyloxazoline picrate** (GABRIEL), 1889, A., 1134.
- Methyl-iso-oxazolone** (HANTZSCH, 1891, A., 740).
- Methyloxindole, 3'-mono- and di-bromo-, and 3'-dichloro-** (COLMAN), 1888, P., 96; 1889, T., 3, 4, 7.
- p-Methyloxindole, nitroso-** (MEYER), 1884, A., 48.
- Methyloxyanthranol** (LIEBERMANN), 1888, A., 715.
- Methyloxymethylene- $\alpha$ -bromopyrogallol** (SEMMLER), 1892, A., 811.
- Methyloxy-pyridine.** See Methylpyridone.
- Methyloxyquinazoline.** See Hydroxymethylquinazoline and Oxymethylquinazoline.
- Methyloxyquinizine.** See Phenylmethylpyrazolone.
- isoMethylpæonol** (TAHARA), 1892, A., 846.
- Methylparaconic acid** (FITTIG and FRÄNKEL), 1890, A., 584.
- dichloro-** (FITTIG and MILLER), 1890, A., 587.
- trichloro-** (FITTIG), 1888, A., 252; (FITTIG and MILLER), 1890, A., 586.
- Methylpentadecylacetylene** (*octadecine*) (KRAFFT and REUTER), 1892, A., 1163.
- Methylpentamethylene methyl ketone** (COLMAN and PERKIN), 1888, T., 198.
- Methylpentamethylene-mono- and -di-carboxylic acids** (COLMAN and PERKIN), 1888, T., 193, 198.
- Methylpentamethylenemethylcarbinol** (MARSHALL and PERKIN), 1889, P., 143; 1890, T., 245.
- Methylpentamethylenemethylcarbinyl acetate and iodide** (MARSHALL and PERKIN), 1889, P., 143; 1890, T., 249.
- Methylpentamethylene dibromide, and action of sodium on** (FREER and PERKIN), 1888, T., 205, 214.
- $\beta$ -Methyl-pentathienone and -pentathiophen** (KRECKELER), 1887, A., 239.
- Methylphenanthridines, 3- and 5-** (PICTET and ERLICH), 1892, A., 197.
- See also Phenylindole.
- Methylphenanthroline and its derivatives** (SKRAUP and FISCHER), 1885, A., 392; (NOLTING and TRUFMANN), 1891, A., 327; 1892, A., 720.
- Methylphenanthrolines, isomeric** (GERDESEN), 1889, A., 520.
- Methylphenazine and its salts** (VAN ROMBURGH), 1886, A., 546.
- Methylphenolsulphonic acid** (HAIRINGER), 1883, A., 900.
- Methylphenomorpholine** (KNORR), 1889, A., 1220.
- Methyl- $\alpha$ -phenotetrazine** (HEMPFL), 1890, A., 613.
- Methyl- $\alpha$ -phenotriazine** (BISCHLER), 1890, A., 149.
- p-bromo-** (BISCHLER and BRODSKY), 1890, A., 152.
- Methylphenol.** See Cresol.
- Methylphenylamine.** See Methylaniline.
- Methylphenylpropionic acid.** See Tolypropionic acid.
- Methylphenyl-**. See also Phenylmethyl-.
- $\alpha$ -Methylphthalic acid** [m.p. 152°] (NIEMENTOWSKI), 1892, A., 607.
- Methylphthalic acids** [m.p.s. 144° and 124°] (YOUNG), 1892, A., 1221.
- Methylphthalic anhydride** (YOUNG), 1892, A., 1221.
- Methylphthalide, di- and tetra-chloro-** (ZINCKE and COORSEY), 1890, A., 786.
- dichloronitro-** (ZINCKE and LATTEN), 1892, A., 1231.
- Methylphthalimide** [m.p. 182°] and its derivatives (GRAEBE and PICTET), 1884, A., 1019; 1889, A., 141.
- [m.p. 183°] (YOUNG), 1892, A., 1221.
- [m.p. 196°] (NIEMENTOWSKI), 1892, A., 607.
- Methylphthalimidine** (GRAEBE and PICTET), 1889, A., 141; (BARBER), 1889, A., 253.
- Methylphthalol- $\psi$ -cumidamide** (FRÜHLICH), 1884, A., 1319.
- $\alpha$ -Methylphthalodiamide** (NIEMENTOWSKI), 1892, A., 607.
- Methylpiaselenole** (HINSBERG), 1889, A., 785.
- chloro-** (HINSBERG), 1890, A., 973.
- Methylpiazoethiole** (HINSBERG), 1890, A., 161.
- Methylpicrazide** (v. BRUNING), 1890, A., 23.
- Methyl- $\alpha$ -pipercoline** (1:2-dimethyl-piperidine) (LADENBURG), 1883, A., 1154; (MERLING), 1891, A., 1508.

- Methylpipercolylalkine.** See Hydroxyethylmethylpiperidine.
- 2-Methylpiperidine** (LADENBURG), 1887, A., 740.
- 1-Methylpiperidine** (LADENBURG), 1883, A., 1151.
- 2-Methylpiperidine and its derivatives** (LADENBURG), 1884, A., 1051; 1887, A., 64, 283; (LADENBURG and ROTH), 1885, A., 557.  
synthesis of (LADENBURG), 1884, A., 1054.  
oxidation of (BUNZEL), 1889, A., 904.  
 $\alpha$ -methylpiperylthiocarbamate (LADENBURG and ROTH), 1885, A., 557.
- 3-Methylpiperidine and its derivatives** (LADENBURG), 1884, A., 760; 1887, A., 64; (HESEKIEL), 1885, A., 812; 1886, A., 257; (STOEHR), 1888, A., 63; 1892, A., 629.  
bases (LELMANN and BÜTTNER), 1890, A., 1003.
- 4-Methylpiperidine** (LADENBURG), 1888, A., 499.
- 3-Methylpiperidone** (ASCHAN), 1891, A., 1246.
- Methylpiperyl-azone and -tetrazone derivatives** (KNORR), 1884, A., 468.
- Methylpropargylamine** (PAAL and HERMANN), 1890, A., 230.
- Methylisopropenylcarbinol** (KONDAKOFF), 1886, A., 137; 1888, A., 125.
- Methylpropionylacetoneitrile** (v. MEYER), 1889, A., 114; (BOUVEAULT), 1891, A., 51.
- Methyl-*n*- and -*iso*-propylacetic acids.** See Hexoic acids.
- Methylisopropylacetone.** See Methyl amyl ketone.
- Methylpropylacetoximic acid.** See Methylpropylglyoxime.
- Methylpropylacetylene**, conversion of, into butylacetylene (FAWORSKY), 1889, A., 1169.
- Methylpropylacrylic acid** (REFORMATSKY), 1891, A., 169.
- Methylpropylallylcarbinol**, glycerol from (REFORMATSKY), 1890, A., 121.
- Methylpropylaniline and its derivatives** (CLAUS and HRZEL), 1887, A., 131.
- Methylpropylbenzene.** See Cymene.
- 1-Methyl-3-propyl-2-benzoic acid** (*p*-propyl-*o*-toluic acid) (KREYLER), 1885, A., 1055.
- 1-Methyl-3-propyl-4-benzoic acid** (*cymylcarbonylic acid*) (CLAUS and CROPP), 1886, A., 463.
- Methylpropylcarbinol** (*sec-amyllic alcohol*) (MARKOWNIKOFF), 1884, A., 1280.
- Methylpropylcarbinol** (*sec-amyllic alcohol*), formation of (MARSHALL and PERKIN), 1891, T., 874.  
*trichloro*-, and its derivatives (v. GARZAROLLI-THURNLACKH), 1884, A., 1118.
- o*-Methyl-*p*-propylcoumarin** (v. PECHMANN and WELSH), 1884, A., 1346.
- p*-Methylpropyldihydroxydiphenylic sulphide** (TASSINARI), 1887, A., 808.
- $\beta$ -Methylpropylethylenelactic acid** (REFORMATSKY), 1891, A., 169.
- Methylisopropylethylenic glycol** (FOSSEK), 1884, A., 833; (SWOBODA and FOSSEK), 1891, A., 31.
- Methylpropylethylenic oxide** (ELTEKOFF), 1883, A., 567.
- s*-Methylpropylglutaric acids** (BISCHOFF and THIERSTEDT), 1890, A., 1103.
- 1:2-Methylpropylglyoxaline** (*oxal-methylbutylglyne*) (RIEGER), 1889, A., 119.
- 1:2-Methylisopropylglyoxaline** (*oxal-methylisobutylglyne*) (RIEGER), 1889, A., 120.
- 2:1-Methylpropylglyoxaline** (*oxal-propylethylglyne*), synthesis of (RADZISZEWSKI), 1883, A., 729.
- Methylpropylglyoxime** (SCHRAMM), 1884, A., 52.
- $\alpha$ -Methylpropyl- $\beta$ -hydroxybutyric acid**, decomposition of, by heat (JONES), 1885, A., 376.
- Methylisopropylmalonic acid** (VAN ROMBURGH), 1887, A., 232.
- Methylpropylphenanthrene.** See Retene.
- o*-Methyl-*p*-propylphenylmethylketone** (CLAUS and CROPP), 1886, A., 463.
- Methylpropylpinacone** (SZYMANSKI), 1886, A., 784.
- Methylpropylpyridine** (3:5-*dimethyl-2-ethylpyridine*) (WAGGE), 1881, A., 172; (DURKOFF and GÖTSCHE), 1890, A., 795, 1002.
- Methylpropylquinol** (FIALA), 1884, A., 1138.
- 5-2-Methylpropylquinone and its oxime**, 6-iodo- (KEHRMANN), 1889, A., 993.
- Methylpropylthiocarbamide** (HICHT), 1890, A., 476.
- Methylpropylthiocarbamilide** (BILLETTER and STROHL), 1888, A., 364.
- Methylprotocotoin** (CIAMICIAN and SILBER), 1892, A., 63.  
action of phosphoric chloride on (BARTOLOTTI), 1892, A., 1314.
- Methylpurin derivatives** of (FISCHER), 1884, A., 996.
- 3-Methylpyrazolone** (CURTIUS and JAY), 1889, A., 393.
- 2-Methylpyridine.** See  $\alpha$ -Picoline.

- 3-Methylpyridine. See  $\beta$ -Picoline.  
 4-Methylpyridine. See  $p$ -Picoline.  
 2-Methylpyridine 4-carboxylic acid ( *$\alpha$ -picoline-4-carboxylic acid*) (BOEFINGER), 1884, A., 758.  
 2-Methylpyridine-5-carboxylic acid (DURKOFF), 1885, A., 817.  
 4-Methylpyridine-2 carboxylic acid (BACHER), 1889, A., 163.  
 4-Methylpyridine-3-carboxylic acid (*homonicotinic acid*) (OLCHNER DE CONINCK), 1883, A., 739; 1885, A., 671.  
 3-Methylpyridine-dicarboxylic acid [COOH=5:6 or 2:5] (DURKOFF and SCHLAEGEL), 1888, A., 805; (DURKOFF and GOTTSCHE), 1890, A., 1002.  
 2-Methylpyridine-3:5-dicarboxylic acid (*methylidinicotinic acid*) (WEBER), 1887, A., 1117.  
 2-Methylpyridine-4:6 dicarboxylic acid (*uridine acid*) (AUFAR), 1887, A., 379.  
     formation of, from pyruvic acid (BOTTINGER), 1884, A., 759.  
 1-Methyl- $\alpha$ -pyridone (*cryst thiohydropyridin*) (v. PLCHMANN and BALZER), 1892, A., 209.  
 1-Methyl- $\gamma$ -pyridone and its derivatives (HALLINGER and LIEBEN), 1885, A., 966.  
 1-Methyl-4-pyridone-6-carboxylic acid, 2:3:5-trichloro- (ZINKE and FUCHS), 1892, A., 459.  
 Methylpyrocatechol (*homopyrocatechol*) (BEHAL and DUBOIS), 1892, A., 1312.  
     and its nitro-derivatives (COUSIN), 1892, A., 1413.  
 Methylpyromucic acid (HILL), 1889, A., 695; (HILL and HENDRIXSON), 1890, A., 601.  
 Methylpyrroldiazole (ANDREOTTI), 1892, A., 636.  
 1-Methylpyrrolidine (CIAMICIAN and MAGNAGHI), 1885, A., 1219.  
 2-Methylpyrrolidine (TAFEL), 1887, A., 463; (TAFEL and NUGLBAUER), 1889, A., 1015.  
 3-Methylpyrrolidine (TAFEL), 1887, A., 463; (OLDACH), 1887, A., 735.  
 2-Methylpyrrolidone (TAFEL), 1887, A., 463; 1889, A., 961.  
 2-Methylpyrrolidone-2-carbonitrile (KUEHLING), 1889, A., 1212.  
 2-Methylpyrrolidone-2 carboxylamide (KUEHLING), 1890, A., 793.  
 1-Methylpyrroline (CIAMICIAN and DENNSTEDT), 1885, A., 378.  
     action of nascent hydrogen on (CIAMICIAN and MAGNAGHI), 1885, A., 809.  
 1-Methylpyrroline, *trichloro-* (DE VARDIA), 1889, A., 57.  
 2-Methylpyrroline (DENNSTEDT and LEHNE), 1889, A., 1209.  
     action of acetic anhydride on (CIAMICIAN and SILBER), 1886, A., 719.  
     action of methyle iodide on (CIAMICIAN and ANDERLINI), 1889, A., 728.  
     action of phthalic anhydride on (DENNSTEDT and ZIMMERMANN), 1886, A., 1044.  
 3-Methylpyrroline (DENNSTEDT and LEHNE), 1889, A., 1209.  
     action of acetic anhydride on (CIAMICIAN and SILBER), 1886, A., 719; 1887, A., 843.  
     action of phthalic anhydride on (DENNSTEDT and ZIMMERMANN), 1886, A., 1044.  
 Methylpyrrolinebisazobenzene (FISCHER and HEPPE), 1886, A., 1041.  
 1-Methylpyrrolineketonedicarboxylic acid (ZANETTI), 1890, A., 1431.  
 Methylpyrrol methyl ketone [b.p. 201] ( *$\psi$  acetyl methyl pyrrolone*) (CIAMICIAN and DENNSTEDT), 1885, A., 578.  
 Methylpyrrol methyl ketone [b.p. 240] (CIAMICIAN and SILBER), 1886, A., 719.  
     3:4-dibromo- (CIAMICIAN and SILBER), 1888, A., 62.  
 2-Methylpyrrol styryl ketone (DENNSTEDT and LEHNE), 1889, A., 1209.  
 1-Methylpyrrolalloxan (CIAMICIAN and SILBER), 1886, A., 897.  
 Methylpyrrolcarbinol (DENNSTEDT and ZIMMERMANN), 1886, A., 1042.  
 1-Methylpyrrolglyoxylic acid (DE VARDIA), 1889, A., 57.  
     constitution of, and its *trichloro-* derivative (DE VARDIA), 1890, A., 389, 390.  
 Methylquercetin (HLERZIG), 1888, A., 1309.  
 Methylquinaldine. See Dimethylquinoline.  
 4'-Methylquinaldone. See 4'-Oxy-1'-2'-dimethylquinoline.  
 2'-Methylquinazoline (BENCHER), 1891, A., 745.  
 Methylquinidine (CIAMICIAN), 1892, A., 1250.  
 Methylquinine, preparation of (LIPPMANN), 1892, A., 222.  
 Methylquinol. See Toluquinol.  
 1-Methylquinoline (*o-toluquinoline*), derivatives of (HLERZIG), 1884, A., 1198, 1199.  
     4-amido- [m.p. 143] (NOBFIN and TRAUBMANN), 1891, A., 327; 1892, A., 723.

- 1-Methylquinoline (*o-toluquinoline*), 3-bromo-, and its derivatives (ALT), 1889, A., 1214.  
 4-chloro-, and some of its salts (GATTERMANN and KAISER), 1886, A., 79.  
 2':3':4'-trichloro- (RÜGHEIMER and HOFFMANN), 1886, A., 160.  
 iodo- (LA COSTE), 1885, A., 815.  
 2-nitro- (NÖLTING and TRAUTMANN), 1891, A., 327.  
 3-nitro- (LELLMANN and ZIEMSEN), 1891, A., 1257.  
 4-nitro- (NÖLTING and TRAUTMANN), 1892, A., 728.  
 2-Methylquinoline (*m-toluquinoline*) (MAGNANINI), 1890, A., 1322.  
 3-Methylquinoline (*p-toluquinoline*), derivatives of (HERZFELD), 1884, A., 1199.  
 amido- [m.p. 132°] (FOURNEAUX), 1885, A., 400.  
 1-amido- [m.p. 62°] (NÖLTING and TRAUTMANN), 1891, A., 327; 1892, A., 728.  
 4-amido- [m.p. 145°] (NÖLTING and TRAUTMANN), 1891, A., 325; 1892, A., 727.  
 2':3':4'-trichloro- (RÜGHEIMER and HOFFMANN), 1884, A., 1023.  
 preparation and derivatives of (RÜGHEIMER and HOFFMANN), 1886, A., 159.  
 4-chloro-1-amido- (NÖLTING and TRAUTMANN), 1891, A., 327; 1892, A., 728.  
 1-nitro- (FOURNEAUX), 1885, A., 400; (NÖLTING and TRAUTMANN), 1891, A., 327; 1892, A., 728.  
 4-nitro- (NÖLTING and TRAUTMANN), 1891, A., 325; 327; 1892, A., 727.  
 1'-Methylquinoline, 4'-bromo-4-nitro- (CLAUS and DECKER), 1889, A., 728.  
 2'-Methylquinoline (*quinoline*) (FISCHER and KRZEL), 1883, A., 588; (DOEBNER and v. MILLER), 1883, A., 602; (WALLACH and WURZEN), 1883, A., 1097; (ANON.), 1884, A., 756.  
 formation of (SCHULTZ), 1884, A., 1373.  
 synthesis of (v. MILLER), 1891, A., 1101; 1892, A., 1245.  
 preparation of (FRIEDLANDER and GÖHRING), 1883, A., 1148; (DREWSEN), 1883, A., 1149; (DOEBNER and v. MILLER), 1884, A., 183; (SCHULTZ), 1884, A., 337; (ANON.), 1884, A., 757; 1885, A., 106.  
 conversion of 2'-methylindole into (MAGNANINI), 1888, A., 957.  
 condensation of, with aldehydes (v. MILLER), 1887, A., 975.  
 2'-Methylquinoline (*quinoline*), condensation of *m*-nitrobenzaldehyde with (WARTMAN), 1891, A., 329.  
 condensation of, with *p*-nitrobenzaldehyde (BULACH), 1889, A., 527.  
 action of sulphur on (v. MILLER), 1888, A., 966.  
 combination of, with formamide (CLEVE), 1887, A., 381.  
 bases (DOEBNER and v. MILLER), 1884, A., 183, 1373.  
 bye-products of (DOEBNER and v. MILLER), 1886, A., 370.  
 derivatives of (ANON.), 1884, A., 756.  
 alkylic iodides (MÜLLER), 1888, A., 298.  
 homologues of (DOEBNER and v. MILLER), 1884, A., 1375.  
 methiodide (DOEBNER and v. MILLER), 1884, A., 181.  
 oxide (*methylquinolinium hydroxide*) (BERNTSEN and HENS), 1885, A., 559.  
 salts of (DOEBNER and v. MILLER), 1883, A., 602.  
 2'-Methylquinoline, 2-amido- (GERDESEN), 1889, A., 520.  
 derivatives of (DOEBNER and v. MILLER), 1884, A., 1373.  
 3'-amido- and 3':4'-diamido- and their hydrochlorides (CONRAD and LIMPACH), 1888, A., 1111.  
 bromo- (MAGNANINI), 1887, A., 1113; 1890, A., 1322.  
 3'-chloro- (KNORR and ANTRICK), 1885, A., 274; (MAGNANINI), 1887, A., 1113; 1890, A., 1322.  
 synthesis of (BRUCH and KOENIGS), 1892, A., 505.  
 4'-chloro- (CONRAD and LIMPACH), 1887, A., 680; (CONRAD and ECKHARDT), 1889, A., 520.  
 dichloro- (GNEHM), 1884, A., 1023.  
 trichloro- and 1'-chloro-3'-nitro- (CONRAD and LIMPACH), 1888, A., 1111.  
 1- and 2-nitro-, and their salts (DOEBNER and v. MILLER), 1884, A., 1373.  
 3':1'-nitramido- (CONRAD and LIMPACH), 1888, A., 1111.  
 thio- (ROOS), 1888, A., 500; (CONRAD and LIMPACH), 1888, A., 1109.  
 3'-Methylquinoline, preparation of (v. MILLER), 1891, A., 1095.  
 4'-Methylquinoline (*lepidine; cinchotryidine*) (KRAKAU), 1886, A., 162; (KNORR), 1887, A., 159.  
 synthesis of (BEYER), 1886, A., 630.  
 colouring matters from (HOOGWERFF and VAN DORT), 1885, A., 678.

- 4'-Methylquinoline (*lepidine*; *cincholepidine*), derivatives (HEYMAN and KOENIGS), 1888, A., 832.  
formation of, from quinine and cinchonine (KOENIGS), 1890, A., 1433.
- 4'-Methylquinoline, 2'-amido- (KLOPF), 1888, A., 1113; (EPHRAIM), 1892, A., 1488.  
3-amido- (BUSCH and KOENIGS), 1890, A., 1487.  
bromo- (MAGNANINI), 1887, A., 1113; 1890, A., 1322.  
2'-chloro- (KNORR), 1887, A., 159.  
3'-chloro- (MAGNANINI), 1887, A., 1113; 1890, A., 1322.  
1-nitro- (BUSCH and KOENIGS), 1890, A., 1435.  
2'-thio- (ROOS), 1888, A., 500.
- 2-Methylquinoline quinoneoximes (NOLTING and TRAUTMANN), 1891, A., 326; 1892, A., 727, 728, 729.  
2'-Methylisoquinoline (KKAUSS), 1891, A., 86.  
4'-Methylisoquinoline (LEBLANC), 1888, A., 1114.  
1:3'-dichloro- (GABRIEL), 1887, A., 1112.
- Methylquinolines (DOEBNER and V. MILLER), 1885, A., 1079.  
substituted in the pyridine-ring (RUGHEIMER and HOFFMANN), 1886, A., 159.  
oxidation of (V. MILLER), 1891, A., 1095.  
derivatives of (NOLTING and TRAUTMANN), 1892, A., 726.
- 2'-Methylquinoline-3-acrylic acid (V. MILLER and KINKELIN), 1886, A., 265.  
2'-Methylquinolineacrylic acids (*quin-aldineacrylic acids*) [m.p.s. 246° and 184°] (ECKHARDT), 1889, A., 521.  
2'-Methylquinoline-2-aldehyde (*quin-aldinaldehyde*) (ECKHARDT), 1889, A., 522.  
2'-Methylquinoline-3-aldehyde (V. MILLER and KINKELIN), 1886, A., 265.  
1-Methylquinoline-4-carboxylic acid (LELLMANN and ALF), 1887, A., 502.  
2'-Methylquinoline-1-, -2- and -3-carboxylic acids and their salts (DOEBNER and V. MILLER), 1884, A., 1200.  
2'-Methylquinoline-3'-carboxylic acid and its ethylic salt (FRIEDLANDER and GORRING), 1883, A., 1149.  
2'-Methylquinoline-4'-carboxylic acid (*anthurtonic acid*) and its derivatives (BOTTINGER), 1884, A., 320; (BEYER), 1886, A., 630.  
constitution of (KUSEL), 1886, A., 1027.
- 2'-Methylquinoline-1'-carboxylic acid (*anthurtonic acid*), oxidation of (BOTTINGER), 1891, A., 1092.  
3'-Methylquinoline-2'-carboxylic acid (DOEBNER and V. MILLER), 1884, A., 1376.  
2'-Methylquinoline-3:4'-dicarboxylic acid (V. MILLER), 1890, A., 1325.  
1-Methylquinoline-3-sulphonic acid (HERZFELD), 1884, A., 1198; (LELLMANN and ZIMMSEN), 1891, A., 1257.  
1-Methylquinoline-1-sulphonic acid (HERZFELD), 1884, A., 1199.  
3-Methylquinoline-1-sulphonic acid (FISCHER and WITTMANN), 1884, A., 1052; (HILZFELD), 1884, A., 1199.  
2'-Methylquinoline-1-sulphonic acid (DOEBNER and V. MILLER), 1884, A., 1373.  
preparation of (ANON.), 1885, A., 945.  
2-Methylquinoline-2-sulphonic acid, constitution of (RICHARD), 1891, A., 329.  
2'-Methylquinoline-2- or -4-sulphonic acid (DOEBNER and V. MILLER), 1884, A., 1373.  
2'-Methylquinoline-3-sulphonic acid (DOEBNER and V. MILLER), 1884, A., 1373.  
preparation of (ANON.), 1885, A., 945.  
2'-Methylquinoline-3'-sulphonic acid, preparation of (ANON.), 1885, A., 945.  
2'-Methylquinoline-4'-sulphonic acid (HERZFELD), 1884, A., 1199.  
4'-Methylquinoline-1(?)-sulphonic acid (WEINEL and HAZTRA), 1885, A., 562.  
4'-Methylquinoline-3-sulphonic acid (BUSCH and KOENIGS), 1890, A., 1434.  
Methylquinolinesulphonic acids, 1- and 3- (LELLMANN and ZIMMSEN), 1891, A., 1257.  
1'-Methyl-2'-quinolone, bromo- and 4-nitro- derivatives of (DICKLER), 1892, A., 879.  
2'-Methylquinolyl benzoate (CONRAD and LIMPACH), 1888, A., 1109.  
ethylic sulphide and mercaptan (ROOS), 1888, A., 501, 500.  
phenyl ketone (GLIXY and KOENIGS), 1885, A., 1236.  
4'-Methylquinolyl ethylic sulphide, mercaptan and disulphide (ROOS), 1888, A., 501, 500.  
2'-Methylquinolyl-3-ethylene-2'-quinoline (BLANCH), 1889, A., 528; (WARRANT), 1891, A., 330.
- Methylquinone. See Toluquinone.  
*p*-Methylquinophthalone (JACOBSEN and REIMER), 1884, A., 335.  
1-Methylquinoxaline (*toluquinocelline*) (HINSBERG), 1894, A., 1053.

- 2-Methylquinoxaline, derivatives of (NIEMENTOWSKI), 1889, A., 1065.
- 3-Methylquinoxaline-2':3'-dicarboxylic acid (HINSBERG), 1885, A., 910.
- Methylresorcinol. See Oicinol.
- Methylrosindone (FISCHER and HEPP), 1890, A., 909.
- Methylrosindulone (KEHRMANN and MESSINGER), 1891, A., 1213.
- "Methylsaccharin" (ANON.), 1890, A., 382; (RANDALL), 1891, A., 1223; (WEER), 1892, A., 1092.
- o-Methylsalicylamidoxime. See o-Methoxybenzenylamidoxime.
- Methylsalicylalcamphor. See o-Methoxybenzylidenecamphor.
- o-Methylsalicylaldehyde. See o-Methoxybenzaldehyde.
- Methylsaligenylcamphor (HALLER), 1891, A., 1499.
- Methylscopoletillie acid and methylscopoletin (TAKAHASHI), 1889, A., 256.
- Methylselenazole, amido- (HOFMANN), 1889, A., 726.
- $\alpha$ -Methyl-selenazylamine and -selenazylamine- $\beta$ -carboxylic acid (HOFMANN), 1889, A., 726, 727.
- Methylsemicarbazide (V. BRUNING), 1890, A., 23.
- Methylstilbazole. See Styrylmethylpyridine.
- Methylstilbazoline (*phenethylmethylpiperidine*) (BACHER), 1889, A., 103.
- p-Methylstilbene (ANSCHUTZ), 1885, A., 1065.
- chloro- (STUBBOROUGH), 1892, A., 1224.
- p-Methylstilbenedisulphone (OITO and DAMKOHLER), 1885, A., 263.
- Methylstrychnic acid (TAFEL), 1892, A., 1012.
- methiodide (TAFEL), 1891, A., 1263.
- Methylstrychnic acid methiodide (TAFEL), 1891, A., 1264.
- Methylstrychnine (TAFEL), 1890, A., 1147; 1891, A., 1263.
- isoMethylstrychnine (TAFEL), 1891, A., 1264.
- Methylstyrene. See Tolylacetylene.
- Methylsuccinamic dimethylamide (KORNER and MENOZZI), 1890, A., 870.
- Methylsuccinamide (*pyrotartaramide*) (HENRY), 1885, A., 866.
- Methylsuccinic acid (*hydroxytetrac acid*; *pyrotartaric acid*) (GORBOFF), 1888, A., 1179; (CLOEZ), 1890, A., 739; (BISCHOFF and V. KUELBERG), 1890, A., 742; (WALDEN), 1891, A., 1188.
- in suint (A. and P. BUTINNE), 1889, A., 178.
- Methylsuccinic acid (*hydroxytetrac acid*; *pyrotartaric acid*), formation of (BEILSTEIN and WIEGAND), 1884, A., 1123; (ERLENMEYER), 1885, A., 753.
- thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (MASSOL), 1892, A., 1140.
- heat of combustion of (LUGININ), 1889, A., 5.
- specific heat of (HESS), 1889, A., 93.
- action of ammoniacal silver solution and sulphuric acid on (BEILSTEIN and WIEGAND), 1884, A., 1123.
- action of aniline on (BOTTINGER), 1884, A., 1006.
- condensation of, with benzaldehyde (FITTIG and LIEBMANN), 1890, A., 775.
- condensation of, with cinnamaldehyde (FITTIG and RIECHELMANN), 1890, A., 593.
- condensation of, with salicylaldehyde (FITTIG and BROWN), 1890, A., 777.
- condensation of, with valeraldehyde (FITTIG and FEIST), 1890, A., 591.
- dibromo-, and its salts (CLAUS), 1883, A., 44.
- Methylsuccinic anhydride and chloride, magnetic rotatory power of (PERKIN), 1888, T., 564, 589.
- chloride (RJASANTZEFF), 1889, A., 1059.
- reduction of (HJELF), 1884, A., 297.
- Methylsuccinimide (BREIT and BOEDDINGHANS), 1889, A., 1061.
- Methylsuccinonitrile (HENRY), 1885, A., 616.
- Methylsulphydromethylthiazoline (HIRSCH), 1890, A., 860.
- Methylsulphone-o-amidobenzamide (FRANK), 1892, A., 335.
- Methylsulphonic acid. See Methanesulphonic acid.
- Methylsulphonylthiocarbamide, tri-chloro- (Mc GOWAN), 1887, T., 669.
- Methylsyngic acid (KORNER), 1889, A., 159.
- Methyltarconic acid (ROSER), 1888, A., 1116; 1890, A., 532.
- bromo- (ROSER), 1888, A., 1116.
- $\psi$ -Methyltarconic acid (ROSER), 1890, A., 532.
- $\beta$ -Methyl-taurine and -taurocarbamic acid (GABRIEL), 1890, A., 128.
- Methyltetrahydrocinchonine anhydride (WEIDEL and HAZURA), 1885, A., 561.
- Methyltetrahydrofurfuran (FREER and PERKIN), 1887, T., 836; A., 33; (LIPP), 1890, A., 20.

- 2'-Methyltetrahydro- $\beta$ -naphthaquinoline (BAMBERGER and MÜLLER), 1891, A., 1511.
- Methyltetrahydronicotinic acid (JAHNS), 1892, A., 740.
- " $\alpha$ -Methyltetrahydroperichinaldimidazole" (BAMBERGER and WULZ), 1891, A., 1256.
- $\alpha$ -Methyltetrahydrophenyl methyl ketone (KIPPING and PERKIN), 1889, P., 144.
- $\alpha$ -Methyltetrahydrophenylmethylcarbinol (KIPPING and PERKIN), 1889, P., 144.
- 1-Methyl- $\Delta^2$ -tetrahydropicoline (LIPP), 1892, A., 1243.
- 2-Methyl- $\Delta^2$ -tetrahydropyridine (LIPP), 1887, A., 277; 1892, A., 1243.
- Methyltetrahydropyridylacetylene (EICHENGRUN and EINHORN), 1891, A., 67.
- Methyltetrahydropyridylethylene,  $\omega$ -bromo- (EICHENGRUN and EINHORN), 1891, A., 66.
- Methyltetrahydropyridyl- $\beta$ -hydroxypropionic acid. See Ecgonine.
- 1-Methyltetrahydroquinoline, and 3-amido- (BAMBERGER and WULZ), 1891, A., 1253, 1254.
- 3-bromo- (ALT), 1889, A., 1214.
- 2'- and 3-Methyltetrahydroquinoline and 1-amido- (BAMBERGER and WULZ), 1891, A., 1254, 1255, 1256.
- 1'-Methyltetrahydroquinoline (*kairiline*) and its derivatives (HOFFMANN and KOENIGS), 1883, A., 1144; (FEER and KOENIGS), 1885, A., 1245.
- physiological properties of (FILEHNE), 1884, A., 474.
- 2'-Methyltetrahydroquinoline and its derivatives (DOEBNER and v. MILLER), 1884, A., 183; (MOLLER), 1888, A., 297.
- condensation of, with *p*-nitrobenzaldehyde (v. MILLER and FLÖCHL), 1891, A., 1102.
- 4'-Methyltetrahydroquinoline (KNORR and KLOTZ), 1887, A., 278.
- 1-Methyltetrahydroquinoline-3-azobenzenesulphonic acid (BAMBERGER and WULZ), 1891, A., 1254.
- 3-Methyltetrahydroquinoline-1-azobenzenesulphonic acid (BAMBERGER and WULZ), 1891, A., 1255.
- 1'-Methyltetrahydroquinoline 2-carboxylic acid (*kairiline-2-carboxylic acid*) (FISCHER and KÖRNER), 1884, A., 1197.
- 1-Methyltetrahydroquinoline-3-sulphonic acid (LELLMANN and ZIEMSEN), 1891, A., 1257.
- Methyltetrahydroquinolinesulphonic acids, 1- and 3- (LELLMANN and ZIEMSEN), 1891, A., 1257.
- $\beta$ -Methyltetramethylenediamine (OLDACH), 1887, A., 735.
- Methyltetramethylenic dibromide and action of sodium on (COLMAN and PERKIN), 1888, T., 190, 201.
- Methylthalline, and its salts (SKRAUP), 1886, A., 80.
- Methylthebain sulphate, physiological activity of (STOCKMAN and DUTT), 1891, A., 762.
- Methylthialdine (MARCKWALD), 1886, A., 1005.
- $\alpha$ -Methylthiazole (HANTZSCH and ARAPIDES), 1888, A., 573; (POPP), 1889, A., 725.
- $\mu$ -Methylthiazole (HANTZSCH), 1888, A., 574; 1889, A., 724.
- Methylthiazole, mesoamido-. See Thiocyanopropimine.
- $\alpha$ -Methylthiazole- $\beta$ -carboxylic acid, bromo-, chloro- and iodo- (WOHMANN), 1891, A., 226.
- $\mu$ -Methylthiazole- $\beta$ -carboxylic acid (RUBLEFF), 1891, A., 224.
- $\mu$ -Methylthiazoleedicarboxylic acid (RUBLEFF), 1891, A., 224.
- Methylthiazolehydroxamic oxide (ZURCHER), 1889, A., 725.
- meso-Methylthiazoline (GABRIEL), 1891, A., 817.
- n*-Methylthiazoline,  $\mu$ -imido- (NÄF), 1891, A., 1515.
- n*-Methylthiazolinehydrazine (NÄF), 1891, A., 1516.
- Methylthiazylacetic acid (STEUDE), 1891, A., 743.
- Methylthiazylamine and  $\alpha$ -methylthiazylaniline (TRAUTMANN), 1889, A., 414, 415.
- 2-5-Methylthienyl methyl ketone (*methylacetothienone*) and its derivatives (DEMUTH), 1886, A., 228, 871.
- nitro- and hydroxylamine-derivatives (DEMUTH), 1886, A., 228.
- Methylthienylglyoxylic acids, *aa*- and *ab*- (RUFF), 1887, A., 804.
- $\alpha$ -Methyl-mono- and *di*-thiobiurets (HECHT), 1892, A., 703.
- Methylthiocarbamide, polymeric (v. HOFMANN), 1892, A., 793.
- Methylthiocarbamide-allylic and -benzylic cyanides (HECHT), 1890, A., 1104.
- Methylthiocarbamide-methyllic and -propylic cyanides (HECHT), 1890, A., 1103.
- Methylthiocarbimide, compound of, with aldehydeammonia (DIXON), 1892, T., 517.

- $\alpha$ -Methylthiocoumarin** (ALDRINGEN), 1892, A., 329.
- Methylthioformaldine** (WOHL), 1887, A., 27.
- Methylthiohydantoin** (ANDREASCH), 1886, A., 227; (MARCKWALD, NETMARK and STELZNER), 1892, A., 151.
- oxime of (ANDREASCH), 1886, A., 227.
- Methylthiophen, thio-** (*thienyl methyl thioether*). See Methoxythiophen, thio-.
- $\alpha$ -Methylthiophen (*thiotoluen*)** (MEYER), 1884, A., 586; 1885, A., 887; (MEYER and KREIS), 1884, A., 1132; (EGLI), 1885, A., 766; (KUES and PAAL), 1886, A., 537.
- mercuric chloride (VOLHARD), 1892, A., 829.
- di*bromo- (MEYER), 1884, A., 586; (MEYER and KREIS), 1884, A., 1132.
- tri*bromo- [m.p. 74°] (MEYER and KREIS), 1884, A., 1132.
- oxidation of (CIAMICIAN and ANGELI), 1892, A., 302.
- $\beta$ -Methylthiophen** (MEYER and KREIS), 1884, A., 1131; (EGLI), 1885, A., 766.
- method of obtaining (SCHULZE), 1885, A., 251.
- synthesis of (VOLHARD and ERDMANN), 1895, A., 763.
- mercuric chloride (VOLHARD), 1892, A., 829.
- di*bromo- (GERLACH), 1892, A., 830.
- tri*bromo- [m.p. 34°] (ERDMANN and VOLHARD), 1885, A., 763.
- oxidation of (CIAMICIAN and ANGELI), 1892, A., 302.
- γ-tri*bromo-, action of nitric acid on (MÜHLERT), 1896, A., 229.
- Methylthiophensynaldoxime** (GOLD-SCHMIDT and ZANOLI), 1892, A., 1435.
- 2-Methylthiophen-5-carboxylic acid** ( *$\beta$ -thiotolonic acid*) (LEVI), 1886, A., 539.
- and its silver salt (PAAL), 1885, A., 1206.
- 3-Methylthiophen-5-carboxylic acid** (ZELINKY), 1887, A., 921.
- 4-Methylthiophen-5-carboxylic acid** ( *$\gamma$ -thiotolonic acid*) (DEMUIN), 1886, A., 538; (LEVI), 1886, A., 540; (GERLACH), 1892, A., 830.
- $\beta$ -Methylthiophensulphonic acid** and its salts (MÜHLERT), 1886, A., 787.
- Methylthiothalimidine** (DAY and GABRIEL), 1890, A., 1250.
- Methylthiosinamine**. See thiocarbamide.
- 1-Methylthymol, 6-bromo-** (M.), 1890, A., 366.
- Methyl-*p*-thymolcarboxylic acid** (BEK), 1884, A., 56.
- Methyl-*p*-thymotic aldehyde** (KO), 1884, A., 56.
- Methyltolindole-**. See Dimethylindole.
- Methyl- $\psi$ -o-tolisatin** (HEGEL), 1886, A., 552.
- Methyltolualloxazine** (KÜHLING), 1892, A., 70.
- Methyl-o-toluidine**, preparation of, and of its acetyl-derivative (REINHARDT and STAEDL), 1883, A., 578.
- 5-nitroso- (KOCK), 1888, A., 469.
- Methyl-*p*-toluidine** (BAMBERGER and WULZ), 1891, A., 1202.
- action of diazotised *p*-brom- and *p*-chlor-anilines on (MELDOLA and STREATFIELD), 1889, T., 432, 436.
- derivatives of (GATTERMANN), 1885, A., 975.
- Methyl-*p*-toluidine, o-amido-**. See also Tolylenemethylidamine.
- tri*nitro- (NORTON and LIVERMORE), 1887, A., 1038.
- Methyl-*p*-toluidine-o-azobenzenesulphonic acid** (BAMBERGER and WULZ), 1891, A., 1203.
- Methyltoluquinoline**. See Dimethylquinoline.
- Methyltoluquinoxaline**. See Dimethylquinoxaline.
- Methyltriacetonine**, and its derivatives (FISCHER), 1884, A., 1290.
- $\alpha$ -Methyltricarballic acid** (AUWERS), 1891, A., 546.
- Methyltricarballic acids,  $\alpha$ - and  $\beta$ -** (AUWERS, KOBNER and V. N.-BURG), 1892, A., 41, 42.
- Methyltridecylacetylene** (*hexad*) (KRAFFT and REUTER), 1891, A., 1163.
- Methyltriethylammonium** hydroxide, action of (LIE and SCHRYVER), 779.
- pent*- and *hept*-iodides 1887, A., 910.
- Methyltriethylphosphonium** action of heat on (COLLIE), 719.
- Methyltriphenylic bromide**. phenylcarbiny bromide.
- Methyltriphenylmethanecar acid** (*diphenyltolylmethanecar acid*) [m.p. 203°] (V. HEMIL), A., 266.

- Methyltriphenylmethylaniline.** See Triphenylcarbinylmethylaniline.
- Methyltriphenyl-.** See also Diphenyltolyl-, Triphenylcarbinyl- and Triphenylmethyl-.
- $\alpha$ -Methyltropidine and its derivatives** (RUTH), 1884, A., 761; (MERLING), 1892, A., 358.
- $\beta$ -Methyltropidine** (MERLING), 1892, A., 359.
- Methyltropine**, decomposition of, by potash (LADENBURG), 1883, A., 672.
- Methylumbelliferone**, derivatives of (ALDRINGEN), 1892, A., 330.
- $\beta$ -Methylumbelliferone and its derivatives** (v. PECHMANN and DUISBERG), 1884, A., 66; (v. PECHMANN and COHEN), 1884, A., 1331.
- d*-Bromide, methyl ether** (v. PECHMANN and COHEN), 1884, A., 1332.
- nitro- and amido-derivatives of** (v. PECHMANN and COHEN), 1884, A., 1332.
- $\beta$ -Methylumbelliferonecarboxylic acid** (MICHAEL), 1888, A., 956; (BURTON and v. PECHMANN), 1891, A., 672.
- Methylundecylacetylene** (*tetradecyne*) (KRAFFT and REUTER), 1892, A., 1164.
- Methyluracil** (*dioxyethyl-m-diazine*), alkyl derivatives of (BEHREND; HOFFMANN), 1890, A., 31.
- d*-Iodide** (HOFFMANN), 1890, A., 32.
- diazo-derivatives of** (BEHREND), 1888, A., 809.
- amido- and bromo-** (BEHREND), 1886, A., 338.
- imido-, and its derivatives** (JAEGER), 1891, A., 1007.
- nitro-** (BEHREND), 1887, A., 919; (LEHMANN), 1890, A., 32.
- nitro-derivatives of** (KÖHLER), 1887, A., 128.
- thio-** (LIST), 1887, A., 128.
- Methyluracilacetic acid, thio-** (LIST), 1887, A., 128.
- Methyluramidobenzoic acid** (GRIESE), 1885, A., 1226.
- m*-Methyl-o-uramidobenzoyl** (BIZZARRI), 1892, A., 343.
- Methylurethane** (*methylic carbamate*) (FRANCHIMONT and KLOBBE), 1889, A., 492.
- Methyluric acid, artificial** (HORBACZEWSKI), 1885, A., 1050.
- Methyluric acids** (FISCHER), 1884, A., 996, 1308.
- Methyluric acid** (DIETZEL), 1889, A., 594.
- $\alpha$ -Methylvalerolactone from isosaccharin** (KILIANI), 1885, A., 744.
- Methylvalerolactones,  $\alpha$ - and  $\beta$ -** (*hexo-lactone*) (GOTTSTEIN), 1883, A., 454.
- Methylvalerylacetylene**, formation of hexylacetylene from (BLHAL), 1889, A., 950.
- Methylisovaleryl-*d*-ecgonine** (DECKERS and EINHORN), 1891, A., 475.
- Methyl-violet.** See Colouring matters.
- Methylxanthine**, synthesis of (GAUTIER), 1885, A., 275.
- Methylxanthone** (WEBER), 1892, A., 1092.
- See also Methyl-diphenylene ketone oxide.
- Methyl-o-xylylidine** (MILNION), 1891, A., 1204.
- 6-nitroso-** (FISCHER and HILPP), 1890, A., 913; (MEXION), 1891, A., 1204.
- Methyl-*p*-xylylidine and *p*-nitroso-** (PELUG), 1890, A., 606, 607.
- Methysticin** (DAVIDOFF), 1888, A., 1207; (POMERANZ), 1889, A., 278; 1890, A., 257.
- Methysticinic acid and methysticol** (POMERANZ), 1890, A., 257.
- Metinulin** (HÖNIG and SCHUBERT), 1888, A., 247.
- Mexican amalgamation process**, reactions of (HUNTINGTON), 1883, A., 134.
- Miargyrite**, artificial production of (DOBLTER), 1886, A., 209.
- crystalline form of** (LEWIS), 1885, A., 1116.
- from Pyibram** (RUMPFF), 1883, A., 428.
- Mica, green, from Brazil** (GORCEIX), 1884, A., 408.
- from the Ural Mountains** (DAMOUR), 1883, A., 1066.
- Micas** (CLARKE), 1888, A., 117; 1890, A., 460.
- from Branchville** (RAMMELSBERG), 1886, A., 129.
- iron-lithia, of Cape Ann, Massachusetts** (CLARKE), 1887, A., 348.
- from Haddam, Connecticut** (SCHLAEPFER), 1891, A., 531.
- from Leon Co., Texas** (LEIGHTON), 1887, A., 119.
- from the Rheinwaldhorn, Graubünden** (WÜLFING), 1886, A., 991.
- from Salm-Château, Belgium** (KLEMENT), 1891, A., 528.
- of the pegmatite-granite of Schüttenhofen** (SCHARIZER), 1888, A., 432.
- from Weiler, near Weissenberg, analysis of** (LINCK), 1886, A., 212.
- from Zinnwald** (SCHLAEPFER), 1891, A., 531.

**Micas**, artificial formation of (HAUTEFVILLE and PEAN DE SAINT-GILLES), 1887, A., 561; (DOELTER), 1888, A., 1045; 1889, A., 25.  
 composition of (SCHLADPFER), 1891, A., 530.  
 constitution of (CLARKE and SCHNEIDER), 1892, A., 125.  
 boric acid in (V. SANDBERGER), 1885, A., 643.  
 electrolytic behaviour of, at high temperatures (SCHULTZE), 1889, A., 664.  
 action of solutions of alkalis, alkaline earths and certain salts on (C. and G. FRIEDEL), 1890, A., 1080.  
 action of water on (JOHNSTONE), 1892, A., 573.  
 analyses of (BECKER), 1890, A., 220.  
 See also Biotite, Lepidolite, Lepidomelane, Muscovite and Phlogopite.  
**Mica-diorites** of Christianberg, Bohemia, minerals from (STARCK), 1886, A., 32.  
 near Tryberg in the Black Forest (WILLIAMS), 1883, A., 724.  
 of Southern Thuringia and the Frankenwald (POHLMANN), 1884, A., 1273.  
**Mica-syenite porphyry**, near Tryberg in the Black Forest (WILLIAMS), 1883, A., 724.  
**Michel-levyite**. See Barytes.  
**Microbes** in the air at great heights (GIACOSA), 1884, A., 225.  
 in soil (KOH and MIQUEL), 1884, A., 486; (WOLLNY), 1885, A., 426; (WARINGTON), 1886, P., 267; 1887, T., 118.  
 silicic acid, as a culture medium for (KÜHN), 1890, A., 1338.  
 biological and chemical properties of (V. POEHL), 1886, A., 731.  
 zymotic properties of (ARLOING), 1886, A., 170.  
 chemical changes in their relation to (FRANKLAND), 1885, T., 159; P., 9.  
 vitality of germs of (DUCLATX), 1885, A., 417.  
 removal of, from water (FRANKLAND), 1886, A., 573.  
 influence of calomel on the life of (WASSILIEFF), 1883, A., 743.  
 action of, on certain colouring matters (RAULIN), 1889, A., 67.  
 from the mouth and from feces, action of, on food stuffs (VIGNAL), 1887, A., 1059.  
 action of gases on the development of (FRANKLAND), 1889, A., 738.  
 action of, on milk (WARINGTON), 1888, T., 734.

**Microbes**, specific, action of, on nitric acid (FRANKLAND), 1888, T., 373; P., 23.  
 action of oxygen on the activity of (HOPPE-SEYLER), 1884, A., 1399.  
 behaviour of, in artificial mineral waters (SOHNKE), 1887, A., 393.  
 chemical action of some (WARINGTON), 1888, T., 727; P., 69.  
 reducing power of (DE BLASI and TRAVALI), 1890, A., 1453; (LEONE), 1891, A., 102.  
 reduction of nitrates by (GAYON and DUPETIT), 1886, A., 823; (LEONE), 1890, A., 1453.  
 secretions of (ARNAUD and CHARRIN), 1891, A., 1132, 1394.  
 and proteolytic digestion (HARRIS and TOOTH), 1889, A., 64.  
 in the air, quantitative estimation of (HESSE), 1885, A., 611.  
 denitrific. in soils (GAYON), 1883, A., 679.  
 in straw (BRÉAL), 1892, A., 1259.  
 of indigo fermentation (ALVAREZ), 1887, A., 1061.  
 nitric and nitrous (MUNRO), 1886, T., 679; (MILES), 1887, A., 1134; (WINOGRADSKY), 1890, A., 1180; 1891, A., 1545; (WARINGTON), 1891, T., 495.  
 which produce zymases, observations concerning (BÉCHAMP), 1885, A., 580.  
 See also Bacillus, Bacterium, Fermentation, Ferments, Micrococcus, Saccharomyces.  
**Microclase**. See Felspar, triclinic potash-soda.  
**Microcline** (BEUTELL), 1885, A., 31.  
 from Königshain, Oberlausitz (WOLFSCHACH), 1883, A., 446.  
 from spodumene (BRUSH and DANA), 1883, A., 439.  
**Micrococcus acidilactici** (NENCKI and SIEBER), 1890, A., 79.  
**Micrococcus cereus**, a nitrifying agent (CELLI and MARINO-ZUCO), 1887, A., 858.  
**Micrococcus gelatinosus** (WARINGTON), 1888, T., 731.  
**Microcosmic salt** (sodium ammonium hydrogen phosphate), action of, on various oxides (WALLROTH), 1883, A., 850.  
**Microlite** (HINTZE), 1885, A., 732.  
 from Forst, Tyrol (OEBBEKE), 1886, A., 518.  
**Microphone**, superiority of carbon over metals in (BIDWELL), 1883, A., 842.  
**Micro-organism**. See Microbes.

- Microscopic objects**, influence of the composition of the glass of slides and cover glasses on the durability of (WEBER), 1892, A., 1276.
- Microzymæ** the cause of the decomposition of hydrogen peroxide by animal tissues (BÉCHAMP), 1883, A., 108.
- origin of vibrioles and, in air, water, soil, etc (BÉCHAMP), 1885, A., 417.
- Milarite** (RINNE), 1885, A., 1187; (TREADWELL), 1892, A., 1056.
- Mildew** in vines. See Agricultural Chemistry.
- Milk**, elephant's (DOREMUS), 1891, A., 98.
- fossil (STORCH), 1888, A., 1223.
- human, albuminoids of (BIENERT), 1885, A., 922; 1887, A., 388.
- zymase of (BÉCHAMP), 1883, A., 926.
- composition and method of analysis of (LEEDS), 1885, A., 282.
- is alcohol eliminated with (KLINGEMANN), 1892, A., 365.
- analyses of (V. STRUYE), 1884, A., 1896; (SZILASI), 1892, A., 517.
- separation of casein from albumin in (HOPPE-SEYLER), 1885, A., 845.
- of the porpoise, composition of (PURDIE), 1885, A., 1253.
- of the bottle-nosed whale (FRANKLAND and HAMBLI), 1890, A., 812.
- See also Agricultural Chemistry.
- Milk of lime**. See Calcium hydroxide.
- Milk-sugar** and its derivatives. See Lactose under Carbohydrates.
- Millerite**, occurrence of, in St. Louis (LEONHARD), 1886, A., 125.
- Millet**, analysis of (VOELCKER), 1884, A., 630.
- Millet oil** and its decomposition products (KASSNER), 1888, A., 673.
- Milletia atropurpurea**, poisonous glucoside from (GRESHOFF), 1891, A., 335.
- Mimetite** (*mimetisite*) containing lime from Puy-de-Dôme, analysis of (DAMOUR), 1886, A., 210.
- colourless, from the Richmond Mine, Nevada (MASSIE), 1883, A., 163.
- preparation of (MICHEL), 1889, A., 21.
- pseudomorphous, after anglesite (GENTH), 1888, A., 563.
- Mimetites**, bromo- (DITTE), 1883, A., 783.
- Mineral** from Krems in Austria (DRASCHE), 1888, A., 233.
- from Val Godemas (LODIN), 1885, A., 230.
- allied to orthite, analysis of (SEAMON), 1883, A., 164.
- Minerals**, in Amelia Co., Virginia (FONTAINE), 1883, A., 959.
- from America (CLARKE and CHATARD), 1885, A., 492.
- from Berks Co., Pa. (BRUNNER and SMITH) 1884, A., 663.
- Bohemian (ERBEN), 1887, A., 644.
- from Brazil (KENNIGOTI), 1884, A., 564.
- in Britain (HEDDLE), 1886, A., 432.
- from Carinthia (BRUNLECHNER), 1888, A., 233.
- from the mica-diorite of Christianberg, Bohemia (STARKL), 1886, A., 32.
- from Colorado (CROSS and HILLEBRAND), 1883, A., 164, 956, 1065; 1884, A., 21; (HILLEBRAND), 1884, A., 826; 1885, A., 878.
- from Corsica (RUPPLECHT), 1891, A., 1440.
- from the Douglass salt mine (OCHSENTHAL), 1889, A., 338.
- from the French Creek mines (EYERMAN), 1890, A., 113.
- from Fritz Island, Pennsylvania (SADLER), 1883, A., 441.
- Hungarian (LOCZKA), 1892, A., 1054.
- Italian, chemical and microscopical researches on (COSSA), 1883, A., 446.
- chemico-mineralogical studies on (FUNARO and BUSATTI), 1884, A., 270.
- Japanese (WADA), 1885, A., 221.
- found in the granite hills of Königshain, in Oberlausitz (WOITSCHACH), 1883, A., 446.
- from Leadhills (COLLIE), 1888, P., 121; 1889, T., 91.
- from Lehigh Co. (SMITH), 1884, A., 661.
- from the chrome iron ore deposit of Maryland (GILL), 1892, A., 1057.
- found near Massa in the Apuanian Alps (D'ACHARDI), 1883, A., 428.
- of the Miage Glacier, M. Blanc (BRUN), 1883, A., 31.
- of the pegmatite vein at Moss (BRÜGGER), 1886, A., 27.
- North Carolina (HIDDEN), 1883, A., 163, 1063.
- Norwegian, two (BROGGER), 1886, A., 34.
- from Oberwiesenthal (SAUER), 1886, A., 601.
- from the metamorphic rocks of Ouro Preto, Brazil (GOMCEIX), 1885, A., 30.
- of the Pacific coast (LINDGREN), 1889, A., 472.

**Minerals from the environs of Pontigband** (GONNARD), 1885, A., 220.  
 of Port Henry, New York (KEMP), 1891, A., 158.  
 from the eruptive rocks of the cretaceous formations of Silesia and Moravia (ROHRBACH), 1886, A., 928.  
 from Upper Silesia (KOMMANN), 1883, A., 955.  
 from the Sjö Mine, Sweden (IGELSTRÖM), 1887, A., 902.  
 in the sodalite syncrite of South Greenland (LORENZEN), 1883, A., 960.  
 of the syenite-pegmatite veins of the South Norwegian augite and nepheline-syenites (BROGGER), 1890, A., 1077.  
 from Switzerland (SELIGMANN), 1886, A., 126.  
 Transylvanian, analyses of (KOCH), 1885, A., 735.  
 from Tuscany (BESATTI), 1887, A., 19.  
 from the Tyrol (v. ZEPHAROVICH), 1884, A., 1098; (CATHREIN), 1889, A., 23; (v. FOULLON), 1890, A., 339.  
 of Vester-Silfberg (WEIBULL), 1886, A., 33.  
 from Vesuvius (SCACCHI), 1887, A., 17.  
 from Vulture and Melfi (RICCIARDI), 1887, A., 1087.  
 of the oolitic iron ore of the Windgallen (SCHMIDT), 1886, A., 780.  
 natural classification of (HUNT), 1892, A., 415.  
 ill-determined (HENDLE), 1886, A., 130.  
 isomorphous, which are not chemically analogous (RAMMELBERG), 1884, A., 1096.  
 from a chromite deposit (ARZRUINI), 1885, A., 31.  
 of the cryolite-group (BRANDL), 1883, A., 29.  
 of the cryolite group recently found in Colorado (CROSS and HILLEBRAND), 1891, A., 21.  
 of the cryolite-group from Greenland (KRENNER), 1885, A., 27.  
 iron, manganese, and zinc, origin of, in the older limestones of the secondary series (DIETLAFAIT), 1885, A., 644.  
 influence of fluorine in the synthesis of (MEUNIER), 1891, A., 21.  
 the double refraction of, determination of (MICHEL-LÉVY), 1885, A., 621.  
 phosphorescence of, under the influence of light and heat (BECQUEREL), 1891, A., 776.

**Minerals, thermoelectric properties of** (HANKEL), 1883, A., 540.  
 specific gravity of (GISEVIUS), 1883, A., 1031.  
 melting point of, determination of (JOLY), 1892, A., 414.  
 coefficient of cubic dilatation of, determination of (THOULET), 1885, A., 218.  
 solubility of (DOELTER), 1890, A., 1070.  
 solubility of, in sea water (THOULET), 1889, A., 682.  
 absolute hardness of (PFAFF), 1886, A., 20.  
 action of fused magmas on (DOELTER and HUSSAK), 1884, A., 401.  
 subsequent alteration of, by the action of water (KLOOS), 1884, A., 1273.  
 grinding mill for (ZULKOWSKI), 1888, A., 85.  
 analysis of (BAYLEY), 1886, T., 735; P., 228.  
 analysis, microscopic, of (BEHRENS), 1886, A., 917.  
 application of citric acid to the examination of (BOLTON), 1883, A., 857.  
 detection of antimony in (JOHNSTONE), 1889, A., 444.  
 detection of minute quantities of iron in (JOHNSTONE), 1889, A., 797.  
 detection of mercury in (JOHNSTONE), 1889, A., 797.  
 estimation of graphite in (MACKINTOSH), 1885, A., 689.  
 estimation of water in (CHATARD), 1891, A., 766.  
 separation, mechanical, of (v. PEBAL), 1883, A., 158; (GOLD-SCHMIDT), 1893, A., 159; (BUTTENBACH), 1883, A., 858; (GISEVIUS), 1883, A., 1031.  
 solution suitable for the separation of (ROHRBACH), 1884, A., 145.  
**Mineral acids.** See Acids.  
**Mineral-analysis,** microchemical (STRENG), 1885, A., 294; (BEHRENS), 1891, A., 766.  
**Mineral-condensation,** coefficient of, in chemistry (HUNT), 1891, A., 258.  
**Mineral-fuel.** See Coal and Fuel.  
**Mineralogical-chemical theories** (GOLD-SCHMIDT), 1890, A., 219.  
**Mineralogical notes** (v. ZEPHAROVICH), 1885, A., 641; (PRIMICIS), 1885, A., 733; (RAFFELT), 1886, A., 31; (GENTH), 1887, A., 342; (FLINK), 1888, A., 232; (KUNZ), 1889, A., 24; (v. NORDENSKIÖLD), 1889, A., 220; (PENFIELD and SPERRY), 1889, A., 356; (HILLEBRAND), 1891, A., 1435.

- Mineralogical-studies**, synthetical (DOELLER and HUSSAK), 1884, A., 565.
- Mineral oils**. See Petroleum.
- Mineral-spring and water**. See Water.
- Mineral-veins** (v. SANDBERGER), 1888, A., 237.
- Mineral-wax** (DOLLFUS and MEUNIER), 1888, A., 115.  
See also Ozokerite.
- Mineral-white**, a, process for preparing (COBLEY), 1884, A., 136.
- Minette**, presence of phosphorus in (ANON.), 1894, A., 412.
- Minium**, native, in Idaho (BLAKE), 1884, A., 563.  
from Leadville (HAWKINS), 1890, A., 570.  
See also Triplumbic nitroxide under Lead.
- Minjak-Lagam balsam**, constituents of (HAUSNER), 1884, A., 351.
- Mirabilite** (*Glauber's salt*) from Arizona (BLAKE), 1890, A., 572.  
from the potash mines at Kalusz (ZALOZIECKI), 1892, A., 1256.  
See also Sodium sulphate.
- Mirror amalgam**, composition of (HARRISON), 1887, A., 447.
- Mirrors**, magic (AYRTON and PERRY), 1887, A., 327.  
silvering of (HERZOG), 1885, A., 1020.
- Mispickel** (*arsenical pyrites*) (v. SANDBERGER), 1890, A., 454.  
from Auerbach (MAGEL), 1884, A., 1100.  
from Bolivia (ARZRUNI), 1886, A., 514.  
from Hüttenberg (McCAY), 1884, A., 1099.  
Hungarian (LOCZKA), 1886, A., 514.  
radiated, from Orawitza (McCAY), 1884, A., 1099.  
from Queropulca, in Peru (McCAY), 1884, A., 1100.  
from Servia (SCHMIDT), 1889, A., 21; (LOCZKA), 1889, A., 215.  
from Wunsiedel (OEBBEKE), 1890, A., 711.  
constitution of (LOCZKA), 1889, A., 216.  
relations between the crystalline form and chemical composition of (ARZRUNI and BAERWALD), 1881, A., 404.
- Mixed derivatives**, volatility of (HENRY), 1886, A., 135.
- Mixite** from Utah (HILLEBRAND and WASHINGTON), 1888, A., 1044.
- Mixture**, thermal and volume changes attending (GUTHRIE), 1885, A., 339.
- Mixtures**, crystallisation of (LEHMANN), 1888, A., 342.
- Mixtures**, melting points of (MIGLIATI), 1892, A., 1139.  
liquid and gaseous, volumes of (WANKLYN and COOPER), 1891, A., 1412; (WANKLYN, JOHNSTONE and COOPER), 1892, A., 264; (WANKLYN), 1892, A., 935.  
See also Gaseous mixtures.
- Mochylic alcohol** (DIVERS and KAWAKITA), 1888, T., 274; P., 13.
- "Mokuyiki"** (YOSHIDA), 1883, T., 473.
- Molasses**, purification of (GUNDERMANN), 1883, A., 835; (HANS), 1885, A., 103.  
refining of, by means of concentrated acetic acid (WIRNIGKE), 1884, A., 790.  
lactic acid in (BEYERLIN, PARVE and TOLLEN), 1890, A., 583.  
preparation of raffinose from (TOLLEN), 1885, A., 368; (LINDEI), 1890, A., 732; (GUNNING), 1892, A., 422.  
preparation of sugar from (v. LIPPMANN), 1885, A., 102; (ANON.), 1885, A., 103; (DAIK and POSSOZ), 1885, A., 943; (STERNBERG; HEYER), 1886, A., 403.  
production of sugar from, by Steffen's and Scheibler's processes (ANON.), 1884, A., 1236.  
recovery of sugar from, by means of lime (ANON.), 1884, A., 939.  
separation of sugar from (DEGENER), 1884, A., 1447.  
strontia process for the separation of sugar from (SCHEIBLER), 1883, A., 252, 536; 1884, A., 133.  
analysis of (BABINGTON), 1892, A., 388.  
testing for dextrin-syrup (WOLFF), 1883, A., 624.  
estimation of sugar in (HERLES), 1889, A., 191.  
estimation of invert-sugar in (STRIEGLEN), 1891, A., 769.  
beet, occurrence of leucine and tyrosine in (v. LIPPMANN), 1885, A., 245.
- Molecular action**, radius of (RUCKER), 1888, T., 226; P., 7.  
simple modification of Raoult's method of determining (HOLLEMAN), 1888, A., 552.  
changes in metals as shown by their electrical conductivity (LE CHATELIER), 1891, A., 1308.  
compounds, constitution of (PICKERING), 1883, T., 182.  
behaviour of, on solution (BODLÄNDER), 1892, A., 1154.

**Molecular** conductivity (OSTWALD), 1886, A., 294.  
 of acids in dilute solutions (ARRHENIUS, 1887, A., 415; (BORTY), 1887, A., 758; HARRIS, 1891, A., 1308.  
 of fuming nitric acid (BORTY), 1888, A., 545.  
 forces. See Forces.  
 heat. See Thermochemistry.  
 refraction and dispersion. See Photochemistry.  
 rotation. See Photochemistry.  
 theory of a substance formed from two different components (VAN DER WAALS), 1890, A., 556.  
 transformations (BORTY), 1883, A., 1113.  
 and atomic union, can Raoult's method distinguish between? (ANSCHUTZ), 1890, A., 105.  
 volumes. See Volumes, molecular.  
 weight. See Weight, molecular.  
**Molecules**, relation of diameters of (SCHALL), 1885, A., 1182.  
 determination of the size of (EXNER), 1885, A., 951.  
 combinations of, with atoms (TRAUBE), 1886, A., 661.  
 enveloping and secondary (LANGLOIS), 1887, A., 419.  
 homogeneous, attraction of (SCHALL), 1885, A., 111.  
 organic, stereochemical models of (EILAND), 1892, A., 679.  
 of organic compounds, arrangement of the atoms in space in the (MICHAEL), 1888, A., 1147.  
 of salts, determination of the size of, from the electrical conductivity of their solutions (JÄGER), 1888, A., 217; (WAIKEN), 1888, A., 891, 1008.  
*Molinia caerulea* from Königsberg, near Rahl, analysis of (HARTENSAHN), 1890, A., 658.  
**Molisch's reactions**, applications of (COLANTINI), 1891, A., 128.  
**Molluscs**, glycogen in the connective tissues of (BLUNDSTONE), 1886, A., 569.  
 nitric acid in (MAMMANN), 1886, A., 1056.  
**Molybdenite**, artificial preparation of (DE SCHULLEN), 1891, A., 20.  
 twin crystals of (HINDEN), 1887, A., 116.  
 analysis of (JANNACH and WASOWICZ), 1892, A., 657.  
 See also Molybdenum sulphide.  
**Molybdenum**, proportion of, in scheelite (TRAUBE), 1891, A., 406.

**Molybdenum**, action of nitric acid on (MONTEMARINI), 1892, A., 1403.  
 solutions, electrolysis of (SMITH and HOSKINSON), 1886, A., 102.  
 residues, treatment of (VENATOR), 1886, A., 124.  
 compounds, reduction of (V. DER PFORDTEN), 1888, A., 122; 1884, A., 559.  
 derivatives, reactions of (BAERWALD), 1886, A., 17.  
 fluoroxy-compounds of (MAURO), 1890, A., 702; (PICCOLI), 1892, A., 784.  
 oxygen compound of (PÉCHARD), 1891, A., 988.  
 lower oxides of (MUTHMANN), 1887, A., 553.  
*trioxide (molybdic anhydride)*, colour reactions of (LÉVY), 1887, A., 305.  
 fluorammonium derivatives of (MAURO), 1889, A., 106.  
**Molybdic acid**, colloidal, molecular weight of (SABANÉEFF), 1890, A., 1215.  
 colloidal solutions of (PICKTON and LINDER), 1892, T., 155.  
 action of hydrogen peroxide on (CAMMERER), 1892, A., 944.  
 compounds of, with sorbitol and perseitol (GERNEZ), 1892, A., 422.  
 a hydrate of (PARMENTIER), 1883, A., 158; (VIVIER), 1888, A., 557.  
 nitro-, concentrated solution of, preparation of (GUYARD), 1884, A., 638.  
**Molybdates**, action of hydrogen peroxide on (BAERWALD), 1884, A., 965.  
 acid, rotatory power of compounds of mannitol with (GERNEZ), 1891, A., 1443; 1892, A., 800.  
 complex (GIBBS), 1884, A., 161, 561, 713.  
 crystalline (COLORANT), 1889, A., 760.  
 thio- (KRÜSS), 1884, A., 161, 1268.  
 reduction of (KRÜSS and SOLEBENDER), 1887, A., 111.  
*dithio-* (KRÜSS), 1884, A., 161, 1267.  
*perthio-* and oxythio- (KRÜSS), 1884, A., 1268.  
*sesquioxide*, action of nitric oxide on (SABATIER and SENDERENS), 1892, A., 1152.  
**Permolybdic acid** (PECHARD), 1891, A., 988; 1892, A., 1283.  
 heat of formation of (PECHARD), 1892, A., 1383.

- Permolybdates** (PECHARD), 1892, A., 1160.
- Hypophosphomolybdates** (GIBB), 1884, A., 560.
- Molybdenum oxychlorides**, electrolytic conductivity of (HAMPE), 1888, A., 888.
- sulphur compounds of (KRUS), 1884, A., 160, 1267, 1268.
- sulphide, reduction of (V. DER PFORDTEN), 1884, A., 965.
- See also Molybdenite.
- Molybdenum, estimation and separation of:**—
- estimation of (V. DER PFORDTEN), 1884, A., 965, 1429; (SMITH and BRADBURY), 1892, A., 241; (PECHARD), 1892, A., 917.
- estimation, electrolytic, of (BAERWALD), 1886, A., 18.
- estimation, volumetric, of (V. DER PFORDTEN), 1883, A., 123; (SCHINDLER), 1888, A., 757.
- separation, electrolytic, of gold from (SMITH and WALLACE), 1892, A., 920.
- Molybdic anhydride.** See Molybdenum trioxide.
- Molybdiodic acid** (BLOMSTRAND), 1890, A., 107.
- Molybdovanadates** (FRIEDHEIM), 1891, A., 884.
- Moments of inertia**, establishment of fundamental formulae for the calculation of (HINRICHS), 1892, A., 948.
- Monazite** as a secondary constituent of rocks (DERBY), 1889, A., 573.
- occurrence and composition of some American varieties of (PENFIELD), 1883, A., 162.
- from the Nil St. Vincent quarries (RENARD), 1883, A., 561.
- from North Carolina (PENFIELD and SPERRY), 1889, A., 356.
- twin crystals of, from North Carolina (HIDDEN and DES CLOIZEAUX), 1887, A., 118.
- from Quebec (GENTH), 1890, A., 457.
- from Sweden (BLOMSTRAND), 1891, A., 1168.
- from Uial (BLOMSTRAND), 1890, A., 571.
- analyses of (BLOMSTRAND), 1889, A., 217.
- Monazitic sands** of Caravelas, Brazil (GORCEIX), 1885, A., 489.
- Monchiquite**, a rock of the ekeolite-syenite class (HUTNER and ROSENBERG), 1892, A., 1058.
- Monetite and monite** (SHEPARD), 1883, A., 1063.
- Money**, Manila, analysis of (WELSH), 1889, A., 17.
- Mono-**. See under name to which mono- is prefixed.
- Monochromatic light.** See Photochemistry.
- Monticellite** from Magnet Cove, Arkansas (GENTH, PENFIELD and PINSON), 1891, A., 1330.
- Moorlands.** See Soil under Agricultural Chemistry.
- Moradine and moradin** (ARATA and CANZONERI), 1890, A., 405, 404.
- Mordants**, chemistry of (LIECHT and STIDA), 1884, A., 791.
- and the periodic law (PRUD'HOME), 1891, A., 523.
- used for fixing artificial colouring matters (KOEHLIN), 1883, A., 256, 894; (REBER), 1885, A., 916; (WITT), 1885, A., 1024.
- dyes which can be fixed by (V. KOSTANECKI), 1888, A., 274.
- substances which form coloured compounds with (V. KOSTANECKI), 1889, A., 868.
- different ferric oxide, behaviour of, with silk (LIECHT and STIDA), 1885, A., 315.
- See also Colouring matters.
- Mordenite** (PINSON), 1891, A., 276.
- Morin and its derivatives** (BENEDIKT and HAZURA), 1884, A., 846, 1179; 1885, A., 553, 554.
- preparation of (BENEDIKT and HAZURA), 1884, A., 1179.
- oxidation and reduction of (BENEDIKT and HAZURA), 1884, A., 846, 1179.
- Morindin** (THORPE and GREENALL), 1886, P., 256; 1887, T., 52.
- Morindon** (THORPE and GREENALL), 1886, P., 256; 1887, T., 52; (THORPE and SMITH), 1888, T., 171; P., 2.
- Morinsulphonic acid and its salts** (BENEDIKT and HAZURA), 1885, A., 554.
- Morphine or Morphia.** See Alkaloid.
- ψ-Morphine. See Oxymorphine under Alkaloids.
- Morphine-blue** (HAUFUNG and BARTILOU), 1888, A., 165.
- Morphineglycollic acid** (GRIMAU), 1883, A., 359.
- Morphine-violet** (VALENTIN), 1891, A., 1120; 1892, A., 361.
- Morpholine** (KNORR), 1889, A., 1218.
- Morphothebaine**, and its derivatives (HOWARD), 1884, A., 1201.
- Morphotropy** (REGER), 1891, A., 146.
- Morrenia brachystephana*, constituents of (ARATA and GLIEMER), 1891, A., 1122.

- Morrenine** (ARATA and GELZER), 1891, A., 1122.
- Morrenole** (ARATA and GELZER), 1891, A., 1088.
- Morruhic acid** (3-hydroxypropionyl-2-butyric acid) (GATTIER and MOURGUES), 1889, A., 170.
- Morruhine** (GATTIER and MOURGUES), 1888, A., 1315; 1889, A., 63.
- Mortar**, ancient, from a Roman wall in London (SPILER), 1889, A., 16.
- Mortars**, hydraulic, chemical reactions in the setting of (LE HAFELIER), 1887, A., 306.
- Mortuary vault**, antiseptic experiments in a (CAMELONT), 1884, A., 878.
- Mosandrite** (BROGGER), 1890, A., 1078.
- Mosandrium** (LEMOIG DE BOISBAUDRAN), 1886, A., 507.
- Moss** as cattle litter (FLEISCHER), 1884, A., 105.
- Motors**, living, and the theory of heat (LEZÉ), 1890, A., 807.
- Moulds**, occurrence of nuclein in (STUTZER), 1883, A., 1166.
- abnormal secretion of nitrogenous substances by (GAYON and DUBOURG), 1886, A., 733.
- condition of potassium in (BERTHELOT and ANDRÉ), 1888, A., 190.
- sulphur and phosphorus in (BERTHELOT and ANDRÉ), 1888, A., 334.
- Mountain ash berries**, tannic acid in (VINCENT and DELACHANAL), 1887, A., 950.
- Movements**, molecular (KRÜSS), 1886, A., 14.
- Mucic acid** (RUHEMANN and BLACKMAN), 1890, T., 370; P., 38; (RUHEMANN and ELLIOTT), 1890, T., 931; P., 139; (RUHEMANN), 1890, T., 937; P., 139; (RUHEMANN and DUFFON), 1891, T., 750; P., 123.
- preparation of, from milk-sugar and lactose (KENT and TOLLEN), 1884, A., 980.
- constitution of (RUHEMANN and DUFFON), 1891, T., 753.
- action of hydrogen phosphide on (HEERMANN), 1892, A., 875.
- action of phosphorus pentachloride on (RUHEMANN and DUFFON), 1890, P., 151; 1891, T., 26.
- reduction of (FISCHER and HERTZ), 1892, A., 824.
- derivatives of (MAQUENNE), 1888, A., 676; (RUHEMANN and BLACKMAN), 1890, T., 370; P., 38.
- aldehyde-acid from (FISCHER), 1890, A., 599.
- Mucic acid**, antimony derivatives of (KLEIN), 1884, A., 424.
- lactone, reduction of (FISCHER and HERTZ), 1892, A., 825.
- Allomucic acid** and so-called **paramucic acid** (*mucic acid, lactone-acid or*) (FISCHER), 1891, A., 1193.
- Mucic diphenylhydrazide** (BULOW), 1887, A., 138.
- Mucin of bile** (PAIKKUL), 1888, A., 169.
- of the submaxillary gland (HAMMARSTEN), 1888, A., 167.
- in myxodema (HALLIBURTON), 1892, A., 1117.
- obtained from tendons of the ox (LOEBISCH), 1886, A., 166.
- in urine (CITRON), 1887, A., 390.
- ψ-Mucin** (HAMMARSTEN), 1888, A., 874.
- Mucin-albumose** (HAMMARSTEN), 1891, A., 1127.
- Mucin-group** (HAMMARSTEN), 1885, A., 677.
- Mucobromic acid**, action of alkalis on (HILL), 1884, A., 731.
- action of potassium nitrite on (HILL and SANGER), 1883, A., 47.
- Mucohydroxy-bromic and -chloric acids** (HILL and PALMER), 1888, A., 451, 452.
- Mucoid** (HAMMARSTEN), 1891, A., 1127.
- Mucoid-substances** in ascitic fluid (HAMMARSTEN), 1891, A., 1127.
- Mucosamic acid**, β-dichloro- (RUHEMANN and ELLIOTT), 1890, T., 934.
- Muconic acid** (RUHEMANN and BLACKMAN), 1890, T., 375; (v. BAeyer and RUPE), 1890, A., 877; (RUHEMANN and DUFFON), 1891, T., 750; P., 123.
- action of bromine on (RUHEMANN and DUFFON), 1891, T., 750.
- α-dichloro-, reduction products of (v. BAeyer and RUPE), 1890, A., 875.
- β-dichloro- and its amide (RUHEMANN and ELLIOTT), 1890, T., 932.
- isoMuconic acid** (RUHEMANN and BLACKMAN), 1890, T., 373.
- Mucous fermentation** (KRAMER), 1890, A., 76.
- Mud** from the Baku mud volcanoes (SJÖGREN), 1890, A., 115.
- from the mouth of the Eider, analysis of (VON.), 1883, A., 117.
- analyses of (MAYER), 1891, A., 958.
- chalk, use of, in the production of crude soda (SCHWURER-KESTNER), 1884, A., 644.
- marine (FLEISCHER), 1884, A., 106.
- of the alluvia of the Zuider See (VAN BEMMELEN), 1890, A., 822.
- composition of (BUCHANAN), 1891, A., 995.

- Mud**, marine, manganese in (IRVINE and GILSON), 1891, A., 995.  
sulphur in, and its bearing on its mode of formation (BUCHANAN), 1891, A., 994.  
manuring with (ENCKHAUSEN), 1884, A., 867.
- Mules**, digestion in (SANSON), 1889, A., 533.
- Multitrotation**. See Photochemistry.
- Murexide**, spectrum of (HARLEY), 1887, T., 199.
- Murexoin** (BRUNN), 1888, A., 452.
- Muriatic acid**. See Hydrogen chloride under Chlorine.
- Mursinskite** (V. KOKSCHAROFF), 1888, A., 116.
- Muscarine** (DIRINGERDIAT), 1884, A., 1056.
- Muscle**, heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.  
heat developed by the activity of (CHATELAIN and KATZMAN), 1887, A., 1059.  
inorganic constituents of (DUNGE), 1885, A., 573.  
nutrition of (BRINCK), 1891, A., 1273.  
glycogen in (HERGENHAHN), 1890, A., 1334.  
source of the glycogen of the (SCHMELZ), 1889, A., 429.  
with an artificial circulation, formation of glycogen in (KILZ), 1890, A., 1335.  
glycogen in, after section of its nerve and its tendon (KRAUSS), 1889, A., 64.  
effect of muscular work on the glycogen of the (MANCHÉ), 1889, A., 428.  
influence of starvation on the glycogen of (ALDEHOFF), 1889, A., 427.  
changes of the glycogen, sugar and lactic acid of the, while performing work (MONARI), 1890, A., 185.  
formation of lactic acid in (WERTHER), 1891, A., 348.  
presence of lactic acid in pale and red (GLEISS), 1889, A., 177.  
amount of urea in (GRIEANT and QUINQUAUD), 1889, A., 914.  
change of chemical composition of, by fatigue (MONARI), 1888, A., 174.  
action of caffeine and theine on voluntary (BRUNTON and CASH), 1887, A., 985; 1888, A., 1217.  
action of calcium, barium, and potassium salts on (BRUNTON and CASH), 1883, A., 875.  
unstriated, of various animals, action of potassium and sodium salts on (FLÖEL), 1885, A., 578.
- Muscle**, influence of ptomaine hydrochloride on (GRATESHI and MOSSO), 1884, A., 618.  
frog, Nasse's experiments on the excitability of, in salt solutions (TAMMANN), 1892, A., 515.
- Muscle-fibres**, sarcolemma of, action of digestive fluids on (EWALD), 1889, A., 913.
- Muscle-pigments** (LEWY), 1889, A., 633; (HOPPE-SEYLER), 1889, A., 1231.
- Muscle-plasma** (HALLIBURTON), 1887, A., 951.
- Muscovite** from Alexander Co., N. Carolina (CLARK), 1888, A., 117.  
from Banke, Norway (SCHULIFFER), 1891, A., 531.  
from Forst, Tyrol (OEBERLE), 1886, A., 518.  
from South Africa (CHEN), 1887, A., 561.  
from Syria (V. FOITON and GOLDSCHMIDT), 1890, A., 314.  
See also Mica.
- Muscular activity** and the chemical effect of respiration, relation between (HARRISON and RICHIE), 1887, A., 1058.  
formation of lactic acid during (MARCEUSE), 1887, A., 508.  
work, effect of increased, on the decomposition of albumin (HIRSCHFELD), 1891, A., 1524.  
influence of, on proteid metabolism (ARGUTINSKY), 1891, A., 350; (KRUMMAHER), 1891, A., 479; (NOEL-PATON), 1891, A., 596; (MUNK), 1891, A., 847.  
influence of, on the elimination of creatinine (MOISEWITZ), 1892, A., 364.  
influence of, on the exhalation of carbonic anhydride (GRANDIS), 1890, A., 1334.  
influence of, on the output of urea (BLEIBREY), 1891, A., 350.
- Mushrooms**, sugars in (BOUQUEIOT), 1889, A., 740; 1891, A., 103; (FERRY), 1891, A., 954.  
cooked, composition of (WILLIAMS), 1892, T., 227.  
edible, nutritive value of (MOINER), 1886, A., 1053.  
poisonous principle of (DUPREIT), 1883, A., 611; 1884, A., 204.  
See also Agricultural Chemistry and Fungi.
- Musk**, artificial (BARR), 1890, A., 1401; 1891, A., 1464.
- Mussel shells**, manual value of (MAYER), 1889, A., 1085.

- Mussoenda coffee** (DUNSTAN, 1890, A., 255.
- Must.** specific influence of acetic acid on the fermentation of, and the composition of the wine produced (BALIN), 1885, A., 942.  
influence of temperature on the fermentation of (MULLER), 1884, A., 647.  
absence of nitric acid in (POLLAK), 1889, A., 541.  
estimation of dry substance in (ULBRICH), 1884, A., 1432.
- Mustard**, analysis of (LEEDS and EVERHART), 1884, A., 878.  
oil. See Allylthiocarbimide.  
white, composition of, during growth (TROSCHEK), 1886, A., 913.  
as fodder (BRUMMER), 1884, A., 864.  
ethereal oil of (SALKOWSKI), 1889, A., 1173.
- Mutton dripping**, examination of (KINGZETT), 1885, A., 446.
- Mycolerna aceti***, occurrence of cellulose in (ROMEGIALLI), 1886, A., 732.  
best cultivating liquid for (ROMEGIALLI), 1886, A., 732.
- Mydaleine** (BECKURTS), 1887, A., 386.
- Myelin** (GAD and HEYMANS), 1891, A., 846.
- Myeloid** (DRESLER), 1886, A., 375.
- Myo-albumose and myoglobulin** (HALLIBURTON), 1887, A., 984.
- Myoctonine** (DRAGENDORFF and SPORN), 1885, A., 403; (DRAGENDORFF and SALOMONOWITSCH), 1887, A., 853.
- Myohæmatin** MacFARLAN, 1886, A., 568; 1887, A., 983; 1889, A., 1024; 1890, A., 652; (COPMANS), 1891, A., 473.
- Myoporum platycarpum***, resin of (MAIDEN), 1889, T., 665; P., 127.
- Myosin** (KUENE and CHITTENDEN), 1889, A., 423; (CHITTENDEN and CUMMINS), 1889, A., 530.  
basicity of (DANILEWSKY), 1884, A., 1388.  
digestion of CHITTENDEN and GOODWIN, 1891, A., 950.  
metallic compounds of CHITTENDEN and WHITEHOUSE, 1888, A., 75.
- Myosinogen** (HALLIBURTON), 1887, A., 984.
- Myosinoses** (KUENE and CHITTENDEN), 1889, A., 423.
- Myosin-peptone** (CHITTENDEN and GOODWIN), 1891, A., 950.
- Myostroine** (DANILEWSKY), 1884, A., 1388.
- Myricyl alcohol** from Carnauba wax (STURCKE), 1884, A., 1281.
- Myristamide**, action of brominated potash on (REINDER), 1885, A., 1197.
- Myristic acid** (SEMMLER), 1892, A., 311.  
in ox gall (LASSAR-COHN), 1892, A., 1114, 1503.  
descent of the series from, to lauric acid (LUTZ), 1886, A., 655.  
heats of combustion and formation of (STOHMANN and LANGBEIN), 1891, A., 11.  
heat of combustion and the specific and latent heats of (STOHMANN and RODATZ), 1885, A., 1176; (STOHMANN and WILSING), 1885, A., 1177.  
action of bromine on (KRAFFT and REDDIES), 1892, A., 696.  
oxidation of (NOERDLINGER), 1886, A., 867.  
amido- and bromo- (HELL and TWERDOMEDOFF), 1889, A., 956.
- Myristic aldehyde** (KRAFFT and MAI), 1889, A., 1017; (KRAFFT), 1890, A., 1234.  
isomeric ( $C_{14}H_{28}O$ ) (PERKIN), 1883, T., 68, 71, 73, 76.
- Myristica surinamensis***, aleurone grains in the seed of (TSCHIRCH), 1887, A., 1061.  
fat of the fruit of (REIMER and WILL), 1885, A., 1197.
- Myristicin and its derivatives** (SEMMLER), 1890, A., 1150; 1892, A., 311.  
*isobromo-* (SEMMLER), 1890, A., 1150.
- Myristicinaldehyde** (SEMMLER), 1892, A., 311.
- Myristicol** (BRUHL), 1888, A., 494.
- Myristotridecylcarbamide** (LUTZ), 1886, A., 685.
- Myristoxime** (SPIEGLER), 1884, A., 1115.
- Myristyl chloride** (KRAFFT and BURGER), 1884, A., 1125.
- Myrobalans**, tannin of (ZOLFFEL), 1891, A., 918.
- Myronic acid**, occurrence of, and estimation of the corresponding mustard oil in the seeds of Crucifere and in oil-cakes (DIRCKS), 1883, A., 245.  
potassium salt of (BIRKENWALD), 1891, A., 818.
- Myrrh** (KOEHLER), 1890, A., 1317.
- Myrrhis odorata***, glycyrrhizin in (SCHROEDER), 1886, A., 172.
- Myrtle**, essence of (BARTOLOTTI), 1891, A., 1384.

**Myrtle**, oil of (JAHN), 1889, A., 616.

*Myrtus Jambosa*, crystalline substance (*jambosin*) from (GERRARD), 1885, A., 396.

**Mytilotoxine** (GAUTIER), 1886, A., 634; (BRIEGER), 1888, A., 1317.

*Mytilus Edulis*, blood of (GRIFFITHS), 1892, A., 648.

poison of (SALKOWSKI), 1886, A., 568.

**Myxœdema** (ANON.), 1889, A., 179.

mucin in (HALLIBURTON), 1892, A., 1117.

## N.

**Nacrite**, pseudomorph of, after fluorspar (GEINITZ), 1883, A., 1069.

**Nagyagite** from Nagyág (SIPÓCZ), 1886; A., 312; (HANKÓ), 1890, A., 711.

*Nandina domestica*, active constituents of (EIJKMAN), 1885, A., 565.

**Nandinine** (EIJKMAN), 1885, A., 565.

**Napelline** (DUNSTAN and UMNEY), 1892, T., 391; P., 43.

**Naphtha district**, the Transcaspien (SJÖGREN), 1890, A., 115.

**$\alpha$ -Naphthalbenzein** (DOEBNER), 1890, A., 902.

**Naphthalbenzyl alcohol**. See Naphthylcarbinol.

**Naphthacinnamene**. See Naphthylethylene.

**$\alpha$ -Naphthacinnamic acid**. See  $\alpha$ -Naphthylacrylic acid.

**$\beta$ -Naphthacoumaric acid** and  **$\beta$ -naphthacoumarin** (KAUFFMANN), 1883, A., 1136.

**$\beta$ -Naphthaeridine** (REED), 1886, A., 1037; 1887, A., 662.

**Naphthaglycollic acid**. See Naphthylglycollic acid.

**Naphtha- $\gamma$ -hydroxyquinaldine**. See 4'-Hydroxy-2'-methylnaphthaquinoline.

**$\alpha$ -Naphthaldehyde** (BAMBERGER and LÖFFER), 1888, A., 375.

condensation products of (BRANDIS), 1889, A., 1199.

**$\beta$ -Naphthaldehyde** (SCHULZE), 1884, A., 1184; (BAMBERGER and DOERMANN), 1887, A., 675.

**Naphthaldehydeic acid** (GRAEBE and GFELLER), 1892, A., 864.

**$\alpha$ -Naphthaldoxime** (BRANDIS), 1889, A., 1200.

**Naphthalene**, source of (LIEBERMANN), 1883, A., 531.

purification of, by means of soap solutions (LINK), 1886, A., 713.

**Naphthalene**, constitution of (ARMSTRONG), 1890, P., 102; (BAMBERGER), 1890, A., 1301, 1304; (CLAU), 1890, A., 1424; 1891, A., 44; (CHAMMAN), 1892, A., 69.

spectrum of (HARTLEY), 1885, T., 697.

heat of combustion of (BERTHELOT and REMOIRA; BERTHELOT and LUGNIN), 1887, A., 762; (STOHMANN, KIEBER and LANGBEIN), 1889, A., 1042.

heat of formation of (STOHMANN, KIEBER and LANGBEIN), 1889, A., 1042.

molecular volume of (GROSHAN), 1889, A., 336.

as an insecticide (FISCHER), 1885, A., 454.

action of heat on mixtures of, with ethylene (FERRO), 1887, A., 572.

action of chloroform on, in presence of aluminium chloride (HONIG and BERGER), 1883, A., 68.

action of methylic chloride on (DISCHOFF), 1890, A., 1145.

reduction of (BAMBERGER and KITSCHLI), 1890, A., 1146.

solidification of different mixtures of stearic acid and (COURTONNE), 1883, A., 176.

behaviour of urine after the ingestion of (EDLEFSIN), 1888, A., 1322.

derivatives, constitution of (BRÜHL), 1887, A., 1005.

comparative influence exerted by the radicals Cl, OH, and NH<sub>2</sub> in, on the formation of sulphonic acids (ARMSTRONG and WYNNE), 1890, P., 133.

conversion of, into substituted phthalides (GUARINCHI), 1886, A., 807.

hydrogenation of (BAMBERGER), 1890, A., 1299.

formation of sulphones on sulphonating (HELIER), 1889, P., 121.

disubstituted derivatives from the isomeric chlorophenylparaconic acids (ERDMANN and KIRCHHOFF), 1889, A., 150; (ARMSTRONG and WYNNE), 1887, P., 7.

**$\alpha\alpha$ -disubstituted derivatives**, constitution of (ERDMANN), 1889, A., 156.

**$\alpha$ -haloid compounds**, action of aluminium chloride on (ROUX), 1886, A., 806.

**$\beta$ -monohaloid derivatives of sulphonic acids** derived from (ARMSTRONG and WYNNE), 1887, P., 22.

**Naphthalene**, heteronuclear  $\alpha\beta$ - and  $\beta\beta$ -derivatives of, constitution of (ARMSTRONG and WYNNE), 1889, P., 31, 49.  
 tri-derivatives of, constitution of (ARMSTRONG and WYNNE), 1890, P., 11, 15, 16, 125, 126, 127, 128, 131; 1891, P., 27.  
 homonuclear tri-derivatives of (MELDOLA and DESCH), 1892, T., 765; P., 111.  
 bromine derivatives of, constitution of (MELDOLA), 1883, T., 1; 1885, T., 497; 1886, P., 172; (ARMSTRONG and ROSSITER), 1891, P., 187; (MELDOLA and DESCH), 1892, T., 766.  
 chlorides of, action of alkalis on (ARMSTRONG and WYNNE), 1890, P., 85.  
 iodine derivatives of (MELDOLA), 1885, T., 513.  
 picrate, molecular weight of (PATERNO and NASINI), 1890, A., 725.  
 a sulphoxide of (EKSTRAND), 1885, A., 170.  
 dithiocyanate (EBERT and KLEINER), 1891, A., 460.  
**Naphthalene**, amido-. See Naphthylamine.  
 diamido-. See Naphthylenediamine.  
 1-bromo-, optical properties of (WALIER), 1891, A., 776.  
 vapour pressures of (RAMSAY and YOUNG), 1885, T., 650, 656.  
 action of bromine on (ARMSTRONG and ROSSITER), 1891, P., 184.  
 2-bromo- (CANZONERI), 1883, A., 67; (ROUX), 1886, A., 807.  
 preparation of (ODDO), 1891, A., 553.  
 action of bromine on (ARMSTRONG and ROSSITER), 1891, P., 184.  
 action of chlorosulphonic acid on (ARMSTRONG and WYNNE), 1887, P., 22.  
 dibromo- [m.p. 74°], constitution of (MELDOLA), 1886, P., 173.  
 1:1'-dibromo- (ARMSTRONG and ROSSITER), 1891, P., 182.  
 1:2-dibromo-, constitution of (MELDOLA), 1883, T., 5, 6.  
 1:2(i)-dibromo-, from  $\beta$ -naphthol (CANZONERI), 1883, A., 67.  
 1:2'-dibromo-, and its sulphochloride (ARMSTRONG and ROSSITER), 1891, P., 182.  
 1:3-dibromo- (GUARESCHI), 1884, A., 842.  
 and its sulphochlorides (ARMSTRONG and ROSSITER), 1891, P., 182, 187.

**Naphthalene**, 1:3'-dibromo- (CLAUS and PHILIPSON), 1891, A., 461.  
 and its sulphochloride (ARMSTRONG and ROSSITER), 1891, P., 182.  
 1:4-dibromo- (GUARESCHI), 1884, A., 842.  
 and its sulphochloride (ARMSTRONG and ROSSITER), 1891, P., 182, 187.  
 constitution of (MELDOLA), 1883, T., 1.  
 tetra-bromide (GUARESCHI), 1884, A., 842.  
 1:4'-dibromo- (MELDOLA), 1883, T., 1; (GUARESCHI), 1884, A., 842; (STALLARD), 1886, T., 159; P., 139.  
 and its sulphochloride (ARMSTRONG and ROSSITER), 1891, P., 182.  
 2:3-dibromo- (ARMSTRONG and ROSSITER), 1891, P., 182.  
 4:2'- or 3'-dibromo- [m.p. 74°] (MELDOLA), 1885, T., 513; P., 71.  
 non-existence of (ARMSTRONG and ROSSITER), 1891, P., 187.  
 1:2:3'-tribromo- (CLAUS and PHILIPSON), 1891, A., 461.  
 1:2:4-tribromo- (PRAGER), 1885, A., 1239; (MELDOLA), 1886, P., 173.  
 constitution of (MELDOLA), 1883, T., 4.  
 1:3:2' or 3'-tribromo-, derived from dibromonaphthylamines (MELDOLA), 1885, T., 513; P., 71.  
 1:2-, 1:3- and 1:4-bromiodo- (MELDOLA), 1885, T., 523; P., 73.  
 4:1:2-bromiodinitro- (MELDOLA and DESCH), 1892, T., 767; P., 141.  
 bromonitro- [m.p. 122-5°] (GUARESCHI), 1884, A., 842; (MELDOLA), 1885, T., 506; P., 72.  
 2:4- and 4:1-bromonitro- (MELDOLA), 1885, T., 506; P., 72.  
 4:2-bromonitro- (MELDOLA), 1885, P., 506; P., 72; (ARMSTRONG and ROSSITER), 1891, P., 186.  
 dibromonitro- [m.p. 96°-5-96°] (GUARESCHI), 1884, A., 842.  
 [m.p. 100°-105°] (CANZONERI), 1883, A., 67.  
 1:4:2-dibromonitro- [m.p. 117°] (MELDOLA and DESCH), 1892, T., 769; P., 141.  
 1':1:4'-bromodinitro-, and 4:1:1'-bromodinitro- (MERZ and WEITH), 1883, A., 343.  
 bromodinitro- [m.p. 245° and 189°] (MERZ and WEITH), 1883, A., 344.  
 2-chloro-, action of chlorosulphonic acid on (ARMSTRONG and WYNNE), 1887, P., 22.

**Naphthalene**, 2-chloro-, action of sulphuric acid on (ARNELL), 1886, A., 555.

[ $\alpha$ ]-dichloro- (WIDMAN), 1883, A., 208. non-existence of (ARMSTRONG and WYNNE), 1889, P., 106.

1:2-dichloro- (CLEVE), 1887, A., 961; (HELLSTRÖM), 1889, A., 149.

1:2'-dichloro- (CLAUS and VOLZ), 1886, A., 246.

1:3-dichloro- (CLEVE), 1887, A., 495. constitution of (ARMSTRONG and WYNNE), 1889, P., 106; (ERDMANN), 1889, A., 265.

derivatives of (CLEVE), 1890, A., 626.

1:4-[ $\beta$ ]-dichloro- (ARNELL), 1883, A., 596.

1:4'-[ $\gamma$ ]-dichloro- (GUARESCHI), 1887, A., 837; (ERDMANN and KIRCHHOFF), 1889, A., 150.

2:1'-, 3:1'- and 4:1'-dichloro-. constitution of (ARMSTRONG and WYNNE), 1889, P., 34, 49; (ERDMANN and KIRCHHOFF), 1889, A., 150.

2:3-[ $\delta$ ]-dichloro- (WIDMAN), 1883, A., 208; (ARMSTRONG and WYNNE), 1890, P., 83.

2:3'-[ $\epsilon$ ]-dichloro-, oxidation of (CLAUS and MUELLER), 1886, A., 247.

dichloro-derivatives, especially the  $\alpha\beta$ -compounds, constitution of (ARMSTRONG and WYNNE), 1888, P., 106.

the ten isomeric, and the sulphonic acids and trichloronaphthalenes derived therefrom (ARMSTRONG and WYNNE), 1890, P., 77.

1:3-homo- and the isomeric hetero- $\alpha\beta$ - (ARMSTRONG and WYNNE), 1889, P., 5.

trichloro- (CLAUS and KNYRIM), 1886, A., 156; (CLAUS and SCHMIDT), 1887, A., 270.

1:2:3-trichloro- and its sulphonic acid (ARMSTRONG and WYNNE), 1890, P., 76.

1:2:4-trichloro- (CLEVE), 1888, A., 597.

and its sulphonic acid (ARMSTRONG and WYNNE), 1890, P., 77.

2:1':4'-trichloro- (CLAUS and PHILIPSON), 1891, A., 463.

trichloro-derivatives (ARMSTRONG and WYNNE), 1889, P., 49; 1890, P., 12, 13, 16; 1891, P., 77.

tetrachloro- [m.p. 140°] (CLAUS and MIELCKE), 1886, A., 716.

pentachloro- [m.p. 168.5°] (CLAUS and WENZLICK), 1886, A., 713.

**Naphthalene**, pentachloro-, preparation and oxidation of (CLAUS and V. DER LIPPE), 1883, A., 921.

heptachloro- [m.p. 194°] (CLAUS and V. DER LIPPE), 1883, A., 921; (CLAUS and WENZLICK), 1886, A., 713.

$\beta$ -chloro- $\alpha$ -bromo- (GUARESCHI), 1889, A., 614.

chlorobromo- [m.p. 119°] and 1:4-chlorobromo- (GUARESCHI and BIGINELLI), 1887, A., 1114.

2:1:3'-chlorodibromo- (CLAUS and PHILIPSON), 1891, A., 462.

1:4:2-chlorobromonitro- (MELDOLA and DESCH), 1892, T., 768; P., 141.

$\beta$ -chloro- $\alpha$ -nitro- [1:2'] (ARMSTRONG and WYNNE), 1889, P., 71.

dichlorodinitro- [m.p. 150° and 135°] (CLEVE), 1890, A., 626.

cyno-. See Naphthoutrile.

1:2-dicyano- (CLEVE), 1892, A., 1477.

1- and 2-fluoro- (EKDOM and MAUZELIUS), 1889, A., 999.

1-iodo- (NOLTING), 1886, A., 362.

2-iodo-, action of chlorosulphonic acid on (ARMSTRONG and WYNNE), 1887, P., 22; 1889, P., 120.

1:4- and 1:2-diiodo- (MELDOLA), 1885, T., 521.

1:2-, 4:1- and 2:1-iodonitro- (MELDOLA), 1885, T., 519; P., 73.

1-nitro-, action of sulphuric acid on (PALMAER), 1889, A., 153.

reduction of (WILLERODT), 1892, A., 595.

tetrabromide (GUARESCHI), 1884, A., 842.

2-nitro- (LELLMANN and REMY), 1886, A., 471.

preparation of (LELLMANN), 1887, A., 590.

dinitro- [m.p. 161.5°] (GRAEBE and DREWS), 1884, A., 1036.

preparation of, from dinitro- $\beta$ -naphthylamine (GRAEBE and DREWS), 1884, A., 1036.

trinitro- [m.p. 213-218°] (STAEDEL), 1883, A., 863.

1:2-dinitroso- (V. ILINSKI), 1886, A., 472.

1:4-dinitroso- (NIETZKI and GUTERMANN), 1888, A., 471.

**Naphthaleneazo-**. See Azo-.

**Naphthalene- $\alpha$ -carboxylic acid**. See  $\alpha$ -Naphthoic acid.

**Naphthalene-1:1'-dicarboxylic acid** (*naphthalic acid*), constitution of (BAMBERGER and PHILIP), 1887, A., 495.

nitro- (QUINCKE), 1888, A., 844.

- Naphthalene-1:2-dicarboxylic acid** and its anhydride and dioximinide (LEVI), 1892, A., 1477.
- Naphthalene-1:1'-dicarboxylic anhydride, nitro-** (QUINCKE), 1888, A., 841.
- Naphthalene-1:2'-disulphonic acid** (ARMSTRONG and WYNNE, 1890, P., 123).
- Naphthalene-1:3-disulphonic acid** (ARMSTRONG and WYNNE), 1890, P., 13.
- action of potash on (ARMSTRONG and WYNNE), 1890, P., 136.
- Naphthalene-1:3'-disulphonic acid** (ARMSTRONG and WYNNE), 1886, P., 231; 1888, P., 106.
- Naphthalene-1:4'-disulphonic acid** [ $\gamma$ ] (ARMSTRONG and WYNNE), 1886, P., 231; 1888, P., 106.
- formation of, by means of sulphuric anhydride (ARMSTRONG and WYNNE), 1887, P., 42.
- Naphthalene-2:2-disulphonic acid** [ $\alpha$ ] (WEINBERG), 1888, A., 160.
- nitro- (ALLEN), 1883, A., 596.
- Naphthalenedisulphonic acids,  $\beta$ -chloro-** (ARMSTRONG and WYNNE), 1890, P., 131.
- Naphthalene-1:3'-disulphonic chloride, 2-chloro-** (FORSLING), 1889, A., 894.
- Naphthalene-2:2'-disulphonic chloride, nitro-** (ALLEN), 1883, A., 596.
- Naphthalene-3:3'-disulphonic chloride,  $\beta$ -nitro-** (ALLEN), 1883, A., 596.
- Naphthalene-1-oxime-2-imide** (V. ITINKE), 1886, A., 474.
- Naphthalene-red.** See Magdala-red under Colouring matters.
- Naphthalene-ring.** splitting of, by oxidation (HENRIQUES), 1888, A., 842.
- Naphthalene-series.** isomeric change in the (ARMSTRONG, 1887, P., 143; (AMPHLETT and ARMSTRONG), 1887, P., 144; (ARMSTRONG and WILLIAMSON), 1887, P., 145; (ARMSTRONG and WYNNE), 1887, P., 145; 1889, P., 119; 1890, P., 86.
- application of the aluminium chloride method to (ROUX), 1888, A., 1305.
- reduction of the azo-dyes of the (WITT), 1889, A., 270.
- reduction of the alkylated azo-dyes of the (WITT and SCHMIDT), 1892, A., 862.
- Naphthalenesulphonamide, 1:3'- $\alpha$ -nitro-, action of hydriodic acid on** (EKDOM), 1891, A., 573.
- Naphthalenesulphonamide, 1:4'-nitro-, action of hydriodic acid on** (EKDOM), 1890, A., 994.
- Naphthalenesulphonycyanamides,  $\alpha$ - and  $\beta$ -** (HEBENSTREIT), 1890, A., 501.
- Naphthalenesulphonic acid,  $\alpha$ -cyano-** ( *$\alpha$ -naphthomethylsulphonic acid*) (DUTI), 1888, A., 1001; (ARMSTRONG and WILLIAMSON), 1887, P., 43.
- Naphthalene- $\alpha$ -sulphonic acid, action of chlorosulphonic acid on** (ARMSTRONG and WYNNE), 1886, P., 230.
- Naphthalene- $\beta$ -sulphonic acid, action of chlorosulphonic acid on** (ARMSTRONG and WYNNE), 1886, P., 230.
- nitration of (ARMSTRONG and WYNNE), 1889, P., 17.
- sulphonation of (ARMSTRONG), 1889, P., 10.
- Naphthalene-1'-sulphonic acid, 2-bromo-** (FORSLING), 1889, A., 894.
- 1-chloro-** (CLEVE), 1890, A., 635.
- 2-chloro-** (ARNELL), 1886, A., 555; (ARMSTRONG and WYNNE), 1887, P., 22; (FORSLING), 1889, A., 54.
- 2-iodo-** (ARMSTRONG and WYNNE), 1887, P., 23; 1889, P., 119.
- 1-nitro-** (CLEVE), 1890, A., 634.
- Naphthalene-2'-sulphonic acid, 1- and 2-chloro-** (ARMSTRONG and WYNNE), 1889, P., 48; (CLEVE), 1892, A., 1478.
- 2:1-chloronitro-** (CLEVE), 1892, A., 1478.
- 2-iodo-** (ARMSTRONG and WYNNE), 1887, P., 23; 1889, P., 119.
- 1-nitro- $[\alpha]$**  (PALMAER), 1889, A., 154.
- Naphthalene-3-sulphonic acid, 1-nitro- $[\gamma]$**  (CLEVE), 1886, A., 1037.
- Naphthalene-3'-sulphonic acid, 2-bromo-** (FORSLING), 1889, A., 894.
- 1-chloro-** (CLEVE), 1887, A., 374.
- 2-chloro-** (ARNELL), 1886, A., 555; (ARMSTRONG and WYNNE), 1887, P., 22.
- 2-iodo-** (ARMSTRONG and WYNNE), 1887, P., 23; 1889, P., 119; (HUTCHING), 1889, P., 75.
- 1-nitro- $[\beta]$**  (PALMAER), 1889, A., 154.
- Naphthalene-4-sulphonic acid, 1-bromo-, constitution of** (ARNELL), 1883, A., 596.
- 1-chloro-** (ARNELL), 1883, A., 595; (CLEVE), 1887, A., 374; (ARMSTRONG and WILLIAMSON), 1886, P., 233.
- 1:3'-dichloro-** (ARMSTRONG and WYNNE), 1890, P., 83; (CLEVE), 1892, A., 344.

- Naphthalene-4-sulphonic acid, 1-nitro-** (CLEVE), 1890, A., 634.
- Naphthalene-4'-sulphonic acid, 1-bromo-** (MAUZELIUS), 1888, A., 376.
- 1-chloro- (CLEVE), 1887, A., 374.
- 2-chloro- (ARMSTRONG and WYNNE, 1889, P., 48; (CLEVE), 1892, A., 1478).
- 1-fluoro- (MAUZELIUS), 1889, A., 1001.
- 1-iodo- (MAUZELIUS), 1890, A., 168.
- 2-iodo- (ARMSTRONG and WYNNE), 1887, P., 23; 1889, P., 119; (HOULDING), 1889, P., 75.
- 1-nitro- (ARMSTRONG and WILLIAMSON), 1886, P., 233; (CLEVE, 1890, A., 634).
- Naphthalenesulphonic acids, action of bromine on** (ARMSTRONG and WYNNE), 1886, P., 233.
- 1-bromo- (ARMSTRONG and WILLIAMSON, 1886, P., 233).
- 2-bromo- (ARMSTRONG and WYNNE, 1887, P., 23; (SINALE), 1889, P., 118; (FOURLING), 1889, A., 894).
- dibromo-, preparation of ethereal salt of (ARMSTRONG and ROSSITER), 1891, P., 134.
- chloro-, influence of position in determining the nature of the isomeric change in (ARMSTRONG and WYNNE), 1890, P., 86.
- 2-chloro- (ARMSTRONG and WYNNE), 1887, P., 22.
- dichloro- (ARMSTRONG and WYNNE), 1890, P., 77.
- trichloro- (ARMSTRONG and WYNNE), 1890, P., 76.
- 2-iodo- (ARMSTRONG and WYNNE), 1889, P., 119.
- Naphthalene- $\alpha$ - and - $\beta$ -sulphonic chlorides** (KRAFFT and RUOS), 1892, A., 1220.
- Naphthalenetetracarboxylic acid** (BAMBERGER and PHILIP), 1886, A., 949.
- Naphthalenetetracarboxylic dianhydride and diimide** (BAMBERGER and PHILIP), 1887, A., 271, 272.
- Naphthalenetrisulphonic acids** (ARMSTRONG and WYNNE), 1887, P., 146; 1890, P., 125.
- Naphthalfluorescein and its derivatives** (TERRISSE), 1885, A., 687.
- tetrahydro-*naphthalene*** (TERRISSE), 1885, A., 668.
- Naphthalic acid** ( $C_{10}H_7(OH)_2$ ). See 2-Hydroxy-1:4-naphthoquinone.
- Naphthalic acid** ( $C_{10}H_6(COOH)_2$ ). See Naphthalene-1:1'-dicarboxylic acid.
- $\alpha$ -Naphthalidene-aniline** and  $\beta$ -toluidines (BANDI), 1883, A., 1199.
- Naphthalidene-sulphonic acid.** See  $\alpha$ -Naphthalene-1'-sulphonic acid.
- Naphthaloxazine** (KULLING, 1891, A., 1342).
- $\alpha$ -Naphthamide** (BAMBERGER and PHILIP), 1887, A., 496.
- nitro- (EKSTRAND), 1886, A., 948.
- $\alpha$ -(?) **Naphthanilide** (LEUCKART, 1890, A., 759).
- Naphthanilide, bromo-** (MILLER), 1885, A., 687.
- Naphthanthracene and naphthanthraquinone** (ELB), 1886, A., 1037.
- Naphtha-oxyacetic acid.** See Naphthylglycolic acid.
- Naphtha-oxyethylquinizine.** See Naphthylmethylpyrazolone.
- 9-Naphthaphenanthrazine, amido-** (LOEWE, 1880, A., 1124).
- Naphthaphenanthrazinesulphonic acid, sodium salt of** (WITT, 1889, A., 271).
- Naphthaphenazine** (WITT), 1887, A., 591.
- carbinolethion (BRUNNER and WITT), 1888, A., 59.
- amido- (ZERTLING, 1890, A., 509).
- $\alpha$ -amido- (FISCHER and HEPF), 1890, A., 801; (KEHRMANN), 1890, A., 1263.
- cyano- (BRUNNER and WITT), 1888, A., 59.
- Naphthaphenazine-carboxylic and sulphonic acids** (BRUNNER and WITT), 1888, A., 59.
- Naphthaphenone oxides,  $\alpha$ - and  $\beta$ -, and their derivatives** (GRAEBE and FEER), 1887, A., 152.
- Naphthaphenoquinoxazine** (MOHLAU), 1892, A., 837.
- Naphthapiaselenole** (HINSBERG), 1890, A., 796.
- Naphthapiasothiole** (HINSBERG), 1890, A., 972.
- Naphthaquinaldine.** See 2'-Methylnaphthaquinoline.
- 1:2-Naphthaquinhydrone and nitro-** (GROVES), 1884, T., 300.
- 1:2-Naphthaquinol** (*butronaphthaquinone*), 3-amido-, and its hydrochloride (GROVES), 1884, T., 300.
- 3'-bromo- (CLAUS and PHILIPSON), 1891, A., 462.
- nitro- (GROVES), 1884, T., 299; (ZERTLING), 1890, A., 509.
- 1:4-Naphthaquinol, dichloro-** (CLAUS), 1886, A., 714.
- 1:2':3':4'-tetrachloro-** (CLAUS, 1886, A., 714).

- Naphthaquinols**, to distinguish certain (KORN), 1885, A., 392.
- $\alpha$ -Naphthaquinoline**, preparation of (BAMBERGER and STETTENHEIMER), 1891, A., 1253.
- $\beta$ -Naphthaquinoline**, formation of (LELMANN and SCHMIDT), 1889, A., 289.
- tetrahydro- and octahydro-derivatives of (BAMBERGER and MÜLLER), 1891, A., 1510.
- Naphthaquinolines** and their derivatives (SKRAUP and COBENZL), 1883, A., 1010; (COMBES), 1888, A., 968.
- reduction of (BAMBERGER and STETTENHEIMER), 1891, A., 1258.
- reduction products of (BAMBERGER), 1890, A., 1303.
- octahydro-derivatives of (BAMBERGER), 1889, A., 518.
- $\beta$ -Naphthaquinoline-2'-carboxylic acid** (SEITZ), 1889, A., 526.
- Naphthaquinoline-2':4'-dicarboxylic acids**,  $\alpha$ - and  $\beta$ - (DOEBNER and PETERS), 1890, A., 1008.
- $\alpha$ -Naphthaquinolinequinones**, preparation of, from  $\alpha$ -naphthaquinoline and its properties (SKRAUP and COBENZL), 1883, A., 1014.
- $\beta$ -Naphthaquinolinesulphonic acid** (GENTIL), 1885, A., 561.
- preparation of (GENTIL), 1885, A., 945.
- oxidation of (IMMERHEISER), 1889, A., 527.
- Naphthaquinone**, amido- (MEERSON), 1883, A., 1200.
- trichloro- (CLAUS and SCHMIDT), 1887, A., 270.
- $\gamma$ -nitro- (ZINCKE), 1888, A., 844.
- $\alpha$ -Naphthaquinone** (MELDOLA), 1853, T., 433; (MILLER), 1885, A., 667.
- action of methylhydroxylamine hydrochloride on (GOLDSCHMIDT and SCHMID), 1885, A., 1238.
- behaviour of quinone and, towards sulphuric acid (LIEBERMANN), 1885, A., 802.
- derivatives of (MILLER), 1885, A., 667.
- $\alpha$ -Naphthaquinone**, 1':4'-dibromo- (GUARESCHI), 1884, A., 842.
- tetrabromo- [m.p. 265°] (BLUMLEIN), 1885, A., 163.
- 2:3:1':4'-tetrabromo- [m.p. 224°] (GUARESCHI), 1886, A., 807.
- 2:3-bromamido- and its imide (ZINCKE and GERLAND), 1887, A., 888.
- $\alpha$ -Naphthaquinone**, 2-chloro- (CLEVE), 1888, A., 596; (ZINCKE), 1888, A., 709.
- 1':4'-dichloro- [m.p. 173°] (GUARESCHI), 1886, A., 807.
- 2:3-dichloro-, dichloride (CLAUS), 1890, A., 786.
- 2:3'-dichloro- [m.p. 148°] (CLAUS and MUELLER), 1886, A., 247.
- 3':4'-dichloro- [m.p. 181°] (HELLSTROM), 1889, A., 149.
- tetrachloro-, and its derivatives (CLAUS and v. DER LIPPE), 1883, A., 921.
- 1':4'-chlorobromo- (GUARESCHI and BIGINELLI), 1887, A., 1114.
- $\beta$ -Naphthaquinone** (GROVES), 1884, T., 291; (ZINCKE), 1887, A., 53; 1888, A., 153, 489.
- action of hydroxylamine hydrochloride on (GOLDSCHMIDT), 1884, A., 735.
- action of hypochlorous acid on (BAMBERGER and KITSCHULT), 1892, A., 494, 857.
- action of methylhydroxylamine hydrochloride on (GOLDSCHMIDT and SCHMID), 1885, A., 1238.
- conversion of, into indonaphthene-derivatives (ZINCKE), 1887, A., 728.
- chloride (ZINCKE and KEGEL), 1889, A., 267.
- hydrazones (NÖLTING and GRANDMOUGIN), 1891, A., 1074.
- iron derivatives of (v. ILINSKI and v. KNORRE), 1886, A., 101.
- phenylhydrazone, constitution of (NÖLTING and GRANDMOUGIN), 1891, A., 1076.
- sulphonic acids of (WITT), 1892, A., 196.
- $\beta$ -Naphthaquinone**, bromo- [m.p. 200°], (BRÜMME), 1888, A., 490.
- 3-bromo- (ZINCKE), 1887, A., 53.
- 3'-bromo- [m.p. 145°] (CLAUS and PHILIPSON), 1891, A., 462.
- 3:4-dibromo- (ZINCKE), 1887, A., 53.
- tetrabromo- [m.p. 164°] (FLESSA), 1884, A., 1186.
- 3-chloro- (ZINCKE), 1887, A., 53; (ZINCKE and KEGEL), 1889, A., 267.
- 3:4-dichloro- (ZINCKE), 1887, A., 53.
- 4:3-chloronitro- (ZINCKE and KEGEL), 1889, A., 266.
- nitro-, derivatives of (KORN), 1884, A., 1186.
- action of aniline and toluidine on (BRAUNS), 1884, A., 1038.

- $\beta$ -Naphthaquinone**, 3-nitro-, action of chlorine on (ZINCKE and LATTEY), 1892, A., 1229; (ZINCKE and SCHARFENBERG), 1892, A., 1232. derivatives of (ZAERTING), 1890, A., 509.
- $\gamma$ -Naphthaquinone** (MELDOLA and HUGHES), 1890, T., 681; P., 88.
- Naphthaquinoneanilide**, chloro- (GUARESCHI), 1886, A., 808.
- $\beta$ -chloro-** (CLATS and MUELLER), 1886, A., 247.
- di-chloro-** (CLAUS and SCHMIDT), 1887, A., 270.
- tetrachloro-** (CLATS and WENZLER), 1886, A., 714.
- $\beta$ -Naphthaquinoneanilide**, nitro- (BRAUNS), 1884, A., 1035; (KORN), 1884, A., 1186.
- Naphthaquinonecarboxylic acid**, di-chloro- (EKSTRA), 1889, A., 152.
- Naphthaquinone-dichlorodiimide** (FRIEDLANDER and BOECKMANN), 1889, A., 614.
- $\alpha$ -Naphthaquinonedianil** (FISCHER and HEPP), 1890, A., 911.
- $\beta$ -Naphthaquinonedianilide** (MELDOLA), 1884, T., 157.
- $\alpha$ -Naphthaquinonedi-methylanilinimide** (MOHLAT), 1884, A., 595.
- $\beta$ -Naphthaquinone-di- $\alpha$ -naphthalide** (MELDOLA), 1884, T., 160.
- $\beta$ -Naphthaquinoneditolulide** (MELDOLA), 1884, T., 159; (BROMME), 1888, A., 491.
- $\alpha$ -Naphthaquinone-ethylanilide** (ELSBACH), 1888, A., 70.
- $\beta$ -Naphthaquinonehydrazone-benzoic and -sulphanilic acids**, action of diazobenzene chloride on (NOLTING and GRANDMOUGIN), 1891, A., 1075.
- Naphthaquinoneimide**, amido-, and its bromine derivatives (KRONFELD), 1884, A., 1037.
- Naphthaquinoneoxime** (*nitrosonaphthol*), action of hydrogen sulphites on (SPIEGEL), 1885, A., 987.
- 1:2-Naphthaquinoneoxime** and its derivatives (GOLDSCHMIDT), 1884, A., 735; (V. ILINSKI), 1885, A., 169; (HOFFMANN), 1885, A., 545; (GOLDSCHMIDT and SCHMID), 1885, A., 775.
- preparation of (HENRIQUES and V. ILINSKI), 1885, A., 801.
- action of alcoholic potash on (V. ILINSKI), 1884, A., 1035.
- action of amines and of bromine on (BROMME), 1884, A., 491, 490.
- action of ammonia on (V. ILINSKI), 1884, A., 1035.
- 1:2-Naphthaquinoneoxime**, action of hydroxylamine hydrochloride on (GOLDSCHMIDT), 1884, A., 735, 1137; (GOLDSCHMIDT and SCHMID), 1884, A., 1359.
- action of sulphurous anhydride on (SCHMIDT), 1880, A., 1305.
- 2:1-Naphthaquinoneoxime** (GOLDSCHMIDT and SCHMID), 1885, A., 775.
- preparation of (HENRIQUES and V. ILINSKI), 1885, A., 801.
- action of alcoholic potash on (V. ILINSKI), 1884, A., 1035.
- action of amines and of bromine on (BROMME), 1888, A., 491, 490.
- action of ammonia on (V. ILINSKI), 1884, A., 1035.
- action of hydroxylamine hydrochloride on (GOLDSCHMIDT), 1884, A., 1137; (GOLDSCHMIDT and SCHMID), 1884, A., 1359.
- action of sulphurous anhydride on (SCHMIDT), 1890, A., 1305.
- action of, on animals (GIBBS and REICHERT), 1891, A., 1393.
- compounds of nickel and cobalt with (V. ILINSKI and V. KNORRE), 1885, A., 840.
- use of, in quantitative analysis (V. KNORRE), 1887, A., 530.
- 3-chloro-** (ZINCKE and SCHMUNK), 1890, A., 1146.
- 3:4-dichloro-** (ZINCKE and SCHMUNK), 1890, A., 1147.
- 1:4-Naphthaquinoneoxime** and its derivatives (GOLDSCHMIDT and SCHMID), 1884, A., 1327; (V. ILINSKI), 1885, A., 169; (HOFFMANN), 1885, A., 545.
- preparation of (HENRIQUES and V. ILINSKI), 1885, A., 801.
- action of amines and of bromine on (BROMME), 1888, A., 491, 490.
- 1:2-Naphthaquinonedioxime** (GOLDSCHMIDT and SCHMID), 1884, A., 1359; (KEHRMANN and MESSENGER), 1890, A., 1403.
- $\alpha$ -ethyl ether** (V. ILINSKI), 1886, A., 474.
- $\alpha$ - and  $\beta$ -methyl ethers** (KOREFF), 1886, A., 363.
- phenylhydrazide** of (POLONOWSKY), 1888, A., 366.
- 1:4-Naphthaquinonedioxime** (NIETZKE and GUITERMANN), 1888, A., 471.
- Naphthaquinonephenazine** (LEICESTER), 1890, A., 1446.
- $\alpha$ -Naphthaquinonephenylhydrazide**. See Benzene- $\alpha$ -naphthol under AZO.

- $\beta$ -Naphthaquinonephenylhydrazide** (ZINCKE), 1883, A., 1135; (ZINCKE and BINDEWALD), 1885, A., 391.
- $\alpha$ -Naphthaquinone-3'-sulphonic acid, 2:3-dichloro-** (CLAUS and VAN DER CLOET), 1888, A., 602.
- $\beta$ -Naphthaquinone-2', -3', and -4'-sulphonic acids** (WITT), 1892, A., 196.
- $\alpha$ -Naphthaquinonetolazine** (LEICESTER), 1890, A., 1447.
- $\alpha$ -Naphthaquinone-*o*- and -*p*-toluidides,  $\beta$ -chloro-** (CLAUS and MUELLER), 1886, A., 247.
- $\beta$ -Naphthaquinonetoluidide and action of nitrous acid on** (ZINCKE and BRAUNS), 1883, A., 209.  
ethers of (ZINCKE and BRAUNS), 1883, A., 209.  
nitro- (BRAUNS), 1884, A., 1038.
- $\beta$ -Naphthaquinone-*o*- and -*p*-tolylhydrazides, and their derivatives** (ZINCKE and RATHGEN), 1887, A., 55.
- 1:2-Naphthaquinoxaline** (HINSBERG), 1890, A., 972.
- Naphtharesorcinol, azo-colours from** (v. KOSTANECKI), 1890, A., 260.  
**diamido-, hydrochloride** (KEHRMANN and WEICHARDT), 1889, A., 1198.  
**chloronitroso- and mono- and dinitroso-** (v. KOSTANECKI), 1889, A., 887.
- Naphthase, Laurent's** (WITT), 1887, A., 153.
- Naphthastyryl and its derivatives** (EKSTRAND), 1886, A., 715; 1889, A., 52.  
**amido-** (EKSTRAND), 1887, A., 373.  
**dibromo- and dichloro-** (EKSTRAND), 1886, A., 715.  
**4'-chloro-** (EKSTRAND), 1889, A., 153.
- Naphthastyrylmethylquinoxaline** (EKSTRAND), 1889, A., 53.
- Naphthastyrylquinone** (EKSTRAND), 1889, A., 53.
- Naphthasultones** (ERDMANN), 1889, A., 157.
- Naphthasultonsulphonic acids, [e-] and [s-]** (BERNTSEN), 1890, A., 337; 1891, A., 215.
- $\alpha\beta$ -Naphthazine** (JAPP and BURTON), 1887, T., 99; (WITT), 1887, A., 153.  
preparation of (FISCHER and HEPF), 1890, A., 614.
- $\alpha\beta\beta$ -Naphthazine** (MATTHES), 1890, A., 993.
- Naphthenes** (MARKOWNIKOFF and OGLOBLIN), 1881, A., 1276.  
and their derivatives (MARKOWNIKOFF), 1892, A., 1182, 1311.  
and polymethylenes (MARKOWNIKOFF), 1892, A., 1310.
- $\beta$ -Naphthenylamidethoxime** (RICHTER), 1890, A., 62.
- $\alpha\beta$ -Naphthenylamidinedimethoxybenzenyl-*o*-carboxylic acid** (BISCHNYCKI and CYBULSKI), 1892, A., 1249.
- " $\beta$ -Naphthenylamidoxime, dicyano-**" (NORDENSKIÖLD), 1890, A., 1121.
- Naphthenylamidoximes,  $\alpha$ - and  $\beta$ -, and their derivatives** (EKSTRAND), 1887, A., 373; (RICHTER), 1887, A., 374; 1890, A., 62.
- $\beta$ -Naphthenylamidoxime-ethylidene** (RICHTER), 1890, A., 62.
- Naphthenylazoxime-** See Azo-.
- Naphthenylcarbonylimidoximes,  $\alpha$ - and  $\beta$ -** (RICHTER), 1890, A., 63, 62.
- $\beta$ -Naphthenylethylenediamine** (FORSELL), 1892, A., 1248.
- $\alpha$ -Naphtheurhodole** (KEHRMANN), 1890, A., 1266.  
modifications of (KEHRMANN and MESSINGER), 1891, A., 1214.
- Naphthidine (diamidodinnaphthyl) and its derivatives** (NIETZKI and GOLL), 1886, A., 245; (JULIUS), 1887, A., 56.
- Naphthilbensil.** See Naphthylimido-benzil.
- Naphthimidine** (PINNER), 1892, A., 983.
- $\alpha$ -Naphthindole** (SCHLIEFER), 1887, A., 964.
- $\beta$ -Naphthindole** (SCHLIEFER), 1887, A., 153; (INCE), 1890, A., 57.  
derivatives of (SRECHE), 1888, A., 284.
- $\alpha$ -Naphthindolecarboxylic acid** (SCHLIEFER), 1887, A., 963.
- $\beta$ -Naphthindolecarboxylic acid** (SCHLIEFER), 1887, A., 154.
- Naphthionamide.** See Naphthylamine-sulphonamide.
- Naphthionic acid.** See  $\alpha$ -Naphthylamine-4-sulphonic acid.
- Naphthisatins,  $\alpha$ - and  $\beta$ -** (HINSBERG), 1888, A., 373, 372.
- Naphthoic acid, trichloro-** (SCHERLER), 1892, A., 493.
- $\alpha$ -Naphthoic acid (naphthalene- $\alpha$ -carboxylic acid)** (GHAEFF), 1881, A., 81.  
derivatives of (BOESSNECK), 1883, A., 807; (EKSTRAND), 1889, A., 152.  
**4'-amido-, derivatives of** (EKSTRAND), 1889, A., 152.  
**4'-bromo-** (EKSTRAND), 1886, A., 715; 1889, A., 52.  
**4':1'-bromonitro-** (EKSTRAND), 1886, A., 715.  
**1'-chloro-** (EKSTRAND), 1889, A., 52.  
**2-chloro-** (RABE), 1889, A., 514.  
**4'-chloro-** (EKSTRAND), 1891, A., 1361; 1886, A., 156; 1889, A., 52.  
**1':4'-dichloro-** (EKSTRAND), 1889, A., 52.

- $\alpha$ -Naphthoic acid** (*naphthalene- $\alpha$ -carboxylic acid*), trichloro- [m.p. 163—164°] (EKSTRAND), 1889, A., 52.  
 1':1'-chloramido- (EKSTRAND), 1889, A., 153.  
 1'-chloronitro- and 1':4'-dichloronitro- (EKSTRAND), 1886, A., 156; 1889, A., 53.  
 1':4'-dimido- (EKSTRAND), 1889, A., 152.  
 nitro- [m.p. 255°] (GRAEFF), 1884, A., 81.  
 1'-nitro-, and its derivatives (EKSTRAND), 1885, A., 519; 1886, A., 155; 1889, A., 52.  
 4'-nitro-, and its derivatives (GRAEFF), 1884, A., 81; (EKSTRAND), 1885, A., 548; 1886, A., 155.  
 dinitro- [m.p. 215°] (EKSTRAND), 1886, A., 948.  
 1':4'-dinitro- (EKSTRAND), 1887, A., 373.  
 4:4'-dinitro-, and its salts (EKSTRAND), 1884, A., 1360; 1889, A., 152.  
 trinitro- [m.p. 253°] (EKSTRAND), 1886, A., 715; 1889, A., 152.  
 [m.ps. 236° and 293°] (EKSTRAND), 1886, A., 948.  
 nitramido- (EKSTRAND), 1886, A., 948.  
 **$\beta$ -Naphthoic acid** (GRAEFF), 1884, A., 81; (SCHULZE), 1884, A., 1185.  
 amido- [m.p. 211°] (EKSTRAND), 1891, A., 932.  
 diamido- [m.ps. 202° and 230°] (EKSTRAND), 1891, A., 78, 79.  
 1:3'-dibromo- (CLAU'S and PHILLIPSON), 1891, A., 462.  
 chloro- [m.p. 263°] derivatives of (EKSTRAND), 1891, A., 932.  
 1-chloro- (WOLFFENSTEIN), 1888, A., 714.  
 1':4'-dichloro- (EKSTRAND), 1884, A., 1361.  
 nitro- [m.ps. 226° and 248°] and their salts (EKSTRAND), 1884, A., 1360.  
 [m.p. 279°] and its derivatives (EKSTRAND), 1885, A., 904; 1891, A., 932.  
 [m.ps. 288° and 293°] and their derivatives (GRAEFF), 1884, A., 81; (EKSTRAND), 1885, A., 904; 1891, A., 78, 79.  
 dinitro- [m.ps. 226° and 248°] (EKSTRAND), 1884, A., 1361; 1891, A., 78.  
 nitramido- [m.p. 235°] (EKSTRAND), 1891, A., 79.  
**Naphthoic acids,  $\alpha$ - and  $\beta$ -** (GRAEFF), 1884, A., 81; (EKSTRAND), 1884, A., 1360; 1886, A., 715, 918; 1887, A., 373, 840; 1889, A., 52, 152; 1891, A., 77, 932.
- Naphthoic acids,  $\alpha$ - and  $\beta$ -**, thermo-chemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.  
 hydrogenation of V. SOWINSKI, 1891, A., 1380.  
 amides of (LLOSLI), 1884, A., 1362.  
 **$\alpha$ -Naphthoic trichloride**,  $\beta$ -chloro- (KABE), 1889, A., 514.  
 **$\beta$ -Naphthoic trichloride**,  $\alpha$ -chloro- (WOLFFENSTEIN), 1889, A., 714; 1889, A., 615.  
 **$\alpha$ -Naphthoic cyanide** and its derivatives (BOESSNECK), 1883, A., 595.  
**Napthol** as an antiseptic medicine (BOUCHARD), 1888, A., 163.  
 passage of, into the urine (D'ESQUELLE), 1891, A., 98.  
 as a reagent for free chlorine and bromine HAGER, 1886, A., 97.  
 and sulphuric acid as a reagent for nitric and nitrous acids and free chlorine (HAGER), 1886, A., 99.  
 detection of, in the fluids and organs of the animal body LUSTGARTEN, 1883, A., 243.  
 homologues of, preparation of (ANON.), 1883, A., 253.  
 oxime of. See Hydroxynaphthaquinoneimide.  
 amidothio- (EKBOM), 1890, A., 995.  
 chlorotrinitro- [m.p. 156°] (CLEVE), 1890, A., 627.  
 dimido- (KRONFELD), 1884, A., 1037.  
 nitroso-. See Naphthaquinoneoxime.  
 **$\alpha$ -Naphthol**, synthesis of (FITTIG and ERDMANN), 1883, A., 595; 1885, A., 545.  
 antiseptic properties of (MAXIMOVITCH), 1888, A., 621, 978.  
 action of bromine on (BLÜMLEIN), 1885, A., 162.  
 action of dichlorether on (WISLICENUS and ZWANZIGER), 1888, A., 376.  
 action of chlorine on (ZINCKE), 1887, A., 960; (CLEVE), 1888, A., 596.  
 keto-derivatives of (WITT), 1888, A., 436.  
 picrates of (MARCHETTI), 1883, A., 344.  
 trisulphide (ONTFROWICZ), 1891, A., 322.  
 **$\alpha$ -Naphthol**, 2- and 4-amido- (GRANDMOUGIN and MICHEL), 1892, A., 861.  
 4-amido-, sulphonic acid from (SEIDEL), 1892, A., 721.  
 diamido-, action of bromine on (ZINCKE and GERLAND), 1887, A., 838; 1888, A., 290.  
 2:4-diamido-, derivatives of (MEERSON), 1885, A., 713.

**$\alpha$ -Naphthol**, *o*-azo-compounds of (NÜLTING and GRANDMOUGIN), 1891, A., 1074.

2:4-dibromo-, preparation of (MELDOLA and HUGHES), 1890, T., 395; P., 57.

action of, on amines (MELDOLA), 1883, A., 536; 1884, T., 156.

action of nitric acid on (MELDOLA and HUGHES), 1890, T., 396, 508.

3:4-dibromo-, constitution of (MELDOLA), 1884, T., 161.

pentabromo- (BLUMLEIN), 1885, A., 163.

4:2-bromonitro-, and some of its salts (MELDOLA), 1885, T., 501; P., 71.

2-chloro- (CLEVE), 1888, A., 597.

2', 3'- and 4'-chloro- (ERDMANN and KIRCHHOFF), 1889, A., 150.

1'-2', 1'-4', 2'-3- and 2'-3'- or 1'-2'-dichloro- (SCHWECHTEN), 1890, A., 620.

2:3-dichloro- (CLAUS and KNYRIM), 1886, A., 156.

2:4-dichloro- (CLEVE), 1888, A., 596; (ZINCKE), 1888, A., 709.

2':4'-dichloro- (ERDMANN), 1889, A., 265; (SCHWECHTEN), 1890, A., 620.

2:3:4-trichloro- (ZINCKE), 1888, A., 709.

4:2-iodonitro- (MELDOLA), 1885, T., 524.

2-nitro- (LELLMANN), 1884, A., 752; (GRANDMOUGIN and MICHEL), 1892, A., 861.

constitution of (WORMS), 1883, A., 69.

2'-nitro- (GAESS), 1892, A., 1229.

dinitro-. See Manchester yellow.

2:4:2':4'-tetranitro-, and its salts (MERZ and WEITH), 1883, A., 344.

thio-, and its derivatives (KRAFFT and SCHÜNHERR), 1889, A., 715; (KRAFFT and BOURGEOIS), 1891, A., 78.

**$\beta$ -Naphthol**, crystalline form of (LEIVEN), 1886, A., 543.

action of dichlorether on (WISLICENUS and ZWANZIGER), 1888, A., 377.

action of chlorine on (ZINCKE), 1887, A., 960; 1889, A., 886; (CLEVE), 1888, A., 596; (ZINCKE and KEGEL), 1889, A., 265.

action of halogens on (ARMSTRONG and ROSSITER), 1889, P., 71.

oxidation of (EHRlich), 1889, A., 1001.

oxidation of, to *o*-carboxycinnamic acid (EHRlich and BENEDIKT), 1888, A., 1306.

**$\beta$ -Naphthol**, antiseptic properties of (MAXIMOVITCH), 1888, A., 621, 978.

condensation-product of, with benzaldehyde (TRZCINSKI), 1884, A., 1185.

benzoyl-derivative of (KOENIGS and CARL), 1892, A., 447.

derivatives of, nitration of (ARMSTRONG and ROSSITER), 1891, P., 89.

picrate of (MARCHETTI), 1883, A., 344.

sulphides (ONUFROWICZ), 1889, A., 404; 1891, A., 320.

**$\beta$ -Naphthol**, 1-amido- (GRANDMOUGIN and MICHEL), 1892, A., 862.

identification of (MELDOLA and MORGAN), 1889, T., 120.

and its hydrochloride, preparation of, from nitroso- $\beta$ -naphthol (GROVES), 1884, T., 293.

sulphate (GROVES), 1884, T., 297.

1'- and 4'-amido (FRIEDLÄNDER and SEYMANSKI), 1892, A., 1233.

diamido-, hydrochloride (LOEWE), 1890, A., 1424.

1'-amidothio- (CLEVE), 1889, A., 155.

1-bromo- (ARMSTRONG and ROSSITER), 1889, P., 71; 1891, P., 88.

acetyl- and nitroso-derivatives of (CANZONERI), 1883, A., 68.

1:3'-dibromo- (ARMSTRONG and ROSSITER), 1889, P., 71; 1891, P., 88.

action of nitric acid and oxidising agents on (ARMSTRONG and ROSSITER), 1891, P., 34.

1:3:3'-tribromo- (ARMSTRONG and ROSSITER), 1891, P., 34, 87.

action of nitric acid and oxidising agents on (ARMSTRONG and ROSSITER), 1891, P., 34.

1:3:4:3'-tetrabromo- (ARMSTRONG and ROSSITER), 1891, P., 33, 88.

pentabromo-, and the action of bromine on (FLESSA), 1884, A., 1185.

chloro-, action of nitric acid and oxidising agents on (ARMSTRONG and ROSSITER), 1891, P., 34.

1-chloro- (SCHALL), 1883, A., 1109; (CLEVE), 1888, A., 597; (ARMSTRONG and ROSSITER), 1889, P., 72.

1'-chloro- (CLAUS and VOLZ), 1886, A., 246.

1:3-dichloro- (ZINCKE and KEGEL), 1889, A., 266; (ARMSTRONG and WINNE), 1890, P., 76.

1':3'-dichloro- (CLAUS and SCHMIDT), 1887, A., 270.

1:4-dichloro- (ZINCKE and KEGEL), 1889, A., 266; (ARMSTRONG and ROSSITER), 1891, P., 32.

- β*-Naphthol**, 1:3:4-*trichloro*- (ZINCKE and KEGEL), 1889, A., 267.  
 1:4:4'-*trichloro*- (ARMSTRONG and ROSSITER), 1891, P., 32.  
 1:3'-*chlorobromo*- (ARMSTRONG and ROSSITER), 1889, P., 72; 1891, P., 33.  
*chloronitro*- (GAESS), 1892, A., 1229.  
*iodo*- [m.p. 88° (')] (OSTERMAYER), 1885, A., 672.  
*1-iodo*- (MELDOLA), 1885, T., 525.  
*nitro*-, action of ammonia on the ethers of (WITTKAMPF), 1884, A., 1036.  
*1'-nitro*- (FRIEDLANDER and SZYMANSKI), 1892, [A., 1234; (GAESS), 1892, A., 1341].  
*2'-nitro*- (GAESS), 1892, A., 1229.  
*3'-nitro*- (GAESS), 1892, A., 1341.  
*4'-nitro*- (FRIEDLANDER and SZYMANSKI), 1892, A., 1233.  
*dinitro*-, and its derivatives GRAEBE and DREWS, 1884, A., 1035.  
 constitution of (LOEWE), 1890, A., 1424.  
*thio*-, and its derivatives (KRAFFT and SCHONHERR), 1889, A., 715; (KRAFFT and BOURGEOIS), 1891, A., 76.  
*2:2'-dithio*- (GRUSJEAN), 1890, A., 1306.  
**Naphthols**, *α*- and *β*-, reagents for (YVON), 1890, A., 927.  
 action of diazo-*p*-nitrobenzene on (MELDOLA), 1885, T., 661.  
 action of iodine on, in alkaline solution (MESSINGER and VORTMANN), 1889, A., 1151.  
 action of nitrogen iodide on (LEPETIT), 1890, A., 1402.  
 behaviour of, in the system (LESNIK and NENCKI), 1886, A., 822.  
 derivatives obtained from, by the action of aromatic monamines (FRIEDLANDER), 1884, A., 79.  
**Naphtholsetone** and *biomo*- (EKSTRAND), 1886, A., 716.  
*chloro*- and *nitro*- (EKSTRAND), 1889, A., 153.  
**Naphtholazo**-. See under Azo.  
*α*-Naphthol-blue. See Indophenol.  
**Naphtholcamphorides**, *α*- and *β*- (LÉGER), 1890, A., 1427.  
**Naphtholcarboxylic acid**. See Hydroxynaphthoic acid.  
*α*-Naphthol-2:4-(<sup>2</sup>)disulphonic acid (CLAUS and MIELCKE), 1886, A., 716.  
*α*-Naphthol-3 1'-disulphonic acid [e-] (BERNTHSEN), 1890, A., 387.  
 2-amido- (BERNTHSEN), 1891, A., 215.  
*α*-Naphthol-2:2'- and -2:4-disulphonic acids (BENDER), 1889, A., 718.  
*β*-Naphtholdisulphonic acid. action of tetrazodiphenyl on (SCHULTZ), 1884, A., 1036.  
*β*-Naphthol-1':3'-disulphonic acid [8- or G.-] (CLAUS and SCHMIDT), 1887, A., 269.  
 1-amido- (WITT), 1889, A., 273.  
*β*-Naphthol-3:3'-disulphonic acid [*α*- or R.-], constitution of (FITZINGER and DEISEBERG), 1889, A., 515.  
 1-amido- (WITT), 1889, A., 273.  
**Naphthol-green**, preparation of (GANS), 1885, A., 312.  
 physiological action of (WEYL), 1888, A., 1122.  
*α*-Naphtholmaleinfluorescein (BURCKHARDT), 1886, A., 51.  
**Naphtholphthalein anhydride** (MEYER), 1891, A., 1029.  
*α*-Naphtholsulphonamidisulphonic acid [e-] (BERNTHSEN), 1890, A., 387.  
*α*-Naphtholsulphonamidisulphonic acid [8-] (BERNTHSEN), 1891, A., 215.  
*α*-Naphtholsulphonic acid, amido- (SCHMIDT), 1892, A., 476.  
*α*-Naphthol-1'-sulphonic acid (ERDMANN), 1889, A., 157.  
 4-amido- (REVERDIN and DE LA HARPE), 1892, A., 996.  
*α*-Naphthol-2-sulphonic acid (BENDER), 1889, A., 717; (CLÉVE), 1892, A., 345.  
 4-amido- (SEIDEL), 1892, A., 721; (REVERDIN and DE LA HARPE), 1892, A., 996.  
*α*-Naphthol-2-[<sup>1</sup>]sulphonic acid and its salts (CLAUS and KNYRIM), 1886, A., 156.  
*α*-Naphthol-2'-sulphonic acid (BENDER), 1889, A., 717.  
*α*-Naphthol-4-sulphonic acid (ERDMANN), 1889, A., 157; (BENDER), 1889, A., 717; (WITT and KAUFMANN), 1892, A., 194.  
 2-amido- (REVERDIN and DE LA HARPE), 1892, A., 996.  
 2-nitroso- (WITT and KAUFMANN), 1892, A., 195.  
 metallic salts of (HOFFMANN), 1892, A., 346.  
*α*-Naphthol-4'-sulphonic acid (ERDMANN), 1889, A., 157.  
 2-amido- (REVERDIN and DE LA HARPE), 1892, A., 996.  
***β*-Naphtholsulphonic acid** (CLAUS and VOLZ), 1886, A., 246.  
 amido- (SCHMIDT), 1892, A., 476.  
 iodo- (OIFRAMEL), 1885, A., 673.

- β*-Naphthol-1-sulphonic acid** [ $\alpha$ ]  
(WITT), 1889, A., 275; (NIEZKI and ZUBLEN), 1889, A., 515.  
preparation of (ANON.), 1884, A., 238.  
constitution of (ARMSTRONG), 1889, P., 8; (ARMSTRONG and WYNNE), 1889, P., 53; (PFIZINGER and DUISBERG), 1889, A., 515.  
calcium salt of, physiological action of (STACKLER), 1892, A., 1116.  
1-amido- (WITT), 1889, A., 271; (REVERDIN and DE LA HARPE), 1892, A., 996.  
*diamido*- (NIEZKI and ZUBLEN), 1889, A., 515.
- β*-Naphthol-2'-sulphonic acid** [ $\delta$ , or F.]  
(BAYER and DUISBERG), 1887, A., 783; (WEINBERG), 1886, A., 160.  
constitution of (ARMSTRONG and WYNNE), 1889, P., 53.  
1-amido- (WITT), 1889, A., 272; (REVERDIN and DE LA HARPE), 1892, A., 996.
- β*-Naphthol-3'-sulphonic acid**, constitution of [ $\delta$ ] (ARMSTRONG and WYNNE), 1889, P., 53.  
action of bromine on (ARMSTRONG and STREATFIELD), 1886, P., 232.  
1-amido- (WITT), 1889, A., 272; (REVERDIN and DE LA HARPE), 1892, A., 996.  
1-bromo-, derivatives of (ARMSTRONG and ROSSITER), 1889, P., 72.  
1-chloro- and its derivatives (ARMSTRONG and ROSSITER), 1889, P., 72; 1891, P., 33.  
1-nitroso-, metallic salts of (HOFFMANN), 1892, A., 346.
- β*-Naphthol-4'-sulphonic acid** [ $\gamma$ ]  
(CLAUS), 1889, A., 714.  
constitution of (ARMSTRONG and WYNNE), 1889, P., 53.  
1-amido- (WITT), 1892, A., 272; (REVERDIN and DE LA HARPE), 1892, A., 996.
- α*-Naphthol-2-4-2'-trisulphonic acid**  
(CLAUS and MIELCKE), 1886, A., 716; (BENDER), 1889, A., 718.
- β*-Naphthol-3-3'-1'-trisulphonic acid**  
(LEVINESTEIN), 1883, A., 737; (LIMPACH), 1883, A., 1136.
- Naphthol-violet**, action of aromatic bases on (HIRSCH and KALCKHOFF), 1891, A., 77.  
See also Oxazine dyes.
- Naphthol-yellow**, S., constitution of (ARMSTRONG and WYNNE), 1889, P., 16.  
physiological action of (WETL), 1888, A., 1122

- α*-Naphthonitrile** (*α-cyanonaphthalene*)  
(BOESSNECK), 1883, A., 807.  
behaviour of, with sulphonating agents (ARMSTRONG), 1889, P., 122.  
hydrolysis of (LEONL), 1884, A., 1362.  
4'-chloro- (EKSIRAND), 1884, A., 1361.  
4'-nitro- (GRAEFF), 1884, A., 80.
- β*-Naphthonitrile** (*β-cyanonaphthalene*), action of sodium on alcoholic (BAMBERGER and BUECKMANN), 1887, A., 840.  
behaviour of, with sulphonating agents (ARMSTRONG), 1889, P., 122.  
hydrolysis of (LEONE), 1884, A., 1362.  
1-3'-dibromo- (CLAUS and PHILIPSON), 1891, A., 462.  
*mono*- and *di*-chloro-, and derivatives (EKSTRAND), 1891, A., 932.  
nitro- (GRAEFF), 1884, A., 80.
- α*-Naphthonitrilesulphonic acid** (*α-cyanonaphthalenesulphonic acid*)  
(DUTT), 1883, A., 1001; (ARMSTRONG and WILLIAMSON), 1887, P., 43.
- Naphthoxanthenes** (BENER), 1892, A., 1100.
- Naphthoxindoles**,  $\alpha$ - and  $\beta$ - (HINSBERG), 1888, A., 373, 372.
- Naphthoylacacetamide** (PINNER), 1892, A., 983.
- Naphthoylformic acid**. See Naphthylglyoxylic acid.
- Naphthoylhydroxamic acids**,  $\alpha$ - and  $\beta$ - (EKSIRAND), 1887, A., 840.
- Naphthoylnaphastyrils**,  $\alpha$ - and  $\beta$ - (EKSTRAND), 1889, A., 53.
- α*-Naphthoyl- $\alpha$ -naphthenylamidoxime**  
(EKSIRAND), 1887, A., 873.
- β*-Naphththiamide** (BAMBERGER and BUECKMANN), 1887, A., 675.
- Naphthyl benzyl ketone** (PAPCKE), 1888, A., 702.
- Naphthyl ethyl ether**. See Ethoxynaphthalene.  
amido-. See Ethoxynaphthylamine.
- α*-Naphthyl glycidyl ether** (LINDEMANN), 1891, A., 1199.
- Naphthyl mercaptans**,  $\alpha$ - and  $\beta$ -, amido- (V. HOFMANN), 1887, A., 839.
- α*-Naphthyl methyl ketone** and its derivatives (PAMPEL and SCHMIDT), 1887, A., 252; (CLAUS and FEIST), 1887, A., 271.
- β*-Naphthyl methyl ketone** (MULLER and V. PEHLMANN), 1890, A., 52; (SCHWILZER), 1891, A., 729.
- Naphthyl methyl ketones** (ROUX), 1888, A., 1306; (CLAUS and TERSTREGEN), 1891, A., 214.

- Naphthyl methyl ketones, action of phosphoric chloride on (LEROY), 1892, A., 495.
- $\alpha$ -Naphthyl phenyl ketone and its derivatives (VINCENT and RUTX), 1884, A., 609; (ELBS), 1887, A., 943; (ROSPENDOWSKI), 1886, A., 625; (ELBS and SLEINKE), 1886, A., 947; (KEGFL), 1888, A., 1307. boiling point of SCHWILTZER, 1891, A., 1240.
- sodium derivative of BICKMANN and PAUL, 1892, A., 170.
- $\beta$ -Naphthyl phenyl ketone (VINCENT and RUTX), 1884, A., 609; (ROSPENDOWSKI), 1886, A., 625; (KEGFL), 1888, A., 1307.
- $\alpha$ -Naphthylacetamide and  $\alpha$ -naphthylacetonitrile (BOL-SNECK), 1883, A., 808.
- $\alpha$ -Naphthylacetic acid (BOL-SNECK), 1883, A., 808.
- $\beta$ -Naphthylacetic acid (CLAUS and TEISTFEGEN), 1891, A., 215; (SCHWEITZER), 1891, A., 730.
- Naphthylacetylenes,  $\alpha$ - and  $\beta$ -, and their derivatives (LEROY), 1892, A., 495, 496.
- $\alpha$ -Naphthylacrylic acid ( *$\alpha$ -naphthacinnamic acid*) (BRANDIS), 1889, A., 1200.
- $\beta$ -Naphthylalkylamines, reduction of (BAMBERGER and MULLER), 1889, A., 888.
- Naphthyl- $\beta$ -allylsemithiocarbazide (AVENARIUS), 1891, A., 550.
- $\alpha$ -Naphthylamidoacetic acid (*naphthylglycocine*) (BISCHOFF and NAST-VOGEL), 1889, A., 1015; (JOLLES), 1889, A., 1199; (FORTE), 1890, A., 900.
- calcium salt of (MAUTHNER and STIDA), 1891, A., 39.
- $\beta$ -Naphthylamidoacetic acid (JOLLES), 1889, A., 1199.
- Naphthylamidoacetic acids, derivatives of (JOLLES), 1889, A., 1199; (BISCHOFF and HAUSDORFER), 1890, A., 1309; 1892, A., 1341.
- $\alpha$ -Naphthylamidoacetic naphthylamide (BISCHOFF and HAUSDORFER), 1892, A., 1341.
- $\beta$ -Naphthylamidoacetic naphthylamine (JOLLES), 1889, A., 1199.
- $\alpha$ -Naphthylamidoacetyl- $\alpha$ -naphthylamineacetic acid (BISCHOFF and HAUSDORFER), 1892, A., 1341.
- Naphthylamidobenzoic acids, *m*-amido- and *m*-nitro-, *p*- $\alpha$ - and  $\beta$ - (HEIDEN-SLEBEN), 1891, A., 307.
- Naphthylamidobiazolones,  $\alpha$ - and  $\beta$ - (FREUND), 1892, A., 510, 508.
- Naphthylamidobutyric acids,  $\alpha$ - and  $\beta$ - (BISCHOFF and MINTZ), 1892, A., 1338.
- Naphthylamidoisobutyric acids, derivatives of (BISCHOFF and MINTZ), 1892, A., 1342.
- $\alpha$ -Naphthylamidocyanuric chloride (FRILS), 1886, T., 314.
- $\beta$ -Naphthylamidocyanuric chloride (FRIES), 1886, T., 710.
- Naphthylamidoethylphthalimides,  $\alpha$ - and  $\beta$ - (NEWMAN), 1891, A., 1208.
- Naphthylamidopropionic acids,  $\alpha$ - and  $\beta$ - (BISCHOFF and HAUSDORFER), 1892, A., 1337.
- Naphthylamidosuccinic acids,  $\alpha$ - and  $\beta$ - (HELL and POLIAKOFF), 1892, A., 860.
- Naphthylamidosuccinic dinaphthylamide (HELL and POLIAKOFF), 1892, A., 860.
- $\alpha$ -Naphthylamido-*s*-thiobiazolone (HELL and POLIAKOFF), 1892, A., 510.
- Naphthylamidothiobiazolones,  $\alpha$ - and  $\beta$ - (FREUND), 1892, A., 511, 508.
- Naphthylamine (*naphthamphthalene*), chloro-*trinitro*- [m.p. 252°] (CLEVE), 1890, A., 626.
- $\alpha$ -Naphthylamine, manufacture of (WITT), 1887, A., 1048.
- refractive power of, at different temperatures (PERKIN), 1892, T., 303.
- action of picric chloride on (TURPIN), 1891, T., 716.
- citraconate (MORAWSKI and GLASER), 1888, A., 1096.
- citrate (HECHT), 1887, A., 154.
- hydrochloride, action of fuming sulphuric acid on (MAZZELIUS), 1888, A., 375.
- phenate (DYSON), 1888, T., 468.
- picrate (SMOLKA), 1886, A., 454.
- platinothiocyanate (GUARESCHI), 1892, A., 287.
- $\alpha$ -Naphthylamine, 3'-bromo- (MELDOLA), 1885, T., 508; P., 72.
- 4-bromo- (GUARESCHI), 1884, A., 843; (MELDOLA), 1885, T., 508; P., 72.
- 4' (?) -bromo- (GUARESCHI), 1884, A., 843.
- 2:4-*d*-bromo- (MELDOLA), 1885, T., 510; P., 72.
- 4:2-bromonitro- (MELDOLA), 1885, T., 500; P., 71; (ARMSTRONG and ROSSITER), 1891, P., 186; (MELDOLA and DESCH), 1892, T., 765.
- 2-chloro- and 2:4-*d*-chloro- (CLEVE), 1887, A., 495.

- $\alpha$ -Naphthylamine**, 1':4'-dichloro- (SCHWEITEN), 1890, A., 620.  
 2':4'-dichloro- (ERDMANN), 1889, A., 265; (SCHWEITEN), 1890, A., 620.  
 2-nitro- and its derivatives (LEITMANN), 1884, A., 751; (LEITMANN and REWY), 1886, A., 624.  
 2,4-dinitro- (WIRI), 1886, A., 917.  
 preparation of (MELDOLA), 1887, A., 152.  
 2,4:1':4'- and 2,4:2':4'-*di*-nitro- (MERZ and WEITH), 1883, A., 344.  
 2-nitroso- (HARDEN), 1890, A., 630.  
 **$\beta$ -Naphthylamine**, action of diazo-compounds on (LAWSON), 1885, A., 802, 1238.  
 action of quinonedichlorimide on (NIETZKI and OTTO), 1888, A., 848.  
 nitration of (FRIEDLANDER and SZYMANSKI), 1892, A., 1232.  
 products of the sulphonation of, at 100°—105° (GREEN), 1889, T., 35.  
 compounds from diazophenols and (SACHS), 1886, A., 235.  
 constitution of the compounds obtained from diazo-salts and (ZINCKE), 1886, A., 244.  
 derivatives of (MASCHKE), 1887, A., 838.  
 the isomeric sulphonic acids of (GREEN), 1889, T., 33.  
 citraconates (MORAWSKI and GLAUBER), 1888, A., 1096.  
 citrates (HECHT), 1887, A., 151.  
 platinothiocyanate (GUARIESCHI), 1892, A., 257.  
 **$\beta$ -Naphthylamine**, *di*amido-, hydrochlorides of (LOEWE), 1890, A., 1424.  
 1-bromo- (MELDOLA), 1885, T., 508; P., 72; (LEITMANN and SCHMIDT), 1888, A., 289.  
 4-bromo- (MELDOLA), 1885, T., 508; P., 72.  
 non-existence of (ARMSTRONG and ROSSITER), 1891, P., 187; (MELDOLA and DESCH), 1892, T., 766.  
 1:3'-*di*bromo- (LAWSON), 1885, A., 1239; (ARMSTRONG and ROSSITER), 1891, P., 32; (CLAUS and PHILIPSON), 1891, A., 461.  
 1:4'-*di*bromo- (MELDOLA), 1885, T., 497; P., 72; 1886, P., 173; (ARMSTRONG and ROSSITER), 1891, P., 186.  
*tri*bromo- (CLAUS and PHILIPSON), 1891, A., 462.  
 **$\beta$ -Naphthylamine**, 4:1-bromido- (MELDOLA and DESCH), 1892, T., 767; P., 141.  
 1-chloro- (CLEVE), 1887, A., 961.  
 1':4'-*di*chloro- (CLAUS and PHILIPSON), 1891, A., 462.  
 1,4-chlorobromo- (MELDOLA and DESCH), 1892, T., 768.  
 1:3'-chlorobromo- (ARMSTRONG and ROSSITER), 1891, P., 33.  
 1'- and 4'-nitro- (FRIEDLANDER and SZYMANSKI), 1892, A., 1234, 1233.  
*di*nitro- [m.p. 238°—242°] (GRAEBE and DREWS), 1884, A., 1036.  
 1':4'-*di*nitro- (ONUFROWICZ), 1891, A., 321.  
*tri*nitro- [m.p. 240—266°] (STAEDEL), 1883, A., 863.  
 nitroso- (V. ILINSKI), 1884, A., 1035; (HARDEN), 1890, A., 630.  
**Naphthylamines**, primary and secondary (BENZ), 1888, A., 594.  
 action of *di*brom- $\alpha$ -naphthol on (MELDOLA), 1884, T., 160.  
 action of *p*-diazobenzenesulphonic acid on (GRIESS), 1883, A., 182.  
 action of diazo-*p*-nitrobenzene on (MELDOLA), 1883, T., 430.  
 action of, on ethylic bromosuccinate (HELL and POLIAKOFF), 1892, A., 860.  
 action of *m*-nitrodiazobenzene on (MELDOLA), 1884, T., 114, 116.  
 action of nascent nitrous acid on (DENINGER), 1890, A., 39.  
 compounds of, with metallic salts (LACHOWICZ and BANDROWSKI), 1888, A., 1231.  
 bromo-, identity of supposed isomericides (ARMSTRONG and ROSSITER), 1891, P., 188; (MELDOLA and DESCH), 1892, T., 766.  
**Naphthylaminealloxan** (PELLIZZARI), 1888, A., 142, 681.  
 **$\alpha$ -Naphthylaminebenzylidenesulphonic acid**. See  $\alpha$ -Naphthyl- $\omega$ -imidotoluenesulphonic acid.  
 **$\alpha$ -Naphthylaminebisdiazobenzene** (KROHN), 1889, A., 152.  
**Naphthylaminebisazobenzenes**,  $\alpha$ - and  $\beta$ - (NIETZKI and DIESTERWEG), 1888, A., 1082, 1083.  
 **$\alpha$ -Naphthylamine-3:1'-disulphonic acid** [c] (ARMSTRONG and WYNNE), 1890, P., 15; (BERNTSEN), 1890, A., 386; (SCHULTZ), 1890, A., 388.  
 **$\alpha$ -Naphthylamine-1:1'-disulphonic acid** (*Schollkopf acid*) (BERNTSEN), 1890, A., 386.  
 constitution of (ARMSTRONG and WYNNE), 1890, P., 126.

- α*-Naphthylamine-4:2'-disulphonic acid** (*Dahl No. III.*), constitution of (ARMSTRONG and WYNNE), 1890, P., 16.
- α*-Naphthylamine-4:3'-disulphonic acid** (*Dahl No. II.*), constitution of (ARMSTRONG and WYNNE), 1890, P., 125.
- β*-Naphthylamine-1:3'-disulphonic acid** (FORSLING), 1889, A., 276.  
constitution of (ARMSTRONG and WYNNE), 1890, P., 130.
- β*-Naphthylamine-1':3'-disulphonic acid** (*Amido-β-acid*) (LANDSHOFF), 1885, A., 312.  
constitution of (ARMSTRONG and WYNNE), 1890, P., 12, 12<sup>a</sup>.
- β*-Naphthylamine-3:2'-disulphonic acid** (*Cassella's β-acid*), constitution of (ARMSTRONG and WYNNE), 1890, P., 127.
- β*-Naphthylamine-3:3'-disulphonic acid** (*Amido-β-acid*), constitution of (ARMSTRONG and WYNNE), 1890, P., 12.
- β*-Naphthylamine-4:2'-disulphonic acid** (*Andersen's acid*) (SCHULTZ), 1890, A., 388; (ARMSTRONG and WYNNE), 1891, A., 27.
- α*-Naphthylaminophthalein** (VANNI), 1886, A., 68.
- α*-Naphthylamine-3'-sulphonamide** (*naphthionamide*) (EKBOM), 1891, A., 578.
- α*-Naphthylamine-4-sulphonamide** (CLEVE), 1890, A., 635.
- α*-Naphthylamine-4'-sulphonamide** (EKBOM), 1890, A., 994.
- Naphthylaminesulphonic acid, iodo-** (OSTERMAYER), 1885, A., 678.
- α*-Naphthylaminesulphonic acid** (*δ-Hirsch acid*) (HIRSCH), 1888, A., 1200.
- α*-Naphthylamine-1'-sulphonic acid** (ERDMANN), 1889, A., 156.
- α*-Naphthylamine-2-sulphonic acid** (CLEVE), 1892, A., 345.
- α*-Naphthylamine-2'-sulphonic acid [δ-]** (CLEVE), 1889, A., 155.
- 2-chloro-** (CLEVE), 1892, A., 1479.
- α*-Naphthylamine-3-sulphonic acid [γ-]** (CLEVE), 1886, A., 1037; 1889, A., 154.
- α*-Naphthylamine-4-sulphonic acid** (*naphthionic acid*) (WITT), 1886, A., 364; (ERDMANN), 1889, A., 156.  
constitution of (WITT), 1886, A., 369.  
nitration of (NIETZKI and ZUBELN), 1889, A., 513.  
sodium salt of, action of benzaldehyde on (CAHN and LANGE), 1887, A., 962.
- α*-Naphthylamine-4-sulphonic acid, 4'-nitro-** (NIETZKI and ZUBELN), 1889, A., 511.
- α*-Naphthylamine-4'-sulphonic acid** (*naphthylol-sulphonic acid*) (WITT), 1886, A., 351; (LANGE), 1888, A., 160; (ERDMANN), 1889, A., 156.  
conversion of, into *α*-chloronaphthalene (ERDMANN), 1889, A., 290.
- β*-Naphthylamine-1'-sulphonic acid** (*Badische-acid*) (FORSLING), 1886, A., 890; 1887, A., 962.  
preparation of (VANNI), 1884, A., 238.  
constitution of (ARMSTRONG and WYNNE), 1890, P., 50; (IMMERHEINER), 1889, A., 514; (FORSLING), 1889, A., 718.
- β*-Naphthylamine-2-sulphonic acid [δ-]**, and its derivatives (BAYER) and (DEINBERG), 1887, A., 732; (WEINBERG), 1888, A., 160.  
identity of the δ- and F. acids (SCHULTZ), 1888, A., 290; (ERDMANN), 1888, A., 491.
- 1-chloro-** (ARMSTRONG and WYNNE), 1889, P., 36, 48.
- β*-Naphthylamine-3'-sulphonic acid** (*Bronner's acid*) (LANDSHOFF), 1885, A., 312; (FORSLING), 1887, A., 375.  
dye-stuffs from (LANDSHOFF), 1883, A., 1135.  
acids formed by displacing NH<sub>2</sub> in, by halogens (HOULDING), 1889, P., 74.  
action of fuming sulphuric acid on (FORSLING), 1889, A., 275; (ARMSTRONG and WYNNE), 1890, P., 130.
- 1-chloro-** (ARMSTRONG and WYNNE), 1889, P., 36, 48.
- β*-Naphthylamine-4'-sulphonic acid** (FORSLING), 1887, A., 963.
- 1-chloro-** (ARMSTRONG and WYNNE), 1889, P., 36, 48.
- β*-Naphthylaminesulphonic acids**, properties of the four (GREEN), 1889, T., 36.  
from *β*-naphtholsulphonic acids (GREEN), 1889, T., 37.  
constitution of (ARMSTRONG and WYNNE), 1889, P., 36, 48.  
conversion of the 2:1'- and 2:4'-acids into mixtures of the 2:2'- and 2:3'-acids (WEINBERG), 1888, A., 290.  
the isomeric heteronuclear, the disulphonic acids obtained by sulphonating (ARMSTRONG and WYNNE), 1890, P., 128.

- $\beta$ -Naphthylamine-3:1':3'-trisulphonic acid** (LANDSBOFF), 1855, A., 312.
- $\alpha$ -Naphthylaspartic acid** (HEIL and POLIAKOFF), 1892, A., 860.
- $\beta$ -Naphthylbenzoylcoeyamine, and its hydrochloride** (GRILS), 1883, A., 669.
- $\beta$ -Naphthylbenzylamine** (KÖHLER), 1883, A., 50.
- $\alpha$ -Naphthylbenzylcarbamide** (KÜHN and RIESENFELD), 1892, A., 312.
- $\beta$ -Naphthylbenzylideneamine** (CLAISEN), 1887, A., 494.
- Naphthylbenzylthiocarbamides,  $\alpha$ - and  $\beta$ -** (DIXON), 1891, T., 558, 559.
- $\alpha\beta$ -Naphthylcarbamide** (KÜHN and LANDAU), 1890, A., 634.
- $\alpha$ -Naphthylcarbinol ( *$\alpha$ -naphthalbenzyl alcohol*)** (BAMBERGER and LODTER), 1888, A., 375.
- $\beta$ -Naphthylcarbinol** (BAMBERGER and BOEKEMANN), 1887, A., 675.
- Naphthylcarbinylamine.** See Naphthylmethylamine.
- $\alpha$ -Naphthylcyanamide** (TIEMANN), 1889, A., 1165; (VOLTMER), 1891, A., 559.
- $\alpha$ -Naphthylidithylamine** (FRIEDLANDER and WELMANS), 1889, A., 151.
- $\beta$ -Naphthylidithylamine, hydrogenation of** (BAMBERGER and WILLIAMSON), 1889, A., 1000.
- $\alpha$ -Naphthylidithylaminocarboxylic acid** (FRIEDLANDER and WELMANS), 1889, A., 152.
- $\alpha$ -Naphthylidimethylamine and its derivatives** (FRIEDLANDER and WELMANS), 1889, A., 150.
- $\alpha$ -Naphthylidimethylaminocarboxylic acid** (FRIEDLANDER and WELMANS), 1889, A., 151.
- Naphthylidimethylaminesulphonic acid** (FRIEDLANDER and WELMANS), 1889, A., 151.
- Naphthylidimethylpropionic acid** (GUCCI and GRASSI-CRISTALDI), 1892, A., 871.
- Naphthyl-2:5-dimethylpyrrolines, 1: $\alpha$ - and 1: $\beta$ -** (KNORR), 1887, A., 275.
- 1- $\beta$ -Naphthyl-2:5-dimethylpyrrolone-3:4-dicarboxylic acid** (KNORR), 1885, A., 555.
- 1: $\alpha$ -Naphthyl-2:5-dimethylpyrrolone-3:4-dicarboxylic acid** (KNORR), 1887, A., 275.
- Naphthylidiphenylamine** (HERZ), 1890, A., 1410.
- Naphthylidiphenylamine-blue, constitution of** (HAUSDÖRFER), 1890, A., 1308.
- $\beta$ -Naphthylidiphenylcarbamide** (KYM), 1890, A., 688.
- Naphthyl-2:5-diphenylpyrrolines, 1: $\alpha$ - and 1: $\beta$ -** (PAAL and BRAIKOFF), 1890, A., 263, 264.
- Naphthylene mercaptan** (EBERT and KLEINER), 1891, A., 460.
- "Naphthylenes"** (MARKOWNIKOFF and OGLOBLIN), 1884, A., 1276.4
- Naphthylene- $\alpha\beta$ -benzenyldiamine** (KOLL), 1891, A., 1289.
- Naphthylenediallylthiocarbamide** (LELLMANN), 1886, A., 625.
- 1:1'-Naphthylenediamine (*diamidonaphthalene*)** (HINSBERG), 1889, A., 717.
- 1:2-Naphthylenediamine** (LAWSON), 1885, A., 1238.
- action of formic acid on (FISCHER and WRESZINSKI), 1892, A., 1496.
- hydrogenation of (BAMBERGER and SCHIEFFELIN), 1889, A., 892.
- 1:3-Naphthylenediamine** (URBAN), 1887, A., 674.
- 1:4-Naphthylenediamine** (GRIESS), 1883, A., 183; (WITT), 1887, A., 1048.
- hydrogenation of (BAMBERGER and SCHIEFFELIN), 1889, A., 892.
- 2:1'-Naphthylenediamine** (FRIEDLANDER and SZYMANSKI), 1892, A., 1234.
- 2:2'-Naphthylenediamine, preparation of** (BAMBERGER and SCHIEFFELIN), 1889, A., 893.
- 2:4'-Naphthylenediamine** (FRIEDLANDER and SZYMANSKI), 1892, A., 1233.
- Naphthylenediamines, substituted** (ANNAHEIM), 1887, A., 839.
- 1:2-Naphthylenediamine-3:1'-disulphonic acid, derivatives of** (BERNTSEN), 1891, A., 216.
- 1:2-Naphthylenediamine-2', -3'- and -4'-sulphonic acids** (WITT), 1889, A., 274.
- $\alpha\beta$ -Naphthylenedimethoxyphthalamidone** (BISPRZYCKI and CYBULSKI), 1892, A., 1249.
- Naphthylenedinephthylsulphoxide** (EKSTRAND), 1885, A., 170.
- Naphthylenediphenylthiocarbamide** (BAMBERGER and SCHIEFFELIN), 1889, A., 892.
- 1:2-Naphthylene-ethenylamidine and its salts** (PRAGER), 1885, A., 1239; (LELMANN and REMY), 1886, A., 624.
- 4-bromo- and bromonitro- (PRAGER), 1885, A., 1239.
- $\beta\beta$ -Naphthylene-ethenyldiamine** (FISCHER and HEPP), 1887, A., 729.
- Naphthylene-ethyldiamine** (KOCK), 1888, A., 469.
- Naphthylene-ethyldiamine hydrochloride** (KOCK), 1888, A., 469; (BAMBERGER and GOLDSMIDT), 1891, A., 1239.

- 1:2-Naphthylene-methenylamidine and -methylenmethenylamidine (FISCHER and WRESZINSKI, 1892, A., 1496.
- $\beta$ -Naphthylenetoluinoxaline (HILG), 1885, A., 909.
- amido- (WITF, 1896, T., 400.
- Naphthylenic dihydrosulphides and di-thiocyanate (EBERT and KLEINER), 1891, A., 460; (BRAUN and EBERT), 1892, A., 1471.
- $\alpha$ -Naphthylethyldiphenyldiamine (BOES-NECK), 1883, A., 303.
- $\alpha$ -Naphthylethylamine (BANDERGER and GOLDSCHMIDT), 1891, A., 1238.
- $\beta$ -nitroso- (HARDIN), 1890, A., 631.
- p*-nitroso- (KOCK, 1888, A., 469.
- $\beta$ -Naphthylethylamine (HENRIQUE), 1885, A., 168.
- $\alpha$ -nitroso- (FISCHER and HEPP), 1887, A., 1114; 1888, A., 461.
- $\alpha$ -Naphthylethylene (*naphthucianamene*) (BRANDIS), 1889, A., 1200.
- chloro- (LEROY), 1892, A., 495.
- $\beta$ -Naphthylethylene, chloro- (LEROY), 1892, A., 495.
- $\alpha$ -Naphthylethylenediamine (NEWMAN), 1891, A., 1208.
- $\beta$ -Naphthylethylhydrazine (HAUFF), 1890, A., 61.
- $\beta$ -Naphthylethylidenhydrazine (SCHLIEFER), 1887, A., 153.
- Naphthylethylxanthic acids, sulpho- $\alpha$ - and - $\beta$ -, potassium salts of (LEUCKART), 1890, A., 606.
- Naphthylformamides,  $\alpha$ - and  $\beta$ - (TOBIAS), 1883, A., 326.
- Naphthylglyocine. See Naphthyl-amidoacetic acid.
- $\beta$ -Naphthylglycollamide (SCHWEITZER), 1891, A., 729.
- $\alpha$ -Naphthylglycollic acid (*naphtho-oxoacetic acid*) (BOES-NECK), 1883, A., 308; (SPICA), 1887, A., 495; (BRANDIS), 1889, A., 1200; (SCHWEITZER), 1891, A., 730.
- $\beta$ -Naphthylglycollic acid (SPICA), 1887, A., 495; (CLATS and TER-TEESEN), 1891, A., 215; (SCHWEITZER), 1891, A., 729.
- $\alpha$ -Naphthylglycollic nitrile (BRANDIS), 1889, A., 1200.
- Naphthylglycuronic acids,  $\alpha$ - and  $\beta$ - (LESNIK and NENCAT, 1886, A., 823.
- 1- $\alpha$ -Naphthylglyoxaline and  $\mu$ -mercaptan and  $\mu$ -methylsulphide (MARCKWALD), 1892, A., 1331.
- $\alpha$ -Naphthylglyoxylamide (BOES-NECK), 1883, A., 395.
- $\alpha$ -Naphthylglyoxylic acid (*naphthoyl-formic acid*) (BOES-NECK), 1883, A., 595, 808; (CLATS and FEINT), 1887, A., 271.
- $\beta$ -Naphthylglyoxylic acid (CLATS and TER-TEESEN), 1891, A., 211.
- $\alpha$ -Naphthylhydrazine (FISCHER), 1886, A., 554.
- indoles from (SCHLIEFER), 1887, A., 963.
- $\beta$ -Naphthylhydrazine (FISCHER), 1886, A., 555; (HAUFF), 1890, A., 61.
- naphthylthiocarbiminate (HAUFF), 1890, A., 61.
- $\beta$ -Naphthylhydrazinelevulinic acid (FECHER), 1883, A., 284.
- $\alpha$ -Naphthylhydrazinepyruvic acid (SCHLIEFER), 1887, A., 963.
- $\beta$ -Naphthylhydrazinepyruvic acid (SCHLIEFER), 1887, A., 153.
- $\alpha$ -Naphthylhydrazone, thionyl- (MICHAELIS and RUHL), 1892, A., 1324.
- $\beta$ -Naphthyl benzenesulphonate (TRAUBE), 1891, A., 569.
- benzoate and acetate,  $\alpha$ -nitro-, reduction of (BOTTCHE), 1885, A., 659.
- benzoate and acetate,  $\alpha$ -nitro-, molecular transformations of (BOTTCHE), 1883, A., 1113.
- Naphthyl benzylic oxides,  $\alpha$ - and  $\beta$ - (STAEDEL), 1883, A., 586.
- carbamates,  $\alpha$ - and  $\beta$ - (GATTERMANN), 1888, A., 575.
- carbonates,  $\alpha$ - and  $\beta$ - (LOWENBERG), 1886, A., 799.
- $\beta$ -Naphthyl cinnamate, decomposition of, by heat (ANSCHÜTZ), 1885, T., 399; A., 1065.
- Naphthyl cyanurates,  $\alpha$ - and  $\beta$ - (OTTO), 1887, A., 1034.
- ethylic carbonate (BENDER), 1887, A., 37.
- o*-oxalates,  $\alpha$ - and  $\beta$ - (STAUB and SMITH), 1884, T., 303, 304.
- phenylcarbamates,  $\alpha$  and  $\beta$ - (SNAPE), 1885, T., 776; (LEUCKART and SCHMIDT), 1885, A., 1224.
- sulphide, *d*-nitro- (ESSIRAND), 1885, A., 171.
- disulphides*, sulpho- $\alpha$ - and - $\beta$ -, potassium derivatives of (LEUCKART), 1890, A., 606.
- o*-tolylcarbamate (GATTERMANN and CANZIER), 1892, A., 82.
- Naphthylido-. See Naphthylamido-.
- Naphthylimidazole. See Naphthylglyoxaline.
- $\alpha$ -Naphthylimidobenzil (*naphthilbenzil*) (BANDROWSKI), 1889, A., 147.

- $\beta$ -Naphthylimidobenzoin** (VOIGT), 1886, A., 885.
- $\beta$ -Naphthyl- $\beta$ -imidobutyric acid**. synthesis of (KNORR), 1884, A., 1198.
- Naphthylimidodiacetic acids,  $\alpha$ - and  $\beta$ -** (BISCHOFF and HAUSDORFER), 1890, A., 1309.
- $\alpha$ -Naphthyl- $\alpha$ -imidotoluenesulphonic acid** (KAFKA), 1891, A., 720.
- $\beta$ -Naphthylmelamine** (FRIES), 1886, T., 740.
- $\alpha$ -Naphthylmethenyldiphenyldiamine** (BOESSNECK), 1883, A., 805.
- $\beta$ -Naphthylmethylaniline** (*naphthylcarbonylaniline*) (BAMBERGER and BOEKMANN), 1887, A., 675.
- Naphthylmethyl-biazolones and - $\psi$ -thiobiazolones,  $\alpha$ - and  $\beta$ -** (FREUND), 1892, A., 509, 508.
- $\alpha$ -Naphthylmethylic chloride** (SCHERLER), 1892, A., 494.
- $\beta$ -Naphthylmethylic chloride and bromide** (SCHULZE), 1884, A., 1184.
- 1: $\beta$ -Naphthyl-3-methylpyrazolone** (*naphtha-oxymethylquinizine*) (KNORR), 1884, A., 1154.
- 1: $\alpha$ -Naphthyl-3-methyl-5-pyrazolone-keto-4- $\alpha$ -naphthylhydrazone** (SPRAGUE), 1891, T., 342.
- $\beta$ -Naphthylmethylsulphone** (OTTO and RÖSSING), 1892, A., 623.
- $\alpha$ -Naphthylmethylthiohydantoin** (MARCKWALD, NEWMARK and STELZNER), 1892, A., 150.
- Naphthyl-naphthylenebenzenylamidine** (RIS), 1883, A., 58.
- $\alpha$ -Naphthyl-oxazoneglyoxalcarboxylic acid** (NASTOGGEL), 1889, A., 238.
- Naphthylphenyl-**. See Phenyl-naphthyl-
- $\alpha$ -Naphthylphthalamic acid and  $\alpha$ -naphthylphthalimide** (PUTTI), 1886, A., 473, 472.
- Naphthylpiperidines,  $\alpha$ - and  $\beta$ -** (LELLMANN and BETTNER), 1890, A., 1003.
- $\alpha$ -Naphthylpropionic acid and  $\beta$ -bromo- and  $\alpha\beta$ -dibromo-** (BRANDIS), 1889, A., 1200.
- $\beta$ -Naphthylpropylene- $\psi$ -semithiocarbamide** (ÄVENARITS), 1891, A., 550.
- $\alpha$ -Naphthylpropylene- $\psi$ -thiocarbamide** (PRAGER), 1890, A., 160.
- Naphthylquinoline** (ELIASBERG and FRIEDLANDER), 1892, A., 1107.
- Naphthylrosinduline and isonaphthylrosinduline** (FISCHER and HEPP), 1890, A., 910.
- $\alpha$ -Naphthylsemicarbazide** (PINNER), 1886, A., 687.
- $\beta$ -Naphthylsemicarbazide** (PINNER), 1886, A., 687; (HAUFF), 1890, A., 61.
- $\alpha$ -Naphthylsemithiocarbamide** (FREUND), 1892, A., 510.
- $\beta$ -Naphthylsemithiocarbamide** (HAUFF), 1890, A., 61.
- Naphthylsuccinamic acids,  $\alpha$ - and  $\beta$ -** (PELLIZZARI and MATTEUCCI), 1888, A., 1302, 1303.
- Naphthylsuccinimides,  $\alpha$ - and  $\beta$ -** (PELLIZZARI and MATTEUCCI), 1888, A., 1302, 1303.
- $\beta$ -Naphthylsulphonamic acid**, ammonium salt of (TRAUBE), 1891, A., 569.
- Naphthylthiocarbamic acids, salts of** (LOSANITSCH), 1892, A., 56.
- $\alpha$ -Naphthylthiocarbamide** (MARCKWALD), 1892, A., 1331.
- $\alpha$ -Naphthylthiocarbazine** (FREUND), 1892, A., 510.
- $\beta$ -Naphthylthiocarbazine** (HAUFF), 1890, A., 61.
- Narceine and narcotine**. See Alkaloids.
- Narceinic acid** (CLAUS and MEIXNER), 1888, A., 612.
- Naringenin** (WILL), 1885, A., 906.
- Naringenic acid**. See *p*-Coumaric acid.
- Naringin and its derivatives** (WILL), 1885, A., 906; 1887, A., 497.
- sugar from** (WILL), 1887, A., 715.
- Natrolite** (SCHTUBERT), 1883, A., 35; (NEGRI), 1891, A., 1438.
- from Magnet Cove, Arkansas** (GENTH and PENFIELD), 1892, A., 793.
- from Monte Baldo** (LUZZATTO), 1890, A., 114; 1892, A., 690.
- of Montecatini** (MATTIROLI), 1891, A., 1438.
- analysis of** (LINDSTROM), 1889, A., 219.
- Natrophilite from Branchville** (BRUSH and DANA), 1890, A., 1072.
- Nectar** (*v. PLANTA*), 1886, A., 575.
- Neodymium** (AUER VON WELSBACH), 1885, A., 1113.
- oxide. emission spectrum of** (HAITINGER), 1892, A., 2.
- Neossine** (GREEN), 1886, A., 635.
- Neotesite** (IGELSTROM), 1890, A., 1076.
- Nepaulite, so-called** (MAILET), 1886, A., 207.
- Nephelinic tephrite of the Jamma Valley** (MICHEL-LÉVY), 1886, A., 433.
- Nephelite** (*nepheline*) from the Cape Verde Islands, analysis of (DÖRLTER), 1883, A., 722.

- Nephelite** (*nepheline*) in the oligoclase of Denise (DES CROIZEAUX and JANNETAZ, 1883, A., 1067.  
preparation of C. and G. FRILLET, 1890, A., 1089; (MICHEL), 1891, A., 22.
- Nephelite-basalt** from the Cape Verde Islands, analysis of (DOELTER), 1883, A., 722.  
near Tryberg in the Black Forest (WILLIAMS), 1883, A., 725.  
from the Vogelsberg (SOMMERLAND), 1884, A., 275; 1885, A., 33.
- Nephelite rocks** in the United States (WOLFF), 1885, A., 230.  
from Ziegenhals, near Wohnfeld, analysis of (SOMMERLAND), 1884, A., 276.
- Nephelite-syenite** of the Kola Peninsula (RAMSAY, 1891, A., 531.  
from the Transvaal (WILFING), 1888, A., 925.
- Nephrite** (V. BECK and V. MÜCHKE-TOFF), 1883, A., 1068; (CLARKE and MERRILL), 1890, A., 716.  
from Alaska (MYER), 1887, A., 222.  
from Asia (MEYER), 1886, A., 210.  
from Jordansmühl in Silesia (TRAUBE), 1885, A., 361, 1159; (KENNIGOTT), 1885, A., 1119.  
from Siberia (JANNETAZ and MICHEL), 1883, A., 436.  
from Tasmania (BODEWIG), 1885, A., 733.  
See also Jade and Jadeite.
- Nephroma lusitanica**, emodin from (BACHMANN), 1888, A., 722.
- Nerjin** (PIESZCZEK), 1890, A., 1316.
- Nerium Oleander**, constituents of the bark of (PIESZCZEK), 1890, A., 1316.
- Nerve fibres and cells** (peripheral), action of poisons on (LANGLEY and DICKINSON), 1891, A., 435.
- Nerve substance**, chemical composition of (CHEVALIER), 1886, A., 385.
- Nerves**, heat production in, during excitation (STEWART), 1892, A., 365.  
temperature in (ROLLESTON), 1890, A., 536.  
influence of ptomaine hydrochloride on (GUARESCHI and MOSSO), 1884, A., 618.
- Nesquehonite** (GANTH and PENFIELD), 1890, A., 571.
- Nesslerising** (MILNE), 1888, A., 87.  
coloured tubes for (BRENEWAN), 1884, A., 1072.
- Nessler test**, influence of temperature on (HAZEN and CLARK), 1890, A., 1024.
- Nets**, methods used by fishermen for "barking" and in other ways preserving (STORER), 1884, A., 500.
- Neuridine** BLIEGER, 1884, A., 1202.  
See also Pentamethyl-nediamine.
- Neurine** MARINO-ZUCO, 1884, A., 342; (SCHMIDT), 1892, A., 219.  
commercial (BRIEGER), 1884, A., 1202.  
action of hydriodic and hydrobromic acids on (SCHMIDT), 1892, A., 803.  
physiological action of (BRIEGER; MARINO-ZUCO), 1884, A., 1056; (CERVELLO), 1885, A., 925.  
as a pyrexial agent (OTT and COLLMAR, 1883, A., 1325.  
derivatives of (BODE, 1892, A., 806; (SCHMIDT, 1892, A., 905.  
di-tearyl-glycerolphosphate, and its derivatives (HINDENSHAGEN), 1884, A., 282.  
See also Ptomaines.
- Neurokeratin** (KÜNE and CHITTENDEN), 1890, A., 807.
- Neutralisation**, thermal phenomena of (PICKERING), 1887, T., 593; P., 77.
- Neutrality**, absolute, determination of (DUGGAN), 1886, A., 765.
- Newberyite** (MACIVOR), 1887, A., 709.
- Newtonite** (BRACKETT and WILLIAMS), 1892, A., 22.
- Nickel** (KRÜSS and SCHMIDT), 1889, A., 1114.  
atomic weight of (BAUBIGNY), 1884, A., 256; (ZIMMERMANN), 1886, A., 596; (WINKLER), 1889, A., 759; (SCHÜTZENBERGER), 1892, A., 1158.  
compound nature of (KRÜSS and SCHMIDT), 1889, A., 349, 1114.  
(metal) extraction of, from its ores (MANHÉS), 1885, A., 204.  
metallurgy of (BLAKE), 1884, A., 129.  
malleable, preparation of (ANON.), 1885, A., 303.  
use of hydrogen sulphide to purify (BAUBIGNY), 1888, A., 423.  
molecular changes in (LE CHATELIER), 1891, A., 1308.  
ultra-violet spectrum of (LIVEING and DEWAR), 1889, A., 89.  
refraction and dispersion of (DU BOIS and RUBENS), 1891, A., 373.  
anomalous rotatory dispersion in (LOBACH), 1890, A., 673.  
passivity of (SAINT-EDME), 1888, A., 788.  
magnetic properties of (TOMLINSON), 1888, A., 592.  
as galvanic element (V. NEUMANN), 1887, A., 757.

- Nickel** (metal, specific heat of (NARCARI), 1889, A., 1236.  
 volatilisation of, in presence of carbonic oxide (GARNIER), 1891, A., 1429.  
 volatility of, in presence of hydrogen chloride (SCHUTZENBERGER), 1891, A., 1429.  
 influence of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 378.  
 occlusion of hydrogen by (NEUMANN and STREINIZ), 1892, A., 567.  
 action of carbonic oxide on (MOND, LANGER and QUINCKE), 1890, T., 749; P., 112.  
 action of nitric oxide on (SABATIER and SENDELENS), 1892, A., 1152; (MONTEMARINI), 1892, A., 1278.  
 action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 660.  
 influence of, on steel (OSMOND), 1890, A., 566.  
**Nickel alloys**, molecular changes in (LE CHATELIER), 1891, A., 1308.  
 with copper and zinc (German silver), volatilisation of zinc from (HASLAM), 1885, A., 707.  
 with copper and zinc (German silver), analysis of (OETTEL), 1888, A., 323; (ALF and SCHULZE), 1890, A., 418.  
 with iron ferromagnetic, malleable, preparation of (ANON.), 1885, A., 161.  
**Nickel salts**, effect of temperature on the magnetism of (PLESSNER), 1890, A., 678.  
 action of alkaline polysulphides on (DE KONINCK and LEDENT), 1892, A., 527.  
 action of sodium carbonate and bromine on solutions of (GIBSON), 1890, A., 560.  
 physiological action of (GUEKENS), 1883, A., 641; (LALOUPE and RICHET), 1888, A., 730.  
 relative absorption of cobalt salts and by animal organs (CHITTENDEN and NORMAN), 1889, A., 535.  
 ammoniacal derivatives of (ANDRÉ), 1888, A., 655.  
**Nickel antimonate** (EPET), 1890, A., 216.  
 arsenates, two (COLUKIANI), 1886, A., 508.  
 potassium and sodium arsenates (LEFEVRE), 1890, A., 563.  
 chromate (HENG), 1890, A., 1378.  
 chloride, antiseptic action of (SCHULZ), 1884, A., 1440.  
**Nickel fluoride** (POULENC), 1892, A., 1159.  
 potassium fluoride (POULENC), 1892, A., 781.  
 fluoroxyhypovanadate (PICCINI and GIORGI), 1892, A., 737.  
 periodate (KIMMINS), 1889, T., 151.  
 hydroxide (DE SCHULTEN), 1889, A., 1115.  
 nitrate, basic (ROUSSEAU and TITT), 1892, A., 1157.  
 oxides (SCHRODER), 1890, A., 1213.  
 monoxide, behaviour of, on strong heating (SCHUTZENBERGER), 1892, A., 1159.  
 sesquioxide (CARNOT), 1889, A., 678.  
 influence of, on the decomposition of potassium chlorate (FOWLER and GRANT), 1890, T., 278.  
 hydrate of, dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 79, 91.  
 alkali phosphates (OUVRARD), 1888, A., 1035.  
 hypophosphate and sodium hypophosphate (DRAWE), 1889, A., 341.  
 phosphide (JANNETTAZ), 1883, A., 651.  
 selenites (BOUTZOUREANU), 1891, A., 262.  
 silicate, hydrated, from North America (KUNIG), 1890, A., 219.  
 orthosilicate (BOURGEOIS), 1889, A., 832.  
 sulphate, action of hydrogen sulphide on solutions of (BAUBIGNY), 1883, A., 24.  
 anhydrous (LEPIERRE and LAHAYE), 1882, A., 1203.  
 crystalline (KLOIL), 1892, A., 941.  
 basic (ATHANASES), 1886, A., 982.  
 ammonium sulphate (LIPILLIER and LACHAUD), 1892, A., 1203.  
 cobalt potassium sulphate (ROY), 1887, P., 53.  
 sulphide. See Millerite.  
 polysulphide (GAURIER and HALLOPEAU), 1889, A., 831.  
 iron sulphide (HUNT), 1888, A., 1254; (MACKINOSH), 1889, A., 214.  
 sodium sulphide (BRUNNER), 1890, A., 215.  
 thiosulphate (FOCK and KLEBS), 1890, A., 330.  
**Nickel organic compounds**:—  
 Nickel carbide (V. PEBAL), 1886, A., 834.  
 carbonyl (MOND, LANGER and QUINCKE), 1890, T., 750.

**Nickel carbonyl**, properties of (BERTHELOT), 1891, A., 1428.

physical properties of (MOND and NASINI), 1891, A., 1322.

oxidation of (BERTHELOT), 1892, A., 279.

physiological action of (MCKENDRICK and SNODGRASS), 1891, A., 1130; (HANRIOI and RICHTER), 1892, A., 365.

dextrosate (CHAPMAN), 1891, T., 323.

oxydiamine nitrite (SORLEY and ROBERTS), 1890, A., 216.

**Nickel, detection, estimation and separation:**—

reactions (TERRELL), 1892, A., 1132.

analysis of (LANGBEIN), 1886, A., 1077; 1888, A., 531.

detection of (HAMELY), 1892, A., 1525.

microchemical test for 'v. HAUSHOFFER', 1887, A., 300.

detection of adulteration in, by the magnet (WARREN), 1887, A., 531.

estimation of (CARNOT), 1886, A., 580, 650; 1889, A., 678; (BATLEY), 1888, A., 388; (BRAND), 1890, A., 294; (LECRENIER), 1890, A., 297; (HOPE), 1890, A., 1470; (KRAUSS), 1891, A., 1139.

estimation of, on nickeled iron (KOBENICH), 1886, A., 836.

estimation of, in ores, mattes, slags, etc. (MOORE), 1887, A., 303, 1141.

estimation, electrolytic, of (BRAND), 1890, A., 294.

estimation, volumetric, of (MOORE), 1889, A., 747, 1038.

estimation, volumetric, of cobalt in presence of (McCULLOCH), 1887, A., 1141.

separation of, from aluminium, cobalt, iron, manganese and zinc (MOORE), 1888, A., 631.

separation, electrolytic, of, from cadmium (SMITH and WALLACE), 1892, A., 920.

separation of, from cadmium, copper, zinc, etc. (CARNOT), 1886, A., 580, 650.

separation, electrolytic, of cadmium, of mercury, and of silver from (SMITH and FRANKEL), 1890, A., 664.

separation of, from cobalt (VORTMANN), 1883, A., 621; (CLARK), 1884, A., 498; (v. ILINSKI and v. KNORRE), 1885, A., 840; (ROSENBLADT), 1886, A., 492; (GUCCI), 1886, A., 1077; (MACKINTOSH), 1887, A., 1141; (FISCHER), 1889, A., 653; (CARNOT), 1889, A., 747, 1116; (KRAUSS), 1891, A., 1139.

**Nickel, separation:**—

separation of, from cobalt in the form of nitrite (BATLEY), 1889, A., 188.

separation of cobalt and, from iron (LEROY), 1891, A., 1139.

separation of, from iron (CAMPELL), 1892, A., 103.

separation of, from manganese (JANNASCH and FRANZKE), 1892, A., 240.

separation of, from zinc (MOORE), 1885, A., 193; (OSBORN), 1885, A., 595; (v. BERG), 1887, A., 183; (BATLEY), 1888, A., 388; (BAUBIGNY), 1889, A., 652; (ALT and SCHULZE), 1890, A., 418.

separation, electrolytic, of gold from (SMITH and MUHR), 1891, A., 1396.

**Nickel alkali-proof vessels** (DITTMAR), 1884, A., 1071.

**Nickel coins**, assay of (ROBERTS-ATSTEN), 1886, A., 101.

**Nickel-grains** in river sand near Biella, Piedmont (SELLA), 1891, A., 526.

**Nickel ore**, platiniferous, from Canada (CLARKE and CATLETT), 1889, A., 835.

from Gosenbach (HEUSLER), 1890, A., 711.

from Hungary (SIPOCZ), 1886, A., 313.

from Nevada, specimens of (NEWBURY), 1885, A., 489.

from New Caledonia (READMAN), 1886, A., 320; (MOORE), 1891, A., 157.

from Oregon (HOOD), 1885, A., 1190; (CLARKE), 1888, A., 1045.

**Nickel-plated iron vessels**, action of organic acids on (BIENBART), 1884, A., 520.

**Nickel-pyrites** (McCAY), 1884, A., 1098.

**Nickel regulus**, peculiar formation in (MOORE), 1887, A., 1081.

**Nicotenylamidoxime** and its benzyl ether (MICHAELIS), 1892, A., 206, 208.

**Nicotenylazo-**. See Azo-

**Nicotenylphenyluramidoxime** (MICHAELIS), 1892, A., 208.

**Nicotiana longiflora**, comparative effect of two metameric bodies on the growth of (REYNOLDS), 1883, A., 495.

**Nicotiana Tabacum**, alkaloids of (SCHUTTE), 1892, A., 232.

**Nicotine**. See Alkaloids.

- Nicotinic acid** (*pyridin-3-carboxylic acid*) (HOOGWERFF and VAN DORP), 1883, A., 90; (OLCHSNER DE CONINCK), 1883, A., 739; (SKRAUP and COBENZL), 1883, A., 1013; (v. PECHMANN and WELSH), 1885, T., 151.  
 action of sodium amalgam on (WEIDEL), 1891, A., 733.  
 methylbetaine of (HANTZSCH), 1886, A., 369.
- Nicotinic acid, 3-bromo-** (CLAUS and COLLINCHONN), 1887, A., 159; (SRPEK), 1890, A., 177.  
 4-bromo- (CLAUS), 1892, A., 876.  
 6-chloro- (v. PECHMANN and WELSH), 1885, T., 151; A., 175.  
 dichloro- (STYFFERTH), 1887, A., 158.
- isoNicotinic acid** (*pyridino-4-carboxylic acid*; *pyrocinchononic acid*) (WEIDEL and RUSSO), 1883, A., 484; (HANTZSCH), 1884, A., 1194; (BEHRMANN and v. HOFMANN), 1885, A., 139.  
 from  $\gamma$ -isopropylpyridine (LADENBURG and SCHRADER), 1884, A., 1048.  
 action of sodium amalgam on (WEIDEL), 1891, A., 734.  
 copper salt of (BUTTINGER), 1884, A., 758.  
 2:6-dichloro- (BEHRMANN and v. HOFMANN), 1885, A., 139.
- Nigella damascena**, damascenine from (SCHNEIDER), 1890, A., 1317.
- Nile**, fertilising properties of the water of the (MINTZ), 1889, A., 616.
- Niobate** which has been improperly called euxenite from Mitchell Co., N. Carolina (SEAMON), 1883, A., 32.
- Niobic acid** from fergusonite (KRUS and NILSON), 1887, A., 706.
- Niobic anhydride**. See **Niobium pentoxide**.
- Niobium** potassium fluoride, reduction of, with sodium (KRUS and NILSON), 1887, A., 706.  
 hydride and its molecular heat (KRUS and NILSON), 1887, A., 706.  
 peroxide *niobic anhydride*, crystallised (KNOP), 1887, A., 642; (MALLARD), 1888, A., 319.  
 molecular heat of (KRUS and NILSON), 1887, A., 706.  
 action of carbon tetrachloride on (DEMARCAY), 1887, A., 329.  
 colour reactions of (LÉVY), 1887, A., 304.  
 combinations of potassium fluoride with (PETERSEN), 1890, A., 15.
- Niobium**, detection and estimation of:—  
 microscopical test for (v. HAUSHOFFER), 1890, A., 86.  
 estimation of (OSBORN), 1886, A., 393.
- Nipecotinic acid** (*hexahydronicotinic acid*) and its derivatives (LADENBURG), 1891, A., 735; 1892, A., 1485, 1486.
- isoNipecotinic acid** (*hexahydroisonicotinic acid*) (LADENBURG and KARAU; LADENBURG), 1892, A., 1486.
- Nitracenaphthene** (QUINCKE), 1887, A., 592; 1888, A., 843; (JANDRIER), 1887, A., 964.
- diNitracenaphthene** (QUINCKE), 1888, A., 843.
- m-Nitracetaldehydephenylhydrazone** (BISCHLER and BRODSKY), 1890, A., 150.
- isoNitr-p-acetamidoisobutylbenzene** (GELZER), 1888, A., 266.
- diNitr-p-acetamidostyrene** (GABRIEL and HERZBERG), 1883, A., 1123; (HERZBERG), 1885, A., 662.
- Nitr-o-acetamido-p-toluic acid** (NEMENTOWNIK), 1889, A., 1066.
- p-Nitracetanilide**, reduction of (MIXTER), 1884, A., 665.
- diNitracetanilides**, 1:2:3-, 1:3:4- and 1:3:6- (WENDER), 1890, A., 885.
- diNitracetanisidine** (WENDER), 1890, A., 751.
- Nitracetobenzylanilide**. See **Nitrobenzylacetanilide**.
- Nitracetocumidides**, *mono-* and *di-* (ENGEL), 1885, A., 1215.
- Nitracetomethylanilides**, *m-* and *p-* (MELDOLA and SALMON), 1888, T., 777, 776.
- $\gamma$ -**Nitr- $\alpha$ -acetonaphthalide**, Liebermann's bromination of (MELDOLA), 1885, T., 502.
- diNitr- $\beta$ -acetonaphthalide** (MACHKE), 1887, A., 839.
- Nitr- $\alpha$ -acetonaphthalides**, *o-* and *p-* (LELLMANN), 1884, A., 751, 752; (LELLMANN and REMY), 1886, A., 623.  
 bromination of (MELDOLA), 1885, T., 499.  
 action of bromine on a mixture of (ARMSLONG and ROSSITER), 1891, P., 186.
- Nitracetonylcarbamide** (FRANCHIMONT and KLOBBER), 1889, A., 125.
- Nitracetophenone**. See **Acetophenone**.
- Nitracetophenonephenylhydrazone** (BISCHLER and BRODSKY), 1890, A., 151.

- Nitracetotoluidide. See Acetotoluidide.
- Nitraceto-*p*-xylylide (NOTTING, WITT and FOHEL), 1886, A., 58; (WITT), 1889, A., 601.
- Nitracetoxypropylbenzoic acid (WIDMAN), 1884, A., 317.
- Nitracetyl- $\psi$ -cumidinesulphonic acid (MAYER), 1887, A., 659.
- $\alpha$ -Nitr- $\beta$ -acetylnaphthol, molecular transformation of (BUTCHER), 1883, A., 1113.
- o*-Nitracetylphenol (BUTCHER), 1883, A., 1113.
- o*-Nitr-*p*-aldehydocinnamic acid (LOW), 1886, A., 461.
- $\alpha$ -Nitralsarin (BRASCH), 1891, A., 1077.
- di*Nitrallylbenzene (EDELEANT), 1887, A., 583.
- di*Nitramarine and its salts (CLAUS and WITT), 1885, A., 1062.
- di*Nitramidoacetylphenol (SCHIFF), 1886, A., 613.
- Nitramidoanisole (SCHEIDEL), 1886, A., 1046.
- di*Nitramidanisole (NIEZKI and KURTENACKER), 1892, A., 596.
- Nitramidoazo-compounds, reduction of (MELDOLA), 1883, T., 432.
- di*Nitr-*m*- and -*p*-amidoazobenzene (*nitrobenzeno- $\alpha$ -nitraniline*) (ODDO), 1891, A., 554.
- 3:4-Nitramidobenzamide (GROHMANN), 1891, A., 305; (THEME), 1891, A., 916.
- 5:2-Nitramidobenzamide (GROHMANN), 1892, A., 326.
- 1:3-*di*Nitr-2:4:6-*tri*amidobenzene (PALMER and JACKSON), 1890, A., 247.
- s-tri*Nitrtriamidobenzene (JACKSON and WING), 1888, A., 1276.
- reduction of (PALMER), 1892, A., 1193.
- Nitramidobenzenesulphonic acid. See Anilinesulphonic acid, nitr-.
- 3:5-Nitramidobenzoic acid, action of potassium cyanate on (GRIESS), 1885, A., 54.
- 4:5-Nitramidobenzoic acid (THIEME), 1891, A., 916.
- m*-Nitr-*p*-amidobenzophenone (SCHOPFF), 1892, A., 336.
- tetra*Nitramidobenzophenone (VAN ROMBURGH), 1889, A., 147.
- m*-Nitramidobenzylidene-*m*-nitrobenzenylamidoxime (STIEGLITZ), 1890, A., 256.
- eso*Nitramidoisobutylbenzene (GELZER), 1888, A., 266; 1889, A., 43.
- Nitramidocarvacrol benzoate (MAZARBA), 1891, A., 47.
- Nitr- $\alpha$ -amidocinnamic acids,  $\alpha$ - and  $\beta$ - (FRIEDLÄNDER and LAZARUS), 1885, A., 1139.
- Nitramidocinnamide v. MILLER and KINKELIN, 1889, A., 990.
- Nitr*di*amido-*m*-cresol (NIEZKI and RUPPERT), 1891, A., 309.
- Nitramidodihydroxyquinone, potassium salt of (NIEZKI and BENCKISER), 1885, A., 779.
- Nitr-*p-p*-diamidodiphenyl. See Nitrobenzidine.
- m-di*Nitr-*o*-*d*iamidodiphenyl (TAUBER), 1892, A., 481.
- di*Nitramidodiphenylamine (NIEZKI and ERNST), 1890, A., 1114.
- Nitr*di*amidoethenyl- $\alpha$ -naphthol hydrochloride (MEERSON), 1888, A., 713.
- 3:4-Nitramidomethoxybenzene (SCHEIDEL), 1886, A., 1046.
- 3':4'-Nitramido-2'-methylquinoline (CONRAD and LIMPACH), 1888, A., 1111.
- Nitramido- $\alpha$ -naphthoic acid (EKSTRAND), 1886, A., 948.
- Nitramido- $\beta$ -naphthoic acid [m.p. 235°] (EKSIRAND), 1891, A., 79.
- Nitr-*p*-amido  $\alpha$ -nitrostyrene (FRIEDLÄNDER and LAZARUS), 1885, A., 1139.
- tri*Nitramidophenetol (KÖHLER), 1884, A., 1161.
- Nitramidophenol. See Phenol.
- Nitramidophenylisobutyric acid (EDELEANU), 1888, T., 560.
- Nitramidophenyllic carbonate (LOWENBERG), 1886, A., 789.
- Nitramidophenyl- $\alpha$ - and - $\beta$ -naphthylamines (HEIM), 1888, A., 488, 1096.
- 3:5-*di*Nitr-4-amido- $\beta$ -phenylpropionic acid (STOEHR), 1884, A., 1350.
- di*Nitramidophenyl-*p*-toluidine (ERNST), 1891, A., 300.
- p*-Nitr-*o*-amidophenylurethane (HÄGER), 1885, A., 150; (VAN ROMBURGH), 1892, A., 712.
- 3:6:2:5-*di*Nitramidiquinone (NIEZKI), 1887, A., 930.
- o*-Nitramidostilbene (BISCHOFF), 1888, A., 1094.
- Nitramidotetrahydroxybenzene (NIEZKI), 1884, A., 53.
- 6:3-Nitramido-*p*-toluic acid (FILETI and CROSA), 1889, A., 495.
- Nitramido-*p*-toluic acids, 2:6- and 3:6- (CLAUS and BEYREN), 1892, A., 177.
- Nitramidotoluquinol (KEHRMANN and BRASCH), 1889, A., 970.
- Nitramine of the quinoline group, attempted synthesis of (SIMON-THOMAS), 1892, A., 725.
- Nitramines (FRANCHIMONT and KLOBIE), 1889, A., 492.
- from alkyl aromatic diamines (VAN ROMBURGH), 1888, A., 1079.

- Nitramines**, preparation of, from nitrophenols (BARR), 1888, A., 822.
- 1-Nitr-3'-amyl-2'-hexylquinoline** (V. MILLER), 1891, A., 1104.
- Nitrilic acid** (2:5-*dinitro*-3:6-*dihydroxyquinone*) (NIETZKI), 1883, A., 465; (LEVY and JEDLICKA), 1889, A., 390.
- from chloranil (NET), 1887, A., 926.
- formation of (NIETZKI and PREUSSER), 1887, A., 574.
- preparation of (NIETZKI), 1884, A., 58; (NIETZKI and BENCKISER), 1885, A., 779.
- constitution of (HANTZSCH), 1886, A., 1021; (NIETZKI), 1887, A., 134.
- potassium salt of (NIETZKI and BENCKISER), 1885, A., 779.
- salts of (NIETZKI), 1883, A., 465.
- o-Nitraniidoacetic acid** (PLOCHL), 1886, A., 351.
- m-Nitraniidoacetic acid** (PLOCHL and LOE), 1885, A., 899.
- 3:4-Nitraniidobenzanilide** (GROHMANN), 1891, A., 305.
- 5:2-Nitraniidobenzanilide** (GROHMANN), 1892, A., 326.
- m-Nitr-o- and -p-anilidobenzenesulphonic acids** (FISCHER), 1892, A., 332, 331.
- m-Nitr-o-anilidobenzoic acid** (SCHOPFF), 1891, A., 304.
- m-Nitr-p-anilidobenzoic acid** (SCHOPFF), 1890, A., 374.
- m-Nitr-o- and -p-anilidobenzonitriles** (SCHOPFF), 1891, A., 305.
- m-Nitr-o- and -p-anilidobenzophenones** (SCHOPFF), 1892, A., 336.
- Nitraniidoisobutyric acid** (EDELANT), 1888, T., 560.
- m-Nitraniido-p-hydroxybenzoic acid** (SCHOPFF), 1890, A., 375.
- o-Nitraniido- $\alpha$ -naphthaquinone** (LEICESTER), 1890, A., 1446.
- Nitraniidonaphthaquinoneanilide** (ZINCKE and KEGER), 1889, A., 266.
- o-Nitr- $\beta$ -anilidopropionic acid**, and its derivatives (EINHORN), 1884, A., 304.
- p-Nitr- $\beta$ -anilidopropionic acid**, and its derivatives (BASLER), 1884, A., 1172.
- tri-Nitr-3-anilidotoluene**, 2:4:6- (*trinitrotoluidine*) (BENTLEY and WARREN), 1890, A., 486; (JACKSON and BENILEY), 1892, A., 1218.
- Nitraniidotoluquinone** (LEICESTER), 1890, A., 1446.
- 2:4-di-Nitraniidotolylamine** (ERNSI), 1891, A., 300.
- Nitraniilae**. See Aniline.
- Nitraniilesulphonic acid**. See Aniline-sulphonic acid.
- di-Nitransidine** (WENDER), 1890, A., 752.
- p-Nitransoil**, reduction of (GATTERMANN and RITSCHKE), 1890, A., 1120.
- Nitransoils**, *o*- and *p*-, preparation of (WILLGERODT and FERRO), 1886, A., 345.
- e-di-Nitransoil** (WENDER), 1890, A., 752.
- p-Nitransylmethylnitrosamine** (BENIG), 1890, A., 608.
- Nitranthracenes**, *mono*-, and *di*- (PERKIN), 1889, P., 13.
- Nitranthranilic acid**, bromine derivatives of (DORSCH), 1886, A., 359.
- Nitranthraquinone** (ROEMER), 1883, A., 71.
- di-Nitranthraquinone** (ROEMER), 1883, A., 737.
- action of concentrated sulphuric acid on (LIEBERMANN and HAGEN), 1883, A., 72; (LIEBERMANN), 1883, A., 597; (LIFSCHUTZ), 1884, A., 1187.
- $\alpha$ -Nitranthraquinonesulphonic acid** and its derivatives (CLAUS), 1884, A., 1040.
- action of strong sulphuric acid on, and the constitution of the latter (LIFSCHUTZ), 1884, A., 1189.
- Nitranthrol** (PERKIN and MACKENZIE), 1892, T., 869.
- Nitranthrone**, and the action of alcoholic potash on (PERKIN and MACKENZIE), 1892, T., 865, 868.
- Nitrantipyryl** (KNORR), 1884, A., 1378; (JANDRIER), 1892, A., 730.
- di-Nitrapione** (CIAMICIAN and SILBER), 1890, A., 1295.
- Nitrates**. See Nitric acid under Nitrogen.
- Nitration** (MEYER), 1889, A., 387.
- with nitric peroxide (ARMSTRONG and ROSSITER), 1891, P., 91.
- Nitratopurpleorhodium chloride**, dithionate and nitrate (JORGENSEN), 1887, A., 114.
- Nitratropine** (EINHORN and FISCHER), 1892, A., 1014.
- Nitrato-**. See Azo-.
- Nitrato-compounds**, secondary (MELDOLA), 1883, T., 434.
- reduction of, by alcoholic ammonium sulphide (WILLGERODT), 1890, A., 1116.
- products of the reduction of (JANOVSKY), 1885, A., 789, 1131; (JANOVSKY and ERB), 1885, A., 894.
- Nitre**. See Potassium nitrate.
- Nitrethane**. See Ethane.
- Nitrethenyl-o-amidobenzamide** (DEHOFF), 1890, A., 802; 1891, A., 84; (THIEME), 1891, A., 917.

- Nitroethoxybenzamide (THIEME), 1891, A., 916.
- Nitroethoxybenzoic acid (THIEME), 1891, A., 916.
- Nitroethoxybenzonitrile (LOBBY DE BRUYN), 1885, A., 657.
- di*Nitroethoxydiphenyl (HIRSCH), 1889, A., 511.
- di*Nitroethoxydiphenylamine (SCHOPFF), 1889, A., 773.
- di*Nitroethoxyethylhydroquinoline (KOHN), 1886, T., 509.
- 1-Nitr- $\beta$ -ethoxynaphthalene, and action of ammonia on (WITKAMPF), 1884, A., 1036.
- 1'-4'-*di*Nitr- $\beta$ -ethoxynaphthalene (ONCZKOWICZ), 1891, A., 321.
- m*-Nitroethoxyphenyl/bromonitroethane (FRIEDMANDE and LAZARUS), 1885, A., 1133.
- Nitr-3-ethoxytoluene, 4:6-*di*- and 2:4:6-*tri*- (STAEDEL and KOLN), 1891, A., 187.
- p*-Nitroethylacetanilide (NOLTING and COLLIN), 1884, A., 1013.
- Nitroethylacetothienone (SCHLEICHER), 1886, A., 227.
- m*-Nitroethylaceto-*p*-toluidide (NIE-MENTOWSKI), 1887, A., 938.
- o*-Nitroethylaniline (HEMPER), 1889, A., 600; 1890, A., 611.
- di*Nitroethylaniline (HEMPER), 1889, A., 600.
- m*-Nitroethylbenzaloximes, stereo-isomeric (GOLDSCHMIDT and KJELLIN), 1891, A., 1478.
- Nitroethylbenzaloximes, *m*- and *p*- (GOLDSCHMIDT and KJELLIN), 1891, A., 1478, 1477.
- m*-Nitroethylbenzenylamidine (LOUSEN), 1892, A., 52.
- p*-Nitroethylbenzenyloxime nitrite (WEISE), 1890, A., 46.
- Nitr-*p*-ethylbenzoic acid and its salts (ASCHENBRANDT), 1883, A., 320.
- m*-Nitr- $\alpha$ -ethylcinnamaldehyde (v. MILLER and RUDE), 1889, A., 984.
- di*Nitroethylenecarbamide (FRANCHIMONT and KLOBBE), 1888, A., 1180.
- tetra*Nitroethylenic bromide (*dibromo-tetra*nitroethane) (LOSANITSCH), 1883, A., 564; (VILLIERS), 1884, A., 33.
- Nitroethylenic glycol, magnetic rotatory power of (PERKIN), 1889, T., 684, 726.
- di*Nitroethylhydro-*p*-coumaric acid (STOEHR), 1884, A., 1350.
- Nitroethylic alcohol (DEMUTH and MEYER), 1889, A., 366; 1890, A., 857.
- sodium salt of (DEMUTH and MEYER), 1890, A., 858.
- Nitroethylic chloride (DEMUTH and MEYER), 1890, A., 858.
- di*Nitroethylenephthalide (GABRIEL), 1886, A., 620.
- tri*Nitroethyl- $\alpha$ - and - $\beta$ -naphthols (STAEDEL), 1883, A., 863.
- p*-Nitroethylphenylnitrosamine (MELDOLA and STREATFIELD), 1896, T., 631.
- m*-Nitroethyl-*p*-toluidine (NOLTING and STRICKER), 1886, A., 311; (NOLTING and ABR), 1888, A., 274.
- Nitric acid, anhydride, oxide and peroxide. See under Nitrogen.
- Nitric organism. See Microbes.
- Nitrides, action of hydroxyhydrocarbon derivatives on (VIDAI), 1891, A., 1003.
- Nitrification in presence of copper and other metals (KAPPEL), 1883, A., 286.
- Nitrification as applied to agriculture. See under Agricultural Chemistry.
- Nitrile bases, formation of, from organic acids and amines (BERNHARDEN), 1883, A., 1099.
- Nitriles (MUIR), 1889, A., 254.
- aromatic (MEYER), 1889, A., 596; (ZINSSER), 1892, A., 311.
- formation of (MICHAEL and JEANPRETRE), 1892, A., 1094.
- dimolecular (v. MEYER), 1889, A., 577; (BURNS), 1892, A., 450.
- ketonic, action of aromatic amines on (BOUVEAULT), 1891, A., 51.
- action of hydroxylamine on (HARRIOT), 1892, A., 79.
- trimolecular (v. MEYER), 1889, A., 577.
- from aromatic amines (GASIOROWSKI and MERZ), 1884, A., 734.
- from aromatic formamides (GASIOROWSKI), 1885, A., 772.
- from phosphates of the aromatic series (KREYSLER), 1885, A., 1055.
- formation of, in oxidations with nitric acid (HELL and KIRPOSKY), 1891, A., 812.
- preparation of (KRÜSS), 1884, A., 1314.
- synthesis of (BOUVEAULT), 1891, A., 41.
- synthesis of unsaturated (FIQUER), 1892, A., 1340.
- refractive powers of (COSTA), 1892, A., 757.
- action of, on organic acids (COLBY and DODGE), 1891, A., 409.
- action of boron fluoride on (PATEIN), 1891, A., 1411.

- Nitriles**, action of hydroxylamine on (TIEMANN, 1884, A., 734.  
 action of sodium and alcohol on aromatic (BAMBERGER and LODTER), 1887, A., 719.  
 action of sulphuric anhydride on (EITNER), 1892, A., 713.  
 reduction of (FREUND and IMMERWAHR), 1890, A., 1407; (FREUND and REMSE), 1890, A., 1422.  
 conversion of primary amines into (V. HOFMANN), 1884, A., 1238.  
 conversion of, into imides (PINNER), 1883, A., 730, 1089.  
 conversion of, into imido-ethers (PINNER), 1891, A., 59.  
 conversion of phenols into (MERZ), 1883, A., 802.  
 additive products of, with hydrogen iodide (BILTZ), 1892, A., 1449.  
 polymerisation of (V. MEYER), 1889, A., 577; 1892, A., 576; (WACHE), 1889, A., 684; (SCHWARZE), 1890, A., 1158.  
 transformation of, in the organism (GLACOT), 1884, A., 1061.
- Nitriles**, chloro-, volatility of (HENRY), 1885, A., 1044.
- Metanitriles** (SIADEL), 1883, A., 323; (WALLACH), 1883, A., 577.
- Paranitriles** (MOHLAU), 1883, A., 342.
- Nitritotriphenylmethane**. See Phenyl-acridine.
- Nitrites and hyponitrites**. See Nitrous and Hyponitrous acids under Nitrogen.
- Nitrobarbituric acid** (CERESOLE), 1883, A., 913.
- Nitrobenzaldehyde**. See Benzaldehyde.
- Nitrobenzaldoxime**. See Benzaldoxime.
- m-Nitrobenzamide**, silver derivative of (TAFEL and ENOCH), 1890, A., 973.
- m-Nitro-m-benzamidobenzamide** (SCHULZE), 1889, A., 779.
- Nitrobenzene**. See Benzene.
- Nitrobenzeneazo-**. See Benzene-azo-.
- Nitrobenzene-p-diazopiperidine** (WALLACH), 1897, A., 131.
- Nitrobenzenehomo-o-phthalopropyl-imide** (LE BLANC), 1889, A., 256.
- m-Nitrobenzenesulphinic acid** (LIMPRICHT), 1887, A., 723.
- \* **2:4-d-Nitrobenzenesulphonic acid** (WILLGERODT and MOHR), 1885, A., 665; 1886, A., 1030.
- tri-Nitrobenzenesulphonic acid** (WILLGERODT), 1885, A., 1232.
- m-Nitrobenzenylamidine** (TAFEL and ENOCH), 1890, A., 973.
- m-Nitrobenzenylamidoxime** and its derivatives (SCHOPFF), 1885, A., 896, 1217.
- p-Nitrobenzenylamidoxime** (WEISE), 1890, A., 44.
- p-Nitrobenzenylamidoxime-ethylidene** (WEISE), 1890, A., 46.
- p-Nitrobenzenylazoximeacetylenyl** (WEISE), 1890, A., 46.
- m-Nitrobenzenylazoximebenzenyl** and its derivatives (SCHOPFF), 1885, A., 897, 1217.
- p-Nitrobenzenylazoximebenzenyl** (WEISE), 1890, A., 45.
- m-Nitrobenzenylazoxime-ethenyl** (SCHOPFF), 1885, A., 897.
- p-Nitrobenzenylazoxime-ethenyl** (WEISE), 1890, A., 45.
- m-Nitrobenzenylazoxime-m-nitrobenzenyl** (SIEGLITZ), 1890, A., 256.
- m-Nitrobenzenyldioxytetrazotic acid** (LOSEN and NEUBERT), 1891, A., 1040.
- p-Nitrobenzenylimidoximecarbonyl** (WEISE), 1890, A., 45.
- Nitrobenzidine**, *m-mono-* and *m-di-* (TAUBER), 1890, A., 782.
- di-Nitrobenzidine** (V. BANDROWSKI), 1888, A., 286.
- m-d-Nitrobenzidine-m-sulphonic acid** (ZEHR), 1891, A., 313.
- Nitrobenzil** and its dioximes (HAUSMANN), 1890, A., 624.
- iso-d-Nitrobenzil**, reduction of (GOLUBEFF), 1885, A., 660.
- m-Nitrobenzimidoeethyl ether** (TAFEL and ENOCH), 1890, A., 973.
- p-Nitrobenzenylamide** (HAFNER), 1889, A., 982; 1890, A., 496.
- Nitrobenzobromamides**, *o-*, *m-* and *p-* (HOOGWELFF and VAN DORP), 1889, A., 982.
- m-Nitrobenzoic acetic anhydride** (GREENE), 1890, A., 53.
- o-Nitrobenzoic acid**, derivatives of (BISCHOFF and RACH), 1885, A., 263.
- Nitrobenzoic acids**, *o-*, *m-* and *p-*, conversion of the three nitranilines into (SANDMEYER), 1885, A., 981.
- m-Nitrobenzoic anhydride** (SCHULZE), 1889, A., 779.
- p-Nitrobenzoic sulphinide** (NOYES), 1886, A., 804.
- o-Nitrobenzonitrile** (MEYER), 1886, A., 63.
- m-Nitrobenzonitrile** (GABRIEL), 1883, A., 916; (SCHOPFF), 1885, A., 896.
- Nitrobenzophenone**. See Benzophenone.
- p-Nitrobenzenylhydrazide** (HAUSKNECHT), 1889, A., 507.
- p-Nitrobenzo-p-toluidide** (GATTERMANN and NEUBERG), 1892, A., 839.

- p*-Nitrobenzoylacetic acid and its derivatives (PERKIN and BELLENOT), 1884, A., 1023; 1885, A., 794; 1886, T., 440; P., 103.
- o*-Nitrobenzoylacetone (FISCHER and KUZEL), 1884, A., 60; (GEVERHOET), 1884, A., 445.
- p*-Nitrobenzoylcarbinol (ENGLER and ZIELKE), 1889, A., 505.
- $\alpha$ -Nitro- $\beta$ -benzoylnaphthol, molecular transformation of (BOTICHER), 1888, A., 1113.
- m*-Nitrobenzoylpiperidine and its derivatives (SCHOLLEN), 1888, A., 1105.
- Nitrobenzoylresorcinol (ERRERA), 1886, A., 51.
- p*-Nitrobenzoyl-tetramethylene- and -trimethylene-carboxylic acids (PERKIN and BELLENOT), 1885, A., 795.
- Nitrobenzyl ether, *o*-, *m*- and *p*- (ERRERA), 1889, A., 218.
- tri*-Nitrobenzyl methyl ketone (DITTRICH), 1890, A., 1419.
- p*-Nitrobenzylacetamide (AMIEL and V. HOFMANN), 1886, A., 698; (HAFNER), 1889, A., 982; 1890, A., 486.
- o*-Nitrobenzylacetanilide (PAAL and KRECKE), 1890, A., 1413.
- p*-Nitrobenzylacetanilide (MELDOLA and SALMON), 1888, T., 779.
- o*-Nitrobenzylacetomethylamide (GABRIEL and JANSEN), 1892, A., 218.
- Nitrobenzylamine. See Benzylamine.
- o*-Nitrobenzylaniline and its derivatives (LELLMANN and STICKEL), 1886, A., 793.
- reduction of (PAAL and KRECKE), 1890, A., 1444.
- m*-Nitrobenzylisobenzaldoxime (BEHREND), 1892, A., 50.
- p*-Nitrobenzylisobenzaldoxime, modifications of (BEHREND and KONIG), 1890, A., 1412.
- o*-Nitrobenzylbenzamide (GABRIEL and JANSEN), 1890, A., 1442.
- o*-Nitrobenzylcarbamide (GABRIEL and JANSEN), 1892, A., 218.
- p*-Nitrobenzylcarbamide (HAFNER), 1889, A., 982; 1890, A., 186.
- o*-Nitrobenzylcyanocamphor (HALLER), 1891, A., 1499.
- Nitrobenzyldeoxybenzoins, *o*- and *p*- (BUDDEBERG), 1890, A., 1142.
- m*-Nitrobenzyl dimethylamine (BORG-MANN), 1886, A., 57.
- o*-Nitrobenzylethyl-*o*-amidophenyl hydrochloride (LELLMANN and BOYE), 1890, A., 1116.
- o*-Nitrobenzylformamide (GABRIEL and JANSEN), 1890, A., 1444.
- o*-Nitrobenzylformanilide (PAAL and BUCHHEI), 1890, A., 72.
- o*-Nitrobenzylformo-*o*- and -*p*-toluidides (PAAL and BUCHHEI), 1890, A., 74, 78.
- m*-Nitro- $\beta$ -benzylhydroxylamine (BEHREND), 1892, A., 51.
- $\mu$ -Nitrobenzyl alcohol (HAFNER), 1890, A., 498.
- preparation and condensation products of (EASLER), 1884, A., 310.
- Nitrobenzyl chloride, reduction of (PELIZZARI), 1885, A., 770.
- o*-Nitrobenzyl chloride (ABELIN), 1883, A., 1092; (KIMMEL), 1884, A., 1004; (NOLTING), 1881, A., 1005; 1885, A., 52.
- m*-Nitrobenzyl chloride (ABELIN), 1883, A., 1092.
- p*-Nitrobenzyl chloride (KIMMEL), 1884, A., 1004.
- Nitrobenzyl iodides, *o*- and *p*- (KIMMEL), 1884, A., 1004.
- p*-Nitrobenzyl nitrate (SRAEDEL), 1883, A., 866.
- p*-Nitrobenzyl picrate (KIMMEL), 1884, A., 1005.
- p*-Nitrobenzylideneamidophenyltolylamine (REICHHOLD), 1890, A., 610.
- o*-Nitrobenzylideneazine (CURTIS and JAY), 1889, A., 303.
- m*-Nitrobenzylidenabenzidine (SCHRIF and VANNI), 1890, A., 1298.
- m*-Nitrobenzylidenedimethyldisulphone (BONGARTZ), 1886, A., 938.
- Nitrobenzylidenemalonie acid. See Benzylidenemalonie acid.
- m*-Nitrobenzylidene-2'-methylindole (FISCHER), 1888, A., 284.
- 3-Nitrobenzylidene-2'-methylquinoline (WARTANIAN), 1891, A., 330.
- 4-Nitrobenzylidene-2'-methylquinoline (BULACH), 1887, A., 976.
- m*-Nitrobenzylidene-4'-methylquinoline (HEYMANN and KOENIGS), 1888, A., 838.
- Nitrobenzylidenephthalimidine (GABRIEL), 1886, A., 630.
- m*-Nitrobenzylidene-*p*-xylylene (PFEUG), 1890, A., 606.
- $\mu$ -Nitrobenzylidemic chloride, preparation of (ZIMMERMAN and MULIER), 1885, A., 771.
- p*-Nitrobenzyl-*p*-nitroisobenzaldoxime (BEHREND and KONIG), 1891, A., 1034.
- Nitrobenzyl-*d*-nitro-*o*-cresol and -*d*-nitrophenol (SCALDIL), 1883, A., 864.
- Nitrobenzylphosphinic acid (LITTHAUER), 1889, A., 1165.
- o*-Nitrobenzylphthalimide (GABRIEL), 1887, A., 1037.

- m*-Nitrobenzylphthalimide (GABRIEL and HENDEN), 1888, A., 144.  
*p*-Nitrobenzylphthalimide (HAFNER), 1884, A., 952; (SALKOWSKI), 1889, A., 1174.  
*di*Nitro-*m*-benzyltoluene (SENF), 1884, A., 427.  
*o*-Nitrobenzyl-*p*-toluidine and its derivatives (LELLMANN and STICKEL), 1886, A., 793.  
 Nitrobenzyl-*m*-xylylidine (JABLIN-GONNET), 1892, A., 1320.  
*penta*Nitrobisazobenzenephénylhydrazine (WILLGERODT and MUEH), 1892, A., 456.  
 Nitrobrucine (HANSSEN), 1886, A., 564.  
*di*Nitrobutane and its salts (CHANCEL), 1893, A., 915; 1885, A., 647.  
 Nitrobutane, tertiary (BEWAD), 1891, A., 653.  
*di*Nitroisobutylaniline (BARR), 1888, A., 823.  
 Nitro-*tert*-butylbenzene (SENKOWSKI), 1890, A., 1296.  
*m*-Nitroisobutylbenzene (GELZER), 1889, A., 43.  
 Nitro-*p*-isobutylphenol (GELZER), 1889, A., 43.  
*tri*Nitro-*m*-isobutyltoluene (BAUR), 1890, A., 1401; 1891, A., 1464.  
*tri*Nitroisobutyl-*m*-xylene (BAUR), 1890, A., 1402.  
 Nitrocampholenic acid (KACHLER and SPIEGER), 1883, A., 1003.  
 Nitrocamphor. See Camphor.  
 Nitrocamphorates (CAZENEUVE), 1888, A., 963.  
 Nitrocarbamidobenzoic acids. See Nitrumamidobenzoic acid.  
 Nitrocarbazole (MAZZARA), 1891, A., 570.  
 Nitrocarbonyl-*o*-amidophenol (v. CHELMICKI), 1891, A., 52.  
 1-Nitrocarbostyryl (v. MILLER and KINKELIN), 1889, A., 990.  
 Nitrocarbostyryl,  $\alpha$ -,  $\beta$ - and  $\gamma$ - (FRIEDLANDER and LAZARUS), 1885, A., 1139.  
*di*Nitrocarvacrol (MAZZARA), 1891, A., 47.  
 Nitrocasein, use of, in dyeing (DOLLFIS), 1884, A., 1449.  
 Nitrocellulose (CROSS and BEVAN), 1883, T., 23; (NEVILLEFOLD), 1887, A., 792.  
 Nitrochloroform. See Chloroform.  
 Nitrocinnamaldehyde. See Cinnamaldehyde.  
*p*-Nitrocinnamaldoxime (EINHORN and GEHRENECK), 1890, A., 161.  
*o*-Nitrocinnamhydrazoine (CORNELIUS and HOMOLKA), 1886, A., 1026.  
 Nitrocinnamic acid. See Cinnamic acid.  
*o*-Nitrocinnamoylacetone (FISCHER and KUZEL), 1883, A., 587, 588.  
*o*-Nitrocinnamoylactaldehyde (EINHORN), 1884, A., 1346.  
*o*-Nitrocinnamoylformic acid (v. BAYER and DREWSEN), 1883, A., 341.  
*tri*Nitrocitrotrianil (SCHNEIDER), 1888, A., 465.  
 Nitrocobalt (SABATIER and SENDERENS), 1892, A., 1390.  
 Nitrococcus acid. See *tri*Nitrohydroxy-*m*-toluic acid.  
 Nitrocrulignol (PASTROVICH), 1883, A., 1006.  
 Nitrocopper (SABATIER and SENDERENS), 1892, A., 1390.  
 Nitrocoumaraldehydes (v. MILLER and KINKELIN), 1887, A., 939.  
*o*-Nitrocoumarin (v. MILLER and KINKELIN), 1889, A., 989.  
*m*-Nitrocoumarin (TAEGER), 1887, A., 939; 1891, A., 918.  
*o*-Nitrocoumarinic acid (v. MILLER and KINKELIN), 1889, A., 989.  
 Nitroresols. See Cresol.  
*tri*Nitroresotic acid. See *tri*Nitrohydroxy-*m*-toluic acid.  
 Nitroresorcinol. See Nitro-2:4-dihydroxytoluene.  
 Nitrocumenes. See Cumene.  
*m*-Nitro- $\psi$ -cumenol (AUWERS), 1886, A., 144.  
 2:5-*di*Nitro- $\psi$ -cumenol (AUWERS), 1885, A., 381; 1886, A., 144.  
 Nitro- $\psi$ -cumidinesulphonic acid (MAYER), 1887, A., 953.  
*o*-Nitrocuminaldehyde (*o*-nitrocuminol) (EINHORN and HESS), 1884, A., 1352.  
 Nitrocuminic acids. See Cuminic acid.  
 Nitro- $\psi$ -cumo-quinol and -quinone (NEF), 1887, A., 255; 1888, T., 438.  
*m*-Nitro- $\alpha$ -cumylacetaldehyde (v. MILLER and ROLDE), 1889, A., 964.  
 Nitrocumylacrylic acid. See Cumylacrylic acid.  
*m*-Nitro- $\psi$ -cumylic nitrate (AUWERS), 1885, A., 380.  
*m*-Nitrocyananiline (SENF), 1887, A., 929.  
*o*-*di*Nitrocycano-*s*-diphenylethane (*nitrocycandibenzyl*) (BAMBERGER), 1887, A., 131.  
 Nitrocycano-*m*-xylene (AHRENS), 1892, A., 1437.  
 Nitrocymenes. See Cymene.  
 Nitrocymene- $\alpha$ -sulphonamide (ERRERA), 1890, A., 1237.

- 6-Nitro-*p*-cymene-2-sulphonic acid and an isomeride (ERRERA), 1890, A., 1287, 1288; 1891, A., 1066.
- 2:6-*di*Nitrocymidine, constitution of (MAZZARA), 1890, A., 753.
- Nitro-*m*-isocymidine (KELBE and WARTH), 1884, A., 47.
- Nitrodehydropiperidylmethyleurethane (SCHOTTEN), 1883, A., 814.
- Nitrodehydropiperidylurethane and its bromhydroxyl-derivative (SCHOTTEN), 1883, A., 814.
- p*-Nitrodeoxybenzoin (PERRENKRO-KRITSCHENKO), 1892, A., 1227.
- p*-Nitrodeoxybenzoinoxime (NEY), 1888, A., 1197.
- Nitro-derivatives. method of preparing (ARMSTRONG and ROSSITER), 1891, P., 91.
- preparation of secondary and tertiary, from halogen derivatives of nitromethane and nitroethane (BEWAD), 1889, A., 1123.
- magnetic rotation of (PERKIN), 1889, T., 687, 724.
- connection between the magnetic rotation and the refraction and dispersion of light by (GLADSTONE and PERKIN), 1880, T., 750; P., 114.
- first product of the reduction of, by stannous chloride (HOFFMANN and MEYER), 1892, A., 291; (WILLGERODT), 1892, A., 594; (KIRPAL), 1892, A., 1067.
- additive-products of, with hydrocarbons (HEPP), 1883, A., 317.
- explosive decomposition of (BERTHELOT), 1888, A., 216.
- of the adipic hydrocarbons, Geuther's views on the constitution of (MEYER), 1888, A., 570.
- of alcohol radicles, action of alkali on (SOKOLOFF), 1889, A., 365.
- coloured, constitution of (ARMSTRONG), 1892, P., 101.
- fatty (KOLOTOFF), 1889, A., 1140; (MEYER), 1892, A., 575.
- of the paraffin series, action of alkalis on (DUNSTAN and DYMOND), 1891, T., 410; P., 77.
- action of zinc ethyl on primary and secondary (DEWAD), 1889, A., 1127.
- di*Nitro-derivatives. reaction for (JANOVSKY), 1891, A., 653.
- Nitro- $\alpha$ -diacetonaphthalides, *u*- and *p*- (LELLMANN and REMY), 1886, A., 624.
- 2-Nitro-1:4-diaceto- $\alpha$ -naphthylenediamide (KLEEMANN), 1886, A., 172.
- Nitrodiacetotolylene-*u*-diamides, *mono*- and *di*- (BINTZYCKI and ULFFER), 1892, A., 1197.
- 3-Nitrodiacetyl-*p*-amidophenol (HAHLE), 1891, A., 430.
- m*-*di*Nitrodiacetylbenzidine-*m*-sulphonic acid (ZEHR), 1891, A., 313.
- Nitrodiacetylresorcinol (ERRERA), 1886, A., 51.
- Nitrodiazo-. See Diazo- under Azo-.
- m*-Nitrodibenzamide (LOESEN), 1892, A., 52.
- Nitrodibenzotolylene-diamide (BINTZYCKI and ULFFERS), 1892, A., 1197.
- di*Nitrodibenzoyl-*p*-oxydiphenylamine (PHILIP and CALM), 1885, A., 156.
- Nitrodibenzoylresorcinols, *mono*-, and *tri*- (ERRERA), 1886, A., 50, 51.
- Nitrodibenzoylstyrene (JAPP and KLINGEMANN), 1890, T., 676.
- m*-*di*Nitrodibenzylbenzene (BECKER), 1883, A., 203.
- p*-*di*Nitrodibenzylbenzene (BASLER), 1884, A., 310.
- p*-*di*Nitrodibenzylcarbamide (HAFNER), 1889, A., 982.
- Nitrodibenzylhydroxylamine, oxidation of (BEHREND and KONIG), 1892, A., 1456.
- o*-Nitrodibenzyllic *mono*- and *di*-sulphides (JAHODA), 1890, A., 487, 488.
- di*Nitrodibenzylidene-lithioxamide (EPHRAIM), 1891, A., 831.
- m*-Nitrodibenzylmethylamine (BORG-MANN), 1886, A., 56.
- di*-*o*-Nitrodibenzylmethylamine (GABRIEL and JANSEN), 1892, A., 218.
- p*-*di*Nitrodibenzylthiocarbamide (HAFNER), 1890, A., 487.
- Nitrodiacresol = (nitrodihydroxyditolyl) (LOEWENHERZ), 1892, A., 852.
- di*Nitrodiacresol (DENTINGER), 1883, A., 838.
- di*Nitrodiethenyltetramidoditolyl (BANKIEWICZ), 1888, A., 1184.
- Nitro-1:4-dieethoxybenzenes, *mono*-, *di*-, and *tri*- (NIETZKI), 1883, A., 466.
- tri*Nitro-1:4-dieethoxybenzene, actions of (NIETZKI and KAUFMANN), 1892, A., 314.
- m*-Nitrodiethylaniline (GROLL), 1886, A., 347.
- p*-Nitrodiethylaniline (LIPP-MANN and FLEISSNER), 1888, A., 868, 1100.
- di*Nitrodiethylaniline (LIPP-MANN and FLEISSNER), 1884, A., 179.
- Nitrodiethylbenzamide (VAN ROMBURGH), 1886, A., 546.
- di*Nitrodihydroxyanisole (NIETZKI and KURTENACKER), 1892, A., 596.

- tetra*Nitro-1:3(?)-dihydroxybenzene (HENRIQUES), 1883, A., 327, 329.
- Nitro-*p*-dihydroxydiphenyl/*ichlor*ethanes, *di*- and *tetra*- (ELBS and HOERMAN), 1889, A., 998.
- 3-Nitro-2:4-dihydroxypyridine-5- or 6(?) -carboxylic acid (BISCHOFF), 1889, A., 519.
- Nitro-2:5-dihydroxyquinone (NIETZKI and SCHMIDT), 1889, A., 968.
- 2:5-*di*Nitro-3:6-dihydroxyquinone. See Nitranilic acid.
- di*Nitro-2:4-dihydroxytoluene (*dinitro-cresoreinol*) (V. KOSTANECKI), 1888, A., 264.
- 4-Nitro-3:6-dihydroxytoluquinone (*tolunitranilic acid*) (KEHRMANN), 1888, A., 940; (KEHRMANN and BRASCH), 1889, A., 969.
- m*-Nitro-*p*-dihydroxytriphenylmethane (DEVARDA and ZENONI), 1891, A., 1346.
- di*Nitro-*p*-dihydroxytriphenylmethane (RUSSANOFF), 1891, A., 1285.
- tetra*Nitrodimethylamidobenzophenone (VAN ROMBURGH), 1888, A., 1079, 1197.
- di*Nitrodimethylamidodiphenylamine (*nitrodimethylphenylphenyl-nediamine*) (LELLMANN and MACK), 1890, A., 1410.
- di*Nitrodimethylamidophenol and its derivatives (LIPPWANN and FLEISSNER), 1886, A., 235.
- Nitrodimethylamine, reduction of (FRANCHIMONT), 1885, A., 963.
- Nitrodimethylaniline. See Dimethylaniline.
- Nitrodimethyl-*o*-anisidines, *mono*- and *tri*- (GRIMAU and LEFVRE), 1891, A., 1031.
- tetra*Nitrodimethylazobenzene MERTENS, 1886, A., 1022.
- Nitrodimethylbenzamide (VAN ROMBURGH), 1886, A., 546.
- tetra*Nitrodimethylbenzidine (VAN ROMBURGH), 1887, A., 245.
- Nitro-2:4-dimethylbenzoic acid (AHRENS), 1892, A., 1437.
- 3-Nitro-2:4-dimethylbenzoic acid, (CLAUS), 1896, A., 980.
- 3:5-*di*Nitro-2:4-dimethylbenzoic acid (CLAUS), 1890, A., 951.
- di*Nitrodimethylmalonamide (FRANCHIMONT), 1886, A., 449.
- tetra*Nitrodimethyl/*nitro*/*amido*-benzophenone (VAN ROMBURGH), 1888, A., 1079, 1196.
- di*Nitrodimethyloramide (FRANCHIMONT), 1886, A., 446.
- 4-Nitrodimethyl-*o*-phenylenediamine (HERM), 1888, A., 1097.
- 2:4:6-(?)*tri*Nitrodimethyl-*m*-phenylenediamine (VAN ROMBURGH), 1888, A., 1185.
- 4-Nitro-1:3-dimethylquinoline (NOLTING and TRAUTMANN), 1891, A., 328; 1892, A., 729.
- Nitrodimethyl-*o*-resoreylic acid (*nitrodimethoxybenzoic acid*) (MEYER), 1888, A., 148.
- di*Nitro-*s*-dimethylsulphonamide (FRANCHIMONT and KLOBBE), 1885, A., 969.
- di*Nitro-*β*-dinaphtholdisulphonic acid (JULIUS), 1888, A., 161.
- Nitrodinaphthyls, *mono*- and *di*- (JULIUS), 1887, A., 56.
- tetra*Nitro-*ββ*-dinaphthyl (SRAUB and SMITH), 1885, T., 103.
- di*Nitro-*di*-*β*-naphthyl ketone oxide (CLAUS and RUPPEL), 1890, A., 510.
- Nitro-*di*-*β*-naphthylamines, *di*- and *tetra*- (RIS and WEBER), 1884, A., 752; (RIS), 1888, A., 58.
- hexa*Nitro-*di*-*β*-naphthylamine (RIS), 1888, A., 58.
- tetra*Nitro-*α*- and -*β*- naphthylcarbamides (PERKIN), 1892, T., 467.
- Nitro-*di*-*β*-naphthylene oxides, *mono*- and *tetra*- (HODGKINSON and LIMPACH), 1891, T., 1100.
- di*Nitro-*αβ*-dinaphthyl sulphide (EKSTRAND), 1885, A., 171.
- p*-Nitro-3:3'-diphenic acid (*nitrodiphenylcarboxylic acid*) (STRASEBURGER), 1884, A., 329.
- 3:3'-*di*Nitro-*p*-diphenol (KUNZE), 1899, A., 262.
- 1:2-*di*Nitrodiphenyl (TAIBER), 1891, A., 570.
- 1:3-*di*Nitrodiphenyl (BRUNNER and WITT), 1887, A., 673.
- p*-*di*Nitrodiphenylacetylene (ELBS and BAUER), 1887, A., 152.
- Nitrodiphenylamine. See Diphenylamine.
- di*Nitrodiphenylamine-*o*-carboxylic acid and its derivatives (JORDAN), 1885, A., 988.
- m*-Nitrodiphenylamine-*p*-carboxylic acid (SCHOPFF), 1890, A., 374.
- Nitrodiphenylbenzylidenemaleimidine (COHN), 1892, A., 487.
- tri*Nitrodiphenylbenzylphosphine oxide (DURKEN), 1888, A., 833.
- m*-Nitro-*s*-diphenylcarbamide (LEUCKART), 1890, A., 760.
- p*-Nitro-*s*-diphenylcarbamide (GOLDSCHMIDT and MOLINARI), 1888, A., 1285; (LEUCKART), 1890, A., 760.
- m*-*di*Nitro-*s*-diphenylcarbamide (LOBANITSCH), 1888, A., 583.

- p*-*di*Nitrodiphenyldibutynyl ketone (EINHORN and GEHRENBECCK), 1890, A., 162.
- m*-*di*Nitrodiphenyldisulphine (LEBOM), 1891, A., 567.
- p*-*di*Nitro-*s*-diphenylethane, preparation of (ROSER), 1887, A., 836.
- Nitro-*as*-diphenylethanes, *mono*- and *di*- (ANSCHÜTZ and ROMIG), 1885, A., 768.
- Nitrodiphenylformamidine *m*-*mono*- and *m*-*di*- (COMSTOCK and WHEELER), 1892, A., 706, 707.
- Nitrodiphenylguanidine *dicyanide* (HIRSCH), 1888, A., 947.
- $\alpha$ -*di*Nitro-*s*-diphenylhydrazine (WILLGERODT and FERRO), 1888, A., 829; (WILLGERODT and HIRSMANN), 1889, A., 1160; 1890, A., 1259.
- tri*Nitro-*s*-diphenylhydrazine (FISCHER), 1890, A., 40.  
conversion of, into nitrosodinitrazobenzene (FREUND), 1889, A., 977.
- m*-Nitrodiphenylazindihydroxytartaric acid (BISCHLER and BRODSKY), 1890, A., 151.
- Nitrodiphenylmethane. See Diphenylmethane.
- m*-Nitro-*s*-diphenylmethylcarbamide (LELLMANN and BENZ), 1891, A., 1215.
- Nitrodiphenylmethylcarbinol (ANSCHÜTZ and ROMIG), 1885, A., 768.
- Nitro-1-5-diphenyl-3-methylpyrazoles, *o*- and *p*- (KNORR and JUDICKE), 1885, A., 1247, 1248.
- tri*Nitro-1-3-diphenyl-5-methylpyrazole (KNORR and LAUBMANN), 1889, A., 409.
- Nitro-1-5-diphenyl-3-methylpyrazole-4-carboxylic acids, *o*- and *p*- (KNORR and JUDICKE), 1885, A., 1247, 1248.
- Nitrodiphenyl- $\alpha\beta$ -naphthatriazines, *o*-, *m*- and *p*- (MELDOLA and FÖRSTER), 1891, T., 681.
- o*-Nitrodiphenylnitrosamine (FISCHER), 1892, A., 332.
- Nitrodiphenyloxalylguanidine (HIRSCH), 1888, A., 947.
- Nitrodiphenylparabanic acid (HIRSCH), 1888, A., 947.
- di*Nitrodiphenylparabanic acid (V. STOJENTIN), 1885, A., 1195.
- di*Nitrodiphenylphosphinic acid (DÖRKEN), 1888, A., 833.
- di*Nitrodiphenylphosphonic acid (RAPPE), 1884, A., 1337.
- p*-*di*Nitrodiphenylpiperazine (SCHMIDT and WICHMANN), 1892, A., 210.
- di*Nitro-2-3-diphenylpyrazine (MASON), 1889, T., 101.
- Nitrodiphenylquinols, *di*-, *tri*- and *tetra*- (NIETZKI and SCHUNDELEN), 1892, A., 310.
- Nitrodiphenylresorcinols, *tetra*-, *pent*- and *hexa*- (NIETZKI and SCHUNDELEN), 1892, A., 310.
- m*-Nitrodiphenylsemithiocarbazide (BISCHLER and BRODSKY), 1890, A., 151.
- di*Nitrodiphenylsulphoxide (COLBY and McLOUGHLIN), 1887, A., 372.
- Nitrodiphenyltetrazine (RUEHMANN), 1890, T., 51.
- Nitro-*s*-diphenylthiocarbamides, *mono*- and *di*-, action of iodine on (LOSNITZSCH), 1883, A., 582.
- Nitrodiphenylthiocarbimides. *m*-*mono*- and *m*-*di*- (STEUDEMANN), 1883, A., 801.
- Nitrodiphtalyl (GRAEBE and GUYE), 1886, A., 882.
- Nitrodiphtalylethanes, *mono*- and *di*- (GABRIEL), 1886, A., 620.
- di*Nitrodipiperonylideneacetone (HABER), 1891, A., 705.
- di*Nitrodipropylaniline (VAN ROYBURGH), 1889, A., 971.
- di*Nitro-*p*-dipropylbenzene (KORNER), 1883, A., 321.
- di*Nitroresorcinol (HAZURA), 1883, A., 1114.
- p*-Nitrodistyryl ketone (v. BAEYER and BECKER), 1883, A., 1120.
- di*-*o*-Nitrodistyrylvinyl ketone (DIEHL and EINHORN), 1885, A., 1222.
- di*Nitro-*o*-ditolyl, preparation of (TATBER and LOEWENHERZ), 1891, A., 1491.
- di*Nitroditolyl ketone (LANGE and ZUFALL), 1892, A., 1460.
- di*Nitroditolylethylenediamine (GATTERMANN and HAGER), 1884, A., 1142.
- Nitro-*o*- and *p*-ditolyltetrazines (RUEHMANN), 1890, T., 54, 51.
- Nitro-*p*-ditolylthiocarbamides, *o*- and *di*- (STEUDEMANN), 1894, A., 308, 307.
- Nitroethane. See Ethane.
- Nitrofluorene (HODGKINSON), 1885, P., 37.
- p*-Nitrofluorene (STRASBURGER), 1894, A., 754.
- m*-Nitroformanilide (COMSTOCK and WHEELER), 1892, A., 706.
- p*-Nitroformanilide (OSBORNE and MIXTER), 1887, A., 250.
- Nitrofurfurylamine (DELMANN), 1892, A., 43.
- Nitrogen (GATTIER), 1888, A., 1127.  
origin of combined terrestrial (MUNIZ and ALBIN), 1884, A., 104.

**Nitrogen**, accumulation of atmospheric, in cultivations of *Bacillus radicicola* (BEYERINCK), 1892, A., 1019.  
 in blood (JOLYET and SIGALAS), 1892, A., 1257.  
 in cow's milk (NILSON), 1890, A., 652.  
 in sputum (PANOFF), 1889, A., 1076.  
 in uraninite (HILLEBRAND), 1891, A., 527.  
 atomic volume of (V. WROBLEWSKI), 1886, A., 661.  
 preparation of (BERTHELOT), 1890, A., 330.  
 obtaining a constant stream of (NEWMANN), 1888, A., 784.  
 supposed allotropic modification of (WILLIAMS and RAMSAY), 1886, P., 223; (THOMSON and THRELFALL), 1887, A., 329.  
 spectrum of (AMES), 1891, A., 1.  
 spectrum of, at the negative pole (DESLANDRES), 1886, A., 957.  
 band-spectrum of (DESLANDRES), 1886, A., 189.  
 correspondence between the magnetic rotation and the refraction and dispersion of light by compounds containing (GLADSTONE and PERKIN), 1889, T., 750; P., 114.  
 refraction equivalent of (GLADSTONE), 1884, T., 257; (BRUHL), 1887, A., 193.  
 dispersion equivalent of (GLADSTONE), 1889, A., 389.  
 electrochemical researches on (JOHNSON), 1884, A., 383.  
 passage of electric discharge through (THOMSON and THRELFALL), 1887, A., 328.  
 density of (LEDUX), 1890, A., 1370; 1891, A., 1416.  
 compressibility of (AMAGAT), 1883, A., 150.  
 compressibility of, at very high pressures (AMAGAT), 1889, A., 8.  
 liquefaction of (V. WROBLEWSKI and OLSZEWSKI), 1883, A., 781, 952.  
 boiling point of, under atmospheric pressure (V. WROBLEWSKI), 1884, A., 817.  
 critical temperature and pressure of; relation between its boiling point and the pressure (OLSZEWSKI), 1884, A., 1257.  
 insulating properties of liquid (V. WROBLEWSKI), 1885, A., 1099.  
 density of, liquefied (OLSZEWSKI), 1887, A., 694.  
 solidification of (V. WROBLEWSKI), 1884, A., 553; (OLSZEWSKI), 1885, A., 475.

**Nitrogen**, absorption of, in slow oxidation (BERTHELOT), 1889, A., 673.  
 absorption coefficient of, in alcohol (HENRICH), 1892, A., 1043.  
 solubility of, in water (WANKLYN and JOHNSTONE), 1892, A., 108; (WINKLER), 1892, A., 271.  
 action of the silent discharge on oxygen and, in presence of chlorine (HAUTEFEUILLE and CHAPPUIS), 1884, A., 710.  
 action of, on certain metals (WARREN), 1887, A., 702.  
 action of persulphuric acid on (TRAUBE), 1889, A., 941.  
 direct combination of, with the alkaline earth metals (MAQUENNE), 1892, A., 566.  
 combustion of, at high pressures (HEMPEL), 1890, A., 1050.  
 combustions with copper oxide, quantity of nitric oxide produced in (KLINGEMANN), 1890, A., 292.  
 nitrification of organic (LEONE and MAGNANIMI), 1892, A., 367.  
 direct union of hydrogen and (BAKER), 1884, A., 152.  
 formation of nitrous acid and ammonia from free (LOEW), 1890, A., 1051.  
 organic carbon in soils which absorb free (BERTHELOT), 1886, A., 736.  
 question (IMMENDORFF), 1892, A., 374.  
 See also Agricultural Chemistry.  
 disengagement of, during putrefaction (MORGEN), 1884, A., 1214, 1417; (EHRENBERG), 1887, A., 172, 746; (TACKE), 1889, A., 738; (REISERT), 1889, A., 739.  
 calcium sulphite as a preventive of the loss of, in manure heaps (JENSCHE), 1889, A., 184.  
 excretion of, in the free state from the animal body (GRUBER), 1884, A., 1391.  
 excretion of, from the skin (POWER), 1883, A., 227.  
 increased output of, in cerebral hyperthermia, fever and artificial overheating (RICHTER), 1891, A., 600.  
 excretion of, in kidney diseases (KORNBLUM), 1892, A., 743.  
 excretion of, in cases of leucæmia (BOHLAND and SCHURZ), 1891, A., 483.  
 excretion of, in the sweat (ARGUTINSKY), 1891, A., 350.  
 excretion of, in urine (GUMLICH), 1892, A., 1503.

- Nitrogen**, influence of hot baths on the excretion of, from the human system (FORMÁNEK), 1892, A., 1503.  
 influence of bodily labour on the elimination of (NORTH), 1885, A., 412; 1886, A., 569.  
 influence of water and sodium chloride, on the excretion of (DUBELIR), 1892, A., 904.  
 total, estimation of the hourly excretion of, in urine (ETARD and RICHT), 1883, A., 751; (GLEY and RICHT), 1888, A., 179.  
 exhalation of, during the respiration of animals (REISEI), 1883, A., 675.
- Nitrogen compounds**, new group of (ENGEL), 1884, A., 725.  
 in rain water (BERTHELOT and ANDRÉ), 1886, A., 737.  
 from the manufacture of sulphuric acid, utilisation of (WACHTEL), 1883, A., 130.  
 magnetic rotatory power of (PERKIN), 1889, T., 680; P., 83, 130.  
 molecular refraction of (LOEWENHERZ), 1891, A., 373.  
 asymmetry of nitrogen in (SCHRYVER), 1891, P., 39.  
 isomerism of (GATTERMANN), 1890, A., 1112.  
 stereochemistry of (BEHREND), 1890, A., 575; (WILLGERODT), 1890, A., 951; (BISCHOFF), 1890, A., 1330.  
 stereochemically isomeric (HANTZSCH and WERNER), 1890, A., 970; (HANTZSCH), 1891, A., 34; (HANTZSCH and KRAFT), 1892, A., 338; (AUWERS and MEYER), 1892, A., 598.  
 attempts to prepare stereochemical isomerides of (HANTZSCH), 1891, A., 35.  
 geometrically isomeric (HANTZSCH and WERNER), 1890, A., 348; (WILLGERODT), 1890, A., 576, 1089.  
 stereoisomeric, dissociation constants of (HANTZSCH and MIOLATI), 1892, A., 1268.  
 stereoisomeric, nomenclature of (HANTZSCH), 1892, A., 312; (WIDMAN), 1892, A., 875.  
 nomenclature of those containing two nitrogen atoms linked together (CURTIS), 1891, A., 1350.  
 test for, in sulphuric acid (WILSON), 1890, A., 922.
- Nitrogen oxybromide**. See Nitrosyl bromide.  
 chloride (GATTERMANN), 1888, A., 412.
- Nitrogen chloride**, electrolytic preparation of (MARECK), 1885, A., 347.  
 lecture experiments with (MEYER), 1888, A., 343.  
 oxychloride. See Nitrosyl chloride.  
 chlorides, substituted (BENDER), 1887, A., 44.  
 chlorophosphide, interactions of (COLDRIDGE), 1888, T., 399; P., 25.  
 fluoride (WARREN), 1887, A., 770.  
 hydride. See Azonimide.  
 iodide (GUYARD), 1884, A., 152, 818; (RASCHIG), 1886, A., 16.  
 action of, on organic compounds (LEPETIT), 1890, A., 1402.  
 the action of sunlight on (GUYARD), 1884, A., 818.  
 copper iodide (GUYARD), 1884, A., 154.  
 organic iodides of (RASCHIG), 1886, A., 44.
- Nitrogen oxides** (RAMSAY and CUNDALL), 1885, T., 187; P., 22.  
 present in vitriol chambers (LUNGE), 1888, P., 3.  
 combinations of, with metallic oxides (BESON), 1889, A., 834.
- Nitrogen monoxide** (*nitrous oxide*), preparation of (CAZENÈVE), 1885, A., 613; (CAMPARI), 1889, A., 569.  
 absorption coefficient of, in water and in alcohol (HENRICH), 1892, A., 1044.  
 density of (CAILLETET and MATHIAS), 1886, A., 758.  
 lecture experiment showing the volume composition of (KEISER), 1886, A., 660.  
 hydrate of (VILLARD), 1888, A., 1021.
- Nitrogen dioxide** (*nitric oxide*), preparation of (KAEMMERER), 1886, A., 200; (THIELE), 1890, A., 9; (EMICH), 1892, A., 939.  
 produced in the combustion of nitrogenous organic compounds with copper oxide (KLINGEMANN), 1890, A., 292.  
 density of, at  $-100^{\circ}$  (DACCAMO and MEYER), 1887, A., 887.  
 volume composition of, lecture experiment showing (KEISEI), 1886, A., 160.  
 absorption coefficient of, in alcohol (HENRICH), 1892, A., 1044.  
 absorption of, by ferrous salts (GAY), 1885, A., 1109.  
 absorption of, by sulphuric acid (NETTLEFOLD), 1887, A., 526.  
 solubility of, in sulphuric acid (LUNGE), 1885, A., 954.  
 solubility of, in bromine (ROOZEBOOM), 1886, A., 501.

**Nitrogen dioxide** (*nitric oxide*), liquefaction and solidification of (OLSZEW-SKI), 1885, A., 860.  
 action of bromine on (FROELICH), 1881, A., 1237.  
 action of the copper-zinc couple on (GLADSTONE and TRIBE), 1883, T., 346.  
 action of, on ferrous hydroxide and water (DUNSTAN and DYMOND), 1887, T., 648.  
 action of, on iron (BAYLEY), 1888, A., 358.  
 action of, on metals and on metallic oxides (SABATIER and SENDERENS), 1892, A., 1151, 1271.  
 action between oxygen and (EMICH), 1892, A., 940.  
 action between oxygen and, under varying conditions (LUNGE), 1885, T., 465; P., 61.  
 action of potash on (EMICH), 1892, A., 940.  
 action of, on stannous chloride (DIVERS and HAGA), 1885, T., 623; P., 94.  
 behaviour of, at high temperatures (EMICH), 1892, A., 940.  
 decomposition of, in contact with water and potash (COOKE), 1889, A., 15.  
 action of the electric spark on mixtures of, with hydrogen, with methane, etc. (COOKE), 1889, A., 15.  
 poisoning by (BELKY), 1887, A., 392.  
 estimation of (BOHMER), 1883, A., 508.  
 estimation of free oxygen by means of (DE KONINCK), 1892, A., 97.  
**Nitrogen peroxide** (*tetroxide*) (*nitric peroxide*) (RAMSAY), 1890, T., 590; P., 7.  
 molecular weight of (RAMSAY), 1888, T., 621; P., 59.  
 dissociation of (E. and L. NATANSON), 1885, A., 862; 1886, A., 657.  
 action of heat on (RICHARDSON), 1887, T., 397; P., 39.  
 preparation of (SÉLÉNE), 1888, A., 913; (RAMSAY), 1890, T., 590; (CUNDALL), 1891, T., 1077.  
 physical properties of (RAMSAY), 1890, T., 591.  
 absorption spectrum of (BELL), 1885, A., 949.  
 specific heat of (THRELFALL), 1887, A., 429.  
 variations in the electrical resistance of, with rise of temperature (V. BOGUSKI), 1890, A., 203.  
 boiling point and specific gravity of (GUTHRIE), 1888, A., 785.

**Nitrogen peroxide** (*tetroxide*), constitution of liquid (DIVERS and SHIMIDZU), 1885, T., 630; P., 93.  
 dissociation of liquid (CUNDALL), 1891, T., 1076; P., 129; (OSTWALD), 1892, T., 242; P., 13.  
 reactions of liquid (DIVERS and SHIMIDZU), 1885, T., 630; P., 93.  
 action of chlorine on (WILLIAMS), 1886, T., 226.  
 action of, on metals and metallic oxides (SABATIER and SENDERENS), 1892, A., 1890.  
 combination of phosphorus pentafluoride with (TASSEL), 1890, A., 1052.  
 use of, as a nitrating agent (ARMSTRONG and ROSSITER), 1891, P., 91.  
**Nitrogen trioxide** (*nitrogen sesquioxide*; *nitrous anhydride*) (RAMSAY), 1890, T., 590.  
 existence of, in the gaseous state (LUNGE), 1885, T., 457; P., 61.  
 non-existence of, in the gaseous state (RAMSAY and CUNDALL), 1885, T., 672; P., 90.  
 liquid (GAINES), 1884, A., 15.  
 molecular weight of (RAMSAY), 1888, T., 621; P., 59; 1890, T., 595.  
 preparation of (RAMSAY), 1890, T., 591.  
 properties of (RAMSAY), 1890, T., 597.  
 boiling point and specific gravity of (GUTHRIE), 1888, A., 785.  
 solidification of (BIRCHANS), 1889, A., 1109.  
 action of, on substances dissolved in carbon disulphide (FRIEDBERG and MANDEL), 1890, A., 1401.  
**Nitrogen pentoxide** (*nitric anhydride*) (MEYER), 1889, A., 341.  
**Nitrogen acids**, formation of, in combustion (ILOSVAY), 1890, A., 447.  
**Nitric acid**, presence and behaviour of, in plants (SERNO), 1890, A., 1021.  
 origin and fate of, in plant (FRANK), 1888, A., 979.  
 amount of, in the rain water at Rothamsted (WARINGTON), 1889, T., 537; P., 102.  
 absence of, in wine-must (POLLAK), 1889, A., 541.  
 not formed in the organism of higher plants (KREUSLER), 1887, A., 686.  
 or nitrous acid produced in dilute urine seeded with soil (WARINGTON), 1884, T., 646.

**Nitric acid or nitrous acid produced** in dilute urine with gypsum seeded with soil from various fields (WARINGTON), 1887, T., 120.

**formation of, by the evaporation of water in presence of water and soil and alkalis** (BAUMANN), 1889, A., 183.

**manufacture of** (VOLNEY), 1892, A., 941.

**magnetic rotatory power of** (PERKIN), 1889, T., 680, 724; P., 130.

**molecular refraction and dispersion of, in solution** (GLADSTONE), 1891, T., 593.

**action of direct sunlight on a mixture of carbon disulphide and, contained in sealed tubes** (TIFFEREAU), 1885, A., 1110.

**electrical conductivity of solutions of** (CROMPTON), 1888, T., 121; (BOUTY), 1888, A., 640.

**electrical conductivity of concentrated** (BOUTY), 1888, A., 640.

**molecular conductivity of fuming** (BOUTY), 1888, A., 545.

**coefficient of diffusion of** (STEFAN), 1889, A., 1047.

**colour of** (MARCHLEWSKI), 1892, A., 113.

**lecture experiments with** (AUSTEN), 1889, A., 672.

**conditions of action of** (CROSS and BEVAN), 1889, A., 1109.

**effect of carbamide on the activity of** (CROSS and BEVAN), 1889, A., 1109.

**conditions of the reaction between copper and** (VELEY), 1890, A., 701.

**action of nascent hydrogen and nascent oxygen on** (HALL), 1892, A., 680.

**chemical changes between lead and** (VELAY), 1892, A., 410.

**action of, on metals** (VELEY), 1891, A., 525; (MONFEMARTINI), 1892, A., 1278, 1402.

**action of phosphorus oxychloride on** (WILLIAMS), 1886, T., 224.

**action of stannous chloride on** (DIVERS and HAGA), 1885, T., 623; P., 94.

**action of some specific micro-organisms on** (FRANKLAND), 1888, T., 373; P., 23.

**reducing action of coke on** (LUNGE), 1885, A., 936.

**nature of the reduction of, by metals** (DIVERS), 1883, T., 455.

**Nitric acid, reduction of, to ammonia by the galvanic current** (BECKER), 1892, A., 403.

**combustion of hydrogen in** (HODGKINSON and LOWNDES), 1888, A., 1244.

**stains, recognition of, on textures** (FLECK), 1885, A., 595.

**tables revised** (LUNGE and REY), 1892, A., 13.

**Nitric acid, detection, estimation and separation:—**

**detection of** (BÉHAL), 1886, A., 392.

**detection of small quantities of, in the air, water, soils, etc.** (GRANDVAL and LAJOURX), 1885, A., 1093.

**detection of, in presence of other acids capable of interfering with its reactions** (LONGI), 1884, A., 365.

**detection of, in presence of nitrous acid** (WASHINGTON), 1885, A., 593; (PICCINI), 1886, A., 740.

**detection of, in a mixture of alkaline salts** (DE KONINCK), 1887, A., 297.

**detection of, in well waters** (BINDER), 1888, A., 197.

**detection of, in wine** (BOGMANN), 1888, A., 753; (ZECCHINI), 1891, A., 961; (VITALI), 1891, A., 1551.

**some tests for** (BREAL), 1887, A., 1138; (WALDEN), 1888, A., 321; (LINDO), 1888, A., 1397.

**cinchonamine as a test for** (ARNAUD), 1891, A., 362.

**diphenylamine and crystallised phenol as reagents for nitrites and** (HAGER), 1886, A., 99.

**ferrous ammonium sulphate as a reagent for** (AUSTEN and CHAMBERLAIN), 1884, A., 493; (ROSA), 1886, A., 99.

**naphthol and sulphuric acid as reagents for** (HAGER), 1886, A., 99.

**resorcinol as a test for** (LINDO), 1889, A., 75.

**p-toluidine sulphate as a test for** (LONGI), 1884, A., 365.

**testing for iodine and iodic acid in** (BECKURTS and ROUGE-MONT), 1886, A., 834.

**testing for, in vegetable tissues** (ARNAUD and PADÉ), 1884, A., 1074.

**estimation of** (DÜHNER), 1883, A., 508; (LONGI), 1884, A., 366; (WILDT and SCHEIBE), 1884, A., 871; (FALIERES), 1884, A., 1074; (CURTMAN), 1886, A., 648; (MORSE and LINN), 1887, A., 181; (WILFAETH), 1888, A., 1336.

**Nitric acid, detection, estimation and separation:—**

- estimation of nitrous acid and, separately or together (LONGI), 1884, A., 366.
- estimation of, apparatus for (KRATSCHMER), 1888, A., 193.
- estimation of, by diphenylamine (MULLER), 1890, A., 415.
- estimation of, by means of diphenylamine and potassium-stannous sulphate (MOUTLTON), 1885, A., 930.
- estimation of, by electrolysis (VORTMANN), 1890, A., 1467.
- estimation of, by Kjeldahl's method (SCOVELL), 1889, A., 308.
- estimation of, by the phenolsulphonic acid method (BARTRAM), 1891, A., 1136.
- estimation of, by reduction to ammonia (BOYER), 1890, A., 1025; (ULSCH), 1891, A., 617, 960.
- estimation of, by the Schulze and Tiemann's method (SPIEGEL), 1890, A., 1025.
- estimation of small quantities of, in the air, water, soils, etc. (GRANDVAL and LAJOUX), 1885, A., 1093.
- estimation, iodometric, of (MCGOWAN), 1891, T., 530; (DR KONINCK and NIHOUL), 1891, A., 618.
- estimation of, in presence of nitrous acid (PICCINI), 1886, A., 740.
- estimation of, in water (MAYRHOFER), 1885, A., 691; (HARVEY), 1887, A., 184; (SPIEGEL), 1887, A., 691; 1889, A., 438; (HOOKER), 1889, A., 312; (ORMANDY and COHEN), 1890, T., 811; P., 139; (RIDEAL), 1890, A., 831; (JOHNSON), 1890, A., 532; (HARROW), 1891, T., 320; P., 67; (ROSENFIELD), 1891, A., 196; (HAZEN and CLARK), 1892, A., 243.
- estimation of, in rain water (WARINGTON), 1889, T., 544; P., 120.
- estimation, gasometric, of (GLASER), 1892, A., 1375.
- estimation, volumetric, of (LONGI), 1884, A., 366; 1885, A., 595.
- separation of, from mercury and phosphoric and arsenic acids (HAACK), 1892, A., 530.

**Nitric anhydride. See Nitrogen peroxide.**

oxide. See Nitrogen dioxide.

peroxide. See Nitrogen peroxide.

Nitrates in the rain of tropical districts (MUNTZ and MARCANO), 1889, A., 923.

formation of deposits of, in tropical regions (MUNTZ and MARCANO), 1885, A., 1042; 1889, A., 680.

formation and destruction of nitrites and, in artificial solutions and in river and well waters (MUNRO), 1886, T., 632.

magnetic rotation of (PERKIN), 1890, P., 144.

ethereal, magnetic rotatory power of (PERKIN), 1889, T., 724, 862.

correspondence between the magnetic rotation and the refraction and dispersion of light by (GLADSTONE and PERKIN), 1889, T., 756.

molecular refraction of (LOEWENHERZ), 1890, A., 1201.

melting points of (MAUMONT), 1884, A., 384.

action of the copper iron couple on, in acid solution (ULSCH), 1892, A., 1518.

behaviour of, in Kjeldahl's method for the estimation of nitrogen (WARINGTON), 1885, A., 1261.

fermentation of (GAYON and DUPEITIT), 1883, A., 230.

reduction of, by the cholera bacteria (PETRI), 1890, A., 76.

reduction of, by micro-organisms (SPRINGER), 1884, A., 350; (GAYON and DUPEITIT), 1886, A., 823; (WARINGTON), 1888, T., 742; (DE BLASI and TRAVALI), 1890, A., 1453.

reduction of, to nitrites (GAYON and DUPEITIT), 1883, A., 609.

catalytic formation of ammonia from (LOEW), 1890, A., 689.

basic (ANDRE), 1885, A., 634; (ROUSSEAU and TIRE), 1892, A., 1157.

See also Agricultural Chemistry.

**Nitrous acid (DRECHSEL), 1887, A., 698.**

in the atmosphere (LOSVAY), 1890, A., 406.

in potable water (ENKLAAR), 1889, A., 1234.

formation of, from free nitrogen (LOEW), 1890, A., 1051.

formation of, in the evaporation of water (SCHEUBER-KESTNER), 1883, A., 850.

formation of, in the evaporation of water in presence of water and soil and alkalis (BAUMANN), 1889, A., 183.

**Nitrous acid, formation of, in the saliva from formaldehyde and ammonia** (WURSTER), 1889, A., 1228.  
**velocity of decomposition of, in aqueous solution** (MONTMARTINI), 1891, A., 522.  
**action of, on sulphurous acid** (RASCHIG), 1887, A., 549, 635.  
**action of, on urea, uric acid and ammonium sulphate** (EMMERLING), 1886, A., 747.  
**reduction of, to hydroxylamine** (DIVERS), 1888, T., 454.  
**ethereal salts of** (BERTONI), 1886, A., 217; 1887, A., 458; 1890, A., 353.  
**Nitrous acid, detection and estimation:—**  
**detection of** (LUNGE), 1890, A., 415; (DENIGES), 1892, A., 1124.  
**detection of, in saliva** (ILOSVAY), 1890, A., 278.  
**detection of, in a mixture of alkaline salts** (DE KONINCK), 1887, A., 297.  
**detection of, and in presence of nitric acid** (WARINGTON), 1885, A., 593.  
**tests for** (MELDOLA), 1884, T., 108; (LINDO), 1888, A., 1337.  
**diphenylamine and crystallised phenol as reagents for nitrates and** (HAGER), 1886, A., 99.  
**naphthol and sulphuric acid as a reagent for** (HAGER), 1886, A., 99.  
**phenols and sulphuric acid as reagents for** (LINDO), 1888, A., 1337.  
**Griess' test for, in presence of hydrogen peroxide** (WURSTER), 1887, A., 298.  
**use of ammonium acetate in detecting, by Griess' reaction** (WURSTER), 1889, A., 1243.  
**in water, influence of temperature on Griess' reaction for** (BOSIO), 1892, A., 657.  
**modification of Griess' sulphanilic test for** (LINDO), 1888, A., 1340.  
**estimation of** (DAVIS), 1883, A., 515; (VIVIER), 1888, A., 527; (DUNSTAN and DYMOND), 1890, A., 193; (GREEN and EVERSHED), 1892, A., 751; (LUNGE), 1892, A., 1029.  
**estimation of nitric acid and, separately or together** (LONGI), 1884, A., 366.  
**estimation of, either alone or in presence of nitrates and chlorides** (DAY), 1888, T., 422; P., 40.

**Nitrous acid, estimation:—**  
**estimation of, in water** (ZAMBELLI), 1887, A., 533; (ORMANDY and COHEN), 1890, T., 511; P., 139; (ROSENFELD), 1891, A., 496.  
**estimation, gasometric, of** (FRANKLAND), 1888, T., 364; P., 23.  
**estimation, volumetric, of** (GREEN and RIDEAL), 1884, A., 870; (GREEN and EVERSHED), 1887, A., 396.  
**estimation, volumetric, of combined** (KINNICTT and NEF), 1884, A., 493.  
**Nitrous anhydride.** See Nitrogen trioxide.  
**Nitrous oxide.** See Nitrogen monoxide.  
**Nitrites in plants** (MODDERMAN), 1889, A., 295.  
**absence of, in plants** (MOLISCH), 1887, A., 989.  
**in human saliva** (MCGRAVE), 1883, A., 227.  
**formation of** (KAPPEL), 1887, A., 106.  
**formation and oxidation of, in soils** (WINOGRADSKY), 1891, A., 1545.  
**formation of, in the nitrification of ammoniacal solutions** (MUNRO), 1885, A., 52.  
**limit of the formation of ethereal, by double decomposition** (BERTONI and TRUFFI), 1884, A., 1110.  
**preparation of alkaline** (LEROF), 1889, A., 825.  
**production of, in nitrification** (WARINGTON), 1891, T., 486.  
**magnetic rotation of ethereal** (PERKIN), 1889, T., 686, 727.  
**decomposition of basic, by water** (ROUSSEAU), 1892, A., 1272.  
**action of the copper-ion couple on, in acid solution** (ULSEN), 1892, A., 1518.  
**action of metallic, on sulphites of metals other than potassium** (DIVERS and HAGA), 1887, T., 659; P., 100.  
**action of, on blood pressure** (BERN-  
TON and BOKENHAM), 1889, A., 630.  
**action of paraffinic, on blood pressure** (CASH and DUNSTAN), 1891, A., 1270.  
**reduction of, to hydroxylamine by hydrogen sulphide** (DIVERS and HAGA), 1887, T., 43.  
**Hyponitrous acid, heat of formation of** (BERTHELOT and OGIER), 1883, A., 423.

- Hyponitrite solution**, alkali, preparation of (DIVERS and HAGA), 1884, T., 55.
- Hyponitrites** (BERTHELOT and OGIER), 1883, A., 422; (DIVERS and HAGA), 1884, T., 75; (MAQUENNE), 1889, A., 944.
- formation of** (DUNSTAN and DYMOND), 1887, T., 646; P., 73.
- formation of**, from nitric oxide (DIVERS and HAGA), 1885, T., 361; P., 45.
- constitution of** (DIVERS and HAGA), 1889, T., 772.
- heat of formation of** (BERTHELOT and OGIER), 1883, A., 423; (BERTHELOT), 1889, A., 930.
- conversion of oxyamidodisulphonates into** (DIVERS and HAGA), 1889, T., 760; P., 146.
- Nitrogen selenide** (VERNEUIL), 1883, A., 423.
- heat of explosion of** (BERTHELOT and VIELLE), 1883, A., 707.
- oxysulphate**. See Nitrosyl sulphate.
- Nitrogen, detection and estimation**:—
- of**, in ammonia and certain amines and amides, analytical studies on (LONGI), 1885, A., 1092.
- detection of**, in organic substances (GRAEBE), 1884, A., 1072; (DONATH), 1890, A., 663.
- estimation of** (ARNOLD), 1883, A., 378; (GROUVEN), 1883, A., 1025; (KREUSLER), 1885, A., 430; (ARNOLD), 1885, A., 387; (HILFSCHWIDT), 1885, A., 1011; (HOUTZEAT), 1889, A., 752; (CAZENELVE and HUGONENQ), 1888, A., 991; (BERTHELOT and ANDRI), 1889, A., 307; (L'HÔTE), 1889, A., 746; (LEFFMANN and BEAM), 1889, A., 796; (DROWN and MARFIS), 1889, A., 1035; (BOYER), 1892, A., 237; (SMITH), 1892, A., 527; (VOORHEES), 1892, A., 751; (EDWARDS), 1892, A., 1125.
- estimation of**, by Boyer's method (ARNOLD and WEDEMAYER), 1892, A., 1517.
- estimation of**, by Dumas' method, modification of (JOHNSON), 1885, A., 139.
- estimation of**, by Grooven's method (KREUSLER and LANDOLT), 1884, A., 1215.
- estimation of nitric**, as nitric oxide (SCHRIDING), 1891, A., 107.
- estimation of nitric**, by aluminium (STUCKER), 1891, A., 617.
- Nitrogen, estimation**:—
- estimation of nitric**, by ferrous sulphate (BAILLACHE), 1889, A., 925.
- comparison of the methods of estimation of** (ODDY and COHEN), 1890, A., 1466.
- apparatus for the estimation of**, in ammonium salts (HENTSCHEL), 1890, A., 1341.
- apparatus**, Dumas' (v. ILINSKI), 1884, A., 1072.
- estimation, simultaneous, of hydrogen and** (GEHRENBECK), 1889, A., 1031.
- estimation of**, absorption of ammonia by acid solutions in the (HAYNES), 1888, A., 752.
- estimation of**, by combustion (JOHNSON and EILUART), 1886, A., 488.
- estimation of**, by combustion with calcium hydroxide (JOHNSON), 1884, A., 1422.
- estimation of**, by the copper oxide method and the comparison of this and the Ruffie method (DABNEY and VAN HERFF), 1885, A., 593, 930.
- estimation of**, by soda-lime (ATWATER and WOODS), 1888, A., 193; (ATWATER), 1888, A., 990, 1334; (QUANTIN), 1889, A., 306.
- sources of loss in the estimation of**, by soda-lime (ATWATER and BALL), 1885, A., 752; (FREYDL), 1890, A., 1194.
- estimation of**, by Kjeldahl's method (KJELDAHL), 1884, A., 364; (CZERNICKI), 1885, A., 655; (BOSSHARD), 1885, A., 837; (ARNOLD), 1885, A., 930; 1887, A., 78; (PREIFFER and LEHMANN), 1886, A., 179; (YALDLEY), 1886, A., 232; (RINDELL and HANNLN), 1886, A., 648; (ARMSTRONG and SHORT), 1887, A., 293; (RAULIN), 1887, A., 362; (ULSCH), 1887, A., 863; (DAFERT), 1888, A., 85; (LENZ), 1888, A., 193; (MELDOLA and MORITZ), 1888, A., 625; (L'HÔTE), 1889, A., 438; (VIOLETTE), 1889, A., 546; (LANGE), 1889, A., 547; (AUBIN and ALLA), 1889, A., 643, 925; (ZECCHINI and VIGNA), 1889, A., 649; (GUNNING), 1889, A., 796; (MARTINOTTI), 1889, A., 1088; (NIEBLING), 1890, A., 415; (LUNGE), 1890, A., 661; (FOERSTER), 1890, A., 1466; (ARGUTINSKY), 1891, A., 362; (EDWARDS), 1891, A., 862; (SROCK), 1892, A., 1516.

**Nitrogen, estimation:—**

estimation of organic, by Ruffe's and Guyard's (Tamm's, method) (ARNOLD), 1889, A., 378.

estimation of, by the Schulze-Tiemann method (COCHIN and MOLLER), 1891, A., 107.

estimation of, by Soxhlet's apparatus (BARLOW), 1888, A., 537; (LEWKOWITZ), 1889, T., 359; P., 90.

estimation of, in ammonium magnesium phosphate (MARSEN and ROSS), 1890, A., 291.

estimation of, in coal and coke (FOSTER, 1883, T., 105; SCHMIDT, 1886, A., 1071.

estimation of, in mixtures containing nitrogenous organic matter, ammoniacal salts, and nitrates (SHEPHERD, 1883, A., 685.

estimation of, in nitro-, azo-, and diazo-compounds (GOLDBERG, 1884, A., 364.

estimation of, in nitrates (FRUKE, 1892, A., 527; (SULZBERG), 1892, A., 528; (ARNOLD and WEDDEMAYER), 1892, A., 1517.

estimation of, in nitrates by Kjeldahl's method (JODLBACHER), 1886, A., 834; (FOERSBER), 1889, A., 107, 547, 746; (KEBLER), 1891, A., 1397.

estimation of, in nitrates, by Jodlbauer's modification of Kjeldahl's method (DEVALDA), 1890, A., 292.

estimation of, in pickled railway sleepers (GRITZNER), 1891, A., 620.

estimation of, in substances containing halogens, source of error in (ZIMMONDY), 1889, A., 546.

estimation of, in wine, must and lees (KULISCH), 1886, A., 652.

estimation of, in natural waters (BURGHARDT), 1887, A., 619; (LALIEU), 1889, A., 551.

estimation of, organic, in natural waters by Kjeldahl's method (LEFFMANN and BEAM), 1889, A., 796; (DROWN and MALIN), 1889, A., 1035.

estimation of, in organic substances by means of alkaline permanganate (WAGNER), 1891, A., 109.

estimation of, in faeces (CAMERON), 1885, A., 308.

estimation of, in the milk and urine of Herbivora (WELKE), 1886, A., 1072.

estimation of, in products of metabolism (PFEIFFER), 1886, A., 1053.

**Nitrogen, estimation:—**

estimation of, in urine PETRI and LEHMANN, 1884, A., 1440; CAMERON, 1885, A., 303; 1885, A., 51; (PFLUGER and BOHLAND), 1885, A., 695; BOHLAND, 1885, A., 609; (GARNIER), 1887, A., 863; (OECHSALL DE CONINCK), 1889, A., 649.

See also Agricultural Chemistry.

**Nitrogen-atom**, asymmetrical, possibility of existence of KRAFT, 1891, A., 51.

**Nitrogen-free extract**, constituents of STONE, 1892, A., 653.

**Nitrogenous** constituents of malt, wort, beer and bread TILIK, 1883, A., 821.

contents of the digestive juices (EULENBERGER and HOLMEISTER), 1887, A., 1129.

matter, artificial and natural digestion of (PEIFFER), 1883, A., 227.

nuclei, nomenclature of compounds containing WIDMAN, 1889, A., 56.

substances, separation of, by means of phosphomolybdic acid (HIRSCHLER), 1887, A., 310.

**Nitroglutazines**, *mono-* and *di-* (PECHMANN), 1883, A., 67, 68.

**Nitroglycerol**. See Glyceryl trinitrate.

**Nitroglycerol works**, recovering the waste acids from (POETSCH), 1885, A., 619.

*di*-**Nitroglucuril** (FRANCHIMONT and KLOBBE), 1888, A., 1190.

**Nitroglyoxaline** (RUNG and BEHREND), 1892, A., 1493.

**Nitro-group**, displacement of the, by chlorine or bromine (LOBRY DE BRUYN), 1892, A., 305.

displacement of, by an oxyalkyl-group (LOBRY DE BRUYN), 1885, A., 657.

substitution of the amido-group by, in aromatic compounds (SANDMEYER), 1887, A., 720.

first reduction products of (HOFMANN and MEYER), 1892, A., 291; (WILLGERODT), 1892, A., 594; (KIRPAT), 1892, A., 1067.

*di*-**Nitroguaiacol** (HERZIG), 1883, A., 464.

**Nitroguanidine** (PELLIZZARI), 1892, A., 579; (FRANCHIMONT), 1892, A., 951; (THIELE), 1892, A., 1295.

thermochemistry of (MAGIGNON), 1892, A., 1142.

*tri*-**Nitrohemimellithene** (JACOBSEN), 1887, A., 36.

- Nitrohemipinic acid** (LIEBERMANN), 1887, A., 46.
- Nitrohemipinic anhydride** (GRUNE), 1887, A., 49.
- Nitroheptylbenzene** (AUGER), 1887, A., 816.
- Nitrohexane** (KONOWALOFF), 1892, A., 575.
- Nitrohydantoin** (FRANCHIMONT and KLOBBIE), 1888, A., 1179.  
action of water on (FRANCHIMONT and KLOBBIE), 1889, A., 125.
- Nitrohydrobromic acid**, action of, on organic compounds (BRUNNER and KRAEMER), 1884, A., 1815.
- Nitrohydrocarbons of the fatty series**, tertiary (BEWAD), 1891, A., 653.
- Nitrohydrothiocinnamic acid** (BONDZYSKI), 1887, A., 1109.
- Nitrohydroxyanthraquinone ethylate** (LIEBERMANN and HAGEN), 1883, A., 73.
- m*-**di**Nitrohydroxyazobenzene (KLINGER and PITSCHKE), 1886, A., 53.
- m*-Nitro-*p*-hydroxybenzaldehyde (SCHÜPF), 1892, A., 336.
- Nitro-*m*-hydroxybenzaldehydes**,  $\alpha$ -,  $\beta$ - and  $\gamma$ - (TIEMANN and LUDWIG), 1883, A., 189, 586.
- Nitrohydroxybenzaldehydes and their methyl derivatives** (TIEMANN), 1889, A., 1168.
- 2-Nitro-*m*-hydroxybenzoic acid** (THIEME), 1891, A., 917.
- Nitro-*m*- and -*p*-hydroxybenzoic acids** (GRIESS), 1887, A., 485.
- Nitrohydroxybenzylphthalimidine** (GABRIEL), 1885, A., 1230.
- di*Nitrohydroxydiphenylamine [m.p. 190°] (NIETZKI and SCHÜNDELEN), 1892, A., 310.
- di*Nitro-*o*-hydroxydiphenylamine (SCHÜPF), 1889, A., 772.
- Nitrohydroxydiphenylbenzyl-maleide and -maleimidine** (COHN), 1892, A., 485, 486.
- di*Nitrohydroxyethoxydiphenylamine (NIETZKI and KAUFMANN), 1892, A., 314.
- Nitro- $\alpha$ -hydroxyethylpiperonylcarboxylic anhydride** (PERKIN), 1890, T., 1027.
- Nitro-4'-hydroxy-2'-methylquinazoline** (DEHOFF), 1890, A., 802; 1891, A., 84; (THIEME), 1891, A., 917.
- 1-Nitro-3-hydroxy-4-methylquinoline** (NOLTING and TRAUTMANN), 1891, A., 326.
- 4-Nitro-1-hydroxy-2-methylquinoline** (NOLTING and TRAUTMANN), 1891, A., 326; 1892, A., 727.
- Nitrohydroxymethylquinolines** 2:1:4- and 3:4:1- (NOLTING and TRAUTMANN), 1892, A., 727, 728, 729.
- 3:2-Nitrohydroxy- $\alpha$ -naphthaquinone derivatives** (KEHRMANN and WEICHARDT), 1889, A., 1197.
- Nitro-1-hydroxy- $\alpha$ -naphthoic acid** (EKSTRAND), 1889, A., 153.
- Nitro- $\beta$ -hydroxyphenylacrylic acids**, *o*- and *p*- (LIPP), 1887, A., 142.
- Nitro- $\beta$ -hydroxyphenylpropionic acid** (*nitrophenyl- $\beta$ -lactic acid*). See  $\beta$ -Hydroxyphenylpropionic acid.
- Nitro- $\beta$ -hydroxyphenylpropionyl methyl ketone**, *o*- and *p*- (V. BAEYER and DREWSEN), 1888, A., 341; (V. BAEYER and BECKER), 1883, A., 1120.
- Nitrohydroxyphenylpyrotartaric acids**, *m*- and *p*- (*nitrophenylitamic acids*), and barium salts of (SALOMONSON), 1888, A., 480.
- di*Nitrohydroxyphthalic acid (BERNTHSEN and SEMPER), 1885, A., 548.
- 2-Nitro-4-hydroxyisopropylbenzoic acid** (WIDMAN), 1886, A., 466.
- 3-Nitro-4-hydroxyisopropylbenzoic acid and its derivatives** (WIDMAN), 1883, A., 330; 1884, A., 316.
- Nitrohydroxypropylphthalimide** (NEUMANN), 1890, A., 890.
- Nitrohydroxyquinoline**. See Hydroxyquinoline.
- Nitro-1-hydroxyquinolinecarboxylic acid** (SCHMITT and ENGELMANN), 1888, A., 66.
- di*Nitrohydroxyquinone, preparation of (NIETZKI), 1884, A., 58.
- 5-Nitro-*o*-hydroxytoluic acid** (HÖNIG), 1886, A., 242.
- tri*Nitrohydroxy-*m*-toluic acid (*nitrococcus acid*; *trinitrocresotic acid*), synthesis of (V. KOSTANECKI and NIEMENTOWSKI), 1885, A., 531.
- p*-Nitrohydroxyvinylphenylpropionic acid (EINHORN and GEHRENDECK), 1889, A., 397.
- Nitro-*di*imido-quinol and -resorcinol** (NIETZKI and SCHMIDT), 1889, A., 963, 969.
- Nitroindazine** (WITT, NOLTING and GRANDMOUGIN), 1891, A., 312.
- Nitroindoles**, derivatives of (ZATTI), 1890, A., 897.
- Nitro-keto-compounds**, formation of (ARMSTRONG and ROSSITER), 1891, P., 89.
- Nitro- $\alpha$ -keto- $\gamma$ -methyl- $\beta$ -ethyljuloline** (KAYSER and REISSERT), 1892, A., 888.

- Nitroketones**, preparation of (LANGE and ZUFALL), 1892, A., 1459.
- $\psi$ -**Nitroles**, conversion of ketoximes into (SCHOLL), 1888, A., 413.  
constitution of (MEYER), 1888, A., 702.
- o*-**Nitrofenomalachite-green** (*o*-nitro-tetra-methyl-diamidodiphenyl-methane) (FISCHER and SCHMIDT), 1891, A., 1315.
- Nitrolimetin** (TILDEN), 1892, T., 350.
- Nitrolic acids** (JANOVSKY, 1885, A., 1131.
- Nitroltrimetaphosphoric acid** (MENTE), 1889, A., 211.
- o*-**Nitromalachite-green** (FISCHER and SCHMIDT), 1891, A., 1315.
- Nitromandelic acid**. See Mandelic acid.
- o*-**Nitroaconineacetic acid** (LIEBERMANN and KLEEMANN, 1887, A., 48.
- Nitromesitylacetic acid** and its salts (WISPEK), 1883, A., 1096.
- di*-**Nitromesitylacetic acid** (DITTRICH and MEYER), 1891, A., 1224.
- Nitromesitylene**, oxidation of (EMERSON, 1887, A., 132.
- di*-**Nitromesitylene methylnitramide** (KLOBBIE), 1888, A., 467.
- di*-**Nitromesitylgyoxylic acid** (DITTRICH and MEYER), 1891, A., 1224.
- Nitro-metals** (SABATIER and SENDERENS), 1892, A., 1390.
- Nitrometer** (BLUNT), 1887, A., 998.  
improved form of (LUNGE), 1888, A., 526.  
reduction of ferric nitrate in (BAYLEY), 1886, A., 1072.  
uses of (ALLEN), 1886, A., 278;  
(LUNGE), 1886, A., 391.  
supposed error in the use of (LUNGE), 1886, A., 391.  
use of, in the estimation of potassium permanganate, zinc-dust, and reduced iron powder (LUNGE), 1885, A., 1162.  
modification of, for use as a ureometer and other purposes (LUNGE), 1885, A., 1267.
- Nitromethane**. See Methane.
- Nitromethaneazobenzoic acid** (GRIESS), 1885, A., 788.
- Nitromethoxybenzaldehyde**. See Methoxybenzaldehyde.
- Nitro-*m*-methoxybenzoic acids**, *o*- and *m*- (RIEHE), 1889, A., 1169, 1170.
- 2-Nitro-6-methoxybenzonitrile** (LOBRY DE BRUYN), 1885, A., 637.
- Nitromethoxycinnamaldehyde** (V. MILLER and KINKELIN), 1889, A., 990.
- Nitromethoxycinnamic acid** *nitromethylbenzoic acid*. See Methoxycinnamic acid.
- m*-**Nitromethoxy- $\psi$ -cumene** AUWERK, 1886, A., 114.
- 2-Nitro-5-methoxy- $\beta$ -hydroxyphenyl-propionamide** (EICHENGRUN and EINHORN), 1890, A., 1128.
- 2 Nitro-5-methoxy- $\beta$ -hydroxyphenyl-propionic acid** (EICHENGRUN and EINHORN), 1890, A., 1127; 1891, A., 1100.
- 2-Nitro-5-methoxyphenyl- $\beta$ -bromopropionic acid** (EICHENGRUN and EINHORN), 1890, A., 1127.
- m*-**Nitro-*p*-methoxyphenyl- $\beta$ -bromopropionic acid** (EINHORN and GRABFIELD), 1888, A., 478.
- m*-**Nitro-*p*-methoxyphenylethylene** (EINHORN and GRABFIELD, 1888, A., 477.
- 2-Nitro-3-methoxy-2'-phenylquinoline** and its derivatives (V. MILLER and KINKELIN), 1887, A., 978.
- m*-**Nitro-*p*-methylaceto-*p*-tolinide** (NIEMENTOWSKI), 1887, A., 937.
- p*-**Nitromethylamidoazobenzene**. See Benzeneazomethylaniline, nitro-.
- Nitromethylamidobenzoic acids** (THIEME), 1891, A., 916, 917.
- 5-Nitro-2-methylamidobenzomethylamide** (THIEME), 1891, A., 917.
- 2:4:6-*tri*-Nitromethylamidomethylnitramidobenzene** (VAN ROMBURGH), 1889, A., 1154.
- Nitromethylaniline**. See Methylaniline.
- tri*-**Nitromethyl-*o*-anisidine** (GRIMATX and LEFÈVRE), 1891, A., 1032.
- Nitro- $\beta$ -methylantraquinone** (ROEMER and LINK), 1888, A., 1138.
- Nitromethylisobenzaldoxime, *m*- and *p*-** (GOLDSCHMIDT), 1890, A., 1262; (GOLDSCHMIDT and KJELLIN), 1891, A., 1477.
- Nitromethylbenzamide** (VAN ROMBURGH), 1886, A., 546.
- Nitromethylcarbostyryl** (FEER and KOENIGS), 1885, A., 1235.
- Nitromethylcoumaraldehyde** (V. MILLER and KINKELIN), 1889, A., 990.
- Nitromethylcoumaric acid** (*nitromethoxycinnamic acid*). See Methylcoumaric acid.
- Nitromethylenephthalide** (ZINCKE and LATTEN), 1892, A., 1231.
- Nitro-*o*-methylethylbenzenes**, *mono*- and *di*- (CLAFS and PIESZCZEK), 1887, A., 240.
- m*-**Nitromethyl-formanilide** and *iso*-formanilide (COMSTOCK and WHEELER), 1892, A., 706.

- Nitromethylhydantoin** (FRANCHIMONT and KLOBBE), 1888, A., 1180; 1889, A., 1143.  
 action of water on (FRANCHIMONT and KLOBBE), 1889, A., 125.
- di***Nitromethylhydro-*p*-coumaric acid** (STOEHR), 1884, A., 1350.
- di***Nitro-2'-methylindole** (ZATTI), 1890, A., 897.
- Nitro- $\alpha$ -methylnaphthalene** (SCHERLER), 1892, A., 491.
- tri***Nitromethyl- $\alpha$ - and - $\beta$ -naphthols** (STAEDEL), 1883, A., 863.
- Nitromethylpyrocatechol derivatives** (COTCIN), 1892, A., 1113.
- di***Nitromethylquinol** (WENDER), 1890, A., 752.
- Nitromethylquinoline.** See Methylquinoline.
- 4-Nitromethylquinolone** (DECKER), 1892, A., 880.
- di***Nitromethyl-*p*-toluidine** (NORTON and LIVERMORE), 1887, A., 1038.
- Nitro- $\beta$ -methylumbelliferone** (V. PECHMANN and COHEN), 1884, A., 1332.
- Nitromethyluracil** (BEHREND), 1887, A., 919; (LEHMANN), 1890, A., 32.
- Nitromolybdic acid solution**, concentrated, preparation of (GUYARD), 1884, A., 635.
- Nitronaphthalene.** See Naphthalene.
- Nitronaphthalene-1:1'-dicarboxylic acid and anhydride** (QUINKE), 1888, A., 814.
- Nitronaphthalene-2:2-disulphonic acid and its chloride** (ALLEN), 1883, A., 596.
- di***Nitronaphthalene-3:3-disulphonic chloride** (ALLEN), 1883, A., 596.
- 1:3'- $\alpha$ -Nitronaphthalenesulphonamide**, action of hydriodic acid on (EKDOM), 1891, A., 573.
- 1:4'-Nitronaphthalenesulphonamide**, action of hydriodic acid on (EKDOM), 1890, A., 994.
- Nitronaphthalenesulphonic acid.** See Naphthalenesulphonic acid.
- Nitro- $\alpha$ -naphthamide** (EKSTRAND), 1886, A., 948.
- Nitro- $\beta$ -naphthaquinhydrone** (GROVES), 1884, T., 300.
- Nitro- $\beta$ -naphthaquinol** (GROVES), 1884, T., 299; (ZAERTLING), 1890, A., 509.
- Nitronaphthaquinone.** See Naphthaquinone.
- Nitro- $\beta$ -naphthaquinoneanilide** (BRAUNS), 1884, A., 1038; (KORN), 1884, A., 1186.
- Nitro- $\beta$ -naphthaquinone-*o*- and -*p*-toluidides** (BRAUNS), 1884, A., 1038.
- Nitronaphthoic acid.** See Naphthoic acid.
- Nitronaphthol.** See Naphthol.
- Nitronaphtholactone** (EKSTRAND), 1889, A., 153.
- 4'-Nitro- $\alpha$ -naphthonitrile and nitro- $\beta$ -naphthonitrile** (GRAEFF), 1884, A., 80.
- m*-**Nitro-*p*- $\alpha$ - and - $\beta$ -naphthylamido-benzoic acids** (HEIDENBLEHEN), 1891, A., 307.
- Nitronaphthylamine.** See Naphthylamine.
- 4'-Nitro- $\alpha$ -naphthylamine-4-sulphonic acid** (NILIZKI and ZUBELEN), 1889, A., 514.
- $\alpha$ -Nitro- $\beta$ -naphthyllic benzoate and acetate, reduction of** (BOTCHER), 1885, A., 659.  
 benzoate and acetate, molecular transformation of (BOTCHER), 1883, A., 1113.
- di***Nitronaphthyllic sulphide** (EKSTRAND), 1885, A., 171.
- Nitronates** (DIVERS), 1883, T., 455, 466.
- Nitronitrosoanthrone** (PERKIN), 1891, T., 639.  
 action of sodium sulphide on (PERKIN), 1891, T., 640.
- Nitronitrosoazobenzene.** See Azobenzene.
- Nitronitrosobenzeneazo-.** See Benzeneazo-.
- p*-**Nitronitroso- $\beta$ -benzylhydroxylamine** (BEHREND and KÖNIG), 1891, A., 1035.
- tetra***Nitronitrosobisazobenzene-*p*-chlorophenylhydrazine** (WILLGERODT), 1890, A., 1119; (WILLGERODT and BOHM), 1891, A., 907.
- o*-**Nitro- $\omega$ -nitroso-*p*-diazotoluene chloride.** See Methyl-*o*-nitro-*p*-diazobenzene chloride, nitroso-.
- di-p*-**Nitrodinitrosoditoluene** (*bis-p*-nitronitrosylbenzyl) (BEHREND and KÖNIG), 1891, A., 1035.
- o*-**Nitronitrosoethylaniline** (HEMPFEL), 1889, A., 600; 1890, A., 612.
- o*-**Nitronitrosomethylaniline** (HEMPFEL), 1890, A., 612.
- Nitrodinitrosophenol** (WILLGERODT), 1891, A., 688; 1892, A., 594.
- Nitrodinitrosophenol-acenaphthene and -anthracene** (WILLGERODT), 1891, A., 689.
- 2:4-Nitronitrosoreosorcinol** (DE LA HARPE and REVERDIN), 1888, A., 679; 1889, A., 41.
- Nitronitroso-*m*-xylenecarboxylic acid** (CLAUS), 1890, A., 980.

- Nitronononaphthene** (KONOWALOFF), 1892, A., 443.
- Nitro-octylbenzenes**, *o*-, *m*- and *p*- (AHRENS), 1887, A., 131.
- di***Nitro-octylbenzene** (AHRENS), 1887, A., 133.
- Nitro-opianic acid**, behaviour of, with phenylhydrazine (LIEBERMANN), 1886, A., 530.  
reduction of (KLEEMANN), 1887, A., 584.
- Nitro-oreosolon** (JASSON), 1890, A., 1154.
- 1-Nitro-oxalo- $\beta$ -naphthalide**, bis- (PERKIN), 1892, T., 466.
- m*-**Nitro-oxalo- $\beta$ -toluidide**, bis- (HINSBERG), 1883, A., 323.
- 5-Nitro-oxalo- $\alpha$ -toluidide**, bis- (PERKIN), 1892, T., 463.
- 3:5-*di*-Nitro-oxalo- $\alpha$ - and - $\mu$ -toluidides**, bis- (MIXIER and KLEEBERG), 1889, A., 771; (PERKIN), 1892, T., 464, 465.
- tri***Nitro-oxanilamide** (MIXIER and WALTHER), 1888, A., 142.
- Nitro-oxanilic acid**. See Oxanilic acid.
- Nitro-oxanilide**. See Oxanilide.
- Nitro-oxycamphor** (KACHLER and SPITZER), 1883, A., 215.
- 4-Nitro-2-oxy-3:1'-dimethylquinoline** (DECKER), 1892, A., 950.
- m*-**Nitro-4'-oxy-2'-methylquinazoline** (DEHOFF), 1891, A., 54; (THIEME), 1891, A., 917.
- Nitro-oxyquinone carbonate** (LOWENBERG), 1886, A., 759.
- Nitroparaffins**, constitution of (KUNDEL), 1885, A., 364.
- Nitropentane** (BEWAD), 1889, A., 1127.
- Nitroperselitol** (MUNTZ and MARANO), 1884, A., 1285.
- di***Nitro- $p$ -phenacetide** (WENDER), 1890, A., 751.
- o*-**Nitrophenacetin** (AUTENRIETH and HINSBERG), 1892, A., 160.
- Nitrophenacetic acid** (HOTTER), 1888, A., 1299.
- m*-**Nitrophenacylphthalimide** (SCHMIDT), 1890, A., 372.
- m*-**Nitrophenacyl- $p$ -toluidine** (LELLMANN and DONNER), 1890, A., 525.
- Nitrophenanthraquinone** (LACHOWICZ), 1884, A., 82.
- 2:4-*di*-Nitrophenazoxine** (TURPIN), 1891, T., 724.
- o*-**Nitro- $p$ -phenetidine** (AUTENRIETH and HINSBERG), 1892, A., 160.
- 2:6-*di*-Nitro- $p$ -phenetidine** (WENDER), 1890, A., 751.
- Nitrophenetol**. See Phenetol.
- Nitrophenol**. See Phenol.
- 2:4:6-*tri*-Nitrophenol**. See Picric acid.
- di***Nitrophenolsulphonic acid**, preparation of (DEYER and KEGLI), 1885, A., 269.
- Nitrophenophenanthrazine** (HEIM), 1885, A., 1097.
- p*-**Nitrophenoxyacetophenone** (MOHLAU), 1883, A., 332.
- p*-**Nitrophenyl mercaptan** (WILLGERODT), 1885, A., 519; (LEUCKART), 1890, A., 604.
- di***Nitrophenyl mercaptan** (AUTEN and SMITH), 1886, A., 693.  
ethers of (WILLGERODT), 1885, A., 519.
- m*-**Nitrophenyl methyl ketoxime** (GABRIEL), 1883, A., 582.
- Nitrophenylacetamide**, *m*- and *p*- (PURGOTT), 1891, A., 562.
- m*-**Nitrophenylacetic acid** (GABRIEL and BOLGMANN), 1883, A., 1121.
- o*-*p*-**Nitrophenylacetic acid** (HECKMANN), 1884, A., 178.
- Nitrophenylacetoneitrile**. See Phenylacetoneitrile.
- Nitrophenyl- $\beta$ -alanine**. See Nitr- $\beta$ -amidopropionic acid.
- Nitrophenylamido-**. See also Nitr-amide-.
- Nitrophenyl-*li*- $p$ -amidophenylisobutylmethanes**, *m*- and *p*- (BISCHLER), 1889, A., 133.
- Nitrophenyl- $\beta$ -amidopropionic acid**. See Nitr- $\beta$ -amidopropionic acid.
- m*-**Nitrophenyl-*li*- $p$ -amidotolylmethanes**,  $\alpha$ - and  $\beta$ - (BISCHLER), 1889, A., 133.
- p*-**Nitrophenyl-*li*- $p$ -amidotolylmethanes**,  $\alpha$ - and  $\beta$ - (BISCHLER), 1888, A., 287.
- Nitrophenyl-*di*- $m$ -xylylmethanes**, *m*- and *p*- (BISCHLER), 1889, A., 134.
- tetra***Nitrophenylazimidobenzene** (WILLGERODT), 1892, A., 1454.
- di***Nitrophenylazimidotolylamine** (ERNST), 1891, A., 300.
- o*-**Nitrophenylazooacetacetic acid**, and its derivatives (BAMBERGER), 1885, A., 157.
- o*-**Nitrophenylazooacetophenone** (BAMBERGER and CALMAN), 1886, A., 62.
- di*-*o*-**Nitrophenylbenzidine** (SCHOPFF), 1889, A., 773.
- Nitrophenylbenzyl oxides**, *o*- and *p*- (KUMPF), 1884, A., 1005.
- m*-**Nitrophenylbenzylcarbamide** (KUNN and RIEBENFELD), 1892, A., 312.
- o*-**Nitrophenylbenzylhydrazine** PAAL and BODEWIG, 1892, A., 1455.
- o*-**Nitrophenylbenzylidenehydrazine** (BISCHLER), 1890, A., 148.

- m*-Nitrophenylbenzylidenhydrazine (BISCHLER and BRODSKY), 1890, A., 150.
- p*-Nitrophenyl- $\gamma$ -*d*-bromomethyl- $\beta$ -bromacrylic acid (EINHORN and GEHRENBECK), 1889, A., 396; 1890, A., 162.
- p*-Nitrophenylbromomethylactic acid, lactone of (EINHORN and GEHRENBECK), 1889, A., 397.
- p*-Nitrophenyldibromobutinenecarboxylic acid (EINHORN and GEHRENBECK), 1889, A., 396.
- o*-*p*-*d*-Nitrophenyl-*p*-bromophenylhydrazine (WILLGERODT and ELLON), 1891, A., 1362.
- o*-Nitrophenyl- $\beta$ -bromopropionic acid and its derivatives (EINHORN), 1884, A., 65.
- m*-Nitrophenyl- $\beta$ -bromopropionic acid (PRAUSNITZ), 1884, A., 1175.
- Nitrophenyl- $\beta$ -bromoisosuccinic acids, *o*- and *p*- (STUART), 1886, T., 363, 362.
- Nitrophenyldibromoisosuccinic acids, *m*- and *p*- (STUART), 1886, T., 361.
- Nitrophenylbutinene- $\omega$ -carboxylic acids (EINHORN and GEHRENBECK), 1889, A., 271, 396; 1890, A., 162.
- p*-Nitrophenylisobutyric acid (EDELHART), 1888, T., 558.
- o*-*p*-*d*-Nitrophenyl-*m*-chlorophenylhydrazine (WILLGERODT and MUHE), 1892, A., 454.
- o*-*p*-*d*-Nitrophenyl-*p*-chlorophenylhydrazine (WILLGERODT), 1890, A., 1119; (WILLGERODT and BOHM), 1891, A., 906.
- o*-Nitrophenylcinnamic acid (OGGIALORO-TODARO and ROSINI), 1891, A., 214.
- Nitrophenyleitraconazide (MICHAEL), 1886, A., 699.
- o*-*p*-*d*-Nitrophenyleonine (LELLMANN and JUST), 1891, A., 1245.
- m*-Nitrophenylcrotonaldehyde (V. MILLER and KINKELIN), 1886, A., 560. base from (V. MILLER and KINKELIN), 1886, A., 701. product of the reduction of (V. MILLER and KINKELIN), 1886, A., 799.
- m*-Nitrophenylcrotonic acid (V. MILLER and ROHDE), 1890, A., 1140.
- p*-Nitrophenyldehydrohexonecarboxylic acid (PERKIN), 1887, T., 736.
- $\beta$ -*p*-Nitrophenyldi-*p*-acetamidoditolylmethane (BISCHLER), 1889, A., 132.
- m*-Nitrophenyldianethoilmethane (DE VARDA), 1891, A., 1347.
- m*-Nitrophenyldi-*o*-cresolmethane (SIBONI), 1892, A., 621.
- Nitrophenyldihydroxyphenylmethanedicarboxylic acids, *o*-, *m*- and *p*- (DE VARDA), 1892, A., 621.
- m*-Nitrophenyldi-cresolmethane and -diphloroglucinolmethane (BERTONI), 1891, A., 1378.
- Nitrophenyldipiperidyls, *p*-mono- and *o*-*p*-di- (LELLMANN and JUST), 1891, A., 1245.
- p*-Nitrophenyldiquinolylmethane (EINHORN), 1886, A., 720.
- m*-Nitrophenyldiresorcinylmethane (DE VARDA and ZENONI), 1891, A., 1346.
- d*-Nitrophenyldithienyl (RENARD), 1890, A., 1421.
- m*-Nitrophenylditolylmethane (TSCHACHER), 1887, A., 44; 1888, A., 373.
- di*-Nitro-*m*-phenylenediamine [m. p. 250°] (BARR), 1888, A., 823.
- di*-Nitro-*m*-phenylenediamine [m. p. 300°] (NIEZKI and HAGENBACH), 1887, A., 477.
- tri*-Nitro-*m*-phenylenediamine (NOLTING and COLLIN), 1884, A., 1004; (BARR), 1888, A., 823.
- tri*-Nitro-*m*-phenylenedimethyldinitramine (VAN ROMBURGH), 1888, A., 1079, 1185.
- Nitrophenylene-ethenylamidine (HEIM), 1888, A., 1097.
- di*-Nitrophenylenehydroxylamine (WILLGERODT), 1892, A., 594.
- Nitrophenylene- $\beta$ -naphthylethyldiamine (HEIM), 1888, A., 488.
- o*-Nitrophenylethyl salicylate (*salicyl-ethylen: nitrophenol ether*) (WAGNER), 1884, A., 436.
- Nitrophenylethyl nitrosamine (MELDOLA and STREATFIELD), 1886, T., 631.
- Nitrophenylethylurethane (STEUDERMANN), 1883, A., 802.
- o*-*p*-Nitrophenylfurfuracrylonitrile (FREUND and IMMERWAHR), 1890, A., 1408.
- Nitrophenylglycidic acid, *o*- and *p*- (LIPP), 1887, A., 142.
- Nitrophenylglycollic acid. See Mandelic acid, nitro-.
- Nitrophenylglyoxylic hydrazones, *o*- and *m*- (FEHLIN), 1890, A., 1117.
- Nitrophenylhydrazine. See Phenylhydrazine.
- 5-Nitrophenylhydrazine-*o*-sulphonic acid (LIMPRICHT), 1885, A., 1216.
- o*-Nitrophenylhydrazine-*p*-sulphonic acid (NIEZKI and LERCH), 1889, A., 144; (LERCH), 1889, A., 881.
- 4:6-*di*-Nitrophenyl-1:2-hydroxylamine (WILLGERODT), 1891, A., 688; 1892, A., 594.

- o*-Nitrophenylic benzoate, reduction of (BOTCHER), 1887, A., 678.
- Nitrophenylic benzoates (NEUMANN, 1886, A., 350, 939; 1887, A., 254).
- di*Nitrophenylic carbonate (LOWENBERG), 1886, A., 789.
- tri-p*-Nitrophenylic cyanurate (OTTO), 1887, A., 1033.
- o*-Nitrophenylic diphenylcarbamate (LELLMANN and BONHOFFEL), 1887, A., 986.
- Nitrophenylic diphenylcarbamates (LELLMANN and BENZ), 1891, A., 1215.
- o*-Nitrophenylic ethylic carbonate (BENDER), 1887, A., 37.
- Nitrophenylic orthoformate, tribasic (WENDIGE), 1883, A., 340.
- Nitrophenylic nitrobenzoates (NEUMANN), 1886, A., 350, 939; 1887, A., 254.
- Nitrophenylic oxides, *o*- and *p*-, of dinitrophenol and of picric acid (WILLGERODT and HUETLIN), 1884, A., 1323.
- Nitrophenylic phenylcarbamate (GUMPERT), 1886, A., 542.
- Nitrophenylic phenylmethylecarbamates (LELLMANN and BENZ), 1891, A., 1214.
- p*-Nitrophenylic phosphate (RAPF), 1884, A., 1337.
- di*Nitrophenylic sulphide (*tetranitro-diphenylic sulphide*) (AUSTEN and SMITH), 1886, A., 693.
- m*-Nitrophenylic *d*-sulphide (LEUCKART), 1890, A., 604.
- p*-Nitrophenylic *disulphide* (WILLGERODT), 1885, A., 519.
- α-di*Nitrophenylic thiobenzoate (WILLGERODT), 1885, A., 519.
- di*Nitrophenylic thiocyanate (AUSTEN and SMITH), 1886, A., 693.
- Nitro-1'-phenylindazine-3'-carboxylic acid, action of stannous chloride on (SCHULHÖFER), 1891, A., 1231.
- Nitro-1'-phenyl-*β*-indazine-3'-carboxylic acid (MEYER), 1889, A., 517.
- m*-Nitrophenylxinedihydroxytartaric acid (BISCHLER and BRODSKY), 1890, A., 151.
- Nitrophenyl-*α*-lactic acid, nitrate of (ERLENMEYER and LIPP), 1883, A., 993.
- Nitrophenyl-*β*-lactic acid. See *β*-Hydroxyphenylpropionic acid.
- Nitro-*β*-phenyllactic methyl ketones. See Nitro-*β*-hydroxypropionyl methyl ketone.
- o*-Nitrophenylmethaneazobenzene (PAAL and BODEWIG), 1892, A., 1456.
- az-p*-Nitrophenyl-*ald*-methyl-naphthatriazine (MELDOLA and FORSTER), 1891, T., 697, 712.
- 2:3:4-6-*trinitro*Nitrophenylmethylnitramine, and its conversion into *m*-phenylenediamine derivative (VAN ROOIJCKHOF), 1884, A., 1154.
- p*-Nitrophenylmethylnitrosamine FISCHER and HEPP, 1887, A., 244; (MELDOLA and SALMON, 1888, T., 775).
- μ-m*-Nitrophenyl-*β*-methyloxazoline (ELFELDT), 1892, A., 214.
- o-p-di*Nitrophenyl-*α*-methylpiperidine (LELLMANN and JEFF), 1891, A., 1245.
- Nitrophenyl-*β*-methylpiperidine, *p-mono* and *α-p-di*-LELLMANN and BUTNER, 1890, A., 1003.
- 4-Nitro-1-phenyl-3-methylpyrazolone (KNORR), 1884, A., 302, 1153, 1378; 1887, A., 602; (KNORR and DUDEN), 1892, A., 731.
- m*-Nitro-2'-phenyl 3'-methylquinoline (V. MILIER and KINKELIN), 1886, A., 561.
- 2:4-*d*-Nitrophenyl-*β*-naphthol (ERNST), 1891, A., 300.
- 2-4-*d*-Nitrophenyl-*α*-naphthylamine (HEIM), 1888, A., 488, 1096.
- 2:4-*d*-Nitrophenyl-*β*-naphthylamine (HEIM), 1888, A., 488; (ERNST), 1891, A., 300.
- o-p-di*Nitrophenyl-*α*- and -*β*-naphthylhydrazines (WILLGERODT and SCHULZ), 1891, A., 572.
- Nitrophenylnitrobenzenesulphazides, *m*- and *p*- (LIMPRICHT), 1887, A., 723.
- p*-Nitrophenyl-*o-p-di*nitrophenylcarbonyl cyanide (V. RICHTER), 1888, A., 1186.
- Nitrophenyl-*o*- and -*p*-nitrophenyl oxides, *di*- and *tri*- (WILLGERODT and HUETLIN), 1884, A., 1323.
- Nitrophenyl-*ald-m*- and -*p*-nitrophenyl-naphthatriazines, *α-p*- and *m*- (MELDOLA and FORSTER), 1891, T., 693, 694.
- p*-Nitrophenylnitropropionic acid, derivatives of (FRIEDLANDER and MAHL), 1885, A., 1137.
- m*-Nitrophenyl-*o*-nitro-*p*-tolylthiocarbamide (STEUDEMANN), 1884, A., 307.
- Nitro-*n*-phenylosotriazolecarboxylic acid (BALTZER and V. PECHMANN), 1891, A., 1116.
- μ-m*-Nitrophenyloxazoline (ELFELDT), 1892, A., 213.
- Nitro-*β*-phenyloxycrylic acids. See Nitrophenylglycidic acids.
- Nitrophenylparaconic acids (SALOMONSON), 1885, A., 1221; 1888, A., 480.
- μ-m*-Nitrophenylpentoxazoline (ELFELDT), 1892, A., 214.
- m*-Nitrophenylphenacyl oxide (LELLMANN and DONNER), 1890, A., 523.

**Nitrophenyl-*ul*-phenylnaphthatriazines.** See Nitrodiphenylnaphthatriazine.

*p*-**Nitrophenylpiperazine** (SCHMIDT and WICHMANN), 1892, A., 210.

**Nitrophenylpropylamines, *di*- and *tri*-** (VAN ROMBURGH), 1886, A., 455.

*di*-**Nitrophenylpropylene.** See *di*-Nitrallylbenzene.

*tri*-**Nitrophenylpropylnitramine** (VAN ROMBURGH), 1886, A., 455.

*m*-**Nitro-2'-phenylquinoline** (v. MILLER and KINKELIN), 1885, A., 1144.

*di*-**Nitrophenylosaniline** (NÖLTING), 1883, A., 54.

*di*-**Nitrophenylsalicylic acid** (ARBENZ), 1890, A., 893.

*m*-**Nitrophenylsantoninmethane** (BERTONI), 1892, A., 622.

*m*-**Nitro-2'-phenyltetrahydroquinoline** (v. MILLER and KINKELIN), 1885, A., 1145.

*o*-**Nitrophenyltetra-*p*-hydroxydiphenylmethane** (SIBONI), 1892, A., 621.

*p*-**Nitrophenyltetra-*m*-hydroxydiphenylmethane** (SIBONI), 1892, A., 621.

**Nitrophenyltetra-*p*-hydroxydiphenylmethanes, *m*- and *p*-** (BERTONI and ZENONI), 1892, A., 620.

**Nitrophenyltetrazolecarboxylic acid** (BLADIN), 1892, A., 1009.

*m*-**Nitrophenylthiocarbimide** and its derivatives (STEUDEMANN), 1883, A., 801; 1884, A., 306.

**Nitrophenylthiourethane** (LOSANTSCH), 1893, A., 582.

*o*-**Nitrophenyl-*p*-toluidine** (SCHÖPFF), 1890, A., 1113.

*tri*-**Nitrophenyltoluidine.** See *tri*-Nitr-anilidotoluene.

**Nitrophenyl-*p*-tolylthiocarbamides, *o*- and *m*-** (STEUDEMANN), 1884, A., 307.

**Nitrophenyltriazolecarboxylic acid** (BLADIN), 1892, A., 735.

*m*-**Nitrophenyltrimethylammonium hydroxide, bromide and *m*-nitrophenoxide** (STAEDEL and BAUER), 1886, A., 941.

*p*-**Nitrophenylurethane** and its derivatives (HAGER), 1885, A., 149.

*o*-*p*-*di*-**Nitrophenylurethane** (HAGER), 1885, A., 150; (VAN ROMBURGH), 1892, A., 712.

*p*-**Nitrophenylvaleric acid** (LELMANN and SCHLEICH), 1887, A., 490.

*tri*-**Nitrophloroglucinol** (BENEDIKT and HAZUKA), 1885, A., 554.

*di*-**Nitrophthalic acids, 5:3- and 6:3-** (MERZ and WEITH), 1883, A., 344.

4-**Nitroisophthalic acid** (CLATS and WYNDHAM), 1889, A., 142; (NOYES), 1889, A., 395.

*di*-**Nitroisophthalic acid** (CLATS and WYNDHAM), 1889, A., 142.

**Nitrophthalo-*m*-isocymide** (KELBE and WARTH), 1884, A., 47.

**Nitropiperidine** (FRANCHIMONT and KLOBBIE), 1889, A., 1145.

*o*-**Nitropiperonalphenylhydrazone** (HABER), 1891, A., 706.

6-**Nitropiperonylacrylic acid** and its salts (PERKIN), 1891, T., 153.

2-**Nitropiperonylnitrile** (HABER), 1891, A., 706.

*o*-**Nitropiperonylvinyl methyl ketone** (HABER), 1891, A., 705.

**Nitropropanes.** See Propane.

*di*-**Nitropropane-*p*-bisazoanisole** (KEPPLER and MEYER), 1892, A., 1062.

*di*-**Nitropropanebisazo-benzene and -toluene** (KEPPLER and MEYER), 1892, A., 1062.

**Nitropropenylbenzoic acid, salts of** (WIDMAN), 1881, A., 317.

*o*-**Nitropropionanilide** (SMITH), 1885, A., 524.

*m*-**Nitropropylbenzoic acid.** See *n*-Cumic acid, nitro-.

**Nitroisopropylcinnamic acid.** See Cumylacrylic acid, nitro-.

**Nitropropylene** (MEYER), 1892, A., 575; (ASKENASY and MEYER), 1892, A., 1062.

**Nitropropylene-*p*-azoanisole, nitropropyleneazobenzene, nitropropylene-*m*-azobenzoic acid, nitropropylene-azo-*m*-bromobenzene, nitropropyleneazo- $\psi$ -cumene, nitropropylene-*p*-azophenetole, and nitropropylene-*o*- and -*p*-azotoluenes** (ASKENASY and MEYER), 1892, A., 1063, 1064.

**Nitropropyleneazobenzene** (MEYER), 1892, A., 575.

*di*-**Nitropropylthiophen** (RUFF), 1887, A., 804.

**Nitroprussides** (NOETON), 1888, A., 932; (PRUD'HOMME), 1890, A., 1387.

formation of, without the use of nitric acid (JENSEN), 1885, A., 739.

preparation of (PRUD'HOMME), 1891, A., 410.

action of heat on (ETARD and BÉMONT), 1885, A., 234.

**Nitropurpurin** and  $\psi$ -**nitropurpurin** (BRASCH), 1891, A., 1078.

3-**Nitropyrrocatechol, behaviour of, with mordants** (v. KOSTANECKI), 1889, A., 868.

**Nitropyromecazone** (OST), 1883, A., 791.

- 2:5-*d*-Nitropyromellitic acid, and its ethylic salt (NEF), 1886, A., 64; 1888, T., 439.
- Nitropyromelic acid (PRIEDR.), 1885, A., 971.
- di*Nitropyrroline (CIAMICIAN and SILBER), 1885, A., 993; 1886, A., 718.
- Nitropyrroline- $\alpha$ -carboxylic acids,  $\alpha$ - and  $\beta$ - (ANDERLINI), 1890, A., 66.
- Nitropyrrolinephthalide (ANDERLINI), 1889, A., 58.
- Nitropyrrolylene dimethyl ketone (CIAMICIAN and SILBER), 1886, A., 718.
- o*-Nitropyrvaldehydophenylhydrazone (BAMBERGER), 1885, A., 157.
- p*-Nitropyrvic acid phenylhydrazone (FISCHER and ACH), 1890, A., 41.
- 2:5-*d*-Nitroquinol (NIEZKI), 1883, A., 465.  
constitution of (NIEZKI and PLETCHER), 1887, A., 574.
- tr*-Nitroquinol, derivative of (NIEZKI and KAUFMANN), 1892, A., 314.
- Nitroquinols, diethyl derivatives of (NIEZKI), 1883, A., 466; (NIEZKI and KAUFMANN), 1892, A., 314.
- Nitroquinoline. See Quinoline.
- Nitroquinoline-2'-carboxylic acid (DOEBNER and V. MILLER), 1883, A., 602.
- Nitroquinone, Etard's. probable non-existence of (HENDERSON and CAMPBELL), 1890, T., 255.
- Nitroresorcinol. See Resorcinol.
- Nitroresorcinoldisulphonic acid (ULZER), 1889, A., 510.
- Nitroresorcinolsulphonic acid and its derivatives (HAZURA), 1883, A., 1114.
- tetra*Nitrosolic acid (ACKERMANN), 1884, A., 1339.
- Nitrosalicylaldehydes (V. MILLER), 1887, A., 938; (TAEGER), 1887, A., 939; (BRADLEY and DAINES), 1892, A., 1458.
- 3- and 5-Nitrosalicylic acids (SMITH and KNEHR), 1886, A., 704.
- Nitrosamines (FISCHER and HEPP), 1887, A., 729, 1114.  
constitution of (EULENMEYER), 1883, A., 1103.  
action of hydrogen chloride on (FISCHER and HEPP), 1887, A., 244.
- Nitrosates and their derivatives (WALLACH), 1888, A., 37.
- Nitrosilicic acid, existence of (BOUSSEAU and TITE), 1892, A., 651.
- Nitrosites and their derivatives (WALLACH), 1888, A., 37.
- iso*Nitroso-. See parent substance, oxime of.
- Nitrosoacetone (V. PEHMANN), 1887, A., 1104.  
sodium salt of, action of benzylic chloride on MEYER and CERESOLE, 1883, A., 572.
- di*Nitrosoacetone (V. PEHMANN and WEHSARG), 1889, A., 34.
- Nitrosoacetophenylhydrazones, *monom*- and *di*- (V. PEHMANN and WEHSARG), 1889, A., 47, 54.
- di*Nitrosoacetophenylmethylhydrazones (V. PEHMANN and WEHSARG), 1889, A., 48.
- Nitrosoallylacetone (OTTE and V. PEHMANN), 1889, A., 1139.
- Nitrosoamidoethylpiperonylic anhydride (PERKIN), 1890, T., 1918.
- Nitroso- $\alpha$ -anilidopropionic acid (REISERT), 1892, A., 1456.
- p*-Nitrosoaniline (FISCHER and HEPP), 1887, A., 1114; 1888, A., 400.  
action of phenylhydrazine on (FISCHER and WACKER), 1888, A., 1286.  
phenylmethylhydrazones of (FISCHER and WACKER), 1889, A., 702.
- p*-Nitrosoanisidine BENZ, 1890, A., 608.
- Nitrosoanthrone (GIMBLE), 1887, A., 675.  
action of nitric acid on (PELKIN), 1891, T., 641.
- $\psi$ -Nitrosoanthrone (PERKIN), 1891, T., 645.
- Nitrosoazo-compounds, constitution of (WILLEROLT), 1892, A., 1321, 1453.
- Nitrosoazobenzene. See Azobenzene.
- Nitrosobarbituric acid (CERESOLE), 1883, A., 913.
- p*-*di*Nitrosobenzene (NIEZKI and KEHRMANN), 1887, A., 575.
- Nitrosobenzeneazo-. See Benzeneazo-.
- Nitrosobenzenesulphonic acid, preparation and salts of (LIMPRICHT), 1892, A., 475.
- o*-Nitrosobenzenylamidine (LOSSEN and MIERAU), 1885, A., 654.
- di*Nitrosobenzenylamidinebenzenylamidine (LOSSEN and MIERAU), 1888, A., 684.
- Nitrosobenzylacetone (CERESOLE), 1883, A., 41.
- Nitroso-*o*-benzylamidoacetophenone (V. BAeyer), 1884, A., 1021.
- p*-Nitrosobenzylaniline (FISCHER and HEPP), 1890, A., 614; (BOEDINGHAT), 1891, A., 1205.
- Nitroso- $\beta$ -benzylhydroxylamine (BEHREND and KONIG), 1891, A., 1034.
- p*-Nitrosobenzylmethylaniline (BOEDINGHAT), 1891, A., 1206.

- Nitroso- $\beta$ -benzylpiperidone (ASCHAN), 1891, A., 467.
- p*-Nitrosobenzyl-*o*- and -*m*-toluidines (BOE DINGHAUS), 1891, A., 1203.
- p*-Nitrosoisobutylaniline (WAKEL), 1888, A., 465.
- Nitrosocamphor (CLAIEN and MANASSE), 1889, A., 619.
- oxidation by, in presence of light (CAZENOVE), 1889, A., 1203.
- Nitroso-compounds, preparation of (WILLGERODT), 1891, A., 638.
- true, question of the existence of (MEYER), 1888, A., 702.
- constitution of (MEYER and CERESOLE), 1883, A., 572.
- action of sulphurous anhydride on (SCHMIDT), 1890, A., 1305; 1892, A., 475.
- aromatic (GABRIEL), 1883, A., 919.
- cyanhydrides of (LIPPMANN and FLEISSNER), 1885, A., 1212.
- Nitroso-*o*-cresol (NOLTING and KOHN), 1884, A., 1003; (GOLDSCHMIDT and SCHMID), 1884, A., 1327.
- Nitrosoresorcinol. See Nitroso-2:4-dihydroxytoluene.
- di*Nitroso-*n*-cumene (KFERMANN and MESSINGER), 1891, A., 298.
- Nitroso- $\psi$ -cumylazoresorcinol (v. KOSTANECKI), 1889, A., 137.
- Nitrosocyanacetic acid (WOLFF and GAN), 1891, A., 307.
- Nitrosocyanides (PAVELL), 1883, A., 297.
- Nitrosocyanobutyric acid (WOLFF), 1891, A., 418.
- Nitrosodialkylanilines, periodides of (DAFERT), 1883, A., 979.
- Nitrosodibenzoylmethane (v. PECHMANN), 1888, A., 712; (DE NEUFVILLE and v. PECHMANN), 1891, A., 318.
- Nitrosodibenzylamine (WALDER), 1887, A., 247.
- Nitrosodibenzylhydroxylamine (WALDER), 1887, A., 246.
- Nitroso-1:3-diethoxybenzene (KRAUS), 1892, A., 44.
- Nitroso-*p*-diethoxydiphenylpiperazine (BISCHOFF and TRAPESONZJANZ), 1890, A., 1332.
- Nitrosodiethyl ketone (CLAIEN and MANASSE), 1889, A., 585.
- Nitrosodiethylaniline cyanhydrin (LIPPMANN and FLEISSNER), 1885, A., 1213.
- Nitrosodiethylene (GIBBS and REICHERT), 1891, A., 1393.
- 1:3-*di*Nitroso-2:4-dihydroxytoluene (v. KOSTANECKI), 1888, A., 263.
- Nitroso-*p*-dimethylamidobenzoic acid and its derivatives (BISCHOFF), 1889, A., 511.
- Nitrosodimethylamidobenzophenone (BISCHOFF), 1889, A., 511.
- Nitrosodimethyl-*m*-amidophenol (MORLAU), 1892, A., 887.
- Nitrosodimethylaniline. See Dimethylaniline.
- Nitroso-2:5-dimethylpyrrolidine (TAFEL and NEUGEBAUER), 1890, A., 1001.
- Nitrosodi- $\beta$ -naphthylamine (RIS), 1888, A., 55.
- Nitroso- $\alpha$ -dipentenitrolaniline (WALLACH), 1892, A., 1348.
- p*-Nitrosodiphenylamine (FISCHER and HEPP), 1887, A., 244; (IKUTA), 1888, A., 467.
- p*-Nitrosodiphenylmethylaniline (FISCHER and HEPP), 1890, A., 614.
- p*-Nitrosodiphenyl-*m*-phenylenediamine (FISCHER and HEPP), 1890, A., 613.
- Nitrosodipropylamine (*dipropyl*nitrosamine) (VINCENT), 1886, A., 1005.
- Nitrosodipropylaniline cyanhydrin (MÄNDL), 1886, A., 793.
- Nitrosodipyromeconic acid (OST), 1883, A., 793.
- di*Nitrosoditoluene (BEHREND and KUNIG), 1890, A., 1122.
- Nitrosodi-*p*-tolyl-*d*iamido-*o*-diazothiole (HECTOR), 1890, A., 527.
- Nitrosoethoxyethylphenol (KRAUS), 1892, A., 45.
- $\alpha$ -Nitroso- $\beta$ -ethoxynaphthalene (v. IIINSKI), 1886, A., 474.
- Nitrosoethyl-*o*-amidocinnamic acid (FISCHER and KUZEL), 1884, A., 440.
- Nitrosoethylamido- $\beta$ -phenylpropionic acid (FISCHER and KUZEL), 1884, A., 1132.
- 1:4-Nitrosoethylaniline (FISCHER and HEPP), 1887, A., 244.
- Nitrosoethylic alcohol, oxime of (ALEXIEFF), 1886, A., 999.
- p*-Nitrosoethyl-*o*-toluidine (FISCHER and HEPP), 1887, A., 244.
- $\alpha$ -Nitrosoglutaric acid (WOLFF), 1891, A., 419.
- p*-Nitrosoguaiacol (BEST), 1890, A., 608.
- Nitrosoguvacine (JAHNS), 1892, A., 740.
- iso*Nitrosoesperidene. See Carvoxime.
- Nitrosohippurylhydrazine (CURTIUS), 1891, A., 57.
- Nitrosohydrazonhippuric acid (CURTIUS), 1891, A., 57.

- 8'-Nitroso-4'-hydroxycarbostryl** (v. BAEYER and HOMOLKA), 1884, A., 78, 1029.
- p-Nitroso-m-hydroxydiphenylamine** (KOHLEB), 1888, A., 587.
- $\beta_1$ -Nitroso- $\gamma_1$ -hydroxy- $\alpha_1$ -ketojuloline** (KAYSER and REISSERT), 1892, A., 884.
- Nitroso-4-hydroxy-3-methylquinoline** (NULTING and TRAUTMANN), 1891, A., 326.
- Nitroso-2'-hydroxy-4'-methyltetrahydroquinoline** (FISCHER and WITTMACK), 1884, A., 1052.
- Nitroso-m-hydroxy-p-tolylamine** (HATSCHER and ZLGA), 1886, A., 455.
- o-Nitroso-3-hydroxyquinoline** (MATHEUS), 1888, A., 965.
- $\mu$ -Nitrosoimidothiazoline** (NAF), 1891, A., 1515.
- Nitrosindole** (ZATTI and FERRARINI), 1890, A., 1293.  
molecular weight of (ZATTI and FERRARINI), 1892, A., 67.
- Nitrosoindoxyl** (v. BAEYER), 1883, A., 1131.
- Nitrosoketones** (TREADWELL and WESTENBERGER), 1883, A., 572; (CLAISEN), 1887, A., 463; (CLAISEN and MANASSE), 1887, A., 944.  
decomposition of (v. PECHMANN), 1888, A., 248.
- iso*Nitrosoketones. See Ketoximes.
- iso*Nitrosolimonene. See Carboxime.
- Nitrosolimononenitrolaniline** (WALLACH), 1892, A., 1848.
- Nitrosomalonic acid**, constitution of (MEYER and MULLER), 1883, A., 790.
- Nitrosomethyl isobutenyl ketone** (CLAISEN and MANASSE), 1889, A., 585.
- Nitrosomethyl ethyl ketone** (CERESOLE), 1883, A., 41.
- Nitrosomethyl propyl ketone** (CLAISEN and MANASSE), 1889, A., 585.
- o-Nitrosomethylamidobenzamide** (FISCHER), 1888, A., 948.
- Nitroso-o-methylamidobenzene** (MEYER), 1886, A., 63.
- Nitrosomethylamidophenylethane** (HEUMANN and WILERNIK), 1887, A., 1039.
- 1:1-Nitrosomethylaniline** (FISCHER and HEPP), 1887, A., 244.  
See also Phenylmethylnitrosamine.
- $\mu$ -Nitrosomethyl-o-anisidine** (BEST), 1890, A., 607.
- Nitrosomethylcarbamide** (v. BRUNING), 1888, A., 936.
- $\mu$ -Nitroso-u-methylimidothiazoline** (NAF), 1891, A., 1516.
- $\mu$ -Nitroso-u-methylimidothiazoline** (NAF), 1891, A., 1516.
- Nitrosomethyl-o-nitro-p-diazobenzene chloride** *o-nitro-u-nitro-u-p-diazo-toluene chloride* (MEYER), 1886, A., 63.
- Nitroso-p-methyloxindole** (MEYER), 1884, A., 48.
- 5-Nitrosomethyl-o-toluidine** (KOCK), 1888, A., 469.
- 6-Nitrosomethyl-o-xyldine** (FISCHER and HEPP), 1890, A., 913; (MENTON), 1891, A., 1204.
- $\mu$ -Nitrosomethyl-p-xyldine** (PITLIG), 1890, A., 607.
- 1:2-di-Nitrosonaphthalene** (v. ILINSKI), 1886, A., 472.
- 1:4-di-Nitrosonaphthalene** NIETZKI and GUTERMANN, 1888, A., 471.
- Nitrosonaphtharesorcinols**, *mono-* and *di-* (v. KOSTANECKI), 1889, A., 887.
- Nitrosonaphthol**. See Naphthaquinone-oxime.
- 2-Nitroso- $\alpha$ -naphthol-4-sulphonic acid** (WITT and KAUFMANN), 1892, A., 195.
- Nitroso- $\beta$ -naphthol-3'- and -4-sulphonic acids**, 1- and 2-, metallic salts of (HOFFMANN), 1892, A., 346.
- 2-Nitroso- $\alpha$ -naphthylamine** (HARDEN), 1890, A., 630.
- 1-Nitroso- $\beta$ -naphthylamine** (v. ILINSKI), 1884, A., 1035; (HARDEN), 1890, A., 630.
- $\alpha$ -Nitroso- $\beta$ -naphthylethylamine** (FISCHER and HEPP), 1887, A., 1114; 1888, A., 461.
- $\beta$ -Nitroso- $\alpha$ -naphthylethylamine** (HARDEN), 1890, A., 631.
- p-Nitroso- $\alpha$ -naphthylethylamine** (KOCK), 1886, A., 469.
- Nitroso-oreinol** (KRAEMER), 1884, A., 1341.
- di-Nitroso-oreinol** (GOLD-SHMIDT and STRAUSS), 1887, A., 508.
- Nitroso-oxindole** (GABRIEL), 1883, A., 920; (v. BAEYER), 1883, A., 1131.
- Nitroso oxymethylquinoline**. See Oxymethylquinoline.
- Nitroso-1- and -3-oxymethylquinoline**, 2- and 4-, tinctorial properties of (v. KOSTANECKI), 1891, A., 579.
- di-Nitrosopentamethylenetetramine** (GHIES and HARROW), 1883, A., 1268.
- p-Nitrosophenol**. See Quinonoxime.
- p-Nitrosophenylbenzylnitrosamine** (BOEDDINGHAUS), 1891, A., 1206.

- Nitroso- $\psi$ -phenylhydrazidomandelic acid (REISERT and KAYSER), 1891, A., 439.
- Nitrosophenylic benzoate (WALKER), 1881, A., 1003.
- Nitroso-2'-phenylindole (FISCHER and SCHMIDT), 1885, A., 698.
- p*-Nitrosophenylmethylnitrosamine (FISCHER and HEPP), 1887, A., 244.
- Nitroso-2'-phenyltetrahydroquinoline (DOEFNER and V. MILLER), 1886, A., 722.
- p*-Nitrosophenyl-*p*-toluidine (REDHOLD), 1890, A., 609.
- Nitrosophthalimidine (GRAEF), 1885, A., 166.
- d*/Nitrosopiperazine (LADENBURG), 1891, A., 1333.
- tr*/Nitrosopropane (V. PICHMANN and WEHSARG), 1889, A., 34.
- $\beta$ -Nitrosopropionic acid (V. PICHMANN), 1891, A., 1458; (HANZSCH), 1892, A., 1069.
- Nitrosopropiophenone (V. PICHMANN and MILLER), 1888, A., 1088; (CLAUSEN and MANASSÉ), 1889, A., 585; (GUDEMAN), 1889, A., 613.
- p*-Nitrosopropylaniline and nitrosamine of (WALKER), 1888, A., 466.
- 4-Nitrosoresorcinol, salts of (FELIX), 1883, A., 733; WALKER, 1884, A., 1003.
- d*/Nitrosoresorcinol (GOLDSCHMIDT and STILGEN), 1887, A., 808.
- Nitrosoresorcinoldisulphonic acid (LITZEL), 1889, A., 510.
- Nitrosostrychnic acid (TAFEL), 1892, A., 1012.
- Nitrososulphides (PAYLLE), 1883, A., 297.
- Nitrososulphonic acids, preparation of (LIMPKHIT), 1892, A., 475.
- Nitrosoterpene (GOLDSCHMIDT and ZIEGLER), 1885, A., 1210.
- p*-Nitroso- $\alpha$ -tetrahydronaphthylethylamine hydrochloride (BAMPLER and HELBIG), 1889, A., 892.
- Nitrosotetrahydroquinoline. *p*-*mon*- and *d*- (ZIEGLER), 1888, A., 610.
- Nitrosotetramethyl-*d*/amidobenzophenone, salts of (BISCHOFF), 1889, A., 511.
- Nitrosotetramethylphenylenediamine hydrochloride, and derivatives of (WILLI), 1885, A., 782.
- Nitrosothiomethylaniline and nitrosothionylmethylaniline (MICHAELIS and GODCHAUX), 1891, A., 74.
- 6-Nitrosothymol (SUTKOWSKI), 1887, A., 41.
- action of hydroxylamine on (KEHRMANN and MESCHINGER), 1890, A., 1403.
- 2:5-*d*/Nitrosotoluene (MEHNE), 1888, A., 463; (NIETZKI and GUTTERMANN), 1888, A., 471.
- $\omega$ -Nitroso-*o*-toluidine (MEYER), 1886, A., 63.
- Nitrosotoluidines (MEHNE), 1888, A., 463.
- Nitrosotriacetone (FISCHER), 1884, A., 1290.
- Nitrosotriphenyl-*d*/amidobenzene (MINUNNI), 1891, A., 190.
- Nitrosotriphenylmethylaniline (EISEN), 1884, A., 1031.
- Nitrosotriphenylmethyl-*p*-toluidine (WITTECH), 1884, A., 1032.
- Nitrosotri-*p*-tolyl-*d*/amidobenzene (MINUNNI), 1891, A., 190.
- 2:5-*d*/Nitroso-*p*-xylene (PFLUG), 1890, A., 607.
- d*/Nitroso-*m*-xylencarboxylic acid (CLAUS), 1890, A., 940.
- 5-Nitroso-*p*-xylenol. See *p*-Xyloquinoneoxime.
- d*/Nitroso-*m*-xylylglyoxylic acid (CLAUS), 1890, A., 979.
- Nitrostilbazole. See Nitro- $\alpha$ -styrylpyridine.
- Nitrostilbene (ANSCHUTZ and ROMIG), 1885, A., 768.
- o*-*d*/Nitrostilbene (BISCHOFF), 1888, A., 1094.
- p*-*d*/Nitrostilbene bromide (ELBS and BAYER), 1887, A., 151.
- Nitrostrychnic acid (LOEBISCH and SCHOOP), 1886, A., 514.
- Nitrostrychnine (LOEBISCH and SCHOOP), 1886, A., 267.
- d*/Nitrostrychnine and its salts (HANKEL), 1883, A., 669.
- Nitrostyrene. See Styrene.
- o*-Nitrostyryl methyl ketone (V. BAEYER and DREWSEN), 1883, A., 341; (FISCHER and KLEIN), 1883, A., 587.
- p*-Nitrostyryl methyl ketone (V. BAEYER and BLAKER), 1883, A., 1120.
- o*-Nitrostyrylacrylic acid (DIEHL and EINHORN), 1885, A., 1222.
- m*-Nitro- $\alpha$ -styrylpyridine and its reduction products (SCHUFFAN), 1890, A., 1437.
- o*-Nitrostyrylvinyl methyl ketone (DIEHL and EINHORN), 1885, A., 1222.
- p*-Nitrostyrylvinyl methyl ketone (EINHORN and GEHRENBEEK), 1890, A., 162.
- p*-Nitro-*o* sulphamidobenzoic acid (NOYES and WILEY), 1889, A., 711.

- Nitrosulphates**, decomposition and properties of DIVERS and HAGA, 1885, T., 203.  
 Pelouze's, conversion of, into hyponitrites and sulphites DIVERS and HAGA, 1885, T., 203; P., 25.
- p*-Nitro-*o*-sulphobenzoic acid** KASHE, 1889, A., 711; (HAUSSE, 1892, A., 479.
- Nitrosulphotoluic acid** LIMPRIHI, 1885, A., 1234.
- Nitrosyl bromide** (*nitroacetyl bromide*) (FROEHL, 1884, A., 1258.
- Nitrosyl chloride** (*nitroacetyl chloride*) absorption spectrum of MONTANINI, 1890, A., 97.  
 specific gravity of (GAUTHIER, 1888, A., 785.  
 action of heat on SUDANUTH and MILAR, 1890, P., 167; 1891, T., 73, 270.  
 action of, on metals (SIDOROVICH, 1891, T., 655.
- Nitrosyl sulphate** (*nitroacetyl sulphate*), preparation of RAMSAY and CUNDALE, 1885, T., 197.
- Nitrotartrazinesulphonic acid**, sodium derivative of (LEICH, 1889, A., 881.
- Nitroterebenthene** (PESCI and BERTELLI, 1887, A., 272; PIERI, 1889, A., 157.  
 derivatives of, action of hydrogen on (TANRET, 1887, A., 675.
- Nitroterephthalaldehyde**, action of potassium cyanide on HOMOLKA and LOW, 1886, A., 701.
- di*-Nitrotetrahydro-quinoline** and **-quinolylcarbamide** (SIMON-THOMAS), 1892, A., 726.
- p*-Nitrotetrahydroxytoluene** (KEHRMANN and BRASCH, 1889, A., 970.
- Nitrotetramethylamidodiphenylmethane** (VAN ROMBERG, 1889, A., 146.
- p*-Nitrotetramethylamidodiphenyltolylmethane** (NOLTING, 1891, A., 727.
- di*-Nitrotetramethylapionole** (CAMILLIAN and SIBER, 1890, A., 1295.
- tetra*-Nitrotetraphenylpyrroline** FRIEDLIN, 1889, A., 623.
- tetra*-Nitrotetraphenylsilicon** (POISSON), 1886, A., 619.
- o*-Nitrotetraphenylamidotriphenylmethane** (FISCHER and SCHMIDT, 1884, A., 1316.
- p*-Nitrotetraphenylamidotriphenylmethane** (KAENWILM, 1886, A., 553.
- Nitrothienol** (SPADLER, 1885, A., 1205.
- Nitrothienylglyoxylic acid** (PETER), 1885, A., 761.
- Nitro-*l*-thiobenzaldehydeacetic acids** BONGARTZ, 1886, A., 937.
- Nitrothiobenzotoluidide** (GUELLEMAN and NEUBERG, 1892, A., 589.
- Nitrothiophen**. See Thidophen.
- Nitrothiophencarboxylic acid** (ROMER), 1887, A., 362.
- Nitrothiophensulphonic acid** and its salts SPADLER, 1885, A., 764.
- 2:6-*di*-Nitrothymol** MAZZARA, 1890, A., 602, 755.
- 2:6-*di*-Nitrothymyl acetate and benzoate** MAZZARA, 1891, A., 47, 16.
- 3-Nitro-*p*-tolenylamidoxime** WEISE, 1890, A., 47.
- m*-Nitro-*o*-tolidine** (LOEWENHERZ, 1892, A., 852.
- di*-Nitro-*o*-tolidine** GIBLER, 1888, A., 484.
- Nitrotolualanine**. See Nitrotolylamidopropionic acid.
- o*-Nitro-*m*-tolnaldehyde** BORNIMANN, 1884, A., 1163.
- di*-Nitro-*m*-tolnaldehyde** (BORNIMANN, 1884, A., 1163.
- 3-Nitro-*p*-toluamide** NIEMENTOWSKI and KOZANSKI, 1888, A., 1085; WEISE, 1890, A., 47.
- m*-Nitro-*p*-toluamide** (WEISE, 1890, A., 47.
- Nitrotoluene**. See Toluene.
- o*-*tri*-Nitrotolueneaniline** (HEPP, 1883, A., 317.
- m*-Nitrotoluene-*p*-azooacetacetic acid** and **-*p*-azooacetone** (BAMBERGER, 1885, A., 157, 158.
- m*-Nitrotoluene-*p*-azobenzoylacetic acid** (BAMBERGER and CALMAN), 1886, A., 62.
- Nitrotoluenenaphthalene**, ***di*-** and ***tri*-** (HEPP, 1883, A., 318.
- 4-Nitrotoluene-2 sulphonic acid** (HAUSSE, 1891, A., 73.
- 2-Nitrotoluene-3-sulphonic acid** and its salts (FOHR, 1886, A., 153.
- 2-Nitrotoluene-5-sulphonic acid** and its salts (LIMPRIHI, 1885, A., 1234; (FOHR, 1886, A., 153.
- Nitrotoluic acid**. See Toluic acid.
- Nitrotoluidine**. See Toluidine.
- 3-Nitro-*o*- and -*p*-toluidine-2- and -5-sulphonic acids** (NITZKI and POLLINI, 1890, A., 502.
- 2-Nitro-*p*-toluidine-5-sulphonic acid** and its derivatives (LIMPRIHI), 1885, A., 1233; FOHR, 1886, A., 152.
- 3-Nitro-*p*-toluonitrile** (LEUCKART), 1886, A., 351; (NIEMENTOWSKI), 1888, A., 837; (WILSON, 1890, A., 47.

- 3:5-*di*Nitro-*p*-toluonitrile (CLAUS and BETSEN), 1892, A., 177.
- di*Nitrotoluquinol (WENDER), 1890, A., 752.
- 4:6-*di*Nitrotoluquinol (KEHRMANN and BRASCH), 1889, A., 969.
- Nitro-*p*-tolylacetic acids, *mono*-2- and 2:6-*di*- (CLAUS and WEHR), 1891, A., 1365.
- di*Nitro-*m*-tolylacetic acid (SENKOWSKI), 1889, A., 255.
- o*-Nitro-*p*-tolylamidocetic acid (PLOCHL), 1886, A., 351.
- salts of (LEUCKART and HERMANN), 1887, A., 383.
- m*-Nitro-*p*-(*o*-)tolylamidobenzoic acid (HEIDENLEBEN), 1891, A., 306.
- m*-Nitro-*p*-(*p*-)tolylamidobenzoic acid (SCHOPFF), 1890, A., 374; (HEIDENLEBEN), 1891, A., 306.
- m*-Nitro-*p*-tolylamidonaphthaquinone (LEICESTER), 1890, A., 1447.
- 3-Nitro-*p*- $\alpha$ -tolylamidopropionic acid (HINSBERG), 1892, A., 1359.
- m*-Nitro-*p*-tolylamidotoluquinone (LEICESTER), 1890, A., 1446.
- tri*Nitrotolylaniline. See *tri*Nitrilidotoluene.
- 6-Nitrotolylisobutyric acid (EFFRONT), 1885, A., 152.
- p*-Nitrotolylidimethyl/*di*amidodiphenylmethane (NOLING), 1892, A., 189.
- p*-Nitrotolylidimethyl/*di*amidophenylmethane (NOLING), 1891, A., 727.
- p*-Nitrotolylidimethyldiethyl/*di*amidodiphenylmethane (NOLING), 1891, A., 728.
- Nitrotolylenebenzenylamidine (BISTRZYCKI and ULFFERS), 1892, A., 1197.
- di*Nitro-2:4 tolylenediamine (NIETZKI and ROSEL), 1891, A., 192.
- tri*Nitro-2:4 tolylenediamine (PALMER), 1889, A., 390.
- Nitrotolylene-ethenylamidines, *mono*- and *di*- (BANKIEWICZ), 1888, A., 1184; BISTRZYCKI and ULFFERS, 1892, A., 1197.
- Nitrotolylene-oxyethenyldiamine (BANKIEWICZ), 1888, A., 1184.
- o*-Nitro-*p*-tolylethylthiourethane (STEUDERMANN), 1884, A., 307.
- 2-Nitrotolylhydrazine-3-sulphonic acid (LIMPHICH), 1885, A., 1216; (FOHL), 1886, A., 153.
- Nitrotolyllic cyanate (GATTERMANN and CANZLER), 1892, A., 833.
- Nitrotolylnitrotoluen-sulphazide (LIMPHICH), 1887, A., 723.
- Nitrotolylloxamic acid and its derivatives (HINSBERG), 1883, A., 323; (SCHIFF and VANNI), 1892, A., 601.
- Nitrotolylloxamide (SCHIFF and VANNI), 1892, A., 601.
- di*Nitro *p*-tolylxyethylphthalimide (SCHREIBER), 1891, A., 562.
- Nitro-*m*-tolylpropionic acid (EFFRONT), 1885, A., 152.
- m*-*di*Nitro- $\alpha$ -*p*-tolylpropionic acid (ERRERA and BALDRACCO), 1892, A., 606.
- o*-Nitro-*p*-tolyl-thiocarbamide and -thiocarbimide (STEUDERMANN), 1884, A., 307.
- o*-Nitro-*p*-tolylthiourethane (STEUDERMANN), 1884, A., 307.
- p*-Nitrotolylurethane (SCHIFF and VANNI), 1892, A., 601.
- Nitrotriacytyl/*di*amido- $\alpha$ -naphthol (MEERSON), 1888, A., 713.
- di*Nitrotrianilidobenzene (PALMER and JACKSON), 1890, A., 248.
- tri*Nitrotrianilidobenzene (JACKSON and WING), 1888, A., 1276.
- Nitrotriazines, reduction of (MELDOLA and FORSTER), 1891, T., 701.
- tri*Nitrotribenzylphosphine oxide (COLLIE), 1889, T., 225.
- Nitrotriethyl-gallio acid and -pyrogallol (SCHIFFER), 1892, A., 716.
- Nitrotrihydroxybenzophenones (GRAEBE and EICHENGRUN), 1892, A., 1225.
- di*Nitrotrihydroxyethylbenzene (NIETZKI and KAUFMANN), 1892, A., 315.
- di*Nitro-1:2:4-trimethoxybenzene (SCHWEITZER), 1889, A., 390.
- Nitro-1:2:4-trimethylantraquinones,  $\alpha$ - and  $\beta$ - (ELBS), 1890, A., 513.
- di*Nitro-1:2:4-trimethylantraquinone (ELBS), 1890, A., 513.
- Nitrotriphenylamines, *mono*- and *di*- (HERZ), 1890, A., 1403.
- tri*Nitrotriphenylamine (HEYDRICH), 1885, A., 1213.
- tetra*Nitrotriphenylbenzene (MELLIN), 1890, A., 1423.
- Nitrotriphenylcarbamides, *m*- and *p*- (LELLMANN and BONHOFER), 1887, A., 936.
- m*-Nitrotriphenylcarbinol (TSCHACHER), 1888, A., 373.
- p*-Nitrotriphenylcarbinol (v. BAAYER and LOHR), 1890, A., 1141.
- m*-Nitrotriphenylguanidine (LOSANITSCH), 1883, A., 583.
- $\beta$ -Nitrotriphenylguanidine *dicyanide* (HINSCH), 1888, A., 947.
- tri*Nitrotriphenylguanidine and its hydriolide (LOSANITSCH), 1883, A., 582, 583.
- tri*Nitrotriphenylic phosphate (RAPP), 1934, A., 1138.

- m*-Nitrotriphenylmethane (TCHACHER, 1887, A., 44; 1888, A., 373.
- p*-Nitrotriphenylmethane v. BAEYLL and LOHN, 1890, A., 1141.
- Nitrotriphenylphosphine oxide MICHAILIS and V. SOLEN, 1884, A., 1180.
- tri*Nitrotri-*p*-tolylbenzene (CLAUS, 1890, A., 770.
- Nitrous and hyponitrous acids. See under Nitrogen.
- Nitrous anhydride. See Nitrogen *tri*-oxide.
- Nitrous ether. See Ethylic nitrite.
- "Nitrous ether. spirit of," estimation of DUFF, 1885, A., 1013.
- estimation of ethylic nitrite in (DYMOND, 1885, A., 542; ALLEN, 1885, A., 1013; THRELSON, 1890, A., 927.
- Nitrous organism. See Microbes.
- Nitrous oxide. See Nitrogen monoxide.
- $\beta$ -Nitroisovaleric acid (BREDI, 1883, A., 176.
- d*-Nitroveratroil (ROSSIN, 1892, A., 180.
- $\beta$ -*d*-Nitroxanthone, action of reducing agents on (PERKIN, 1883, T., 190.
- Nitro-*m*-xylalphthalide (HEILMANN, 1890, A., 625; 1891, A., 201.
- d*-Nitro-*m*-xylalphthalide (HEILMANN, 1891, A., 201.
- Nitro-*m*-xylalphthalimidine (HEILMANN, 1890, A., 625; 1891, A., 201.
- Nitroxylene. See Xylene.
- Nitro-*m*-xylenediazopiperidine (AHRENS, 1892, A., 1437.
- Nitro-*m*-xylene-4-sulphonic acids, 2-, 5- and 6-*mono*- and 2:6- and 5:6-*di*- (CLAUS and SCHMIDT, 1886, A., 708.
- Nitroxyleneol and its derivatives (PFAFF, 1883, A., 802, 918.
- 5-Nitro-*p*-2-xyleneol, ethylic salt of (NOLLING, WITT and FOREL, 1886, A., 58.
- 3:5-*di*Nitro-*o*-4-xyleneol (NOLLING and PICK, 1889, A., 129.
- Nitro-*m*-4-xyleneol-6-sulphonic acid, 2- or 5- (LIMPRICHT, 1885, A., 1234; (SARTIG, 1886, A., 154.
- 2-Nitro-*m*-4-xylidine and its acetyl-derivative (GREVING, 1885, A., 144.
- Nitro-*p*-xylidine (NOLLING, WITT and FOREL, 1886, A., 56; (WITT, 1889, A., 604.
- Nitroxylidinesulphonic acid [1:3:6:4] (LIMPRICHT, 1885, A., 1234.
- Nitro-*m*-xylidyl methyl ketones, 2- and 6- (CLAUS, 1890, A., 980.
- 2:6-*di*Nitro-*m*-xylidyl methyl ketone (CLAUS, 1890, A., 981.
- 2:6-*di* Nitro-*m*-xylidyl nitrosomethyl ketone (CLAUS, 1890, A., 981.
- 4-Nitroxylidylacetic acid and its salts (WISPEK, 1883, A., 1096.
- 6-Nitro- and 2:6-*di*nitro-*m*-xylidylglyoxylic acids (CLAUS, 1890, A., 980.
- Nitro-*p*-xylidylphosphonic acid (WELLES, 1888, A., 536.
- Nitruracil KOHLER, 1887, A., 128.
- alkyl derivatives of (BEHREND, 1890, A., 31; (LEHMANN, 1890, A., 32.
- metallic derivatives of (BEHREND, 1887, A., 920.
- Nitruracilcarbamide BEHREND, 1887, A., 920.
- Nitruracilcarboxylic acid (KOHLER, 1887, A., 128.
- potassium salt of (BEHREND, 1887, A., 919.
- Nitruramidobenzoic acid, 6:3-, 4:3-, 2:3-, action of potash on (GRIESS, 1883, A., 57.
- 5:3-Nitruramidobenzoic acid (GRIESS, 1885, A., 54.
- d*-Nitrurashic acid (YOSHIDA, 1883, T., 480.
- Nitryl (*nitro-yl*) chloride, non-existence of (WILLIAMS, 1886, T., 222; P., 155; (GEUTHER, 1888, A., 785.
- Nivenite (HIDDEN and MACKINTOSH, 1890, A., 458.
- Nobili's rings, and allied electrochemical phenomena (ELIAS, 1887, A., 759.
- Nocerine, optical properties of (BERTRAND, 1883, A., 1060.
- chemical examination of (FISCHER, 1885, A., 957.
- Nodules, marine, occurrence of sulphur in, and its bearing on their modes of formation (BUCHANAN, 1891, A., 994.
- root, of the pea (PRAZMOWSKI, 1891, A., 607.
- Nomenclature, international system of (ARMSTRONG, 1892, P., 127.
- of cycloids (ARMSTRONG, 1892, P., 127.
- of stereoisomeric nitrogen compounds and of rings containing nitrogen (HANESCH, 1892, A., 312; (WIDMAN, 1892, A., 875.
- of oxidisable bodies (TRAUBE, 1883, A., 709.
- of rings containing 2 carbon and 3 nitrogen atoms (KEHRMANN and MESSINGER, 1892, A., 889.
- Nonane (*cunane*) from American petroleum and chloro- (LEMOINE, 1884, A., 1106.

- 3:5-*di*Nitro-*p*-toluonitrile (CLAUS and BEYSEN), 1892, A., 177.
- di*Nitrotoluquinol (WENDER), 1890, A., 752.
- 4:6-*di*Nitrotoluquinol (KEHRMANN and BRASCH), 1889, A., 969.
- Nitro-*p*-tolylacetic acids, *mono*-2- and 2:6-*di*- (CLAUS and WEHR), 1891, A., 1865.
- di*Nitro-*m*-tolylacetic acid (SENKOWSKI), 1889, A., 255.
- o*-Nitro-*p*-tolylamidoacetic acid (PLOCHEL), 1886, A., 351.
- salts of (LEUCKART and HERMANN), 1887, A., 383.
- m*-Nitro-*p*-(*o*-tolylamidobenzoic acid (HEIDENSLIEBEN), 1891, A., 306.
- m*-Nitro-*p*-(*p*-tolylamidobenzoic acid (SCHÖPF), 1890, A., 374; (HEIDENSLIEBEN), 1891, A., 306.
- m*-Nitro-*p*-tolylamidonaphthaquinone (LEICESTER), 1890, A., 1447.
- 3-Nitro-*p*- $\alpha$ -tolylamidopropionic acid (HINSBERG), 1892, A., 1359.
- m*-Nitro-*p*-tolylamidotoluquinone (LEICESTER), 1890, A., 1446.
- tri*Nitrotolylaniline. See *tri*Nitranilidotoluene.
- 6-Nitrotolylisobutyric acid (EFFRONT), 1885, A., 152.
- p*-Nitrotolylidimethyldiamidodiphenylmethane (NÖLTING), 1892, A., 189.
- p*-Nitrotolylidimethyldiamidodiphenylmethane (NÖLTING), 1891, A., 727.
- p*-Nitrotolylidimethyldiethyldiamidodiphenylmethane (NÖLTING), 1891, A., 728.
- Nitrotolylenebenzenylamidine (BISTRZYCKI and ULFFERS), 1892, A., 1197.
- di*Nitro-2:4-tolylene-diamine (NIETZKI and ROSEL), 1891, A., 192.
- tri*Nitro-2:4-tolylene-diamine (PALMER), 1889, A., 390.
- Nitrotolylene-ethenylamidines, *mono*- and *di*- (BANKIEWICZ), 1888, A., 1184; (BISTRZYCKI and ULFFERS), 1892, A., 1197.
- Nitrotolylene-oxyethenyldiamine (BANKIEWICZ), 1888, A., 1184.
- o*-Nitro-*p*-tolylethylthiourethane (STEUDERMANN), 1884, A., 307.
- 2-Nitrotolylhydrazine-5-sulphonic acid (LIMPRICHT), 1885, A., 1216; (FOTH), 1886, A., 153.
- Nitrotolyllic cyanate (GATTERMANN and CANTZLER), 1892, A., 833.
- Nitrotolylnitrotoluenesulphazide (LIMPRICHT), 1887, A., 723.
- Nitrotolylloxamic acid and its derivatives (HINSBERG), 1883, A., 323; (SCHIFF and VANNI), 1892, A., 601.
- Nitrotolylloxamide (SCHIFF and VANNI), 1892, A., 601.
- di*Nitro-*p*-tolylloxyethylphthalimide (SCHREIBER), 1891, A., 552.
- Nitro-*m*-tolylpropionic acid (EFFRONT), 1885, A., 152.
- m*-*di*Nitro-*a*-*p*-tolylpropionic acid (ERRERA and BALDRACCO), 1892, A., 606.
- o*-Nitro-*p*-tolyl-thiocarbamide and -thiocarbimide (STEUDERMANN), 1884, A., 307.
- o*-Nitro-*p*-tolylthiourethane (STEUDERMANN), 1884, A., 307.
- p*-Nitrotolylurethane (SCHIFF and VANNI), 1892, A., 601.
- Nitrotriacytyldiamido- $\alpha$ -naphthol (MEERSON), 1888, A., 713.
- di*Nitrotrianilidobenzene (PALMER and JACKSON), 1890, A., 248.
- tri*Nitrotrianilidobenzene (JACKSON and WING), 1888, A., 1276.
- Nitrotriazines, reduction of (MELDOLA and FORSTER), 1891, T., 701.
- tri*Nitrotribenzylphosphine oxide (COLLIE), 1889, T., 225.
- Nitrotriethyl-gallic acid and -pyrogallol (SCHIFFER), 1892, A., 716.
- Nitrotrihydroxybenzophenones (GRAEBE and EICHENGRUN), 1892, A., 1225.
- di*Nitrotrihydroxyethylbenzene (NIETZKI and KAUFMANN), 1892, A., 315.
- di*Nitro-1:2:4-trimethoxybenzene (SCHWEITZER), 1889, A., 390.
- Nitro-1:2:4-trimethylantraquinones,  $\alpha$ - and  $\beta$ - (ELBS), 1890, A., 513.
- di*Nitro-1:2:4-trimethylantraquinone (ELBS), 1890, A., 513.
- Nitrotriphenylamines, *mono*- and *di*- (HERZ), 1890, A., 1409.
- tri*Nitrotriphenylamine (HEYDRICH), 1885, A., 1213.
- tetra*Nitrotriphenylbenzene (MELLIN), 1890, A., 1423.
- Nitrotriphenylcarbamides, *m*- and *p*- (LELLMANN and BONHOFFER), 1887, A., 936.
- m*-Nitrotriphenylcarbinol (TSCHACHER), 1888, A., 373.
- p*-Nitrotriphenylcarbinol (v. BAAYER and LOHN), 1890, A., 1141.
- m*-Nitrotriphenylguanidine (LOSANTITSCH), 1883, A., 583.
- $\beta$ -Nitrotriphenylguanidine dicyanide (HIRSCH), 1888, A., 947.
- tri*Nitrotriphenylguanidine and its hydriodide (LOSANTITSCH), 1883, A., 582, 583.
- tri*Nitrotriphenylic phosphate (RAPF), 1884, A., 1138.

- m*-Nitrotriphenylmethane (TSCHACHER), 1887, A., 44; 1888, A., 373.
- p*-Nitrotriphenylmethane (V. BAEYER and LÖHR), 1890, A., 1141.
- Nitrotriphenylphosphine oxide (MICHAELIS and V. SODEN), 1884, A., 1180.
- tri*-Nitrotri-*p*-tolylbenzene (CLAUS), 1890, A., 770.
- Nitrous and hyponitrous acids. See under Nitrogen.
- Nitrous anhydride. See Nitrogen trioxide.
- Nitrous ether. See Ethylic nitrite.
- "Nitrous ether, spirit of," estimation of (DOTT), 1885, A., 1013.
- estimation of ethylic nitrite in (DYMOND), 1885, A., 842; (ALLEN), 1885, A., 1013; (THRENN), 1890, A., 927.
- Nitrous organism. See Microbes.
- Nitrous oxide. See Nitrogen monoxide.
- $\beta$ -Nitroisovaleric acid (BREDR), 1883, A., 176.
- di*-Nitroveratrol (ROSSIN), 1892, A., 180.
- $\beta$ -*di*-Nitroxanthone, action of reducing agents on (PERKIN), 1883, T., 190.
- Nitro-*m*-xylalphthalide (HEILMANN), 1890, A., 625; 1891, A., 201.
- di*-Nitro-*m*-xylalphthalide (HEILMANN), 1891, A., 201.
- Nitro-*m*-xylalphthalimidine (HEILMANN), 1890, A., 625; 1891, A., 201.
- Nitroxylene. See Xylene.
- Nitro-*m*-xylenediazopiperidine (AHRENS), 1892, A., 1437.
- Nitro-*m*-xylene-4-sulphonic acids, 2-, 5- and 6-*mono*- and 2:6- and 5:6-*di*- (CLAUS and SCHMIDT), 1886, A., 703.
- Nitroxyleneol and its derivatives (PRAFF), 1883, A., 802, 918.
- 5-Nitro-*p*-2-xyleneol, ethylic salt of (NÖLTING, WITT and FOREL), 1886, A., 58.
- 3:5-*di*-Nitro-*o*-4-xyleneol (NÖLTING and PICK), 1889, A., 129.
- Nitro-*m*-4-xyleneol-6-sulphonic acid, 2- or 5- (LIMPRICHT), 1885, A., 1234; (SARTIG), 1886, A., 154.
- 2-Nitro-*m*-4-xylidine and its acetyl-derivative (GREVINGE), 1885, A., 144.
- Nitro-*p*-xylidine (NÖLTING, WITT and FOREL), 1886, A., 58; (WITT), 1889, A., 604.
- Nitroxylidinesulphonic acid [1:3:2:6:4] (LIMPRICHT), 1885, A., 1234.
- Nitro-*m*-xyl methyl ketones, 2- and 6- (CLAUS), 1890, A., 980.
- 2:6-*di*-Nitro-*m*-xyl methyl ketone (CLAUS), 1890, A., 981.
- 2:6-*di*-Nitro-*m*-xyl nitrosomethyl ketone (CLAUS), 1890, A., 981.
- 4-Nitroxylacetic acid and its salts (WISPEK), 1883, A., 1096.
- 6-Nitro- and 2:6-*di*-nitro-*m*-xylglyoxylic acids (CLAUS), 1890, A., 980.
- Nitro-*p*-xylphosphonic acid (WELTER), 1888, A., 836.
- Nitruracil (KÖHLER), 1887, A., 128.
- alkyl derivatives of (BEHREND), 1890, A., 31; (LEHMANN), 1890, A., 32.
- metallic derivatives of (BEHREND), 1887, A., 920.
- Nitruracilcarbamide (BEHREND), 1887, A., 920.
- Nitruracilcarboxylic acid (KÖHLER), 1887, A., 128.
- potassium salt of (BEHREND), 1887, A., 919.
- Nitruramidobenzoic acid, 6:3-, 4:3-, 2:3-, action of potash on (GRIESS), 1883, A., 57.
- 5:3-Nitruramidobenzoic acid (GRIESS), 1885, A., 54.
- di*-Nitrurushic acid (YOSHIDA), 1883, T., 480.
- Nitryl (nitroxyl) chloride, non-existence of (WILLIAMS), 1886, T., 222; P., 155; (GEUTHER), 1888, A., 785.
- Nivenite (HIDDEN and MACKINTOSH), 1890, A., 458.
- Nobili's rings, and allied electrochemical phenomena (ELIAS), 1887, A., 759.
- Noccerine, optical properties of (BERTRAND), 1883, A., 1060.
- chemical examination of (FISCHER), 1885, A., 957.
- Nodules, marine, occurrence of sulphur in, and its bearing on their modes of formation (BUCHANAN), 1891, A., 994.
- root, of the pea (PRAZMOWSKI), 1891, A., 607.
- Nomenclature, international system of (ARMSTRONG), 1892, P., 127.
- of cycloids (ARMSTRONG), 1892, P., 127.
- of stereoisomeric nitrogen compounds and of rings containing nitrogen (HANZSCH), 1892, A., 312; (WIDMAN), 1892, A., 875.
- of oxidisable bodies (TRAUBE), 1883, A., 709.
- of rings containing 2 carbon and 3 nitrogen atoms (KEHRMANN and MESSINGER), 1892, A., 889.
- Nonane (*enneane*) from American petroleum and chloro- (LEMOINE), 1884, A., 1106.

- Nonanetetracarboxylic acid** (*diethyl-pentane-tetracarboxylic acid*) (PERKIN and PRENFICE), 1891, T., 833.  
dissociation constant of (WALKER), 1892, T., 704.
- Nonarabinantetragalactangeddic acid** (O'SULLIVAN), 1891, T., 1071.
- n-Nondecoic acid** (SCHWEIZER), 1885, A., 508.
- Non-electrolytes**, cryo-copy of dilute aqueous solutions of electrolytes and (PICKERING; TRAUBE), 1891, A., 971.  
nature of chemical change in (ARMSTRONG), 1891, P., 118.
- Nonenylamidoxime** (FREUND and SCHONFELD), 1892, A., 132.
- Non-metals**, influence of temperature on the spectra of (VAN MONCKHOVEN), 1883, A., 140.
- Nonodilactone** (HJELT), 1883, A., 456.
- Nonoic acids** from different sources (SCHMIDT), 1884, A., 295.
- Nononaphthene** and its derivatives (KONOWALOFF), 1888, A., 679;  
1891, A., 184.  
heat of combustion of (OSSIPOFF), 1889, A., 6, 460.  
action of nitric acid on (KONOWALOFF), 1892, A., 443.  
ketonic compound from (KONOWALOFF), 1892, A., 443.  
amido-, and nitro- (KONOWALOFF), 1892, A., 443.
- isoNononaphthene**, heat of combustion of (OSSIPOFF), 1889, A., 6, 460.
- Nononaphthylene** and **nononaphthyl alcohol** (KONOWALOFF), 1891, A., 185.
- Nononitrile** (FREUND and SCHONFELD), 1892, A., 132.
- Nonylamine**, and the action of nitrous acid on (FREUND and SCHONFELD), 1892, A., 132.
- Nonylcarbamide** and **nonyldithiocarbamic acid** (FREUND and SCHONFELD), 1892, A., 132.
- Nonylene** (*methyl-octylene*; *dimethylheptyl-ethylene*) [b. p. 141°-5-143°] (FREUND and SCHONFELD), 1892, A., 133.  
(*propylhexamethylene*) [b. p. 146°-148°] (BAMBERGER and LENGELD), 1890, A., 1320.  
(1,2-methylheptylhexamethylene) [b. p. 150°-152°] (KIPPING and PERKIN), 1890, T., 25.  
(1,2-dimethylheptamethylene) [b. p. 153°] (KIPPING and PERKIN), 1891, T., 227.  
[b. p. 133°-136°] (LEMOINE), 1884, A., 1107.
- Nonylenic acid** and its salts (SCHNEEGANS), 1885, A., 649.
- isoNonylenic acids** (FIITIG and FEIST), 1890, A., 592.
- Nonylic alcohol** [b. p. 213°] (KRAFFT), 1886, A., 998.  
(*ethyl-di-propylcarbinol*) [b. p. 179°-5°] (TSCHBOTAREFF and SAYZEFF), 1886, A., 437.  
(*dimethylheptylcarbinol*) [b. p. 183°] (FREUND and SCHONFELD), 1892, A., 133.  
[b. p. 188°] (LEMOINE), 1884, A., 1107.
- Nonylic chloride** and **diphenylic tri-cyanide** (KRAFFT and KOENIG), 1890, A., 1252.  
iodide (KRAFFT), 1886, A., 998.
- Nordenskiöldite** (BROGGER), 1890, A., 1078.
- m-Norhemipinic acid** (ROSSIN), 1892, A., 180.
- Norhydrotropidine** (LADENBURG), 1887, A., 740.
- Norite**, granular and quartz, analyses of (TELLER and JOHN), 1883, A., 1069.
- Normeconineacetic acid** (LIEBERMANN and KLEEMANN), 1887, A., 47.
- Normethyl-o-anhydramidohemipinic acid** and **normethylazo-opianic acid** (ELBEL), 1887, A., 49.
- Normethylnitro-hemipinic acid** and **-hemipinimide** (ELBEL), 1887, A., 50.
- Normethylnitro-opianic acid** and its phenylhydrazine (ELBEL), 1887, A., 49, 50.
- Normethylnitro-opianoximic acid** (ELBEL), 1887, A., 50.
- Normethylnitro-opianphenylhydrazide** (LIEBERMANN), 1887, A., 46; (ELBEL), 1887, A., 50.
- Nosite** (*nosean*-) bearing ejections from the Laacher See (HUBBARD), 1890, A., 220.
- Notochord**, chemical composition of (KOSSEL), 1891, A., 1126.
- Nucin**. See 4'-Hydroxy-1'-naphthaquinone.
- Nucleic acid**, supposed compound of guanine and (MALFAITI), 1892, A., 1501.
- Nuclein** (KLINKENBERG and STUTZER), 1883, A., 814; (ZACHARIAS), 1884, A., 90; (LIEBERMANN), 1889, A., 1021; (MALFAITI), 1892, A., 224, 1501.  
artificial preparation of (LIEBERMANN), 1888, A., 510.  
formation of uric acid from (HORBACZEWSKI), 1892, A., 646.  
of grape stones (AMTHOR), 1885, A., 823.

- Nuclein** of moulds (STUTZER), 1883, A., 1166.  
 of yeast (STUTZER), 1883, A., 1166; (LIEBERMANN), 1888, A., 510.  
 metaphosphoric acid in (LIEBERMANN), 1891, A., 477.  
 microchemical detection of (LOEW), 1885, A., 610.  
**Nucleins**, artificially prepared (POHL), 1889, A., 424.  
**Nucleo-proteids** (MERCK), 1886, A., 1051.  
**Nucleus**, chemistry of the (KOSSEL), 1884, A., 97.  
 aromatic, constitution of (SWORN), 1890, A., 238.  
**Nupharine** (GRÜNING), 1883, A., 370.  
**Nut oil**, acids from (HAZURA and GRÜSSNER), 1888, A., 817.  
**Nutmeg oil** (SEMMLER), 1890, A., 1150.  
**Nutrition**, influence of potassium bromide on (SCHULZE), 1884, A., 850.  
 animal (SANBORN), 1887, A., 856.  
 behaviour of amides in (ZUNTZ), 1884, A., 472.  
 of Herbivora; does cellulose economise the decomposition of proteid in? (WEISKE, SCHULZE and FLECHSIG), 1886, A., 728.  
**Nux vomica**, alkaloids of (SHENSTONE), 1883, T., 101; 1885, T., 139; P., 5.  
 effect of alcohol of various strengths on (CONROY), 1884, A., 946.  
 tincture of (CONROY), 1884, A., 946.  
 analysis of (DUNSTAN and SHORT), 1883, A., 689, 1175.  
**Nymphaea alba**, constituents and properties of (NIEDERSTADT), 1884, A., 108.  
 chemistry of (GRÜNING), 1883, A., 369.

## O.

- Oak**, scarlet, analyses of white and green leaves of the (CHURCH), 1886, T., 839.  
**Oak-bark**, two acids in (MUSSET), 1884, A., 1439.  
 "Oak-red" (ETTI), 1883, A., 995; (BÖTTINGER), 1884, A., 321.  
**Oak-tannic acid** and oak-tannin. See Tannin.  
**Oats**. See Agricultural Chemistry.  
**Obituary notices**, 1883, T., 251; 1884, T., 209, 615; 1885, T., 309; 1886, T., 342; 1887, T., 469; 1888, T., 508; 1889, T., 289; 1890, T., 441; 1891, T., 452; 1892, T., 486.  
**Obsidian**, solubility of, in sea water (THOULET), 1889, A., 682.  
 porphyritic (BEAM), 1884, A., 28.  
**Obsidian cliff**, Yellowstone National Park (IDDINGS), 1891, A., 26.

- Oceanic deposits**, solid and gaseous constituents of (TORNOE and SCHMELCK), 1884, A., 31.  
**Ochres** (HURST), 1889, A., 678.  
 process for preparing (COHN), 1884, A., 784.  
**Ochrolite** from Pajsberg (FLINK), 1891, A., 1168.  
**Ochrosia** (*Lactaria*) *acuminata*, *O. Ackeringiae*, *O. coccinea*, and *O. (Bleckeria) calocarpa*, alkaloids from (GRESHOFF), 1891, A., 337.  
**Octahedrite**. See Anatase.  
**Octane** from American petroleum (LEMOINE), 1884, A., 1106.  
 (*diisobutyl*) complete chlorination of (HARTMANN), 1891, A., 811.  
**Octanedicarboxylic acid** (*methylazelaic acid*) (FREER and PERKIN), 1888, T., 218.  
**Octenoic aldehyde** ( $\alpha$ -ethyl- $\beta$ -propylacraldehyde) (RAUPENSTRAUCH), 1887, A., 794.  
**Octenyl alcohol**, glycerol from (REFORMATSKY), 1890, A., 121.  
**Octinene** (*heptylacetylene*; *caprylidene*; *methylamylacetylene*) (BÉHAL), 1887, A., 788; (BÉHAL and DESGREZ), 1892, A., 1064.  
 formation of, from methylamylacetylene (BÉHAL), 1889, A., 950.  
 hydration of (BÉHAL), 1889, A., 227.  
 conversion of, into an isomeric hydrocarbon (BÉHAL), 1888, A., 929.  
 (*diisocrotyl*) and its derivatives (PRZYBYTEK), 1889, A., 362.  
 (*diisobutenyl*) (PRZYBYTEK), 1888, A., 123; (FAWORSKY), 1891, A., 1331.  
 [m.p. 122°] (REFORMATSKY), 1885, A., 232.  
**Octinoic acid**. See Diallylacetic acid.  
**Octoacetyl tetramidotriphenylbenzene** (MELLIN), 1890, A., 1423.  
**Octoacetyl melibiose** (SCHIEBLER and MITTELMAYER), 1890, A., 1085.  
**Octoacetyl quercetin** (HERZIG), 1884, A., 847; (LIEBERMANN), 1884, A., 1365.  
 tribrom- (LIEBERMANN), 1884, A., 1365.  
**Octodecinene** (*hexadecylacetylene*) (KRAFFT and REUTER), 1892, A., 1164.  
**Octodecylbenzene** and its derivatives (KRAFFT), 1887, A., 253.  
**Octodecylene** [m.p. 18°] preparation of (KRAFFT), 1884, A., 571.  
 (*anthemene*) [m.p. 64°] from Roman chamomile (NAUDIN), 1885, A., 37.

- Octodecylenic bromide** (KRAFFT), 1884, A., 1108.
- Octodecyllic alcohol** (KRAFFT), 1883, A., 1075; 1884, A., 1280.
- Octodecyllic iodide** (SCHWEIZER), 1885, A., 509.
- Octodecylidene** (KRAFFT), 1884, A., 1108.
- Octodecylphenol** (KRAFFT), 1887, A., 253.
- Octohydroacridine**, and its derivatives (GRAEBE), 1884, A., 608.
- Octohydroanthracene** (LUCAS), 1890, A., 637.
- Octohydrodiphenylfurfuran** (PERKIN and SCHLOSSER), 1890, T., 955.
- Octohydrofluorene** (GUYE), 1891, A., 314.
- Octohydro- $\beta$ -naphthaquinoline**. See 2'-Methyloctohydro- $\beta$ -naphthaquinoline.
- or*-Octohydro- $\alpha$ -naphthaquinoline**, and *p*-amido- (BAMBERGER and STETTENHEIMER), 1891, A., 1260.
- Octohydro- $\beta$ -naphthaquinolines**, *ac*- and *or*- (BAMBERGER and MÜLLER), 1891, A., 1511.
- Octohydrostilbazole** (*styrylethyloctohydropyridine*) (PLATH), 1889, A., 164.
- Octoic acid** (*n-caprylic acid*) (CANZONERI), 1884, A., 461.  
(*diisobutyric acid*) (BRÜGGEMANN), 1888, A., 1176.  
thio- (LOVÉN), 1886, A., 333.  
(*dipropylacetic acid*), preparation of, from ethylic malonate (FÜRTH), 1888, A., 1053.
- Octoic aldehyde**, constitution of (BÉHAL), 1887, A., 788; 1892, A., 293.  
oxime of (*capraldoxime*) (BÉHAL), 1887, A., 795.  
(*ethylbutylacetaldehyde*) (RAUPENSTRAUCH), 1887, A., 794.
- Octolactone** (YOUNG), 1883, A., 455; (GORBOFF and KESSLER), 1888, A., 814.
- isoOctolactone** (FITTIG and SCHNEEGANS), 1890, A., 591.
- Octonaphthene-carboxylic acid** and its derivatives (ASCHAN), 1891, A., 1453.
- Octonitrile** (*dibutyronitrile*; *imido-butyrylpropylic cyanide*) (WACHE), 1889, A., 684.  
 $\gamma$ -thio- (GABRIEL), 1890, A., 1221.
- Octo-m-oxybenzoid** (SCHIFF), 1883, A., 335.
- Octopus vulgaris***, blood of (GRIFFITHS), 1892, A., 648.
- Octose** (FISCHER), 1890, A., 598.
- Octosulphates** (WEBER), 1885, A., 121.
- Octylacetoacetic acid**, isomeride of (PERKIN), 1883, T., 92.
- Octylacetothienone** (*octyloctylthiophen*) (V. SCHWEINITZ), 1886, A., 535.
- Octylamine** (HOOGEWERFF and VAN DORP), 1888, A., 1195.  
action of bromine in alkaline solution on (V. HOFMANN), 1884, A., 1114.
- Octylbenzamide** and its derivatives (BERAN), 1885, A., 523.
- Octylbenzene** [b.p. 263°] and its derivatives (V. SCHWEINITZ), 1886, A., 540; (AHRENS), 1887, A., 133.  
*o*-amido-, hydrochloride (AHRENS), 1887, A., 134.  
*p*-amido-, and its derivatives (BERAN), 1885, A., 523.  
bromo-, chloro-, *p*-iodo-, *o*-, *m*- and *p*-nitro- and *dinitro*- (AHRENS), 1887, A., 133.
- isoOctylbenzene** [b.p. 245—255°] (PAAL and HOFFMANN), 1890, A., 1100.
- Octylbenzonitrile** (BERAN), 1885, A., 523.
- Octylbenzylic cyanide** (ROSSOLYMO), 1889, A., 862.
- Octyldioxycenzoin** (BISCHOFF), 1889, A., 512.
- Octyldiacetothienone** (*diacetyloctylthiophen*) (V. SCHWEINITZ), 1886, A., 535.
- Octylene** (*n-caprylene*), complete chlorination of (HARTMANN), 1891, A., 811.  
(*s-diisopropylethylene*) (FOSSER), 1884, A., 33.  
(*isobutylbutylene*) (FITTIG and FEINT), 1890, A., 592.  
(*diisobutylene*), heat of combustion of (MALBOT), 1890, A., 320.  
oxidation of (WAGNER), 1888, A., 606.  
chloro-, dichloride (MALBOT and GENTIL), 1889, A., 843.  
(1:2-methylethylpentamethylene) (MARSHALL and PERKIN), 1889, P., 143; 1890, T., 250.
- iso-Octylenic acid** (SCHNEEGANS), 1885, A., 649; (FITTIG and SCHNEEGANS), 1890, A., 591.  
oxidation of (FITTIG), 1888, A., 595.  
 $\gamma$ -bromo- (FITTIG and SCHNEEGANS), 1890, A., 591.
- Octylerythritol** (PRZYBYTEK), 1888, A., 123, 244; 1889, A., 362.
- Octylic alcohol** (*methylidipropylcarbinol*) (GORTALOFF and SATZEFF), 1886, A., 437.  
(*diethylpropylcarbinol*) (SOKOLOFF), 1888, A., 1170.

- Octylic salts** of normal fatty acids, boiling points and specific volumes of (GANTENMEISTER), 1886, A., 966.
- acetate, secondary (BIHAL and DESGREZ), 1892, A., 1162.
- allophanate (GATTERMANN), 1888, A., 574.
- carbamate (ARTH), 1886, A., 692.
- mono-, di- and tri-chloracetates* (GEHRING), 1887, A., 653.
- chloride (KRAFFT and KOENIG), 1890, A., 1232.
- preparation of (MALBOT), 1890, A., 577.
- diphenylic *tricyanide* (KRAFFT and KOENIG), 1890, A., 1252.
- iodide, refractive power of, at different temperatures (PERKIN), 1892, T., 295.
- action of, on trimethylamine (H. and A. MALBOT), 1892, A., 806.
- sec.-Octylic nitrite* (BERTONI), 1887, A., 458.
- Octylidene.** See Octinene.
- Octylphenylamine.** See Octylbenzene, amido-.
- Octylthienyl methyl ketone** (V. SCHWEINITZ), 1886, A., 535.
- $\alpha$ -Octylthiophen** (V. SCHWEINITZ), 1886, A., 535.
- bromo- and iodo- (V. SCHWEINITZ), 1886, A., 535.
- Octylthiophendicarboxylic acid** (V. SCHWEINITZ), 1886, A., 535.
- Octyltoluene**, amido-, and its derivatives (BERAN), 1885, A., 523.
- Enanthal-aniline, -naphthylamine and -xylidine** (LEEDS), 1883, A., 659.
- Enanthaldehyde.** See Heptoic aldehyde.
- Enanthamidobenzoic acid** (PELLIZARI), 1886, A., 548.
- Enanthic acid.** See Heptoic acid.
- Enanthodiacetonamine** (ANTRICK), 1885, A., 503.
- Enanthoguanamines** (HAAR), 1891, A., 416.
- Enanthol.** See Heptoic aldehyde.
- Enanthylamine.** See Heptylamine.
- Enanthylidene.** See Heptinene.
- Enanthylone** (HAMONET), 1889, A., 235.
- Enocarpol** (ETARD), 1892, A., 874.
- Enocyanin** (MAUMENÉ), 1883, A., 215.
- Offretite**, a mineral (GONNARD), 1891, A., 407.
- Ohm**, method of determining (JOUBERT), 1883, A., 4.
- Oidium lactis* (HUEPPE), 1885, A., 417.
- Oils**, refractive indices of (LONG), 1889, A., 55.
- specific gravities of (LONG), 1889, A., 85; (CRAMPTON), 1889, A., 801.
- free fatty acids in (NOERDLINGER), 1889, A., 799.
- formation of basic salts in the saponification of (DEWHAN and MABEN), 1886, A., 186.
- viscosity of (MANON), 1885, A., 196.
- action of, on polarised light (BISHOP), 1888, A., 388; (PETER), 1888, A., 760.
- action of certain metals on (LIVACHE), 1883, A., 756.
- actions of silver nitrate on (BRULÉ), 1889, A., 1251.
- action of sulphur chloride on (WARREN), 1888, A., 538, 633, 1348; (FAWCSITT), 1889, A., 317.
- influence of, on the digestibility of proteids (STUTZER), 1891, A., 752.
- oxidation of (LIVACHE), 1886, A., 687.
- revision of constants employed in the analysis of fats and (THOMSON and BALLANTYNE), 1892, A., 547.
- examination of (HUBL), 1884, A., 1435; (DIETERICH), 1886, A., 1033; (ARCHBUTT), 1887, A., 402; (SPICA), 1888, A., 95; (MUTER and DE KONINGH), 1890, A., 91; (WARREN), 1890, A., 1347; 1891, A., 248; 1891, A., 505, 506.
- apparatus for the examination of (JEAN), 1890, A., 89, 671; 1891, A., 625; (ELLINGER), 1891, A., 1305.
- examination of, containing unsaponifiable fats (MORAWSKI and DEMSKI), 1886, A., 103.
- optical examination of (AMAGAT), 1890, A., 91.
- elaidin test for (ARCHBUTT), 1887, A., 402.
- examination of, by Hübl's method (MOORE), 1885, A., 1014.
- iodine absorption by (ARCHBUTT), 1887, A., 402.
- Maumené's test for (ELLIS), 1887, A., 89; (ARCHBUTT), 1887, A., 402.
- detection of adulteration in (CARTER), 1886, A., 103.
- detection of hydrocarbons in (NITSCHÉ), 1886, A., 395.
- detection of iron in (EMDE), 1889, A., 448.
- estimation of free acid in (ARCHBUTT), 1885, A., 446.

- Oils, estimation of sulphur in** (ALLEN), 1888, A., 627.
- Oils, animal, bases from** (LADENBURG and ROTH), 1887, A., 157.
- of ants, composition of (SCHALL), 1892, A., 948.
- cod-liver, iodine in (STANFORD), 1884, A., 504.
- an acid from (GAUTIER and MOURGUES), 1888, A., 1315; 1889, A., 170.
- bases from (GAUTIER and MOURGUES), 1888, A., 1315; 1889, A., 63.
- examination of (SALKOWSKI), 1888, A., 201.
- fish, new process for the extraction of (ANON.), 1888, A., 692.
- distillation of, under pressure (ENGLER), 1889, A., 586.
- iodine in (STANFORD), 1884, A., 505.
- lard, specific gravity and refractive index of (LONG), 1889, A., 86.
- iodine number of, by Hubl's method (HAINES), 1892, A., 664.
- wool, analysis of (HORWITZ), 1890, A., 305.
- See also Oils, drying and fatty.
- Oils, coal-tar.** See Coal-tar oils.
- Oils, drying, chemistry of** (LIVACHE), 1884, A., 532; 1891, A., 1454; (HAZURA), 1887, A., 359, 913; 1888, A., 816; 1889, A., 956; (HAZURA and FRIEDREICH), 1887, A., 798; (BAUER and HAZURA), 1888, A., 1269; (HAZURA and GRÜSSNER), 1888, A., 1270.
- See also Oils, fatty and vegetable.
- Oils, essential and ethereal.** See Oils, vegetable.
- Oils, fatty or fixed, chemistry of** (ALLEN), 1887, A., 88.
- three Chinese (DAVIES), 1885, A., 1022.
- three Japanese (HOLMES), 1885, A., 1023.
- specific gravity and coefficients of expansion of (ALLEN), 1887, A., 88.
- viscosity of (ALLEN), 1887, A., 88.
- absorption and digestion of, by plants (SCHMIDT), 1892, A., 1118.
- action of warm air on (WARREN), 1889, A., 1130.
- distillation of, with glycerol (ARBOS Y TOR), 1883, A., 519.
- saponification of (ALLEN), 1887, A., 186.
- adulteration of (PETERS), 1889, A., 816.
- Oils, fatty or fixed, methods of examining** (ALLEN), 1887, A., 88; (MOERK), 1890, A., 200.
- bromine and iodine absorptions of (ALLEN), 1887, A., 88.
- the claidin reaction with (WELLMAN), 1891, A., 870.
- detection of, in mineral oils (LUX), 1886, A., 103.
- detection of resin oil in (GRITNER), 1892, A., 548.
- estimation of the glycerol produced by the saponification of (ALLEN), 1886, A., 581; 1887, A., 89.
- estimation of mineral oils in (GRITNER), 1891, A., 505.
- See also Oils, animal and vegetable, and Waxes.
- Oils, lubricating, from Baku naphtha, manufacture of** (ROSSMÄSLER), 1885, A., 620.
- behaviour of, with glacial acetic acid (VALENTA), 1884, A., 1078.
- rapid determination of the composition of (GRIPPER), 1892, A., 665.
- estimation of acidity in (HOLDE), 1891, A., 505.
- Oils, mineral.** See Petroleum.
- Oils, non-drying** (HAZURA and GRÜSSNER), 1889, A., 1058.
- Oils, resin.** See Resin.
- Oils, vegetable** (BEILSTEIN and WIEGAND), 1883, A., 346; (WALLACH), 1885, A., 171, 550; 1886, A., 70; 1887, A., 595, 965; 1888, A., 1204; 1889, A., 1072; 1890, A., 1314; 1891, A., 217, 1240; (SOLTSIEN), 1887, A., 375; (WEBER), 1887, A., 596; (WALLACH and GLDEMEISTER), 1888, A., 1205; (SCHIMMEL), 1892, A., 1347.
- coloured (HOCK), 1884, A., 82.
- extraction of (NAUDIN), 1884, A., 378.
- yield of, by plants (ANON.), 1888, A., 496.
- specific refractive and dispersive energy of (GLADSTONE), 1886, T., 609; P., 216.
- action of iodine pentabromide on (FORNEY), 1884, A., 370.
- spontaneous oxidation of (PAPASOGLI), 1889, A., 615.
- olefinic constituents of (SEMMLER), 1891, A., 539.
- oxygen compounds of (SEMMLER), 1892, A., 868.
- analysis of (CARLES), 1886, A., 394; (SALKOWSKI), 1888, A., 201; (BENEDIKT and GRÜSSNER), 1890; A., 423; (BRULLÉ), 1891, A., 506.

**Oils, vegetable, detection of adulterated** (LANGBECK), 1885, A., 599.  
 colour reactions of (IHL), 1889, A., 802.  
 iodine absorption as a test for (DAVIES; WILLIAMS), 1890, A., 199; (SNOW), 1890, A., 199, 307; (CRIPPS), 1890, A., 200.  
 Maumené's test for (WILLIAMS), 1890, A., 834.  
 detection of, in lard (WELMANS), 1892, A., 1133.  
 estimation of fragrant (LEVALLOIS), 1885, A., 301.  
 estimation of alcohol in (HAGER), 1889, A., 445.  
 of *Allium ursinum* (SEMMLER), 1887, A., 1089.  
 of bitter almonds, detection of nitrobenzene in (LIST), 1889, A., 552.  
 of *Andropogon Schoenanthus* (SEMMLER), 1890, A., 951.  
 of Angostura bark (BECKURTS and NEHRING), 1892, A., 644.  
 of anise (UMNEY), 1889, A., 659.  
 preparation of, in Annam (ANON.), 1885, A., 1275.  
 apricot (MABEN), 1886, A., 644.  
 of *Aristolochia reticulata* (PEACOCK), 1892, A., 70.  
 of asafetida (SEMMLER), 1891, A., 322, 464.  
 of *Asarum europaeum* (POLECK), 1884, A., 1191; (PETERSEN), 1888, A., 680.  
 of ash leaves (GINTL and REINITZER), 1883, A., 219.  
 bay (*Oleum Myrciae acris*) (MITTMANN), 1889, A., 1072.  
 of bergamot (WALLACH), 1885, A., 171; (SOLTSIEN), 1887, A., 375; (CRISMER), 1892, A., 349; (SEMMLER and TIEMANN), 1892, A., 868; (BERTRAM and WALBAUM), 1892, A., 1235.  
 adulteration of, with oil of turpentine (HEPPE), 1885, A., 1163.  
 crystalline products from (CRISMER), 1892, A., 349.  
 stearoptene of (POMERANZ), 1892, A., 71.  
 of betel leaves (BERTRAM and GILDEMEISTER), 1889, A., 863; (EIJKMAN), 1890, A., 135.  
 composition of (SCHIMMEL), 1892, A., 833.  
 of birch (PETTIGREW), 1884, A., 459; 1885, A., 528; (TRIMBLE and SCHROETER), 1890, A., 256.  
 cabbage, from *Brassica*, sp. (DAVIES), 1885, A., 1022.  
 of cacao. See Cocoa butter.  
 cajeput (WALLACH), 1885, A., 171.

**Oils, vegetable, of *Calycanthus glaucus*** seeds (WILEY), 1890, A., 403.  
 of *Camellia oleifera* seeds (MC'CALLUM), 1883, A., 1166.  
 of camphor (TRIMBLE and SCHROETER), 1890, A., 261.  
 natural (MACEWAN), 1886, A., 72.  
 atmospheric oxidation of (KINGZETT), 1888, A., 605.  
 chemical examination of the constituents of (YOSHIDA), 1885, T., 779.  
 Japanese (OISHI), 1885, A., 270.  
 caraway (FLÜCKIGER), 1884, A., 1138.  
 Norwegian (NICOLAYSEN), 1890, A., 902.  
 of cardamoms (WEBER), 1887, A., 596.  
 of cassia, formation of an asphalt-like substance from (HIRSCHSOHN), 1891, A., 732.  
 testing (HEPPE), 1885, A., 697; (GILBERT; BENEDIKT and GRÜSSNER), 1890, A., 423; (HIRSCHSOHN), 1891, A., 504.  
 estimation of cinnamaldehyde in (SCHIMMEL), 1892, A., 924.  
 castor, specific gravity and refractive index of (LONG), 1889, A., 86.  
 distinction of, from other fatty oils (FINKENER), 1887, A., 402.  
 oxidation of, with nitric acid (HELL and KITROSKY), 1891, A., 812.  
 pimelic acid amongst the oxidation-products of (GANTTER and HELL), 1885, A., 44.  
 insoluble residue from the distillation of (LEEDS), 1883, A., 655; (KRAFFT and BRUNNER), 1885, A., 373.  
 examination of (GILBERT), 1890, A., 429.  
 of cedar (CHAPOTEAUT), 1883, A., 76.  
 of cinnamon (WEBER), 1892, A., 1509.  
 examination of (BENEDIKT and GRÜSSNER; GILBERT), 1890, A., 423.  
 of citronella (DODGE), 1890, A., 231; 1891, A., 285.  
 of *Citrus Limetta* leaves (*lime leaves*) (WATTS), 1886, T., 316; P., 158.  
 of cloves, valuation of (THOMS), 1892, A., 250.  
 coriander (SEMMLER), 1891, A., 540.  
 cotton-seed, properties of (LEONE and LONGI), 1887, A., 536.  
 specific gravity and refractive index of (LONG), 1889, A., 86.  
 constituents of (PAPASOGLI), 1892, A., 584.

**Oils, vegetable, cotton-seed, acid from** (HAZURA and GRÜSSNER), 1888, A., 817.  
 analysis of (MUTER and DE KONINGH), 1891, A., 130.  
 Bechi's test for (BIZIO), 1889, A., 86.  
 detection of (MILLIAU), 1888, A., 633.  
 detection of, in fats (LEONE), 1890, A., 930.  
 detection of, in lard (BISHOP and INGÉ), 1889, A., 194; (ALLEN; HEHNER), 1889, A., 319; (WILLIAMS; JONES), 1889, A., 320; (WILSON), 1889, A., 659; (PAT-TINSON), 1890, A., 428.  
 detection of, in olive oil (BECCHI), 1885, A., 301; (JEAN), 1888, A., 1136; (MILLIAU), 1888, A., 1349; (HIRSCHSOHN; BIEL), 1889, A., 658; (LEONE), 1890, A., 930.  
 estimation of, in lard (BOCKAIRY), 1890, A., 307.  
 croton (ROBERT), 1887, A., 798.  
 purgative and vesicating principle of (SENIER), 1884, A., 909, 947.  
 of *Curcas purgans* seeds (HORN), 1888, A., 674.  
 of *Cyperus esculentus* (HELL and TWERDOMEDOFF), 1889, A., 1029.  
 of *Daucus Carota* (LANDSBERG), 1889, A., 277.  
 earth-nut (HAZURA and GRÜSSNER), 1889, A., 1058.  
 specific gravity and refractive index of (LONG), 1889, A., 86.  
 arachidic, lignoceric and oleic acids in (SCHON), 1888, A., 578.  
 oxidation of the unsaturated fatty acids of (HAZURA and GRÜSSNER), 1889, A., 1058.  
 elemi (WALLACH), 1889, A., 1072.  
 of *Erechtites* and of *Eriogon canadensis* (BEILSTEIN and WIEGAND), 1883, A., 346.  
 of *Eucalyptus* (WALLACH), 1885, A., 171.  
 spontaneous oxidation of (PAPA-SOGLI), 1889, A., 616.  
 terpin hydrate from (MERCK), 1892, A., 1235.  
 of *Eucalyptus amygdalina* (WALLACH and GILDEMEISTER), 1888, A., 1205.  
 of *Gaultheria* (PETTIGREW), 1885, A., 528; (TRIMBLE and SCHROETER), 1890, A., 256.  
 See also Methyl salicylate.  
 grape-seed, preparation and utilisation of (v. JOBST), 1885, A., 710.

**Oils, vegetable, hemp-seed, acids from** (HAZURA), 1887, A., 799; (HAZURA and GRÜSSNER), 1888, A., 817.  
 of hops obtained from commercial lupulin (OSNIPOFF), 1884, A., 459.  
 of Indian geranium (SEMMLER), 1890, A., 951; 1891, A., 30, 323; (DODGE), 1891, A., 285.  
 of ivy (MAQUENNE), 1886, A., 274.  
 of juniper (NICOLAYSEN), 1890, A., 902.  
 Kesso, from *Valeriana officinalis*, var. *angustifolia* (BERTRAM and GILDEMEISTER), 1891, A., 238.  
 kuromoji (*Lindera Serrica*) (Kwas-NICK), 1891, A., 464; 1892, A., 1480.  
 of *Lallemuntia iberica* (RICHTER), 1888, A., 83.  
 of laurel (BRÜHL and MULLER), 1892, A., 722.  
 of laurel leaves and berries (WALLACH), 1889, A., 1072.  
 laurel-nut (HOOPER), 1889, A., 541.  
 of lavender (SEMMLER and TREMAN), 1892, A., 868; (BERTRAM and WALBAUM), 1892, A., 1235; (SCHIMMEL), 1892, A., 1347.  
 of lemons (WALLACH), 1885, A., 171; (BOUCHARDAT and LAFONT), 1885, A., 1141; (SOLTSIEN), 1887, A., 375; (OLIVERI), 1891, A., 1496.  
 crystalline deposit from (TILDEN and BECK), 1890, T., 327; (CRINMER), 1892, A., 849.  
 reaction of, with manganous salts (CRINMER), 1892, A., 386.  
 adulteration of, with oil of turpentine (HEPPE), 1885, A., 1163; (OLIVERI), 1891, A., 1497.  
 lemon grass (DODGE), 1891, A., 286.  
 of *Licari kanali* (BARBIER), 1892, A., 1236.  
 of lime seed (MUELLER), 1892, A., 92.  
 of limes. See Oil of *Citrus Limetta*.  
 linaloe (SEMMLER), 1891, A., 510.  
 of *Lindera serrica* (KwasNICK), 1891, A., 464; 1892, A., 1480.  
 linseed, points of difference between linseed oil varnish and (FIN-KENER), 1888, A., 327.  
 adulteration of (AIGNAN), 1890, A., 1198.  
 macassar (THUMMEL and KwasNICK), 1891, A., 1133.  
 mace (WALLACH), 1889, A., 1072; (SEMMLER), 1890, A., 1150.  
 of marjoram (BEILSTEIN and WIEGAND), 1883, A., 346.

**Oils, vegetable, of Massoy bark (Wox),** 1890, A., 638.  
**melisse, German (SEMMLER),** 1891, A., 540.  
*Mentha Pulegium* (BECKMANN; PLEISSNER), 1891, A., 936.  
**menyanthole (LENDRICH),** 1892, A., 1262.  
**millet (KASSNER),** 1888, A., 673.  
**of minjak-lagam balsam (HAUSNER),** 1884, A., 354.  
**of mustard. See Allylthiocarbimide.**  
**of white mustard (SALKOWSKI),** 1889, A., 1173.  
**of myrtle (JAHNS),** 1889, A., 616.  
**nut, acids from (HAZURA and GRÜSSNER),** 1888, A., 817.  
**of nutmeg (SEMMLER),** 1890, A., 1150.  
**olive (HAZURA and GRÜSSNER),** 1889, A., 374.  
     **specific gravity and refractive index of (LONG),** 1889, A., 86.  
     **properties of (LEONE and LONGI),** 1887, A., 536.  
     **characteristics of (LEVALLOIS),** 1887, A., 535.  
     **reactions of (DE NEGRI and FABRI),** 1891, A., 1559.  
     **adulteration of (AUDOYNAT),** 1886, A., 182; (BRULLÉ), 1888, A., 876; 1891, A., 506.  
     **analysis of (CARPI),** 1884, A., 931; (BRULLÉ), 1891, A., 506.  
     **basic lead acetate as a test for (BRADFORD),** 1885, A., 603.  
     **detection of cotton seed oil in (BECHI),** 1885, A., 301; (LEONE and LONGI), 1887, A., 536; (JEAN), 1888, A., 1136; (MILLIAU), 1888, A., 1349; (HIRSCHSOHN; BIEL), 1889, A., 658; (LEONE), 1890, A., 930.  
     **detection of sesame oil in (LEONE and LONGI),** 1887, A., 536; (MILLIAU), 1888, A., 1349; (TOCHER), 1891, A., 1400; (GASSEND), 1892, A., 1133.  
**orange, constituents of (SEMMLER),** 1891, A., 539.  
**of orange peel (WALLACH),** 1885, A., 171; (HEPPE), 1885, A., 1163.  
**of sweet orange peel (SOLTSIEN),** 1887, A., 375.  
**peach (MABEN),** 1886, A., 644.  
**peanut. See Oil, earthenut.**  
**of black pepper (EBERHARDT),** 1887, A., 969.  
**of peppermint (JANDOUS),** 1888, A., 962.  
     **Russian (ANDRES),** 1890, A., 1423; (ANDRES and ANDRÉEFF), 1892, A., 723.

**Oils, vegetable, of peppermint, Russian, spectroscopical properties of (ANDRES),** 1891, A., 2.  
     **test for (FEDERER),** 1887, A., 1001.  
     **detection of adulterations in (SNOW),** 1890, A., 199.  
**of petitgrain (SEMMLER and TIEMANN),** 1892, A., 868.  
**of Polei (BECKMANN; PLEISSNER),** 1891, A., 936.  
**of poppy, acids from (HAZURA and GRÜSSNER),** 1888, A., 817.  
**rape, examination of (KINGZETT),** 1885, A., 446.  
**rape-seed, constituents of (REIMER and WILL),** 1887, A., 1030.  
**of roses (MARKOWNIKOFF),** 1891, A., 219.  
     **German and Turkish (POLECK),** 1891, A., 323; (ECKART), 1892, A., 203, 625.  
     **testing (FLUCKIGER),** 1885, A., 934.  
     **detection of Turkish geranium essence in (PANAJOTOW),** 1891, A., 1555.  
**of sabadilla seeds (OPITZ),** 1891, A., 1284.  
**of saffron (KAYNER),** 1885, A., 59.  
**of sage (WALLACH),** 1889, A., 1072.  
**sassafras, the phenol contained in (POMERANTZ),** 1890, A., 1111.  
**sesame, specific gravity and refractive index of (LONG),** 1889, A., 86.  
     **properties of (LEONE and LONGI),** 1887, A., 536.  
     **testing (BINHOP),** 1890, A., 90.  
     **detection of, in cocoa butter (ZIPPERER),** 1888, A., 1136.  
     **detection of, in olive oil (MILLIAU),** 1888, A., 1349; (TOCHER), 1891, A., 1400; (GASSEND), 1892, A., 1133.  
**of spike (VOIRY and BOUCHARDET),** 1888, A., 605.  
**of sunflower (HAZURA),** 1889, A., 956.  
     **atmospheric oxidation of (KINGZETT),** 1888, A., 605.  
**tea, of *Camellia oleifera* (DAVIES),** 1885, A., 1022.  
**Turkey-red (BENEDIKT and ULZER),** 1887, A., 914; (SCHEURER-KESTNER), 1891, A., 542, 665; (JUILLARD), 1892, A., 819.  
**Müller-Jacobs' investigations on (SCHMID),** 1885, A., 313.  
     **composition of, and its mode of action (LIECHTI and SUIDA),** 1884, A., 238; 1885, A., 315; (MÜLLER-JACOBS), 1884, A., 946; 1885, A., 313.

- Oils, vegetable**, Turkey-red, injurious action of copper in (SCHAAAL), 1883, A., 256.  
 estimation of fatty matter in (WILLIAMS), 1891, A., 1560.  
 determination of the nature of the crude oil in (MULLER-JACOBS), 1885, A., 95.  
 turmeric, and its oxidation (JACKSON and MENKE), 1883, A., 482; 1885, A., 271.  
 of turpentine (ARMSTRONG), 1891, T., 311.  
 heat conductivity of (CHREE), 1888, A., 642.  
 American, action of heat on (TILDEN), 1884, T., 411.  
 oxidation of, in sunlight (ARMSTRONG), 1891, T., 311; (ARMSTRONG and POPE), 1891, T., 315.  
 spontaneous oxidation of (PAPASOGLI), 1889, A., 615.  
 detection of resin oil in (BAUDIN), 1891, A., 870.  
 detection of, in essence of lemons (OLIVIER), 1891, A., 1497.  
 of vitriol. See Sulphuric acid.  
 of walnut (MABEN), 1886, A., 644.  
 of wintergreen (PETTIGREW), 1885, A., 528; (TRIMBLE and SCHROETER), 1890, A., 256.  
 See also Methyl salicylate.  
 wood, from Cochinchina (SOUBEIRAN), 1885, A., 394.  
 from *Elaeococca coriata* (DANIELS), 1885, A., 1022.  
 wormseed (HELL and STURCKE), 1884, A., 1363.  
 action of the halogen acids on (HELL and RITTER), 1884, A., 1363; 1885, A., 172.  
 See also Essences and Oils, drying and fatty.
- Oil cake**. See Agricultural Chemistry.
- Oil seeds**, preparation of soaps from (SEEMANN), 1885, A., 1023.
- Olea fragrans*, glucoside from (ELJEMAN), 1886, A., 1040.
- Oleaceæ**, Japanese, glucosides from (ELJEMAN), 1886, A., 1040.
- Olefines**, preparation of higher (KRAFFT), 1884, A., 571.  
 action of fatty acids on (BÉHAR and DESGREZ), 1892, A., 1162.  
 oxidation of (WAGNER), 1888, A., 665.  
 See also Hydrocarbons.
- Oleic acid** (M., C., and A. SAYTZEFF), 1887, A., 32.  
 in earth nut oil (SCHÜN), 1888, A., 578.
- Oleic acid**, constitution of (BENEDIKT), 1890, A., 863.  
 boiling points of (KRAFFT and NOERDLINGER), 1889, A., 691.  
 stereoisomerism of elaidic acid and (SAYTZEFF), 1892, A., 812.  
 action of sulphuric acid on (SABANÉEFF), 1886, A., 442; (GEITEL), 1888, A., 578.  
 addition of chlorine and halogen acids to (PIOTROWSKI), 1890, A., 1396.  
 oxidation of (CAREITE), 1886, A., 611.  
 oxidation of, by an alkaline solution of potassium permanganate (SAYTZEFF), 1885, A., 1049; 1886, A., 140.  
 falsification of, by linoleic acid (GRANVAL and VALSER), 1889, A., 799.  
 conversion of, into fatty acids (BENEDIKT), 1890, A., 863.  
 conversion of, into stearic acid (DE WILDE and REYCHLER), 1889, A., 1140.  
 uranium salt of (GIBBONS), 1883, A., 892.  
 sulph- (BENEDIKT and ULZER), 1887, A., 914.  
*iso*Oleic acid (M., C., and A. SAYTZEFF), 1888, A., 815.
- Olein**, analysis of (KORNER), 1891, A., 1144.  
 commercial, examination of, for linoleic acid (HAZURA), 1890, A., 306.  
 "Oleine," estimation of fatty matter in (WILLIAMS), 1891, A., 1560.
- Oleocutic acid** (URBAIN), 1884, A., 859.
- Oleo-gum-resin** secreted by *Araucarias* (HECKEL and SCHLAGDENHAUFFEN), 1889, A., 1236.
- Oleomargarine**, analysis of (MORSE and BURTON), 1888, A., 1317.  
 See also Margarine.
- Oleomargarine-cheese**, composition of (VIETH), 1883, A., 256.
- Oleorefractometer** (JEAN), 1890, A., 89, 671; 1891, A., 625; (ELLINGER), 1891, A., 1305.
- Oleoresin** from *minjak-layum* balsam (HAUSNER), 1884, A., 354.
- Oleum cinæ* (WALLACH and BRASS), 1885, A., 171.
- Oleum infernale* and *Oleum ricini majoris*. See Oil of *Cureus purgans*.
- Olibene** from frankincense (WALLACH), 1889, A., 1072.
- Oligoclase** (DES CLOIZEAUX), 1886, A., 776; (DES CLOIZEAUX and PISANI), 1887, A., 20.

- Oligoclase** of Dénise, analysis of (DES CLOIZEAUX and JANNETTAZ), 1888, A., 1067.  
 from Gailbach (GOLLER), 1891, A., 1437.  
 transparent, remarkable variety of (KUNZ), 1889, A., 24.
- Olive oil.** See Oil.
- Olive tree**, preparation of vanillin from the gum of the (SCHEIDEL), 1886, A., 238.
- Olivenite** from Utah (HILLEBRAND), 1886, A., 516; (HILLEBRAND and WASHINGTON), 1888, A., 1043.  
 See also Copper arsenate.
- Olivine** from the Isle of Bourbon (LACROIX), 1886, A., 775.  
 from Chili, analysis of (ZIEGENSPECK), 1886, A., 214.  
 of the melilitite-basalt of Hochbohl (STELZNER), 1884, A., 829.  
 from Syria (DOSS), 1888, A., 432.  
 pseudomorphs of hornblende after (v. KOLENKO), 1885, A., 1188.
- Omicolic acid and omicholin** (THUDICHUM), 1888, A., 1119.
- Onions**, analysis of (GOESSMANN), 1887, A., 1137.  
 Spanish, cooked, composition of (WILLIAMS), 1892, T., 227.
- Ononine**, reaction of (BROCHNER), 1890, A., 310.
- Ononis arvensis**, composition of (NILSON), 1892, A., 522.
- Oolitic iron ore** of Lorraine, microscopic structure of (BLEICHER), 1892, A., 791.
- Opal** (SCHUBERT), 1883, A., 36.  
 from John Davis River, Oregon (KUNZ), 1890, A., 337.  
 from Nagasaki, Japan (SJÜGREN), 1886, A., 27.
- Ophioxylite** (BETTINK), 1888, A., 848.
- Ophites** from the Pyrenees (KÜHN), 1883, A., 448.
- Opiancarbamide** (BISTRZYCKI), 1888, A., 1210.
- Opianic acid** (BISTRZYCKI), 1888, A., 1209; (GOLDSCHMIEDT), 1892, A., 179.  
 action of acetone and of acetophenone on (GOLDSCHMIEDT), 1892, A., 179.  
 behaviour of, with phenylhydrazine (LIEBERMANN), 1886, A., 550.  
 etherification of (LIEBERMANN and KLEEMANN), 1887, A., 584.  
 derivatives of (WEGSCHEIDER), 1883, A., 996; (LIEBERMANN), 1887, A., 45; (LIEBERMANN and KLEEMANN), 1887, A., 47.
- Opianic acid**, brom- (WEGSCHEIDER), 1883, A., 997; (TUST), 1892, A., 1209.  
 nitr-, behaviour of, with phenylhydrazine (LIEBERMANN), 1886, A., 550.  
 reduction of (KLEEMANN), 1887, A., 584.
- ψ-Opianic acid** and its salts, chemistry of (PERKIN), 1890, T., 1001.
- Opianic anhydride** (LIEBERMANN), 1887, A., 47.
- Opianoxime** (PERKIN), 1890, T., 1070; (ALLENDORFF), 1892, A., 180.
- ψ-Opianoxime** and the action of heat on (PERKIN), 1890, T., 1069, 1070.
- Opianoximic anhydride** (LIEBERMANN), 1887, A., 46, 258.  
 heat developed in the isomeric change of (LIEBERMANN), 1892, A., 459.  
 brom- (TUST), 1892, A., 1210.
- Opianylacetic acid**, barium salt of (LIEBERMANN and KLEEMANN), 1887, A., 47.
- Opianylhydrazobenzene** (BISTRZYCKI), 1888, A., 1209.  
 brom- (TUST), 1892, A., 1210.
- Opianylphenylhydrazide** (LIEBERMANN), 1886, A., 550.  
 amido- (LIEBERMANN), 1887, A., 45.  
 brom- (TUST), 1892, A., 1210.
- Opianylphenylmethylhydrazone**, brom- (TUST), 1892, A., 1210.
- Opianrin** (LIEBERMANN and SEIDLER), 1887, A., 580.
- Opionin** (HESSE), 1885, A., 1074.
- Opionylic acid** (HESSE), 1885, A., 1074.
- Opium**, action of, on the intestine (SPITZER), 1891, A., 852.  
 testing (DIETRICH), 1887, A., 310.  
 analysis (STILLWELL), 1887, A., 403; (ADRIAN and GALLOIS), 1887, A., 622; (DOTT), 1892, A., 926.  
 estimation of morphine in (v. PERGER), 1884, A., 1217; (FLÜCKIGER), 1885, A., 1165; 1890, A., 94; (VENTURINI), 1886, A., 1086; (SCHLICKUM), 1887, A., 622; (GÜBEL), 1887, A., 869; (KREMEL), 1888, A., 635; (TESCHEMACHER and SMITH), 1888, A., 635, 1137; (LOUFF), 1890, A., 1349; 1891, A., 771; (DIETERICH), 1891, A., 511.
- Opium-alkaloids** (PLUGGE), 1887, A., 280; 1888, A., 379; (KAUDER), 1891, A., 227.  
 separation of the (PLUGGE), 1887, A., 851.
- Opium-preparations**, colorimetric estimation of morphine in (HINSDALE), 1890, A., 1349.

- Optically active compounds**, crystalline form of (BECKE), 1889, A., 1041.  
behaviour of, in mixtures of two solvents (RIMBACH), 1892, A., 1137.
- Optically inactive compounds**, decomposition of (JUNGFLEISCH), 1884, A., 1803; (BICHAT), 1886, A., 446, 612.
- Orange**, bitter, composition of the rind of (TANRET), 1886, A., 576.
- Orange-juice**, determination of free and precipitable acid in (GROSJEAN), 1883, T., 333.
- Orange-oil**, constituents of (SEMMLER), 1891, A., 539.
- Orange-peel**, oil of (WALLACH), 1885, A., 171; (HERPPE), 1885, A., 1163.  
sweet, oil of (SOLTSIEN), 1887, A., 375.
- Oranges**, Californian, analyses of (COLBY and DYER), 1892, A., 1511.
- "Orantia"** (SCHMITT), 1884, A., 236.
- Orantin** (SCHMITT), 1884, A., 910.
- Orcein** (ZULKOWSKI and PETERS), 1890, A., 1405.
- Orchil**. See Archil.
- Orceinaurin** (GRIMAUZ), 1890, A., 1111.
- Orceinol** (3:5-dihydroxytoluene; *methyl-rosoreinol*), process for preparing (WINTHER), 1883, A., 893.  
action of acetaldehyde and of chloral hydrate on (MICHAEL and COMEX), 1884, A., 598.  
action of chloralhydrate on (MICHAEL and RYDER), 1887, A., 724.  
reaction of, with aniline (ZEGA and BUCH), 1886, A., 873.  
methylation of (KRAUS), 1891, A., 1347.  
fusion of, with soda (BARTH and SCHLEDER), 1883, A., 59.  
compound of, with phenylhydrazine (SEYEWITZ), 1892, A., 49.  
diethyl ether. See 3:5-Diethoxytoluene.  
nitroso- (KRAEMER), 1884, A., 1341.  
dinitroso- (GOLDSCHMIDT and STRAUSS), 1887, A., 808.
- $\beta$ -Orceinol** (v. KOSTANECKI), 1887, A., 39.
- isoOrceinol**. See 2:4-Dihydroxytoluene.
- Orceinol colouring matters** (KRAEMER), 1884, A., 1341; (NIETZKI and MAECKLER), 1890, A., 762; (ZULKOWSKI and PETERS), 1890, A., 1405.
- $\alpha$ -Orceinoldichroin**. See Oreirufin.
- $\alpha$ -Orceinoldichroin**, chloro- and bromo- (BRUNNER and CHUIT), 1888, A., 1183.
- Orceinolphthaloylic acid** (QUENDA), 1891, A., 70.
- Oreirufamine** (NIETZKI and MAECKLER), 1890, A., 764.
- Oreirufin** (BRUNNER and CHUIT), 1888, A., 363; (NIETZKI and MAECKLER), 1890, A., 763.  
ethyl ether (NIETZKI and MAECKLER), 1890, A., 763.
- Oreylaldehyde** (3:5-dihydroxytoluonaldehyde) (v. PEGEMANN and WELSH), 1884, A., 1346.
- Oreoselon methyl ether** (JANSOY), 1890, A., 1154.  
nitr- (JANSOY), 1890, A., 1154.
- Ore deposit** of Badenweiler (WOLLMANN), 1889, A., 27.
- Ores** from Amberg, examination of, and of the accompanying phosphates (SCHOBEL), 1883, A., 432.  
which are good conductors of electricity (FISCHER), 1884, A., 786.  
estimation of arsenic in (LEHMANN and MAGER), 1886, A., 100, 920.
- Ore-veins**, investigations on (v. SANDBERGER), 1887, A., 224.
- Organic acids**. See Acids.
- Organic analysis**. See Analysis.
- Organic bases**. See Bases.
- Organic compounds**, mechanical determination of the arrangement of the carbon atoms in (HINRICHS), 1891, A., 1441.  
relation between the composition and the absorption spectra of (KRÜSS and OECONOMIDES), 1883, A., 1041; (HARTLEY), 1885, T., 685; P., 59; 1886, P., 245; 1887, T., 152; 1888, T., 641; P., 66; (KRÜSS), 1885, A., 949; 1888, A., 1141; (ALTHAUSSE and KRÜSS), 1889, A., 1093.  
relation between the constitution and specific rotatory power of (SOROKIN), 1888, A., 768.  
relation between chemical constitution and heat of combustion of (DIEFFENBACH), 1890, A., 1206; (THOMSEN), 1891, A., 632.  
dispersive power of (BARBIER and ROUX), 1889, A., 805; 1890, A., 1353; 1891, A., 774; (NASINI), 1891, A., 138.  
refractive power of (KANONNIKOFF), 1883, A., 1041; 1886, A., 335.  
refraction-equivalents of (GLADSTONE), 1884, T., 241.  
molecular refraction and dispersion of (G. GLADSTONE), 1891, T., 290; P., 35; (J. H. and G. GLADSTONE), 1891, A., 774.  
heat of combustion of (STOHMANN), 1891, A., 251.  
electrical conductivity of (BARTOLI), 1885, A., 624; 1886, A., 191.

- Organic compounds, magnetism of** (WIEGEL and HENRICHSEN), 1884, A., 1243; (HENRICHSEN), 1888, A., 769; 1892, A., 672.
- determination of the melting point of (LANDOLT), 1890, A., 1.
- formulae for calculating the molecular volume of (LOSSEN), 1890, A., 323.
- experiments on the diffusion of some inorganic and (SCHEFFER), 1883, A., 1047.
- action of chlorine on, in presence of inorganic chlorides (PAGE), 1885, A., 36.
- in alkaline solution, action of lead peroxide on (GLÄSER and MORAWSKI), 1890, A., 20.
- action of nitric acid on (FRANCHIMONT and KLOBBIE), 1889, A., 1143.
- influence of certain groups on the behaviour of nitric acid with (FRANCHIMONT), 1889, A., 1145.
- action of sunlight on (KLINGER), 1889, A., 405; (KLINGER and STANDKE), 1891, A., 900.
- quantity of nitric oxide produced in the combustion of, with copper oxide (KLINGEMANN), 1890, A., 292.
- slow combustion of (SCHLESING), 1888, A., 979; 1889, A., 639.
- incineration of (KRONBERG), 1888, A., 993.
- congelation of aqueous solutions of (RAOULT), 1883, A., 952.
- isomeric, heat of combustion of (ONSIPOFF), 1890, A., 680.
- relation of the heat of combustion of, to their densities (MÜLLER-ERZBACH), 1883, A., 1044.
- antiseptic powers of (CARNELLEY and FREW), 1890, T., 636; P., 90.
- solubility of (CARNELLEY and THOMSON), 1888, T., 782; P., 80.
- liquid, specific heats of (SCHIFF), 1888, A., 771.
- specific heats of homologous series of (SCHIFF), 1887, A., 6.
- nitrogenous, method for the synthesis of (GAUTIER), 1885, A., 275.
- crystallographic examination of (ZINGEL), 1886, A., 62; (WICKEL), 1886, A., 234; (HEINTZE), 1886, A., 235.
- detection of bromine, chlorine, iodine and sulphur in (MARSH), 1889, A., 796.
- containing copper, analysis of (WALKER), 1890, A., 296.
- detection of (SMITH), 1888, A., 90.
- detection of nitrogen in (DONATH), 1890, A., 663.
- Organic compounds, ferric chloride as a test for** (INCE), 1887, A., 400.
- estimation of (SMITH), 1888, A., 90.
- estimation of ash in (KOBIRICH), 1888, A., 325.
- method of estimating the halogens in volatile (PLIMPTON and GRAVES), 1883, T., 119.
- estimation of nitrogen in (LANGE), 1889, A., 547; (BLAU), 1892, A., 1515; (STOCK), 1892, A., 1516.
- estimation of phosphoric acid in (LANGE), 1889, A., 547.
- estimation of sulphur in (BURTON), 1890, A., 239.
- estimation of sulphur and halogens in (KLASON), 1886, A., 918.
- See also Carbon compounds and Liquids.
- Organic gases and vapours, chlorinated, properties of** (BERTHELLOF), 1883, A., 394.
- Organic matter, combustible, in the air** (MÜNTZ and AUBIN), 1885, A., 118.
- loss of nitrogen during the decomposition of (SCHLESING), 1889, A., 638.
- in soil, exhaustion of, by cropping without manures (DEHÉRAIN), 1890, A., 407.
- estimation of, in the atmosphere (CARNELLEY and MACKIE), 1887, A., 532; (ANCHAROW), 1892, A., 542.
- estimation of, in water (MALLET), 1883, A., 1171; (LEEDS), 1884, A., 369; (KÜBRICH), 1887, A., 533; (KLEIN), 1887, A., 1000.
- Organic radicles, negative nature of** (MEYER), 1888, A., 147, 702; (MEYER and OELKERS), 1888, A., 703; (RATTNER; SCHNEIDEWIND), 1888, A., 704; (KNOEVENAGEL), 1888, A., 705.
- Organism, formation and change of alcohol and aldehyde in the** (ALBERTONI), 1888, A., 973.
- amido-compounds in the (BAHLMANN), 1887, A., 512.
- aromatic substances in the (SALKOWSKI), 1885, A., 730.
- assimilation of carbohydrates by the (HANNOT; GAUTIER), 1892, A., 742.
- assimilation of milk-sugar by the (BOURQUELOT and TROISIEU), 1889, A., 735.
- calorimetric investigations on heat production in the (ROSENTHAL), 1890, A., 182.
- heats of combustion of the chief nitrogenous compounds in the (BERTHELLOT and ANDRÉ), 1890, A., 937.

**Organism**, stability of carbonic oxide and oxalic acid in the (GAGLI), 1888, A., 619.  
 change of sulphanilic acid into sulphanilicarbanilic acid in the (VILLE), 1892, A., 903.  
 chemistry of the cell-nucleus in the (KOSSEL), 1885, A., 572; 1886, A., 566.  
 synthetic action of living cells in the (BRINCK), 1889, A., 632.  
 fate of certain chlorine compounds in the (KAST), 1887, A., 612.  
 combustion in the (TRAUBE), 1889, A., 937.  
 decomposition and syntheses in the (SCHMIDEBERG), 1883, A., 361.  
 synthetical processes in the (PFLUGER), 1889, A., 174.  
 formation of fat from carbohydrates in the (CHANIEWSKI), 1885, A., 280.  
 fate of certain ferments in the (HOFFMANN), 1889, A., 178.  
 fluorine in the (TAMMANN), 1888, A., 732.  
 formates in the (GRÉHANT and QUINQUAUD), 1887, A., 513.  
 inflammable gases in the (TACKE), 1884, A., 1395.  
 excretion of iron from the (V. ZALESKI), 1888, A., 977.  
 formation of lactic acid in the (BERLINERBLAU), 1888, A., 974.  
 formation of lactic acid and glucose in the (ARAKI), 1891, A., 1125, 1392; 1892, A., 517, 1113.  
 fate of lactic acid in the (MARCEUSE), 1887, A., 508.  
 fate of lecithin in the (HASEBROEK), 1888, A., 173.  
 fate of morphine in the (TAUBER), 1891, A., 479.  
 existence of manganese in the (MAUMENÉ), 1885, A., 421.  
 nitrates in the (GOSSELS), 1887, A., 389.  
 elimination of nitrogen in the free state from the (GRUBER), 1884, A., 1391.  
 oxidation in the (WURSTER), 1887, A., 610.  
 influence of light on oxidation in the (LOEB), 1889, A., 172.  
 oxidation of aromatic substances in the (KLINGENBERG), 1891, A., 1529.  
 substitute values of the chief organic alimentary principles in the (RUBNER), 1884, A., 189.  
 formation of sugar in the, when oxygen is deficient (DASTRE), 1892, A., 362.

**Organism**, thiocyanic acid in the (BRUYLANTS), 1888, A., 1324.  
 origin of urea in the (CORPOLA), 1890, A., 181.  
 mechanism of the production of urea in the (POROFF), 1892, A., 89.  
 formation of xanthocreatinine in the (MONARI), 1888, A., 174.  
 influence of certain amides on the (WEISKE and SCHULZE), 1885, A., 409.  
 action of azoimide on the (LOEW), 1892, A., 90.  
 influence of cold and warm baths on the temperature of the (PLETZER), 1884, A., 621.  
 influence of carbohydrates on the (ALBERTONI), 1889, A., 1023.  
 action of related compounds on the (GIBBS and HARE), 1890, A., 280, 813, 1018; (GIBBS and REICHERT), 1891, A., 1280, 1393.  
 effect of oil of mustard in foods on the (ULBRICHT), 1890, A., 539.  
 action of oxalic acid and its derivatives on the (KROLL), 1892, A., 1019.  
 action of scatole in the (MESTER), 1888, A., 174.  
 action and metamorphosis of some substances in the, in relation to diabetes (ALBERTONI), 1885, A., 683.  
 action of sugars in the (ALBERTONI), 1891, A., 1526.  
 action of yeast on the (NEUMAYER), 1891, A., 237.  
 behaviour of sulphur in the (SALKOWSKI), 1889, A., 432; (PRESCH), 1890, A., 812.  
 detection of iodoform, naphthol and chloroform in the fluids and organs of the (LUSTGARTEN), 1883, A., 243.  
 foetal, iron in the (BUNGE), 1892, A., 1502.  
 vegetable, formation of nitrogenous organic bases by the decomposition of proteids in the (SCHULZE), 1891, A., 356.  
**Organisms**, vegetable, poisonous effects of arsenic, zinc and lead on (NOBBE), 1884, A., 1407.  
 action of azoimide on (LOEW), 1892, A., 90.  
 estimation of fatty substances in (MAXWELL), 1891, A., 511.  
**Organs**, animal, fresh, supposed toxic action of aqueous solutions obtained from (DI MATTEI), 1884, A., 199.  
 formation of uric acid and xanthine bases in (HORBACZEWSKI), 1891, A., 1340.

- Organs**, animal, with impeded circulation in hydrocyanic acid poisoning, and lactic acid and glucose in (ZILLESSEN), 1891, A., 1126.  
 of normal and rachitic children, inorganic constituents of (BRUBAKER), 1891, A., 847.  
 vegetable, containing chlorophyll, influence of salt on the formation of starch in (LESAGE), 1891, A., 856.
- Organosols** (SCHNEIDER), 1892, A., 775.
- Orientation** by conversion of *p*-dinitroderivatives into quinones (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1199.  
 influence of atoms or groups on (KEHRMANN), 1890, A., 484.
- Orobis niger**, composition of (NILSON), 1892, A., 522.
- Orpiment** from Bosnia (KRENNER), 1885, A., 730.  
 from the Yellowstone National Park (WEED and PIRSSON), 1892, A., 283.  
 analysis of (JANNASCH and WASOWICZ), 1892, A., 657.  
 See also Arsenic sulphide.
- Orsat apparatus**, modified (KERSHAW), 1884, A., 695; (RUFFLE), 1890, A., 411.
- Orthite** from Virginia (KÖNIG), 1885, A., 229.
- Orthoclase** (*potash felspar*) from Babitz, Bohemia (KATZER), 1888, A., 923.  
 from Matour, Saône-et-Loire (LACROIX), 1891, A., 408.  
 from Mt. Blanco (BRUN), 1884, A., 403.  
 in geodes in basalt (v. ZEPHAROVICH), 1886, A., 518.  
 formation of (C. and G. FRIEDEL), 1890, A., 1080.  
 artificial production of (v. CHRUSTCHOFF), 1887, A., 559.  
 solubility of, in sea water (THOULET), 1889, A., 682.  
 alteration of, into albite (GENTH), 1884, A., 273.  
 analysis of (CLAASSEN), 1883, A., 1066.  
 ferric (HAUTEFEUILLE and PERREY), 1889, A., 357.  
 crystals, crystallographical examination of (PRIMICIS), 1885, A., 733.
- Orthophosphoric acid**. See under Phosphorus.
- Oryza glutinosa**, Loureiro (KREUSLER and DAFERT), 1886, A., 390.
- Oxazones** (v. PECHMANN), 1888, A., 1287.  
 melting points and preparation of (BRYTHLEN and TOLLENS), 1890, A., 581.
- Oxazones** of saccharoses (FISCHER), 1885, A., 53; 1888, A., 1267.
- Oscine** (*scopoline*; *hydroxytropine*) (EIJKMAN), 1885, A., 404; (HESSE), 1892, A., 1498.
- Osmiamic acid** (JOLY), 1891, A., 1433.
- Osmium** (JOLY), 1891, A., 1433.  
 atomic weight of (SEUBERT), 1888, A., 921; 1891, A., 834, 885.  
 chlorides, electrolytic conductivity of (HAMPE), 1888, A., 891.  
 ammonium and potassium chlorides (SEUBERT), 1888, A., 921.  
 electrolytic separation of gold, of cadmium, of silver and of mercury from (SMITH and WALLACE), 1892, A., 920.
- Osmose**, **osmosis** and **osmotic**. See under Diffusion.
- Oxotetrazones** (v. PECHMANN), 1888, A., 1287.
- Oxotriazole** (BALTZER and v. PECHMANN), 1891, A., 1117.
- Oxotriazoles**, formation, properties and constitution of (v. PECHMANN), 1891, A., 1110.
- Oxotriazolecarboxylic acid** (BALTZER and v. PECHMANN), 1891, A., 1117.
- Oxotriazones** (v. PECHMANN), 1888, A., 1238.
- Ossein**, heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.
- Ostruthin** (JASSOY), 1890, A., 1154.
- Ottrelite** from Liernaux, analysis of (RENARD), 1883, A., 959.  
 rocks of Otré and Viel-Salm (VAN VERVEKE), 1885, A., 961.
- Ouabain** (ARNAUD), 1888, A., 848.  
 toxic action of (GLEY), 1888, A., 1326.
- Ouabalo**, crystalline arrow poison from the wood of (ARNAUD), 1888, A., 848.
- Oxalacetates**, action of carbonyl chloride on (PERATONER and STRAZZERI), 1891, A., 1333.
- Oxalacetic acid phenylhydrazone**, amido- (TAFEL), 1887, A., 467.
- Oxalacetophenylimide**, sodium derivative of (WISLICIENUS and SATTLER), 1891, A., 903.
- Oxalamido-acids** (SCHIFF), 1884, A., 906.
- Oxalamidobenzoic acid**. See Carboxyphenylloxanic acid.
- Oxaldamidopropionic acid** (SCHIFF), 1885, A., 760.
- Oxalamidotrimethylphenylammonium**, *m*- and *p*- (GRIESS), 1885, A., 1220.
- Oxalisoamylisoamylamine**. See *iso*Butylisoamylglyoxaline.
- Oxalisoamylbutylamine**. See Propylisoamylglyoxaline.

**Oxalisomyliisobutylamine.** See *iso*-Propylisomyliisobutylamine.  
**Oxalamin.** See Butylglyoxal.  
**Oxalate developer** for gelatin plates (LORD), 1886, A., 106.  
**Oxalates**, absence of, in young leaves (WEHMER), 1892, A., 651.  
 poisoning with (BISCHOFF), 1883, A., 1021.  
 ethereal, action of alcohols and metallic alkyl oxides on (PURDIE), 1887, T., 629.  
 action of phosphoric chloride on (ANSCHÜTZ and SCHONFELD), 1886, A., 785.  
 action of potassium methoxide on (LOSSEN and KOHLER), 1891, A., 1014.  
**Oxalisobutylisomyliisobutylamine.** See Diisobutylglyoxal.  
**Oxalibutylbutylamine.** See Propylbutylglyoxal.  
**Oxalisobutylbutylamine.** See Propylisobutylglyoxal.  
**Oxaleneanilidoximeamidoxime** (TIEMANN), 1889, A., 1142; (ZINKEISEN), 1890, A., 124.  
**Oxaleneanilidoximeazoxime-ethenyl** (ZINKEISEN), 1890, A., 124.  
**Oxalenediamidines**, disubstituted, constitution of (VORLANDER), 1891, A., 697.  
**Oxalenediamidoxime** (TIEMANN), 1889, A., 1142; (FISCHER), 1889, A., 1163; (ZINKEISEN), 1890, A., 122.  
**Oxalenediamidoxime diethyl ether**, oxalenediazoximedibenzoyl, oxalenediazoximedipropenyldicarboxylic acid and oxalenediamidoxime (ZINKEISEN), 1890, A., 123, 124.  
**Oxalenedihydrazoximedidiethylidene**, oxalene-*p*-tolylamidineamidoxime, and oxalene-*p*-tolylamidodioxime (VORLANDER), 1891, A., 698.  
**Oxalethylisomyliisobutylamine.** See Ethylisobutylglyoxal.  
**Oxalethylbutylamine.** See Ethylisopropylglyoxal.  
**Oxalethylenephénylhydrazide** (BURCHARD), 1890, A., 250.  
**Oxalethylethylene and oxalethylene.** See Methylglyoxal.  
**Oxalethylenanthylene.** See Ethylhexylglyoxal.  
**Oxalethylpropylene.** See *p*-Diethylglyoxal.  
**Oxalic acid** in potatoes and in malt (SIEWERT), 1883, A., 232.  
 from the residue of *Spiritus atheris nitrosi* (FRICKHINGER), 1887, A., 360.

**Oxalic acid**, formation and physiological significance of, in fungi (WEHMER), 1892, A., 230.  
 formation of, in vegetation (BERTHELLOT and ANDRÉ), 1886, A., 731.  
 electrochemistry of (JAHN), 1890, A., 100.  
 thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (MASSOL), 1891, A., 968.  
 specific heat of (HESS), 1889, A., 93.  
 effect of heat on the decomposition of, by ferric chloride (LEMOINE), 1887, A., 324.  
 effect of light on the decomposition of, by ferric chloride (LEMOINE), 1884, A., 381.  
 decomposition of, by sun-light (DUCLAUX), 1887, A., 189.  
 dissociation of, hydrated (LESCOEUR), 1887, A., 915.  
 coefficient of diffusion of (STEFAN), 1889, A., 1047.  
 solubility of (MICZYŃSKI), 1886, A., 935.  
 action of, on barium chloride (COLSON), 1891, A., 377.  
 oxidation of, by potassium dichromate (BOTHAMLEY), 1887, P., 141; 1888, T., 159; (WERNER), 1887, P., 142; 1888, T., 405, 602; P., 33, 53.  
 use of dry, in the formation of condensation-products (ANSCHÜTZ), 1884, A., 1019.  
 poisoning with (BISCHOFF), 1883, A., 1021.  
 stability of, in the animal organism (GAULT), 1888, A., 619.  
 use of, as a test for arsenites in alkaline salts (PATROUILLARD), 1883, A., 243.  
 detection of, in urine (SALKOWSKI), 1886, A., 395.  
 estimation of, in urine (NICKEL), 1887, A., 401.  
**Oxalic acid**, aluminium salt of, tri-basic (MATHIEU-PLÉSSY), 1884, A., 296.  
 ammonium salts of, solubility of (ENGEL), 1886, A., 443.  
 right and left-handed crystals of (ANSCHÜTZ and HINTZE), 1885, A., 1049.  
 ammonium copper salt of, action of light on (EDER), 1885, A., 1173.  
 ammonium nickel salts of (KRAUT), 1888, A., 788.  
 beryllium potassium salt of, basic (PHILIPP), 1883, A., 1085.

**Oxalic acid**, calcium salt of, in the bark of trees (KRAUS), 1892, A., 1370.  
 formation of, in leaves (SCHIMPER), 1888, A., 981; (WEHMER), 1890, A., 191.  
 formation of, in plants (WAKKER), 1888, A., 1126; (KÖHL), 1890, A., 191; 1891, A., 857.  
 double chromium salts of, constitution of (HARTLEY), 1887, P., 4.  
 cobalt salts of, electrolysis of (KEHRMANN and PICKERSGILL), 1891, A., 1189.  
 cobalt ammonium salt of (MARSHALL), 1891, T., 769.  
 copper salt of (SEUBERT and RAUTER), 1892, A., 1431.  
   compound of, with pyridine (SEUBERT and RAUTER), 1892, A., 1431.  
 cuprammonium salt of (SEUBERT and RAUTER), 1892, A., 1431.  
 ferrous salt of, decomposition of (BIRNIE), 1885, A., 752.  
 magnesium salt of, in plants (MONTVERDE), 1891, A., 857.  
 manganese salt of (CASTHÉLAZ), 1889, A., 957.  
 manganese potassium salt of (KEHRMANN), 1887, A., 800.  
 mercury salt of, heat of formation of (BERTHELOT), 1884, A., 706.  
 potassium salt of (MARSHALL), 1890, A., 740.  
 potassium antimony salt of (KAY), 1888, A., 675; (WAGNER), 1889, A., 489.  
   a substitute for tartar emetic (ANON.), 1885, A., 464.  
 potassium chromium salts of (WERNER), 1887, T., 384; 1888, T., 405.  
 potassium cobalt salt of (KEHRMANN), 1887, A., 220; (KEHRMANN and PICKERSGILL), 1891, A., 1189.  
 potassium copper salt of, action of light on (EDER), 1885, A., 1173.  
 potassium sodium cobaltic salt of (KEHRMANN), 1887, A., 220.  
 sodium copper salt of, action of light on (EDER), 1885, A., 1173.  
**Oxalic acid series**, specific volumes of  
   some ethereal salts of the (WIENS), 1890, A., 102.  
 electrolysis of ethylic potassium salts of the (BROWN), 1891, A., 1192.  
 distillation of the potassium hydrogen salts of the (WISSER), 1891, A., 1011.  
**Oxalic chloride** (FAUCONNIER), 1892, A., 588.  
**Oxalic ferment** (KÖHL), 1891, A., 857.

**Oxalic nitrile**, heats of combustion and formation of (BERTHELOT and PETIT), 1889, A., 812.  
**Oxalimide** (OST and MENTE), 1887, A., 234.  
**Oxalines**. See Glyoxalines.  
**Oxalmethyloisoamyline**. See Methylisobutylglyoxaline.  
**Oxalmethylobutylene**. See Methylpropylglyoxaline.  
**Oxalmethyloisobutylene**. See Methylisopropylglyoxaline.  
**Oxalmethylethyline**. See Dimethylglyoxaline.  
**Oxalmethyline**. See Methylglyoxaline.  
**Oxalmethylenanthylene**. See Methylhexylglyoxaline.  
**Oxalmethylopropylene**. See Methyl-ethylglyoxaline.  
**Oxalodimethylhydrazide** (V. BRUNING), 1890, A., 23.  
**Oxalodiphenylhydrazide** (BOLING and TAFEL), 1892, A., 981.  
**Oxalodiphenylthiobiuret** (V. STOEJENIN), 1885, A., 1196.  
**Oxalo- $\beta$ -naphthalide, bis-nitr-** (PERKIN), 1892, T., 466.  
**Oxalo- $\beta$ -naphthylhydrazide** (FREUND), 1892, A., 509.  
**Oxalo- $\alpha$ -toluidide** (MAUTHNER and SUDA), 1886, A., 886; 1889, A., 139.  
   *di*nitr- (PERKIN), 1892, T., 463.  
**Oxalo- $p$ -toluidide, nitr-** (HINSBERG), 1883, A., 323.  
**Oxalo- $\alpha$ - and - $p$ -toluidides, tetranitr-** (MIXTER and KLEBERG), 1889, A., 771; (PERKIN), 1892, T., 464, 465.  
**Oxalpropyloisoamyline**. See Propylisobutylglyoxaline.  
**Oxalpropylbutylene**. See Dipropylglyoxaline.  
**Oxalpropyloisobutylene**. See Propylisopropylglyoxaline.  
**Oxalpropylethyline**. See Methylpropylglyoxaline.  
**Oxalpropylene**. See Ethylglyoxaline.  
**Oxalpropylenanthylene**. See Propylhexylglyoxaline.  
 **$\beta$ -Oxalpropylpropylene**. See Ethylpropylglyoxaline.  
**Oxalrhhydrazide** (SKINNER and RUEHMANN), 1888, T., 556.  
**Oxaluric acid**, thermochemistry of (MATIGNON), 1891, A., 1449.  
**Oxalylanthranilic acid** (HOFFMANN and KOENIGS), 1883, A., 1144.  
**Oxalylcarbamide**. See Parabanic acid.  
**Oxalyl- $\psi$ -cumidic acid**. See  $\psi$ -Cumyl-oxamic acid.  
**Oxalylidiacetone** (CLAISEN and STYLOS), 1888, A., 676.

- Oxalyldiacetophenone** (BROMME and CLAISEN), 1888, A., 692.
- Oxalyldibenzamic acid** (SCHIFF), 1886, A., 549.  
amide of (SCHIFF), 1881, A., 906.
- Oxallylevulinic acid** (WISLICIENUS), 1888, A., 1273.
- Oxalymolybdic acid** (PÉCHARD), 1889, A., 858.
- Oxalyl- $\alpha$ -naphthyl mercaptan, *o*-amido-**(LANG), 1892, A., 1079.
- Oxalyl- $\alpha$ - and - $\beta$ -naphthyl mercaptans, diamido-**(v. HOFMANN), 1887, A., 840.
- Oxalylphenyl mercaptan, *o*-amido-**(LANG), 1892, A., 1079.
- Oxalyl-*o*-toluidic acid.** See Tolyloxamic acid.
- Oxalylxylydic acid.** See Xylyloxamic acid.
- Oxamethane.** See Ethylic oxamate.
- Oxamethanetolyloxamide.** See Ethylic oxamidotolyloxamate.
- Oxamethanetolyurethane.** See Ethylic urethanotolyloxamate.
- Oxamic acid** (OELKERS), 1889, A., 962, 1142.
- Oxamide** (HENRY), 1885, A., 886.  
decomposition of, by water and dilute acids (BERTHELOT and ANDRÉ), 1887, A., 286.  
*dithio-* (WOLLYNY), 1884, A., 1109; (EPHRAIM), 1889, A., 1142; (FORMÁNEK), 1890, A., 29; (FORSSELL), 1891, A., 1003; (WALLACH and REINHARDT), 1891, A., 1008.
- Oxamidine hydrochloride** (PINNER), 1883, A., 1088.
- Oxanilamide, trinitr-** (MIXTER and WALTHER), 1888, A., 142.
- Oxanilic acid** (*phenyloxamic acid*) (ANSCHÜTZ), 1889, A., 707; (ASCHAN), 1890, A., 1124.  
halogen derivatives of (DYER and MIXTER), 1887, A., 251.  
*p*-nitr- (PERKIN), 1892, T., 468.  
*o*- and *p*-nitr-, and reduction of (ASCHAN), 1886, A., 147.  
2:4-dinitr- and 2:4:6-trinitr- (PERKIN), 1892, T., 468, 469.
- Oxanilide** (*diphenyloxamide*) and its homologues, preparation of (PERKIN), 1892, T., 459.  
action of nitric acid on (PERKIN), 1892, T., 458; P., 56.  
halogen derivatives of (DYER and MIXTER), 1887, A., 251.  
*di*bromodinitr-, and *di*bromotetra-nitr- (MIXTER and WILLCOX), 1888, A., 142.  
*di*nitr- (MIXTER and WALTHER), 1888, A., 141.
- Oxanilide** (*diphenyloxamide*), tetranitr- (MIXTER and WALTHER), 1888, A., 141; (PERKIN), 1892, T., 460.  
*hexanitr-* (MIXTER and WALTHER), 1888, A., 141; (PERKIN), 1892, T., 462.
- Oxanilidodi-*o*-carboxylic acid** (MAUTHNER and SUIDA), 1889, A., 139.
- Oxanilyl chloride** (ASCHAN), 1890, A., 1124.
- Oxazine-dyes** (MÜHLAU), 1892, A., 887.  
See also under Colouring matters.
- Oxazine-series, syntheses in the** (KNORR), 1889, A., 1218.
- Oxazole** (HANTZSCH), 1892, A., 313.
- Oxazoles and their derivatives** (LEWY), 1888, A., 1101.  
synthesis of (HANTZSCH), 1888, A., 574.
- isoOxazole, amido-** (HANRIOT), 1891, A., 1108.
- isoOxazoles** (CLAISEN), 1892, A., 506.  
formation of (DUNSTAN and DYMOND), 1891, T., 410.
- Oxazolines** (GABRIEL and HEYMAN), 1890, A., 1267; (ELFELDT), 1892, A., 213.  
formation of (GABRIEL and NEUMANN), 1892, A., 1331.
- Oxen, urine of** (MITTELBACH), 1888, A., 1216.
- Oxethyl-**. See Oxyethyl-.
- Oxetone and oxetonecarboxylic acid** (FITTING and STRÖM), 1892, A., 813.
- Ox-gall, presence of myristic acid in** (LASSAR-COHN), 1892, A., 1114, 1503.
- Oxidation** by means of the galvanic current (SMITH), 1889, A., 926.  
by means of hydrogen peroxide (WURSTER), 1888, A., 43.  
by means of potassium permanganate (REMSEN and EMERSON), 1887, A., 146.  
rate of, of carbon compounds by potassium permanganate (DREYFUS), 1888, A., 24.  
primary and secondary, in the organism (NASSF), 1889, A., 172.  
in the animal body (SCHMIEDENBERG), 1883, A., 361; (WURSTER), 1887, A., 610.  
in animals, influence of light on (LOEB), 1889, A., 172.  
in the blood (HOPPE-SEYLER), 1890, A., 651.  
physiological (NASSE), 1892, A., 1018.  
slow, absorption of nitrogen during (BERTHELOT), 1889, A., 673.  
and reduction (LEDEBUR), 1885, A., 631; (OSTWALD), 1888, A., 1024.

**Oxidation** and reduction, simultaneous, by means of hydrocyanic acid (MICHAEL and PALMER), 1886, A., 155.

See also Agricultural Chemistry.

**Oxides, metallic**, change in volume during the formation of (BEKETOFF), 1887, A., 1073.

polymerisation of (HENRY), 1886, A., 303; (CARNELLEY and WALKER), 1887, P., 110; 1888, T., 59.

more stable, behaviour of, at high temperatures (BAILEY and HOPKINS), 1890, T., 269; P., 19.

action of boron on (MOISSAN), 1892, A., 1154.

action of nitric oxide on (SABATIER and SENDERENS), 1892, A., 1151, 1271.

action of nitric peroxide on (SABATIER and SENDERENS), 1892, A., 1890.

action of sulphur on (FILHOL and SENDERENS), 1883, A., 710; 1884, A., 959.

action of sulphur and water on (SENDERENS), 1887, A., 328; 1892, A., 770.

influence of, on the decomposition of potassium chlorate (FOWLER and GRANT), 1890, T., 272; P., 20.

production of metallic chlorides from (FAURE), 1888, A., 1250.

of the heavy metals and alkali halides, reaction between (BERSCH), 1891, A., 1413.

reduction of, with magnesium (WINKLER), 1891, A., 1155.

**Polyoxides**, constitution of (GEUTHER), 1884, A., 1260.

**Oxides, mineral**, synthesis of (WEINSCHEK), 1890, A., 709.

**Oxides, organic**, action of anhydrides on (FRANCHIMONT), 1883, A., 452.

**Oximes** (GOLDSCHMIDT), 1890, A., 251, 1412; (MEYER), 1891, A., 1181; (CLAUS), 1892, A., 1080.

formation of (HANTZSCH), 1891, A., 36.

preparation of (AUWERS), 1889, A., 689.

molecular weights of (BECKMANN), 1888, A., 409, 646; (AUWERS and MEYER), 1888, A., 646.

relations between the constitution, configuration and chemical behaviour of (HANTZSCH), 1892, A., 1175.

isomerism of (GOLDSCHMIDT), 1890, A., 1261; (HANTZSCH), 1890, A., 1263; 1891, A., 823; (HANTZSCH and WERNER), 1891, A., 34; (MINUNNI), 1892, A., 291.

**Oximes** and the so-called 'stereochemistry' (CLAUS), 1892, A., 50.

action of, on diazo-compounds (MAL), 1892, A., 163, 1079.

behaviour of, with mordants (v. KOSTANECKI), 1889, A., 868.

of aldehydes and  $\alpha$ -ketonic acids (HANTZSCH), 1891, A., 443.

asymmetrical, which do not form stereometric isomerides, configuration of (HANTZSCH), 1891, A., 442.

stereochemical isomerism of (HANTZSCH), 1890, A., 1263.

isomeric (GOLDSCHMIDT), 1890, A., 1261; (HANTZSCH), 1892, A., 1083.

constitution of (MINUNNI), 1891, A., 1354.

of asymmetrical ketones (AUWERS and MEYER), 1890, A., 1263.

stereoisomeric, special configuration of (HANTZSCH), 1891, A., 439.

**Oximido-**. See Parent substance, oxime of.

**Oximido-acids**, dissociation constants of (HANTZSCH and MIOLATI), 1892, A., 1268.

**Oximido-compounds** (*isonitroso-compounds*) (MEYER), 1883, A., 569; (WESTENBERGER), 1884, A., 581; (BECKMANN), 1886, A., 618; 1887, A., 826; 1888, A., 43, 55, 409; (BERGREEN), 1887, A., 466; (v. PECHMANN), 1887, A., 1103.

isomerism of (BECKMANN), 1889, A., 607, 608; (AUWERS and MEYER), 1889, A., 609.

action of reducing agents on (CERESOLE and KOECKERT), 1884, A., 1120.

decomposition of (v. PECHMANN), 1888, A., 146.

reaction between phenylhydrazine and (JUSTER), 1886, A., 701.

**Oximidonaphthol**. See 2-Hydroxy-1:4-naphthaquinoneimide.

**Oxindole** and its derivatives (v. BAERYER), 1883, A., 1130.

bromamido- (JACKSON and BANCROFT), 1890, A., 982.

nitroso- (GABRIEL), 1883, A., 920; (v. BAERYER), 1883, A., 1131.

**Oxooctenol** (MEYER and NÄGELI), 1883, A., 1076.

**Oxole** (HANTZSCH), 1892, A., 313.

**Oxyacanthine**. See under Alkaloids.

"Oxyacetindigotin" (O'NEILL), 1892, A., 991.

*m*-**Oxyacrylic acid**. See Glycidic acid.

**Oxyadipic acid**, chlor-, lactone of (RUHEMANN), 1890, T., 940.

- Oxyalkyl-group**, displacement of the  $\text{NO}_2$  group by the (LOBRY DE BRUYN), 1885, A., 657.
- Oxyallylbenzoic acids** (SOICHLONE), 1883, A., 335.
- Oxyamidodisulphonates**, action of alkali on (DIVERS and HAGA), 1892, T., 988.  
decomposition and oxidation of (DIVERS and HAGA), 1889, T., 765, 770.  
and their conversion into hyponitrites (DIVERS and HAGA), 1889, T., 760.
- Oxyamidodisulphonic acid**, preparation and hydrolysis of (DIVERS and HAGA), 1889, T., 764.  
potassium salt of (DIVERS and HAGA), 1889, T., 762.
- Oxyisocamylamine**, and the action of phosphorus pentoxide on it (ŁADZISZEWSKI and SCHRAMM), 1884, A., 1190.
- Oxy- $\alpha$ -amyrin**, and its acetate (VESTERBERG), 1892, A., 290.
- Oxyaurin** (TRZCINSKI), 1884, A., 591.
- Oxyazo-compounds** (GOLDSCHMIDT and POLLAK), 1892, A., 974.  
action of phosphoric chloride on (PAGANINI), 1891, A., 556.
- Oxybenzene**. See Phenol and Resorcinol.
- 3'-Oxy-4'-benzylisoquinoline**, 1'-chlor- (EICHELBAUM), 1888, A., 1301.
- Oxyberberine** and its constitution (PERKIN), 1890, T., 1003, 1085.  
acetate (PERKIN), 1890, T., 1086.
- Oxybromocemenic acid**, brom- (MENDEL), 1883, A., 657.
- $\alpha$ -Oxybutyrocyamine hydrochloride** (DUVILLIER), 1883, A., 1154.
- Oxycamphor** from  $\beta$ -dibromocamphor, action of nitric acid on (KAHLER and SPITZER), 1883, A., 215.  
so-called, of Kachler and Spitzer (GOLDSCHMIDT), 1885, A., 270.  
nitr- (KAHLER and SPITZER), 1883, A., 215.
- Oxycellulose** (CROSS and BEVAN), 1883, T., 22; (LINDSEY and TOLLENS), 1892, A., 827.
- Oxychlorides**, metallic, formation of crystallised (ROUSSEAU), 1890, A., 1058.
- Oxydichlorodibromophenoquinone**, dichlor- (BENEDIKT), 1883, A., 984.
- Oxyehrysanthemine** (MARINO-ZUCO), 1892, A., 85.
- Oxyeichenine** (KOENIGS), 1890, A., 1433.
- Oxycinnamaldehyde**. See *o*-Coumaraldehyde.
- Oxy-coal-gas blowpipe** (LINNEMANN), 1886, A., 417.
- Oxycobaltic salts**. See Cobalt-ammonium compounds.
- Oxyococcus palustris*, citic acid in (KOSSOVICH), 1888, A., 314.
- Oxyconessine** (*oxywrightine*) (WARNECKE), 1888, A., 855.
- Oxyconiceine**, and its derivatives (v. HOFMANN), 1885, A., 563.
- Oxyconiine** ( *$\alpha$ -hydroxypropylpiperidine*). See Conhydrine under Alkaloids.
- Oxycoumarin** (PLÖCHL and WOLFRUM), 1885, A., 899.
- Oxydehydracetic acid** (FEIST), 1892, A., 585.
- Oxydextrose** (FISCHER), 1888, A., 1267.
- Oxydiethylallylamine** (REBOUL), 1884, A., 577.
- Oxydiethylaniline** (HOLZMANN), 1888, A., 1080.
- Oxydiethylidenelactic acid** (WILLGERODT and SCHIFF), 1890, A., 959.
- Oxydigitogenic acid** (KILIANI), 1891, A., 577.
- 2'-Oxydihydroquinoline**. See Hydrocarbostyrl.
- Oxydimethylaniline** (HOLZMANN), 1888, A., 1080.
- 2'-Oxy-2:3'-dimethyldihydroquinoxaline** (HINSBERG), 1892, A., 1359.
- Oxydimethylpurin, dichlor-** (FISCHER), 1884, A., 997.
- Oxy-2:4-dimethylpyridine-3-carboxylic acid**. See Lütidostyrlcarboxylic acid.
- 2'-Oxy-1':4'-dimethylquinoline**. See Methyllipedone.
- 2'-Oxy-3:1'-dimethylquinoline**, 4-nitr- (DECKER), 1892, A., 880.
- 4'-Oxy-1':2'-dimethylquinoline** (*4'-methyllquinollone*) (CONRAD and LIMPACH), 1887, A., 680; (CONRAD and ECKHARDT), 1889, A., 519.
- Oxy- $\beta$ -dimethyluric acid** (FISCHER), 1884, A., 1309.
- Oxydimorphine**. See Oxymorphine under Alkaloids.
- Oxy- $\beta$ -dinaphthylamine** (*imidodinanaphthyl oxide*) (RIS), 1886, A., 1036.
- Oxyethenyltolylenediamine** (BANKIEWICZ), 1889, A., 866.  
nitr- (BANKIEWICZ), 1888, A., 1184.
- Oxygen** in the air (VOGLER), 1883, A., 284, 551; (HEMPFEL), 1885, A., 1091; 1887, A., 885; (KREUSLER), 1886, A., 199; 1887, A., 634.  
in the sun (TROWBRIDGE and HUTCHINS), 1887, A., 1065.

**Oxygen**, atomic weight of (HILDITCH), 1884, A., 659; (KEISER), 1887, A., 1078; 1891, A., 1154; (RAYLEIGH), 1888, A., 643; 1890, A., 330; (MORLEY), 1888, A., 649; (COOKE and RICHARDS), 1888, A., 910; (GROSHANS), 1889, A., 463; (NOYES), 1889, A., 672; 1890, A., 1370; 1891, A., 1154; (JOHNSON), 1889, A., 935; (LEDUC), 1892, A., 1388.

atomic weights of hydrogen and, relative values of the (COOKE and RICHARDS), 1888, A., 647.

atomic volume of (AMAGAT), 1885, A., 631; 1886, A., 662; (V. WROBLEWSKI), 1886, A., 661.

tetravalency of (HEYES), 1888, A., 551; (MELDOLA), 1889, A., 404.

production of, by green cells (PRINGSHEIM), 1888, A., 741.

production of, by the action of sunlight on *Protoecoccus pluviialis* (PHIPSON), 1884, A., 201.

preparation of (GÖHRING), 1889, A., 465.

preparation and storage of pure (SHENSTONE and CUNDALL), 1887, T., 611.

apparatus for preparing, quickly (TACKE), 1884, A., 1254.

preparation of, in a Kipp's apparatus (NEUMANN), 1887, A., 769.

preparation of, from bleaching powder (BIDER), 1886, A., 418; (VOLHARD), 1890, A., 8.

preparation of, from potassium chlorate (WAGNER), 1883, A., 281.

preparation of, from potassium ferricyanide and hydrogen peroxide (KASSNER), 1890, A., 352.

utilisation of atmospheric (KASSNER), 1891, A., 392.

storage of, in zinc gasholders (LOEWE), 1883, A., 619.

chemical structure of, and dissociation in the sun's atmosphere (GRÜNWALD), 1887, A., 1070.

dispersion equivalents of (GLADSTONE), 1888, A., 389.

refraction equivalent of (GLADSTONE), 1884, T., 257; (BRUHL), 1887, A., 193.

absorption spectra of (EGOROFF), 1886, A., 169; (JANSSEN), 1886, A., 749; 1888, A., 765; (LIVEING and DEWAR), 1889, A., 1; 1890, A., 675.

heat of combination of carbon and (BOILLOT), 1884, A., 141.

heat of combination of hydrogen and (BOILLOT), 1885, A., 8.

**Oxygen**, forms of, obtained in the electrolysis of aqueous sulphuric acid (McLEOD), 1886, T., 591; P., 215.

density of (AMAGAT), 1885, A., 631; (COOKE), 1890, A., 322; (LEDUC), 1890, A., 1370; 1891, A., 1416.

relative densities of hydrogen and (RAYLEIGH), 1888, A., 613.

deviations of, at low pressure from Boyle's law (BOHR), 1886, A., 591.

volumetric relations of ozone and (SHENSTONE and CUNDALL), 1887, T., 625; P., 76.

compressibility of, at very high pressures (AMAGAT), 1889, A., 8; 1891, A., 378.

absorption of (V. DER PFORDTEN), 1885, A., 836.

absorption of, by carbon (BAKER), 1887, T., 252.

occlusion of, in pure silver (BRÄNNER), 1889, T., 400.

liquefaction of (OLSZEWSKI), 1883, A., 781; (DEWAR), 1885, A., 331; (CAILLETET), 1885, A., 859.

liquefaction of, apparatus for demonstrating the (DEWAR), 1885, A., 331.

liquid, colour of (OLSZEWSKI), 1891, A., 773.

absorption spectrum of (OLSZEWSKI), 1887, A., 625; 1891, A., 773.

insulating properties of (V. WROBLEWSKI), 1885, A., 1099.

ebullition of (V. WROBLEWSKI), 1884, A., 553.

boiling point of, under atmospheric pressure (V. WROBLEWSKI), 1884, A., 817.

critical temperature and pressure of (V. WROBLEWSKI), 1884, A., 143; (SARRAU), 1884, A., 149.

relation between the temperature and pressure of (OLSZEWSKI), 1885, A., 475.

coefficient of expansion of (OLSZEWSKI), 1884, A., 816.

density of (V. WROBLEWSKI), 1884, A., 14, 388; (MENGER), 1884, A., 553; (OLSZEWSKI), 1884, A., 816; 1887, A., 694.

solubility of, in water (WINKLER), 1889, A., 936; 1892, A., 271; (BOHR and BOCK), 1892, A., 108.

solubility of, in water and in alcohol (TIMOFÉEFF), 1891, A., 15.

solubility of, in mixtures of alcohol and water (LUBARSCH), 1890, A., 103.

**Oxygen**, combustion in dried (BAKER), 1889, A., 465.  
 combustion of, in ammonia (HOPKINSON and LOWNDES), 1888, A., 1244.  
 combustion of, in hydrogen, a lecture experiment (v. HOFMANN), 1883, A., 280.  
 slow combustion of hydrogen and, admixed (KRAUSE and MEYER), 1891, A., 1153; (ASKENASY and MEYER), 1892, A., 938.  
 combustion of organic substances in, at high pressure (STOHMANN, KLEBER, and LANGBEIN), 1889, A., 929.  
 influence of steam and other gases on the combustion of carbonic oxide and (BEKETOFF), 1892, A., 274.  
 influence of aqueous vapour on the explosion of carbonic oxide and (DIXON), 1883, A., 12.  
 activity of (TRAUBE), 1883, A., 282; (HOPPE-SEYLER), 1883, A., 1048.  
 activity of, in presence of nascent hydrogen (HOPPE-SEYLER), 1883, A., 848; 1886, A., 120.  
 active (BAUMANN), 1884, A., 14.  
   formation of, in the atmosphere (WURSTER), 1887, A., 211.  
   formation of, in paper (WURSTER), 1887, A., 211.  
   reagents for the estimation of minimal quantities of (WURSTER), 1887, A., 295.  
   *m*-phenylenediamine as a test for (CAZENÈVE), 1891, A., 1289.  
   estimation of, by means of tetramethyl-*p*-phenylenediamine (WURSTER), 1888, A., 627.  
   See also Ozone.  
 action of light on moist (RICHARDSON), 1889, P., 134.  
 action of light on the hydrides of the halogens in presence of (RICHARDSON), 1887, T., 801.  
 action of, on hydrochloric acid under the influence of light (McLEOD), 1886, T., 608.  
 action of the silent discharge on nitrogen and, in presence of chlorine (HAUTEFEUILLE and CHAPPUIS), 1884, A., 710.  
 action of hydrogen on (DIXON), 1886, T., 107.  
 action of nascent hydrogen on (HOPPE-SEYLER), 1883, A., 848; 1886, A., 120; (TRAUBE), 1883, A., 900.  
 action of chlorine and hydrogen on (HARKER), 1892, A., 1147.

**Oxygen**, action of, on nitric oxide (EMICH), 1892, A., 940.  
 reciprocal displacement of the halogens and (BERTHELOT), 1890, A., 6.  
 ketonic, substitution of the azo-group for (CURTIUS), 1889, A., 1157; (CURTIUS and LANG), 1892, A., 451.  
 equilibrium between hydrogen, chlorine and (LE CHATELIER), 1890, A., 8.  
 rôle of, in plant life (PALLADIN), 1888, A., 1125.  
 influence of compressed, on the growth of plants (JENTYS), 1888, A., 1125.  
 dependence of the assimilation of green cells on their respiration of (PRINGSHEIM), 1888, A., 185.  
 simultaneous evolution of carbonic anhydride and, by *Cactaceæ* (AUBERT), 1891, A., 856.  
 emission of, by plants in coloured light (PRINGSHEIM), 1886, A., 642.  
 elimination of, from plant cells (ENGELMANN), 1883, A., 105.  
 exhalation of, by fleshy-leaved plants in absence of carbonic anhydride (MAYER), 1887, A., 988.  
 action of, on the activity of the lower organisms (HOPPE-SEYLER), 1884, A., 1399.  
 relation of bacterial life to (LIBORIUS), 1887, A., 291.  
 influence of, on fermentation (HOPPE-SEYLER), 1883, A., 489.  
 influence of, on alcoholic fermentation (BROWN), 1892, T., 369; P., 33.  
 action of, on animals (RICHARDSON), 1887, A., 855.  
 "devitalised" (RICHARDSON), 1887, A., 855.  
 the specific quantities of, in blood (BOHR), 1891, A., 344.  
 in the blood of animals at great altitudes (VIAULT), 1891, A., 753.  
 tension of, in blood and in solutions of oxyhemoglobin (HUFNER), 1888, A., 1211.  
 heat developed by the action of, on the blood (BERTHELOT), 1890, A., 274.  
 determination of the rate of consumption of, in the tissues by means of the spectroscope (DENNIG), 1884, A., 1391.  
 combination of hæmoglobin with (BOHR), 1892, A., 1369.  
 influence of, on the separation of carbonic anhydride in the lungs (WENIG), 1892, A., 1369.

**Oxygen, detection and estimation:—**

- detection of, by Schützenberger's reagent (JODIN), 1886, A., 648.  
 estimation of (SINIBALDI), 1888, A., 322.  
 gasometric estimation of (DE KONINCK), 1891, A., 616.  
 Orsat's apparatus for the estimation of (KERSHAW), 1884, A., 695; (RUFFLE), 1890, A., 411.  
 Schützenberger's process for the estimation of free (KONIG), 1892, A., 98.  
 estimation of aldehydic and ketonic (STRACHE), 1892, A., 546, 1530.  
 estimation of free, by means of nitric oxide (DE KONINCK), 1892, A., 97.  
 estimation of, in air (HEMPPEL), 1885, A., 592.  
 estimation of, in air by Priestley's method (WANKLYN), 1891, A., 362.  
 estimation of, in the air of forests (EBERMAYER), 1886, A., 1066.  
 estimation of, in the blood (SIEGFRIED), 1891, A., 845.  
 estimation of, in metals and alloys (MULLER), 1885, A., 1167.  
 estimation of available, in peroxides (DE KONINCK and LECRENIER), 1891, A., 1136.  
 estimation of, absorbed in respiration (HARRIOT and RICHEL), 1887, A., 507.  
 estimation of, in water (WILLIAMS and RAMSAY), 1886, T., 751; P., 223; (DUPRÉ), 1886, A., 579; (LALIEU), 1888, A., 874; 1889, A., 561; (BLAREZ), 1888, A., 1344; (ROSCOE and LUNT), 1889, T., 552; P., 124; (WINKLER), 1889, A., 79; (THRESH), 1890, T., 185; P., 1; (MÜLLER), 1890, A., 412; (LISSIER), 1891, A., 616; (ADAMS), 1892, T., 310; P., 1; (KISCH), 1892, A., 98.  
 eudiometric investigation with mixtures of, and ammonia (NEUMANN), 1889, A., 1031.  
**Oxygen-carriers** (MEYER), 1888, A., 216.  
**Oxygen-compounds, reduction of, by magnesium** (WINKLER), 1891, A., 801.  
 reduction of, by sodium (ROSENFELD), 1891, A., 150.  
 correlation of, and hydrogen compounds of the elements (FLAWITZKY), 1892, A., 1270.  
 molecular (TRAUBE), 1886, A., 661.  
 "Oxygluconic acid" (BOUTROUX), 1886, A., 683.  
**Oxyglucose** (FISCHER), 1888, A., 1267.

**Oxyhæmoglobin.** See under Hæmoglobin.

**Oxyhexic acid.** See Terebic acid.

**Oxyhydrastinine** (FREUND), 1889, A., 627.

constitution of (FREUND), 1889, A., 1222.

synthesis of, from methylic  $\omega$ -chloroethylpiperonylcarboxylate (PERKIN), 1890, T., 997, 1034.

**Oxyhydrocollidine** (CANZONERI and SPICA), 1885, A., 747.

**Oxyhydrogen flame, spectrum of** (LIVING and DEWAR), 1888, A., 637.

**Oxyhydrogen gas, ignition temperature of** (FREYER and MEYER), 1892, A., 680.

absorption of, by soil (IMMENDORFF), 1892, A., 377.

action of light on (ASKENASY and MEYER), 1892, A., 939.

supposed re-combination of, in the dark (RICCIARDI), 1884, A., 1092.

catalytic action of metals on (BERLINER), 1889, A., 206.

lecture experiments on the combination of the (MEYER), 1892, A., 562.

**Oxyindonaphthene.** See Hydrindone.

**Oxyketones, formation of** (JAMES), 1886, T., 54.

**Oxylactose** (FISCHER), 1888, A., 1267.

**Oxylepidin, acicular and tabular.** See Dibenzoylstilbene and Tetraphenylcrotonolactone.

**Oxylepidenic acid.** See Triphenylbenzoylpropionic acid.

**Oxylepidine.** See Oxy-4'-methylquinoline.

**Oxylupinine** (BAUMERT), 1883, A., 100.

**Oxymethylic acid** (ARTH), 1886, A., 892.

**Oxymercuric hydrogen and sodium imidosulphonates** (DIVERS and HAGA), 1892, T., 977, 983.

**Oxymethylene.** See Formaldehyde.

**Oxymethylenemethoxybutenylbenzene** (SEMMLER), 1892, A., 311.

**Oxymethylethenyltolylenediamine** (NIEMENTOWSKI), 1887, A., 937.

**Oxymethylindole.** See Methyloxindole.

**Oxymethylpyrrolidine.** See 2-Methylpyrrolidone.

**4'-Oxy-2'-methylquinazoline** (WEDDIGE), 1887, A., 1044.

chloro-derivatives of (DEHOFF), 1891, A., 84.

*m*-nitro- (DEHOFF), 1890, A., 802; 1891, A., 84; (THIEME), 1891, A., 917.

**4'-Oxy-3'-methylquinazoline** (KNAPE), 1891, A., 909.

- Oxymethylquinazoline.** See also Hydromethylquinazoline.
- Oxymethylquinizine.** See Phenylmethylpyrazolone.
- 1-Oxy-2-methylquinoline,** 4-nitr- and 4-nitroso- (NÖLTING and TRAUTMANN), 1891, A., 326; 1892, A., 727.
- 1-Oxy-3-methylquinoline,** 4-nitroso- (NÖLTING and TRAUTMANN), 1891, A., 327; 1892, A., 728.
- 1-Oxy-4-methylquinoline,** 2-nitr- and 2-nitroso- (NÖLTING and TRAUTMANN), 1891, A., 327; 1892, A., 728.
- 4-Oxy-1-methylquinoline,** 3-nitr- and 3-nitroso- (NÖLTING and TRAUTMANN), 1891, A., 328; 1892, A., 729.
- 4-Oxy-3-methylquinoline,** 1-nitr- and 1-nitroso- (NÖLTING and TRAUTMANN), 1891, A., 327; 1892, A., 727.
- 3-nitroso- (NÖLTING and TRAUTMANN), 1891, A., 327.
- 4'-Oxy-2'-methylquinoline** and 3-brom- (KNORR and ANTRICK), 1885, A., 274
- Oxy-4-methylquinoline,** tribrom- (COMSTOCK and KOENIGS), 1884, A., 1383.
- Oxy-3-methylquinolineoxime** (NÖLTING and TRAUTMANN), 1891, A., 326.
- Oxymethyluracil,** dichlor- (BEHREND), 1887, A., 129.
- Oxymetric solution.** Schutzenberger's, decomposition of, by light (JODIN), 1886, A., 648.
- Oxymorphine** (*ψ-morphine*; *oxytimorphine*) and its derivatives (HESSE), 1881, A., 616; 1887, A., 163; (POLSTORFF), 1886, A., 900.
- reactions of (HESSE), 1886, A., 1047.
- Oxynaphthaquinonesulphonic acid.** See Hydroxynaphthaquinonesulphonic acid.
- Oxynicotine** (PINNER and WOLFFENSTEIN), 1891, A., 173.
- Oxytrinicotine** (REARD), 1881, A., 164.
- Oxynitriles,** volatility of (HENRY), 1886, A., 605.
- Oxyptic acid.** See Hydromucic acid.
- o-Oxyphenylacetic acid,** lactone of (V. BAeyer and FRISCH), 1881 A., 1022.
- Oxyphenyldinaphthazine** (FISCHER and HERR), 1890, A., 910.
- Oxyphenylmethylpyrazole.** See Phenylmethylpyrazolone.
- 4'-Oxy-2'-phenylquinazoline** (KÖRNER), 1887, A., 1044.
- Oxypiperidine.** See Piperidone.
- Oxyisopropylidiphenylketonecarboxylic acid,** and its salts (BAMBERGER and HOOKER), 1885, A., 906.
- Oxypropylenecarboxylic acid.** See β-Methylglycidic acid.
- Oxyprotosulphonic acid** (*Drucke's acid*) (MALY), 1885, A., 824.
- Oxypyridine.** See Hydroxypyridine.
- Oxyquinaldine.** See Oxy-2'-methylquinoline.
- Oxyquinoline,** nitroso-1- and -3-, tinctorial properties of (V. KOSTANECKI), 1891, A., 579.
- 2'-Oxyquinoline.** See Carbostyryl.
- 1'-Oxyisoquinoline,** 3'-chlor- (GABRIEL), 1887, A., 62.
- Oxyquinone carbonate,** nitr- (LÖWENBERG), 1886, A., 789.
- Oxyquinoterpene.** See Cinchol.
- Oxysapogenin** (BARTH and HENZIG), 1889, A., 1004.
- Oxysparteine** (AHRENS), 1891, A., 842.
- Oxysulphides,** organic, action of chlorine on (SPRING and WINSSINGER), 1883, A., 659; 1884, A., 1127.
- Oxytetrazotic acids** (LOSSEN), 1891, A., 1038.
- Oxytetric acid.** See Mesaconic acid.
- Oxythiacetone** (SPRING), 1884, A., 580.
- Oxythiazoles,** conversion of ketone thiocyanates into (ARAPIDES), 1889, A., 413.
- reduction of, to thiazoles (ARAPIDES), 1889, A., 413.
- Oxythiodiphenylimide** (BERNTHSEN), 1885, A., 260.
- constitution of (BERNTHSEN), 1886, A., 55.
- Oxythiomolybdates** (KRUS), 1884, A., 1208.
- Oxytiglic acid** (MELIKOFF), 1886, A., 1009.
- Oxytolylic acid.** See Dibenzylglycollic acid.
- Oxytriseleniocarbamide,** and its derivatives (VERNEUIL), 1885, A., 376.
- Oxytropine** (LADENBURG and ROTH), 1881, A., 761.
- Oxyurashic acid** (YOSHIDA), 1883, T., 186.
- Oxywrightine.** See Oxyconessine.
- Ozokerite,** (Aureasian) (BEILSTEIN and WIEGAND), 1883, A., 1073.
- from Galicia (GRABOWSKI), 1885, A., 487.
- from New Jersey (SMITH), 1885, A., 356.
- process for bleaching (CHEMIN), 1885, A., 101.
- complete chlorination of (HARTMANN), 1891, A., 812.

**Ozokerite**, valuation of (LACH), 1885, A., 1266.  
 detection of, in bees-wax (HAGER), 1890, A., 421.  
 See also Mineral wax and Paraffin.

**Ozone** from pure oxygen (SHENSTONE and CUNDALL), 1887, T., 610; P., 75.  
 formation of (KAPPEL), 1883, A., 282; (THOMSON and THRELFALL), 1887, A., 327.  
 formation of, during combustion (LOEW), 1890, A., 330; (ILONVAY), 1890, A., 447.  
 formation of, in flames (CUNDALL), 1890, P., 26; (ILONVAY), 1891, A., 798.  
 formation of, in the electrolysis of aqueous sulphuric acid (MCLEOD), 1886, T., 591.  
 connection of the formation of, with atmospheric electricity (WURSTER), 1887, A., 211.  
 formation of, in presence of platinum-black (MULDER and VAN DER MEULEN), 1883, A., 284.  
 production of, by the electrical discharge (BICHAT and GUNTZ), 1888, A., 1234.  
 production of, by the slow oxidation of phosphorus (ENGEL), 1886, A., 302.  
 two properties of, explanation of (DEBES), 1888, T., 324.  
 spectrum of, and the presence of, in the atmosphere (SCHONE), 1885, A., 713.  
 electrical conductivity due to the formation of (ELSTER and GEITEL), 1890, A., 676.  
 boiling point of (OLSZEWSKI), 1887, A., 634; 1889, A., 821.  
 volumetric relations of oxygen and (SHENSTONE and CUNDALL), 1887, T., 625; P., 76.  
 reactions of (WAGNER), 1884, A., 259.  
 action of, on ether (DUNSTAN and DYMOND), 1890, T., 584.  
 action of, on guaiacum resin (KOWALEWSKY), 1889, A., 900.  
 rate of decomposition of (MULDER), 1886, A., 9.  
 influence of, on germination (VOGEL), 1887, A., 516.  
 therapeutic and physiological effects of (LABBE and OUDIN), 1891, A., 1531.  
 behaviour of, with blood (BINZ), 1883, A., 486; 1884, A., 95.  
 estimation, volumetric, of (BEHREND and KAST), 1890, A., 290.  
 See also Oxygen, active.

*Ozothellia nodosa*, gases contained in the bladders of (WILLE), 1890, A., 916.

## P.

**Pachnolite** (KLEIN), 1883, A., 427; (GROTH), 1884, A., 265; (DES CLOIZEAUX), 1884, A., 716.  
 from Colorado (CROHN and HILLEBRAND), 1884, A., 21.  
 chemical composition of (BRANDL), 1883, A., 29.

*Pachyrhizus angulatus*, poisonous principle from (GRELHOFF), 1891, A., 335.

**Paeonol** (NAGAI), 1892, A., 58.

**Paeonol-oxime** and **-phenylhydrazone** (TIEMANN), 1892, A., 59.

**Paint**, waterproof, for stones, etc. (ANON), 1883, A., 760.

**Paints**, estimation of turpentine in (PHILLIPS), 1891, A., 1302.

**Palaeopierite** of Amelose and its alteration products (BRAUNS), 1888, A., 34.  
 from Stoppenberg in the Harz (LONSEN), 1889, A., 573.

*Palinurus vulgaris*, blood of (GRIFFITHS), 1892, A., 648.

**Palladium**, atomic weight of (KEISER), 1890, A., 17; (SEUBERT), 1891, A., 885; (BAILEY and LAMB), 1892, T., 745; P., 138.  
 electric properties of, when containing hydrogen (FROMME), 1883, A., 766.  
 absorption of oxygen by (NEUMANN), 1892, A., 943.  
 occlusion of hydrogen by (SCHIFF), 1885, A., 1035; (THOMA), 1889, A., 568; (WILM), 1892, A., 563; (NEUMANN and STEINITZ), 1892, A., 567.  
 action of nitric oxide on (SABATIER and SENDELENS), 1892, A., 1152.  
 behaviour of, in chromic and nitric acids (FROMME), 1883, A., 699, 766.  
 direct oxidation of (WILM), 1892, A., 572.  
 lowering of the freezing point of bismuth, cadmium and lead by (HEYCOCK and NEVILLE), 1892, T., 894, 900, 906.  
 influence of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 380.  
 non-magnetisable alloys of, for watch works (PAILLARD), 1889, A., 573.

**Palladium chlorides**, electrolytic conductivity of (HAMPE), 1888, A., 890.

- Palladium ammonium chloride**, action of hydrogen sulphide on (SMITH and KELLER), 1891, A., 272.  
 monoxide (*pallidous oxide*) (WILM), 1892, A., 572.  
 potassium chloronitrite (VÉZES), 1892, A., 1284.
- Palladium, estimation and separation**:—  
 estimation, electrolytic, of (SMITH and KELLER), 1890, A., 831; (SMITH), 1891, A., 1140.  
 separation of gold from (SMITH and MUHR), 1891, A., 1396.  
 separation of mercury, lead, copper, bismuth, and, from one another (ROSENBLADT), 1887, A., 302.
- Palladium-gold, native**. See Porpezite.
- Palladium-hydrogen** as a reagent (SCHWARZENBACH and KRITCHENSKY), 1886, A., 1071.  
 co-operation of water in the slow oxidation of (TRAUBE), 1885, A., 1105.  
 See also Hydrogen.
- Pallasite** from Campo de Pucará (COHEN), 1887, A., 904.
- Pallasites**, the prehistoric and Kiowa Co. (HUNTINGTON), 1892, A., 1059.
- Palm cake**. See Agricultural Chemistry.
- Palmellin** (*aspergillin*) (LINOSSIER), 1891, A., 751, 1089; (PHIPSON), 1891, A., 845.
- Palmitanilide** (HELL and IORDANOFF), 1891, A., 821.
- Palmitic acid** (CHITTENDEN and SMITH), 1885, A., 508.  
 preparation of (KRAFFT), 1888, A., 1087.  
 action of bromine on (KRAFFT and BÉDDIES), 1892, A., 696.  
 complete chlorination of (HARTMANN), 1891, A., 811.  
 oxidation of (CARETTE), 1886, A., 611; (GRÜGER), 1888, A., 250.  
 derivatives of (HELL and IORDANOFF), 1891, A., 820.  
 aluminium salt of, application of (LIEBER), 1883, A., 405.  
 $\alpha$ -amido-,  $\alpha$ -bromo-, and cyano- (HELL and IORDANOFF), 1891, A., 820.
- Palmitic chloral** (CLAUS and v. DRESEN), 1891, A., 535.
- Palmitins** (CHITTENDEN and SMITH), 1885, A., 508.
- Palmitone** (*dipentadecyl ketone*), preparation of (KIPPING), 1890, T., 985.
- Palmitoneoxime** (KIPPING), 1890, T., 986.
- Palmitonitrile**, conversion of, into hexadecylamine (KRAFFT and MOYE), 1889, A., 688.
- Palmityl chloride** (KRAFFT and BURGER), 1884, A., 1125.
- Palm-nut meal** (HOLDEFLEISS), 1884, A., 631.  
 estimation of fat in (v. WILM), 1885, A., 290, 1161.
- Palm-nut oil residue** as fodder (MARCK-ER), 1884, A., 355.
- "Paná salt,"** preparation and analysis of (WARDEN), 1883, A., 822.
- Panary fermentation**, bacillus of (LAURENT), 1887, A., 70.
- Pancrastite** (ANON.), 1884, A., 1452.
- Pancreas**, effect of extirpation of, on the absorption of fat (MINKOWSKI), 1890, A., 1171.
- Pancreatic extract**, pentamethylene-diamine in (WERIGO), 1892, A., 1368.  
 action of, on casein (EDKINS), 1891, A., 1272.  
 ferment, changes which proteid matters undergo by the action of (OTTO), 1884, A., 1056.  
 gland of the ox, base in (KOSSEL), 1885, A., 566.  
 juice, influence of bile on the fat-splitting properties of (RACHFORD), 1891, A., 948.  
 influence of, on the colour of the dejections (WALKER), 1890, A., 397.
- Pandermite**. See Priceite.
- Pangium edule**, free hydrocyanic acid in (GRESHOFF), 1891, A., 338.
- Panicol**, decomposition products of (KASNER), 1888, A., 1183.
- Pansy**, cultivated, salicylic acid in (GRIFFITHS and CONRAD), 1885, A., 75.
- Papain** (MARTIN), 1886, A., 74.  
 action of, on vegetable proteid (MARTIN), 1886, A., 642.  
 digestion (MARTIN), 1886, A., 641.
- Papaver Rhoeas**, morphine from (HENSE), 1890, A., 646.
- Papaveraceæ**, alkaloids from (SCHMIDT), 1889, A., 62.
- Papaveraldine** (GOLDSCHMIEDT), 1886, A., 478.
- Papaverine** and its compounds. See under Alkaloids.
- Papaverinic acid** and its derivatives (GOLDSCHMIEDT), 1885, A., 1080; (GOLDSCHMIEDT and STRACHE), 1889, A., 1016; 1890, A., 180.  
 phenylhydrazine (GOLDSCHMIEDT), 1886, A., 479.

- Papaveroline** (GOLDSCHMIEDT), 1886, A., 479; (KRAUSS), 1891, A., 85.
- Papaw juice**, proteids in (MARTIN), 1886, A., 642.
- Paper**, combustibility of, effect of various substances on the (MAYER), 1890, A., 1458.
- formation of active oxygen in (WURSTER), 1887, A., 211.
- cause of the acid reaction exhibited by some kinds of (HAERLIN), 1883, A., 260, 759; (FLEICHTINGER), 1883, A., 696; (HARTLEY), 1892, P., 19; (BEADLE), 1892, P., 84.
- action of nitric acid on (FRANCIS), 1885, T., 183.
- incombustible (MEYER), 1884, A., 379; (HERRE), 1885, A., 315.
- wall-, estimation of arsenic in (SANGER), 1892, A., 382.
- weatherproof, preparation of (HERRE), 1885, A., 315.
- Papers**, wood-, percentage of water in (LEPSIUS), 1886, A., 112.
- estimation of wood fibre in (WURSTER), 1887, A., 620; (GODEFFROY and COULON), 1890, A., 670.
- Paper-making**, use of talc in (MACADAM), 1887, A., 452.
- Paper-pulp**, new method of manufacturing (ARCHBOLD), 1883, A., 759.
- Paposite** (DARAPSKY), 1890, A., 456.
- Parabanic acid** (*orallycarbamide*), thermochemistry of (MATIGNON), 1891, A., 1449.
- action of ammonia on (RUDINSKAIA), 1886, A., 141.
- Paraconic acid** (BEER), 1883, A., 457.
- Paracyanogen**. See under Cyanogen.
- Paraffin**, solubility of, in various solvents (PAWLEWSKI), 1889, A., 82.
- freezing points of solutions of (PAWLEWSKI), 1890, A., 463.
- liquid, as a reagent for the presence of water in alcohol, ether, and chloroform; and its use in the preparation of hydriodic and hydriodic acids, and of the alkyl iodides (CRISMER), 1884, A., 1073.
- solid, fused, and in solution, specific gravity of (BEILBY), 1883, T., 388.
- detection of, in bees-wax (HAGER), 1890, A., 421.
- estimation of (ZALOZIECKI), 1888, A., 759; (PAWLEWSKI and FILEMONOWICZ), 1889, A., 83.
- stearin, stearic acid and wax, analysis of a mixture of (JEAN), 1891, A., 1400.
- See also Ozokerite.
- Paraffinoid carboxylic acids**, isomerism of (MICHAEL), 1886, A., 687.
- Paraffin-oil**. See Petroleum.
- Paraffin-shale** from Servia (GRIFFITHS), 1884, A., 879.
- Paraffins** (LACHOWICZ), 1884, A., 166; (SORABJI), 1885, T., 37.
- preparation of (KÖHNLEIN), 1883, A., 787.
- from Pennsylvanian petroleum, physical properties of (BARTOLI and STRACCIATI), 1885, A., 859; 1886, A., 215.
- of the acetylene series (BLHAL), 1889, A., 839.
- of the methane series, nitration of (KONOWALOFF), 1892, A., 575.
- liquid, action of heat on (NORTON and ANDREWS), 1886, A., 604.
- normal (SCHORLEMMER and THORPE), 1883, A., 651.
- calculation of the melting and boiling points of (HINRICHS), 1891, A., 1330; 1892, A., 797.
- boiling point curves for (HINRICHS), 1892, A., 947.
- higher normal (KRAFFT), 1886, A., 998.
- isolation of, from brown coal paraffin (KRAFFT), 1888, A., 1047.
- derivatives of (LACHOWICZ), 1884, A., 166.
- absorption of the ultra-violet rays by (SORET and RILLIET), 1890, A., 434.
- substituted, proposed division of, into two distinct types (HENRY), 1884, A., 730.
- bromo-derivatives of, formation of, from alcohols (NIEMIŁOWICZ), 1890, A., 465.
- mononitro-derivatives of, action of benzaldehyde on (PRIEB), 1884, A., 313.
- nitro-, constitution of (KISSEL), 1885, A., 364.
- See also Hydrocarbons and Olefines.
- Paraffin-series**, synthesis in the, by means of aluminium chloride (COMBES), 1887, A., 656.
- Perkin's reaction in the (SCHNEEGANS), 1885, A., 649.
- Paraffin-wax**, stearin and stearic acid, analysis of a mixture of (JEAN), 1891, A., 1400.
- Paragalactan** (SCHULZE and STEIGER), 1890, A., 285.
- Paragalactan-like substances** (SCHULZE, STEIGER and MAXWELL), 1890, A., 284.

- Paragalactin** (SCHULZE and STEIGER), 1887, A., 460.
- Paraglycogen** (BUNSCHELI), 1886, A., 87.
- Paragonite** from the Zillerthal, Tyrol (CATHREIN), 1889, A., 23.
- Paragonite schist** from the Ural (ARZRUNI), 1887, A., 351.
- Paraguay tea** (*mats*) (SELLIN), 1884, A., 354; (PECKOLT), 1884, A., 479.
- Parahæmoglobin**. See under Hæmoglobin.
- Paralactic acid**. See under Lactic acid.
- Paralbumin**. See under Albumin.
- Paraldehyde**. See under Acetaldehyde.
- Paraldimine** (*imidoparaldehyde*) and its amido-derivative (CURTIUS and JAY), 1890, A., 735.
- Paraleucaniline**. See under Leucaniline.
- Paramelaconite** (KÖNIG), 1892, A., 415.
- Paramyosinogen** (HALLIBURTON), 1887, A., 984.
- Pararosaniline**. See under Rosaniline.
- Parasites**, vegetable, action of ferrous sulphate on (GRIFFITHS), 1886, T., 119.
- Parasitic diseases** of plants, and their prevention (DANGER), 1883, A., 110.
- Parenchyma**, living, osmotic functions of (WESTERMAIER), 1884, A., 1403.
- Pargasite** from Fiskernas, Greenland (USSING), 1890, A., 19.  
chemical composition of (IGELSTROM), 1886, A., 29.
- Parpevoline** (JAECKLE), 1888, A., 1104; (DURKOPF and GOTSCH), 1890, A., 796.
- Parqueterie flooring**, substitute for (JULHE), 1885, A., 707.
- Parsnips**, cooked, composition of (WILLIAMS), 1892, T., 227.
- Parvoline**. See Dimethylethylpyridine.
- Pasture**. See Agricultural Chemistry.
- Patchouli**, stearopten from essence of (MAISCH), 1885, A., 394.
- Patella vulgata**, nephridia and liver of (GRIFFITHS), 1888, A., 178.
- "**Patent block composition**," HARRIS Hewitt's (BELLMEI), 1884, A., 1038.
- Patina**, formation of (STEINER), 1885, A., 308.  
imitation of (DONATH), 1884, A., 1444.
- Peach-gum**, carbohydrates in (STONE), 1890, A., 1022.  
saccharine matter in (BAUER), 1888, A., 744.
- Peach kernels**, albuminoids in (RITT-HAUSEN), 1883, A., 360.
- Peach oil** (MABEN), 1886, A., 644.
- Pea-nut**. See Earth-nut under Agricultural Chemistry.
- Pea-nut oil**. See Earth-nut oil under Oils, vegetable.
- Pearls**, composition of (G. and H. S. HARLEY), 1889, A., 179.
- Peas**, fat from (JACOBSON), 1889, A., 296.  
cooked, composition of (WILLIAMS), 1892, T., 227.  
See also Agricultural Chemistry.
- Peat**, hydrocarbons and fatty acids from (DURIN), 1883, A., 652.  
experiments on the nitrogen of (REDER), 1885, A., 188.  
See also Agricultural Chemistry.
- Peaty waters**, self-purification of (HARTLEY), 1884, A., 781.
- Pectic acid**, so-called artificial, from fir-wood (LINDSEY and TOLLENB.), 1892, A., 827.
- Pectic acids**, *meta*- and *para*- (HERZFELD), 1892, A., 291.
- Pectic compounds** in plants (MANGIN), 1890, A., 80; (HERZFELD), 1892, A., 291.
- Pectin**, sugar from (BAUER), 1891, A., 413.
- Pectolite** from Alaska, analysis of (FISCHER), 1886, A., 210.  
from Auchenserry quarry, Kilsyth (YOUNG), 1887, A., 645.  
from Disco Island (CHESLER), 1887, A., 733.  
from Lehigh Co., Pa. (SMITH), 1885, A., 960.  
artificial (DOELIER), 1886, A., 517.  
analysis of (CLARKE and CHAPARD), 1885, A., 491.
- Pectose** (URBAIN), 1881, A., 860.  
estimation of, in vegetables (SRONI), 1892, A., 247.
- Pedetic motion** in relation to colloidal solutions (RAMSAY), 1892, P., 17.
- Peganum Harmala** seed (FISCHER and TAUBER), 1885, A., 821.
- Pegmatite** on the borders of Vizézy, near Montbriçon (GONNARD), 1885, A., 131.  
apatite in (GONNARD), 1883, A., 432.  
containing large crystals of chlorophyllite (GONNARD), 1885, A., 34.
- ψ-Pelletierine** (CIAMICIAN and SILBER), 1892, A., 1110.
- "**Peltier's heat effect**," relation of, to the available energy of a galvanic element (GÖCKEL), 1885, A., 856.
- Penicillium glaucum**, action of, on fumarates and malcates (BÜCHNER), 1892, A., 820.

- Penicillium glaucum*, resolution of inactive lactic acid by (LISSIER), 1892, A., 297.
- Penninita** (*pennine*) from Zermatt (SCHLAEFFER), 1891, A., 531.  
See also Chlorite.
- Pentabenzoyl-dextrose and -galactose** (SKRAUP), 1889, A., 1130, 1152.
- Pentabenzoylglucosamine** (PUM), 1892, A., 134.
- Pentabenzoyl-maltose and -mannitol** (SKRAUP), 1889, A., 1153, 1152.
- Pentacetylcellulose** (CROSS and BEVAN), 1889, P., 133.
- Pentacetyl-dextrose and -galactose** (ERWIG and KOENIGS), 1889, A., 952, 1131.
- Pentacetylhydroxyanthranol** (LIEBERMANN), 1888, A., 717.
- Pentacetyllevulose** (ERWIG and KOENIGS), 1890, A., 732.
- Pentacetylxylytol** (BERTRAND), 1892, A., 29.
- Pentadecic acid** (LIEBERMANN and BERGAMI), 1887, A., 651.
- Pentadecyl *p*-tolyl ketone** (KRAFFT), 1888, A., 1037.
- Pentadecylacridine** (VOLPI), 1892, A., 343.
- Pentadecyldiphenylic tricyanide** (KRAFFT and V. HANSEN), 1889, A., 697.
- Pentaglucose**. See Pentose under Carbohydrates.
- Pentahydroxyanthraquinoline** (GRAEBE and PHILIPS), 1891, A., 1240.
- Pentahydroxyanthraquinone** (NOAH), 1886, A., 556.  
See also Alizarincyanin R.
- Pentahydroxyaurindicarboxylic acid** (CARO), 1892, A., 1469.
- Pentahydroxyhexoic acid** (KILIANI), 1887, A., 465.
- $\alpha$ -Pentahydroxypimelic acid and lactone** (KILIANI), 1886, A., 936.
- $\beta$ -Pentahydroxypimelic acid** (FISCHER), 1892, A., 1169.
- Pentallylcarbindimethylamine and pentallylcarbintrimethylammonium iodide** (MERLING), 1891, A., 1508.
- Pentamethylamidotriphenylcarbinol** (WICHELHAUS), 1886, A., 362.
- Pentamethylaniline and its derivatives** (v. HOFMANN), 1883, A., 324; 1885, A., 1128.
- Pentamethylbenzamide** (JACOBSEN), 1889, A., 876.
- Pentamethylbenzene**, heats of combustion and formation of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1042.
- Pentamethylbenzene**, action of nitric acid on (GOTTSCHALK), 1888, A., 261.  
action of sulphuric acid on (JACOBSEN), 1886, A., 695; 1887, A., 660.  
chloro- (TOHL), 1892, A., 968.
- Pentamethylbenzenesulphonic acid and its derivatives** (JACOBSEN), 1887, A., 660.
- Pentamethylbenzenethiocarbamide** (v. HOFMANN), 1885, A., 1129.
- Pentamethylbenzoic acid** (JACOBSEN), 1889, A., 876.
- Pentamethyl-benzonitrile and -benzisonitrile** (v. HOFMANN), 1885, A., 1129.
- Pentamethyldihydropyridine** (ANDERLINI), 1890, A., 67.
- Pentamethyldihydropyrroline**, action of methylic iodide on (ANDERLINI), 1890, A., 1431.
- Pentamethyldihydroquinoline** (ZATTI and FERRARINI), 1892, A., 615.
- Pentamethylene-derivatives** (PERKIN), 1887, T., 240; P., 12; (COLMAN and PERKIN), 1887, P., 96; 1888, T., 155.  
conversion of, into benzene, pyridine and thiophen derivatives (HANTZSCH), 1890, A., 129.
- Pentamethylenediamine** (*cadaverine*) and its derivatives (LADENBURG), 1883, A., 910; 1886, A., 523; 1887, A., 125, 1057; (BOCKLISCH), 1887, A., 742; (GUSTAVSON and DEMJANOFF), 1889, A., 950; (WERIGO), 1892, A., 1368.  
in cystinuria (v. UDRÁNSZKY and BAUMANN), 1889, A., 1024.  
preparation of (LADENBURG), 1886, A., 139.  
magnetic rotatory power of (PERKIN), 1889, T., 698, 732.  
hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1001.  
platinothiocyanate (GUARESCHI), 1892, A., 287.  
See also Gerontine, Neuridine, and Saprine.
- Pentamethylene-1:2-dicarboxylic acid** (PERKIN), 1886, A., 225; 1887, T., 244.  
thermochemistry of (STOHMANN and KLEBER), 1892, A., 1040.  
dissociation constant of (WALKER), 1892, T., 706.
- Pentamethylene-1:2-dicarboxylic anhydride** (PERKIN), 1887, T., 247.
- Pentamethylenedinitramine** (FRANCHIMONT and KLOBBE), 1889, A., 492.
- Pentamethylene-ring**, breaking the (HANTZSCH), 1890, A., 1091.

- Pentamethylenetetracarboxylic acid** (PERKIN), 1886, A., 225.
- Pentamethylenetetramine**, *dimino-o-* (GRIESS and HARROW), 1888, A., 1268.
- Pentamethylenic bromide** (GUSTAVSON and DEMJANOFF), 1889, A., 950.
- Pentamethylenic glycol**. See *Pentyl-  
enic glycol*.
- Pentamethylenimine** (LADENBURG), 1886, A., 139.
- Pentamethylethyltrimethylenetri-  
sulphone** (CAMPS), 1892, A., 593.
- Pentamethylhexahydropyridine** (*di-  
methylcopellidine*) and its iodide (DÜRKOFF), 1885, A., 817.
- Pentamethylparaleucaniline** (FISCHER and KÖRNER), 1884, A., 607.
- Pentamethylleucothionine** and its dimethiodide (BERNTSEN), 1886, A., 54.
- Pentamethylphenol**, and its methyl ether (v. HOFMANN), 1885, A., 1129.
- Pentamethylphenyl methyl ketone** (JACOBSEN), 1889, A., 875.
- Pentamethylphenylglyoxylic acid** (JACOBSEN), 1889, A., 875.
- Pentamethylphloroglucinol** (MARGULIES), 1889, A., 497; (SPITZER), 1890, A., 1110.
- Pentamethylpararosanine** (FISCHER and GERMAN), 1883, A., 1097.
- Pentamethyltetrahydroquinoline** (ZATTI and FERRATINI), 1892, A., 615.
- Pentaminechlorozalic acid**, iridium salt of (PALMAER), 1891, A., 403.
- Pentane**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- tri-* and *tetra-*bromo- (HELL and WILDERMANN), 1891, A., 162, 534.
- nitro-*, action of zinc ethyl on (BEWAL), 1889, A., 1127.
- Pentane flame**, experiments on (SMITH-ELLS and INGLE), 1892, T., 210.
- Pentanesulphonic acid** (*amylsulphonic acid*), action of chlorine on (SPRING and WINSINGER), 1881, A., 1127.
- Pentane-1:1:5:5-tetracarboxylic acid** (PERKIN), 1887, T., 212.
- preparation and properties of (PERKIN and PRENTICE), 1891, T., 821.
- action of sodium on (PERKIN), 1886, A., 225.
- homologues of, synthesis of (PERKIN and PRENTICE), 1891, T., 818.
- Pentanetricarboxylic acid** (*propyl-  
diametricarboxylic acid*) and its salts (WALTZ), 1883, A., 46.
- Pentane-1:3:5-tricarboxylic acid** (EMERY), 1891, A., 547.
- Pentarabinantetragalactangeddic acid** (O'SULLIVAN), 1891, T., 1070.
- $\alpha$ -Pentaresorcinoldichroin ether**, chloro- (BRUNNER and CHUIT), 1888, A., 1182.
- Pentathionic acid and pentathionates**. See under Sulphur.
- Pentathiophen group** (KRECKELER), 1887, A., 239.
- Pentene**. See *Amylene*.
- Pentenoic acids**. See *Allylacetic acid*, *Angelic acid*, *Dimethylacrylic acid*, *Ethylidenepropionic acid*, *Propylidenecacetic acid*, *Tetramethylenecarboxylic acid* and *Tiglic acid*.
- Pentenyl alcohol** (*methylisopropyl-  
carbinol*) (KONDAKOFF), 1886, A., 137; 1888, A., 125.
- See also *Ethylvinylcarbinol* and *Methylallylcarbinol*.
- Pentenylbenzene** (DAFERT), 1883, A., 1094.
- Pentenylglycerol**. See *Trihydroxy-  
pentane*.
- Penterythritol** (TOLLENS and WIGAND), 1892, A., 127.
- thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.
- Pentethylbenzene and its derivatives** (JACOBSEN), 1889, A., 40.
- chloro- (ISTRATI), 1886, A., 231.
- Pentethylbenzenesulphone** (JACOBSEN), 1889, A., 40.
- Pentethylbenzenesulphonic acid**, salts of (JACOBSEN), 1889, A., 40.
- Pentethylphloroglucinol** (HERZIG and ZEISFEL), 1888, A., 822.
- bisecundary, oxidation of (ULRICH), 1892, A., 1188.
- Pentic acid** (*ethylsuccinosuccinic acid*) (FITTIG), 1883, A., 1085; (WEDEL), 1884, A., 835.
- molecular weight of (MOSCHELES and CORNELIUS), 1888, A., 489.
- phenylhydrazide of (MOSCHELES and CORNELIUS), 1888, A., 1272.
- Pentinene** (*dimethylallylene*), properties and transformation of (ALBITZKY), 1888, A., 797.
- action of hydrogen chloride on (KONDAKOFF), 1889, A., 1127.
- conversion of, into *isopropylacetylene* (FAWORSKY), 1888, A., 1169.
- (*isoprene*) (TILDEN), 1883, A., 75; 1884, T., 415.
- refraction and dispersion equivalents of (GLADSTONE), 1886, T., 619.
- spontaneous conversion of, into *caoutchouc* (TILDEN), 1892, A., 1482.

- Pentinene** (*methylethylacetylene*), conversion of, into propylacetylene (FAWORSKY), 1888, A., 1168.  
 (*isopropylacetylene*), preparation of, from methyl isopropyl ketone (BÉHAL), 1888, A., 930.  
 (*piperylene*), bromination of (MAGNANINI), 1887, A., 457.  
 nitrogen chloride (LELLMANN and GELLER), 1888, A., 970.
- Pentineneamine-phthalein**, and its di-bromide (PIUTTI), 1884, A., 452.
- Pentinenephthalamic acid** (PIUTTI), 1884, A., 452.
- Pentone**, *tetrathio-* (FROMM and BAUMANN), 1889, A., 852.
- Pentonic acid** (FISCHER and PILORY), 1892, A., 437.
- Pentosans** of woody vegetable fibre (SCHULZE and TOLLENS), 1892, A., 1420.
- Pentose** (*pentagluco-*). See Carbohydrates.
- Pentoxazolines** (ELFELDT), 1892, A., 213.
- Pentyl-**. See Amyl-.
- Pentylene glycol** (1:4-) (FREER and PERKIN), 1887, T., 836; A., 33; (LIPP), 1890, A., 20.  
 (1:5-) (GUSTAVSON and DEMJANOFF), 1889, A., 950; (DEMJANOFF), 1892, A., 1292.  
 (2:3-) oxidation of (v. PECHMANN), 1890, A., 1222.
- "Peonine,"** or "red aurin" (DALE and SCHOENLEMMER), 1883, T., 186.
- Peonol** (WILL), 1886, A., 906.  
 synthesis of (TAHARA), 1891, A., 1223.
- Peperite** of the Puy de la Piquette (GONNARD), 1888, A., 121.
- Pepper**, volatile alkaloid in (JOHNSTONE), 1889, A., 298.  
 piperidine in (JOHNSTONE), 1890, A., 95.  
 adulteration of (RABOURDIN), 1885, A., 303; (LANDRIN), 1885, A., 451.  
 analysis of (HEISCH), 1887, A., 312; (JOHNSTONE), 1890, A., 95.  
 test for the addition of ground olive stones to (GILLET), 1889, A., 88.
- Pepper oil**, black (EBERHARDT), 1887, A., 969.
- Pepper powder** (LENZ), 1885, A., 701.
- Peppermint oil**. See Oils, vegetable.
- Pepsin**. See Enzymes.
- Pepsinogen** (LANGLEY and EDKINS), 1886, A., 1051.
- Peptone** blood, gases of (LAHOUSSE), 1889, A., 531; (BLACHSTEIN), 1892, A., 363.
- Peptone gelatin** (TATARINOFF), 1884, A., 344; (CHITTENDEN and SOLLEY), 1891, A., 950.
- Peptone**, malt- (SZYMANSKI), 1885, A., 822.
- Peptone salts** from glutin (PAAL), 1892, A., 895; (BOFFINGER), 1892, A., 1016.
- Peptones** (v. POEHL), 1883, A., 926; (KUHN and CHITTENDEN), 1886, A., 819; (NEUMEISTER), 1888, A., 509; (SEBELLIEN), 1890, A., 182.  
 distribution of, in the animal body (HOFMEISTER), 1883, A., 675.  
 in the blood and organs of leucæmic patients (v. JAKSCH), 1892, A., 519.  
 in the blood and urine (GEORGES), 1887, A., 138.  
 in hen's eggs during incubation (FISCHER), 1886, A., 166.  
 in fibromata of the uterus (FISCHER), 1886, A., 167.  
 from proteid matters by the action of pancreatic ferment (OTTO), 1884, A., 1057.  
 proportion of, in the gastric mucous membrane (HOFMEISTER), 1883, A., 677.  
 formation of (CLERMONT), 1888, A., 167.  
 formation of, and its conversion into albuminoid substances (v. POEHL), 1883, A., 603.  
 formation of, in gastric digestion (CHITTENDEN and HARTWELL), 1891, A., 953.  
 preparation of (MERCK), 1886, A., 1051.  
 constitution of (SCHUTZENBERGER), 1892, A., 1500.  
 chemical nature of (PALM), 1888, A., 972.  
 molecular weights of (CIAMICIAN and ZANETTI), 1892, A., 1501.  
 capillarimetric distinction between albuminoids, gelatin and (BODLANDER and TRAUBE), 1886, A., 1087.  
 effect of, on the clotting of blood and lymph (SHORE), 1891, A., 481.  
 formation of sugar from, in blood (LÉPINE), 1892, A., 1502.  
 the source of sugar in the liver (SEEGEN), 1883, A., 818.  
 conversion of, by the liver (SEEGEN), 1886, A., 382.  
 physiological action of (NEUMEISTER), 1888, A., 516.  
 as a pyrexial agent (OTT and COLLMAR), 1888, A., 1325.  
 fate of (SHORE), 1891, A., 479.

- Peptones**, behaviour of bile acids with (MALY and EMICH), 1883, A., 673.  
 decomposition of, in the human body (GRAFFENBERGER), 1892, A., 904.  
 reactions of (NEUMEISTER), 1890, A., 804.  
 commercial, examination of (KONIG and KISCH), 1889, A., 803.  
 precipitation of (MARTIN), 1886, A., 636.  
 analysis of (DENAËYER), 1890, A., 1351; (HEATON and VASEY), 1892, A., 1535.  
 detection of (POSNER), 1888, A., 1140.  
 salicylsulphonic acid as a test for (MACWILLIAM), 1892, A., 552.  
 detection of, in urine (MARTIN), 1888, A., 764.  
 Tannet's reaction for, in urine (BRASSE), 1888, A., 204.  
 examination of urine for (MÉHU), 1885, A., 451.  
 estimation of, in stomach contents (RIVA-ROCCI), 1892, A., 1136.  
 estimation, volumetric, of, in urine (ROUX), 1892, A., 1264.  
 separation of albumin from (WEISKE), 1886, A., 1087; (PALM), 1888, A., 972.  
 separation of, from albuminous substances (KOSSEL), 1885, A., 573.  
**Antipeptone** (KÜHNE and CHITTENDEN), 1884, A., 849; 1886, A., 820.  
**Hemipeptone** (KÜHNE and CHITTENDEN), 1884, A., 849.  
**Myosinpeptone** (CHITTENDEN and GOODWIN), 1891, A., 950.  
**Propeptone** (HERRIN), 1884, A., 1388; 1886, A., 567.  
   from proteid matters by the action of pancreatic ferment (OTIO), 1884, A., 1057.  
   pyrogallol as a reagent for (AXENFELD), 1887, A., 1127.  
   detection of (POSNER), 1888, A., 1140.  
   See also Albumose and Proteoses.  
**ψ-Peptone** (NEUMEISTER), 1891, A., 235.  
**Ptomopeptone** (v. POEHL), 1883, A., 926.  
**Peptonic fermentation** (MARCANO), 1885, A., 181.  
   of meat (MARCANO), 1888, A., 1318.  
**Peptonisation** (CHANDELON), 1884, A., 1390; 1885, A., 1252.  
**Peptonised foods** (HORTON and SMITH), 1891, A., 953.  
**Peptotoxin** (SALKOWSKI), 1891, A., 1267.  
**erbromic acid**. See under Bromine.
- Perchloric acid**. See under Chlorine.  
**Percolation**, continuous, with boiling liquids, apparatus for (WILL), 1885, A., 631; (THRESH), 1885, A., 835.  
**Percylite** (WEBBSKY), 1888, A., 561.  
   from Chili (v. SANDBERGER), 1887, A., 902.  
*Perezia fruticosa*, pipitzahoic acid in the roots of (GREENISH), 1885, A., 396.  
**Perezinone and its salts** (MYLIUS), 1885, A., 778.  
**Perezone** (*pipitzahoic acid*) and its derivatives (GREENISH), 1885, A., 396; (ANSCHUTZ), 1885, A., 776; (MYLIUS), 1885, A., 777, 805; (ANSCHUTZ and LEATHER), 1885, A., 777; 1886, T., 709, 712; P., 229.  
   action of hydroxylamine and phenylhydrazine on (ANSCHUTZ and LEATHER), 1886, T., 728, 724.  
   dibromide and amido- (ANSCHUTZ and LEATHER), 1886, T., 720, 731.  
**Perezonoxime** (MYLIUS), 1885, A., 777; (ANSCHUTZ and LEATHER), 1886, T., 721.  
**Perfumes**, extraction of (NAUDIN), 1884, A., 378.  
**Perhydroanthracene** (LUCAS), 1888, A., 1201; 1890, A., 637.  
**Perhydrofluorene** (LIEBERMANN and SPIEGEL), 1889, A., 720.  
**Perhydrophenanthrene** (LIEBERMANN and SPIEGEL), 1889, A., 720; (LUCAS), 1890, A., 637.  
**Perhydropicene** (LIEBERMANN and SPIEGEL), 1889, A., 720.  
**Pericardial fluid**, chylous (HASEBROEK), 1888, A., 736.  
**Periclase** from Nordmarken (SJOGEN), 1889, A., 216.  
   artificial (ORTO and KLOOS), 1891, A., 991.  
   See also Magnesium oxide.  
**Peridinia**, pigments of the (SCHÜTT), 1890, A., 1172.  
**Peridinia-chlorophyllin and peridinin** (SCHÜTT), 1890, A., 1173.  
**Peridot** of Schelinger Matten (KNOP), 1887, A., 1086.  
**Peridotite** from Arkansas (BRANNER and BRACKETT), 1890, A., 345.  
   of Elliot Co., Kentucky (DILLER), 1886, A., 993; 1889, A., 680.  
   from the Harz (KOCH), 1891, A., 24.  
   of Iron Mine Hill, Cumberland, Rhode Island (WADSWORTH), 1889, A., 27.  
   in New York (WILLIAMS), 1886, A., 433; (SMYTH), 1892, A., 1057.

- Periodic acid and periodates.** See under Iodine.
- Periodic law** (CARNELLEY), 1885, A., 344; 1886, A., 503; (SPRING), 1887, A., 211; (MENDELLEFF), 1889, T., 634.  
history of the (NEWLANDS), 1884, A., 958.  
and the occurrence of the elements in nature (CARNELLEY), 1885, A., 13.  
approximate algebraic expression of the (CARNELLEY), 1891, A., 13.  
relation of certain properties of metals to the (ROBERTS-AUSTEN), 1889, A., 105; 1891, A., 1161.  
and mordants (PRUD'HOMME), 1891, A., 523.  
experimental researches on the (BRAUNER), 1889, T., 382; P., 94.
- Periodic property of the elements** (SUTHERLAND), 1891, A., 12.
- Periodic relations of the elements** (BASSETT), 1892, A., 562.
- Periodides.** See under Iodine.
- Perkin's reaction** (FITTING), 1883, A., 1122; 1885, A., 663; (PERKIN), 1886, T., 317; (SALOMONSON), 1888, A., 476; (REBUFFAT), 1891, A., 69.  
in the paraffin series (SCHNEEGANS), 1885, A., 649.  
synthesis of a sulphur-derivative of cinnamic acid by (LOVEN), 1886, A., 241.
- Permanganic acid and permanganates.** See under Manganese.
- Permeability of precipitated membranes** (TAMMANN), 1892, A., 1383.
- Permolybdic acid and permolybdates.** See under Molybdenum.
- Perovskite**, so-called, from Magnet Cove, Arkansas (MAR), 1891, A., 529.  
from Rymfischwang near Zermatt, analysis of (BRUN), 1884, A., 402.  
artificial production of (BOURGEOIS), 1884, A., 565.
- Peronospora viticola.** See Mildew in vines under Agricultural Chemistry.
- Peroxides, constitution of** (RICHAZ), 1888, A., 769; (TRAUBE), 1889, A., 939.  
electromotive force of thin layers of hydrated (SCHREBER), 1889, A., 661.  
as oxidising agents (POLLACCI), 1886, A., 507.  
reactions of (BERTHELOT), 1883, A., 425.  
estimation of the available oxygen in (DE KONINCK and LECRENIER), 1891, A., 1136.
- Peroxides of the alkaline earths, estimation of** (KASSNER), 1891, A., 245.  
estimation, volumetric, of (DIEHL), 1883, A., 242.
- Peroxyprotoic acid** (MALY), 1888, A., 1120.
- Per-ruthenic acid and per-ruthenates.** See under Ruthenium.
- Persbergite, analysis of** (IGELSTROM), 1886, A., 31.
- Perseitol** (*heptitol*; *perseite*). See Carbohydrates.
- Perspiration, chemistry of** (CAPRANICA), 1894, A., 189.  
secretion of, by the skin after taking alcohol (BODLANDER), 1888, A., 977.  
of animals. See Agricultural Chemistry.
- Perstannic anhydride.** See under Tin.
- Persulphuric acid and persulphates.** See under Sulphur.
- Perthiocyanic acids, *n*- and *iso*-** (KLASON), 1889, A., 227.
- Perthiocyanogen, preparation of, by electrolysis** (GOPPELSROEDER), 1885, A., 107.  
fixing of, in printing (SCHMID), 1884, A., 796.  
See also "Canarin."
- Perthiocyanoglycollic acid** (KLASON), 1889, A., 229.
- Perthiomolybdates.** See under Molybdenum.
- Pertitanic acid.** See under Titanium.
- Pertungstic acid.** See under Tungsten.
- Peru balsam.** See Balsam, Peru.
- Petalite from Maine** (CLARKE), 1892, A., 1411.  
from Uto, analysis of (SONDEN), 1883, A., 440.
- Petitgrain, oil of** ("*oil of petitgrain*") (SEMMLER and TIEMANN), 1892, A., 868.
- Petrographical purposes, application of a solution of barium-mercury iodide to** (ROHEBACH), 1883, A., 1060.
- Petrographical research, evidence afforded by, of chemical change under great pressure** (JUDD), 1890, T., 404; P., 35.
- Petrography of South West Africa** (WULF), 1890, A., 221.  
of the South West Brazilian frontier (MACHADO), 1888, A., 926.
- Petroleum, Mineral- and Paraffin-oils—**  
American, distillation of (MENDELLEFF), 1885, A., 708.

**Petroleum, Mineral- and Paraffin-oils—**

- American, hydrocarbons from, and their derivatives (LEMOINE), 1881, A., 1106.  
 Baku, acids from (ASCHAN), 1891, A., 1452.  
 acids poor in carbon from (ASCHAN), 1890, A., 737.  
 Burmese (ROMANIS), 1889, A., 949.  
 Caucasian (MARKOWNIKOFF and OGLOBLIN), 1884, A., 1276; (MARKOWNIKOFF), 1891, A., 185.  
 aromatic hydrocarbons in (DOROSHENKO), 1886, A., 142; (MARKOWNIKOFF), 1886, A., 1015.  
 constitution of hydrocarbons  $C_nH_{2n}$  from (MARKOWNIKOFF and SPADY), 1887, A., 922.  
 Galician (LACHOWICZ), 1884, A., 166.  
 bases in (BANDROWSKI), 1887, A., 979.  
*p*-xylene in (PAWLEWSKI), 1885, A., 1126.  
 examination of (NAWRATIL), 1883, A., 533.  
 Italian (PORRO), 1883, A., 1180.  
 Japanese, distilled, hydrocarbon from (DIVERS and NAKAMURA), 1885, T., 924.  
 Ohio, sulphur compounds in (MABERY and SMITH), 1891, A., 1172.  
 Pennsylvanian, complete chlorination of (HAUTMANN), 1891, A., 811.  
 Russian (BIEL), 1884, A., 936.  
 hydrocarbons of (LE BEL), 1887, A., 225.  
 formation of (ENGLER), 1888, A., 928.  
 constitution of (LE BEL), 1890, A., 223.  
 physical properties of (PAGLIANI), 1884, A., 277.  
 connection between illuminating power, flashing point and boiling point (ENGLER), 1886, A., 102.  
 heat conductivity of (CHREE), 1888, A., 642.  
 fractional distillation of, in a current of steam (RASINSKI), 1884, A., 936.  
 decomposition of, by heat (LISSENKO), 1888, A., 436.  
 absorption of gases by (GNIEWOSZ and WALFISZ), 1888, A., 342.  
 action of, on lead (FOX), 1888, A., 1249.  
 and the hydrocarbons of coal tar and shale tar, relations between (KRAMER and BÜTCHER), 1887, A., 648.

**Petroleum, Mineral- and Paraffin-oils—**

- adulteration of, by means of solar oil (HERPPE), 1885, A., 599.  
 process for solidifying (ROTH), 1885, A., 309.  
 lubricating, thickening material for (MARQUARDT), 1886, A., 651.  
 safety of (NEWBURY and CUTTER), 1889, A., 82.  
 alkaloid-like bases in (WELLER), 1887, A., 979.  
 pyridine-like bases in (ZALOZIECKI), 1892, A., 1857.  
 different, presence of  $\psi$ -cumene and mesitylene in (ENGLER), 1885, A., 1209.  
 products of the manufacture of gas from (ARMSTRONG and MILLER), 1885, P., 77.  
 natural, mineral matter in (LE BEL), 1889, A., 226.  
 constitution of the oxygen compounds in (ZALOZIECKI), 1891, A., 999.  
 raw, sulphur compounds in (MABERY and SMITH), 1890, A., 350.  
 testing for, in fat oils, oleins, and fuller's fat (FÖCKE), 1886, A., 581.  
 testing (STODDARD), 1883, A., 383, 517; 1884, A., 1431; (BEILSTEIN), 1884, A., 369, 500; (GRAY), 1892, A., 542.  
 testing in tropical climates with Abel's apparatus (ABEL and REDWOOD), 1884, A., 877.  
 detection of fat oils in (LUX), 1886, A., 103.  
 detection of resin oils in (VALENTA), 1885, A., 93; (STORCH), 1888, A., 536; (GRITNER), 1892, A., 548.  
 estimation of, in fat oils (GRITNER), 1891, A., 505.  
 estimation of resin oils in (DEMSKI and MORAWSKI), 1886, A., 282.  
 estimation of, in turpentine (BURTON), 1890, A., 669.  
 separation of, from saponifiable fats (KAWALOWSKI), 1887, A., 1001.  
**Petroleum-coke**, analysis of (LIDOFF), 1883, A., 408.  
**Petroleum gas**, action of sulphuric and hydrochloric acids on (LONATSONEWSKI-PETRUNIAKA), 1889, A., 187.  
 compressed, liquid hydrocarbons from (WILLIAMS), 1884, A., 879.  
**Petroleum lamps** (BIEL), 1884, A., 936; (SCHMELCK), 1885, A., 452.  
**Petroleum-residues**, sulphur compounds in (MABERY and SMITH), 1890, A., 350.

- Petroleum-residues**, recovery of paraffin and heavy oils from (DURIN), 1885, A., 463.
- Pettenkofer's reaction** (MYLIUS), 1837, A., 1149.
- Peucedanine** (*imperatorine*), reactions of (BROCINER), 1890, A., 310.
- Peziza aurantia** and *P. convexula*, orange-red colouring matter of (ROSOLI), 1884, A., 847.
- Phacellite** from Vesuvius (SCACCHI), 1891, A., 22.
- Phaeochlorophyll**. See Phyllocyanin.
- Phalaris arundinacea**, analyses of (WILSON), 1889, A., 1078.
- Phalaris canariensis**, composition of the seeds of (MAYER), 1889, A., 794.
- Phanerogams**, assimilation of free nitrogen by (FRANK), 1892, A., 370.
- Pharmacolite** (DUFET), 1888, A., 794.  
from Styria (HATLE and TAUSS), 1891, A., 21.  
from Volleg (HATLE and TAUSS), 1888, A., 429.  
from the Vosges (JANNETTAZ), 1890, A., 342.
- Pharmacosiderite** from Sandberg, Hungary (SZABÓ de St. MIKLÓS), 1886, A., 517.
- Phaseolus vulgaris**, nitrogen assimilation of (NOBBE, SCHMID, HILTNER and HOTTER), 1891, A., 1538.  
constituents of the seed pods of (LIKIERNIK), 1891, A., 606.  
galactan in the seeds of (MAXWELL), 1890, A., 917.
- Phaseomannite**. See Inosite under Carbohydrates.
- Phaseol** (LIKIERNIK), 1891, A., 606.
- Phellandrene**. See Terpenes.
- Phellandrium aquaticum** (PEBET), 1884, A., 331.
- Phellonic acid** (GILSON), 1891, A., 465.
- p-Phenacetide**, dinitro- (WENDER), 1890, A., 751.
- Phenacetin**, detection of antifebrin in (SCHRODER), 1889, A., 600.  
detection of, in urine (SESTINI and CAMPANI), 1892, A., 665.  
o-nitro- (AUTENRIETH and HINSBERG), 1892, A., 160.
- Phenacetolin** as an indicator (THOMSON), 1883, A., 682, 824; 1884, A., 691, 869.
- Phenaceturamide** (HOTTER), 1888, A., 1299.
- Phenaceturic acid**, and its derivatives (GIACOSA), 1884, A., 1061; (HOTTER), 1888, A., 1298.  
in the urine of horses (SALKOWSKI), 1885, A., 413.
- Phenaceturic acid**, synthesis of (HOTTER), 1887, A., 368.  
amido- and nitro- (HOTTER), 1888, A., 1299.
- p-Phenacetyl- $\alpha$ -diphenylacryl-amide** and -ethylamide (COHN), 1892, A., 483.
- Phenacite**. See Phenakite.
- Phenacyl compounds** (STAEDEL), 1888, A., 1093.
- Phenacylisoamyl-acetic** and -malonic acids (PAAL and HOFFMANN), 1890, A., 1100.
- Phenacylthylacetic acid** (DITTRICH and PAAL), 1889, A., 257.
- Phenacylthylamiliide** (WELLER), 1883, A., 582.
- Phenacylthylmalonic acid** (DITTRICH and PAAL), 1889, A., 257.
- Phenacylic bromide**. See Acetophenone,  $\omega$ -brom-.
- Phenacylic sulphide** (TAFEL and MAURITZ), 1891, A., 302.
- Phenacylphthalamic acid** (GOEDECKE-MEYER), 1888, A., 1294.
- Phenacylphthalimide** (GOEDECKE-MEYER), 1888, A., 1294.  
m-nitro- (SCHMIDT), 1890, A., 372.
- Phenacyl-p-toluidine** and m-nitro- (LELLMANN and DONNER), 1890, A., 524.
- Phenakite** (*phenacite*), artificial (MALARD), 1888, A., 348; (HAUTEFEUILLE and PERREY), 1888, A., 1044.  
from Colorado (CROSS and HILLEBRAND), 1883, A., 1065; (HIDDEN), 1885, A., 878; 1887, A., 118; (PENFIELD), 1887, A., 452; (PENFIELD and SPERRY), 1889, A., 356.  
from Maine (KUNZ), 1889, A., 24.
- Phenallyldihydroketo-m-diazine**. See Ketoallyldihydroquinazoline.
- Phenamido-**. See Phenylamido-.
- Phenanthrapiazine**. See 2:3-Dimethylpyrazine.
- Phenanthraquinol**,  $\alpha$ -diamido-, and its derivatives (KLEEMANN and WENSE), 1885, A., 1240.  
hydrochloride, p-amido-, and p-diamido- (ANSCHUTZ and MEYER), 1885, A., 1068.
- Phenanthraquinone** (KLINGER), 1886, A., 889.  
formula of (JAPP), 1883, T., 13.  
Laubenheimer's colour reaction for (ODERNHEIMER), 1884, A., 1038.  
action of acetamide on (MASON), 1888, P., 96; 1889, T., 107.

- Phenanthraquinone**, action of aldehydes on, under the influence of sunlight (KLINGER), 1889, A., 405.  
 action of ammonium formate on (LEUCKART), 1890, A., 784.  
 action of lead oxide on (WITTENBERG and MEYER), 1888, A., 804.  
 action of the chlorides of phosphorus on (LACHOWICZ), 1888, A., 666.  
 reduction of (JAPP and KLINGEMANN), 1890, P., 31.  
 condensation product of, with ethylic acetoacetate (JAPP and STREITFEILD), 1888, T., 27.  
 a mixture of, with acetone, action of potash on (JAPP and MILLER), 1885, T., 13, 17.  
 compounds of, with metallic salts (JAPP and TURNER), 1889, P., 160; 1890, T., 4.  
 derivatives of (STRASBURGER), 1884, A., 328.  
 dihydrocyanide (JAPP and MILLER), 1887, T., 32.  
 hydrocyanide, hydrolysis of (JAPP and MILLER), 1884, A., 329.  
 mercuric chloride and cyanide and zinc chloride (JAPP and TURNER), 1890, T., 5, 6, 7.  
**Phenanthraquinone**, 4-amido- (ANSCHÜTZ and MEYER), 1885, A., 1067.  
 2:2'-diamido- (ANSCHÜTZ and MEYER), 1885, A., 1067; (KLEEMANN and WENSE), 1885, A., 1240.  
 nitro- (LACHOWICZ), 1884, A., 82.  
**Phenanthraquinonediguanyl** (WENSE), 1886, A., 556.  
**Phenanthraquinonedioxime** (ANWERS and MEYER), 1889, A., 1202.  
 anhydride (GOLDSCHMIDT), 1884, A., 62; (WEGERHOFF), 1889, A., 1067.  
**Phenanthraquinoneoxime**, intramolecular change of (WEGERHOFF), 1888, A., 1200.  
**Phenanthraquinonephenylhydrazone** (ZINCKE), 1888, A., 1135.  
**Phenanthrene**, synthesis of (KRAEMER and SPILKER), 1890, A., 515.  
 heats of combustion and formation of (STOHMANN, KLEBER, and LANGBEIN), 1889, A., 1042.  
 action of carbonyl chloride on (BEHLA), 1886, A., 248.  
 action of chloropierin on, in presence of aluminium chloride (ELBS), 1888, A., 1000.  
 compound of picric acid and, solubility relations of (BEHREND), 1892, A., 1385.  
**Phenanthrenenaphthaquinoxaline** (LAWSON), 1885, A., 1239.  
**Phenanthridine** (PICTET and ANKERSMIT), 1890, A., 390; 1891, A., 837; 1892, A., 196.  
 methylhydroxide (PICTET and ANKERSMIT), 1891, A., 837; 1892, A., 197.  
**Phenanthroisobutylphenazine** and its derivatives (GELZER), 1888, A., 267; 1889, A., 44.  
**Phenanthro-eurhodine** (WITT), 1886, T., 400.  
**Phenanthroline** and its derivatives (SKRAUP and VORTMANN), 1883, A., 86; (LA COSTE), 1883, A., 811; (SKRAUP and COBENZL), 1883, A., 1010.  
 preparation of (SKRAUP), 1885, A., 393.  
 bases, constitution of (SCHIFF), 1891, A., 1258.  
 $\psi$ -**Phenanthroline** (BORNEMANN), 1886, A., 1045.  
**Phenanthrolinecarboxylic acids** (SKRAUP and FISCHER), 1885, A., 393; (GERDEISSEN), 1889, A., 521.  
**Phenanthroline acid**. See Dipyrindyl-dicarboxylic acid.  
**Phenanthrone** (LACHOWICZ), 1884, A., 82; (JAPP and KLINGEMANN), 1890, P., 31.  
 mono- and di-chloro- (LACHOWICZ), 1884, A., 81.  
**Phenanthropiazine** (*phenylene-pyrazine*) (MASON), 1889, T., 98.  
 dihydride (MASON), 1887, A., 493; 1889, T., 98.  
*iso*-**Phenanthroxyleneacetoacetic acid** (JAPP and KLINGEMANN), 1891, T., 11.  
**Phenanthrylpiperidine**, tertiary (LELLMANN and BUTTNER), 1890, A., 1003.  
**Phenazine** (RIN), 1886, A., 1024.  
 pyrogenic formation of (BERNTHSEN), 1887, A., 219.  
 derivatives (BERNTHSEN and SCHWEITZER), 1887, A., 139; (EICKER), 1891, A., 470.  
 amido- (BARBIER and VIGNON), 1888, A., 688; (FISCHER and HEPP), 1889, A., 500.  
 1:4-diamido- (FISCHER and HEPP), 1889, A., 500.  
 2:2'-diamido- (NIETZKI and ERNST), 1890, A., 1114.  
**Phenazoxine** (BERNTHSEN), 1887, A., 665.  
 2:4-dinitro- (TURPIN), 1891, A., 724.

- Phen $\beta$ isobutyl- $\beta$ -naphthylthiocarbamide, phenethylthiocarbamide, phenylthiocarbamide and *p*-tolylthiocarbamide** (MAINZER), 1888, A., 1107.
- p*-Phenacprylamine.** See Amido-octylbenzene.
- Phenethenyldioxytetrazotic acid** (W. and C. LOSSEN), 1891, A., 1041.
- Phenethyl compounds** (MAINZER), 1884, A., 1000.
- Phenethylmethylpiperidine.** See Methylstilbazoline.
- o*-Phenethylpiperidine** (*stilbazoline*) (BAURATH), 1888, A., 609.
- m*-amido-** (SCHUFTAN), 1890, A., 1438.
- o*-Phenetidine, mono- and di-bromo-, and its salts** (STAEDEL), 1883, A., 663.
- p*-Phenetidine, oxidation products of** (KINZEL), 1892, A., 158.
- mono- and di-bromo-, and its salts** (STAEDEL), 1883, A., 663.
- o*-nitro-** (AUTENRIETH and HINSBERG), 1892, A., 160.
- 2:6-dinitro-** (WENDER), 1890, A., 751.
- Phenetol, preparation of** (KOLBE), 1883, A., 1113.
- heat equivalent of** (STOHMANN, RODATZ and HERZBERG), 1887, A., 428.
- synthesis of ketones from** (GATTERMANN, EHREHARDT and MAISCH), 1890, A., 963.
- sulphonic acids derived from** (MOODY), 1892, P., 90.
- Phenetol, *o*-amido-, action of chloroacetic acid on** (VATER), 1884, A., 1144.
- action of cyanogen chloride on** (BERLINERBLAU), 1885, A., 147.
- m*-amido-, and its derivatives** (WAGNER), 1885, A., 1212.
- hydrobromide** (STAEDEL), 1883, A., 578.
- p*-amido-, action of cyanogen chloride on** (BERLINERBLAU), 1885, A., 147.
- oxidation products of** (KINZEL), 1892, A., 158.
- tetramido-, hydrochloride** (KÜHLER), 1884, A., 1161.
- mono- and di-bromo-*o*- and *p*-amido-, and their salts** (STAEDEL), 1883, A., 663.
- mono- and di-bromo-*o*- and *p*-nitro-** (STAEDEL), 1883, A., 663.
- bromo-*m*-nitro-** (LINDNER), 1885, A., 775.
- Phenetol, dibromonitro-** (JACKSON and BENTLEY), 1892, A., 1182.
- tribromodinitro-** (JACKSON and WARREN), 1891, A., 1026.
- trichloro-, trichloriodo-, and trichloronitro-** (LAMPERT), 1886, A., 616.
- p*-iodo-*m*-nitro-** (HAHLE), 1891, A., 431.
- nitro-, experiments on the preparation of** (KOLBE), 1884, A., 433.
- p*-nitro-, preparation of** (WILLGERODT and FERKO), 1886, A., 345.
- reduction of** (GATTERMANN and RITSCHKE), 1890, A., 1119.
- dinitro-** (LOWENBERG), 1886, A., 789.
- trinitramido-** (KÖHLER), 1884, A., 1161.
- Phenetolazo-** See under Azo.
- Phenetolipthaloylic acid** (*ethoxybenzoylbenzoic acid*) (GRANDE), 1890, A., 1128.
- Phenetoltrimethylammonium iodide** (*ethoxyphenyltrimethylammonium iodide*) (SEIDEL), 1891, A., 53.
- p*-Phenetyl** (*ethoxyphenyl*) **pentadecyl ketone** (KRAFFT), 1888, A., 1087.
- 2'-*p*-Phenetyllindazine** (*ethoxyphenylindazine*) (PAAL), 1891, A., 724.
- Phenol of birch wood tar** (PFRENGER), 1891, A., 432.
- from blast furnace tar** (SMITH, COUTTS, and BROTHERS), 1885, P., 104; 1886, T., 17.
- in the stem, leaves, and cones of** *Pinus sylvestris* (GRIFFITH), 1884, A., 863.
- in human sweat** (KAST), 1887, A., 1192.
- preparation of, from benzene** (FRIEDEL and CRAFTS), 1889, A., 241.
- electrolysis of, with alternating currents** (DRECHSEL), 1884, A., 1136; 1888, A., 1276.
- thermochemistry of** (STOHMANN and LANGBEIN), 1892, A., 764; (DE FORCRAND), 1892, A., 1042.
- heat of combustion of** (BERTHELOT and LUGININ), 1887, A., 762.
- thermal function of** (DE FORCRAND), 1892, A., 1042.
- depression of the melting point by** (JUILLARD and CURCHOD), 1892, A., 556.
- action of allylic iodide on, in presence of zinc or aluminium-foil** (FRANKLAND and TURNER), 1883, T., 357.
- action of bromine on** (WEINREB and BONDI), 1885, A., 1266.

**Phenol**, action of diazo-*p*-nitrobenzene on (MELDOLA), 1885, T., 658.  
 action of *dichloroether* on (WISLICIENUS and REINHARDT), 1888, A., 373.  
 action of the chlorides of propionyl and butyryl on (PERKIN), 1889, T., 546; P., 106.  
 action of chlorine on, in alkaline solution (HANTZSCH), 1889, A., 853.  
 action of epichlorhydrin on (LINDEMANN), 1891, A., 1198.  
 action of iodine on, in alkaline solution (MESSINGER and VORTMANN), 1889, A., 1150.  
 action of, on ketonic acids (BÖRTINGE), 1884, A., 55.  
 action of methylchloroform on, in presence of alkalis (BIGINELLI), 1891, A., 296.  
 condensation of, with *m*-nitrobenzaldehyde (DE VARDA and ZENONI), 1891, A., 1846.  
 action of nitrogen iodide on (LEPETIT), 1890, A., 1402.  
 action of nitrous anhydride on (FRIEDBURG and MANDEL), 1890, A., 1401.  
 action of phospham on (VIDAL), 1892, A., 1311.  
 action of phosphorous chloride on (ANSCHÜTZ and EMERY), 1887, A., 947; 1890, A., 34.  
 action of quinochlorimide on (MÖHLAU), 1884, A., 593.  
 action of sulphur *dichloride* on (TASSINARI), 1887, A., 807.  
 action of titanium chloride on (SCHUMANN), 1888, A., 679.  
 chlorination and bromination of (GORDON), 1891, P., 64.  
 oxidation of, by nitrobenzene (SIEGFRIED), 1885, A., 1060.  
 perchlorination of (HUGOUNENQ), 1889, A., 1149.  
 sulphonation of (FULDA), 1891, A., 891.  
 as a reagent for nitrates, nitrites and chlorates (HAGER), 1886, A., 99; (LINDO), 1888, A., 1337.  
 cause of the red colour of (MYLIUS), 1887, A., 807.  
 red, colouring matter of (FABINI), 1891, A., 1198.  
 mixed vapours of carbon *disulphide* and, action of hot copper on (CARNELLEY and DUNN), 1888, P., 53; A., 1095.  
 compound of, with carbonic anhydride (KLEPL), 1883, A., 584.  
 compound of, with sulphurous anhydride (HÖLZER), 1883, A., 585.

**Phenol derivatives** (HENRY), 1883, A., 802; (BENEDIKT), 1883, A., 985.  
 homologues of, preparation of (ANON.), 1883, A., 253.  
 oxidation of (HEYMANN and KORNIGS), 1886, A., 542; 1887, A., 241, 1035.  
 conversion of, into amines (LLOYD), 1887, A., 721; 1889, A., 700.  
 sodium derivative of, action of iodine and of nitric peroxide on (SCHALL), 1883, A., 1109.  
 action of sulphur on (HAITINGER), 1883, A., 938.  
 idiosyncrasy of certain animals with respect to (ZWAARDEMAKER), 1891, A., 762.  
**Phenol**, *o*-amido-, action of acetone on (ENGLER and BAUER), 1889, A., 524.  
 action of chloracetic acid on (VATER), 1884, A., 1144.  
 action of chloracetic chloride on (ASCHAN), 1887, A., 814.  
 action of chlorine on (ZINCKE and KUSTER), 1888, A., 1277; 1889, A., 599; 1890, A., 754, 1255.  
 action of ethylic acetoacetate on (HANTZSCH), 1883, A., 1111.  
 benzoate (BOTTCHER), 1883, A., 800.  
*p*-amido-, derivatives of (KALCKHOFF), 1883, A., 1109.  
 action of acetone on (ENGLER and BAUER), 1889, A., 524.  
 action of chloracetic acid on (VATER), 1884, A., 1144.  
 oxidation of (v. BANDROWSKI), 1889, A., 973.  
*o*- and *p*-amido-, action of picric chloride on (TURPIN), 1891, T., 718.  
 action of quinones on (ZINCKE and HEDEBRAND), 1885, A., 257.  
 condensation products of (HAEGELE), 1892, A., 1451.  
*o*-, *m*- and *p*-amido-, hydrochlorides of, reactions of (KALCKHOFF), 1883, A., 1111.  
*m*-, *p*-diamido- (HÄHLE), 1891, A., 431.  
*tri*amido-, and some of its derivatives (BAMBERGER), 1884, A., 309.  
 bromo-derivatives of (BENEDIKT), 1883, A., 984; (WERNER), 1885, A., 658.  
 bromo-, the so-called "fourth" (FITTICA), 1884, A., 55; 1887, A., 184; (HAND), 1886, A., 1017.  
*p*-bromo- (WERNER), 1884, A., 900.  
 3:5-*di*bromo- (BLAU), 1887, A., 242.

**Phenol**, 2:4-*di*bromo-, and 2:4:6-*tri*bromo- (WERNER), 1884, A., 900.  
 2:4:6-*tri*bromo-, action of chlorine on (BENEDIKT), 1883, A., 986.  
 action of sulphuric acid on (GEORGESCU), 1890, A., 883.  
 derivatives of (PURGOTTI), 1887, A., 573.  
 2-brom-4-amido-, and its derivatives (HÖLZ), 1885, A., 1211.  
 2:4-*di*brom-4-amido- (LELLMANN and GROTHMANN), 1885, A., 266.  
 3:5-*di*brom-2-amido- (MÖHLAU), 1884, A., 594; (HÖLZ), 1885, A., 1211.  
 2:4:6-*tri*brom-3-amido- (DACCUMO), 1885, A., 889.  
 4-brom-6-iodo-2-nitro-, calcium derivative of (LING), 1888, P., 122; 1889, T., 61.  
 bromo-*o*-nitro-, reduction of (SCHURT), 1883, A., 1109.  
 bromo-*m*-nitro-, and its potassium and sodium salts (PFAFF), 1883, A., 802.  
 reduction of (SCHLIEFER), 1892, A., 704.  
*p*-bromo-*o*-nitro-, action of chlorine on (LING), 1889, T., 586; P., 125.  
 bromodinitro- (FITTICA), 1884, A., 55.  
*p*-bromo-*di*-*o*-nitro-, isomeric change of (GORDON), 1891, P., 63.  
 4:6-*di*bromo-2-nitro-, calcium derivative of (LING), 1888, P., 122; 1889, T., 61.  
 2:6-*di*bromo-4-nitro- (LELLMANN and GROTHMANN), 1885, A., 266.  
 4:6:2- and 2:6:4-*di*bromonitro-, action of bromine on (LING), 1886, P., 268; 1887, T., 147.  
*m*-*di*bromodinitro- (GARZINO), 1890, A., 1107.  
 2:4:6-*tri*bromo-3-nitro- (DACCUMO), 1885, A., 889.  
 chloro-derivatives of (BENEDIKT), 1883, A., 984.  
*o*-chloro- (CHANDELON), 1883, A., 1108.  
*m*-chloro- (VARNHOLT), 1887, A., 946.  
 2:4-*di*chloro- (MOSRO), 1888, A., 456.  
 2:6-*di*chloro- (CHANDELON), 1883, A., 1108.  
 2:4:6-*tri*chloro-, and its derivatives (DACCUMO), 1885, A., 889.  
*tetrachloro*- (HUGOUNENQ), 1891, A., 297; (ZINCKE and WALBAUM), 1891, A., 710.  
*pentachloro*-, action of chlorine on (BENEDIKT and v. SCHMIDT), 1883, A., 1119.

**Phenol**, *tri*-*achloro*-, *dichloride* (BENEDIKT and v. SCHMIDT), 1883, A., 1119.  
*perchloro*-, from *perchlorobenzene* (WEBER and WOLFF), 1885, A., 519.  
 2:6-*di*chlor-1-amido- (KOLLREPP), 1886, A., 1018.  
 2:4:6-*tri*chlor-3-amido- (DACCUMO), 1885, A., 889.  
 2:3:5-*tri*chlor-4-amido- (LAMPERT), 1886, A., 616.  
*o*-chloro-*p*-bromo-, nitration of (LING), 1889, T., 584; P., 125.  
 5-chloro-2:4-*di*bromo-, and its conversion into quinones (GARZINO), 1890, A., 1105.  
*trichlorobromo*- (GARZINO), 1888, A., 585; 1890, A., 1108.  
*di*-*o*-chloro-*p*-bromo- (LING), 1892, T., 500.  
*trichlorobromo*- (BENEDIKT), 1883, A., 986.  
 2-chloro-4-bromo-6-nitro-, action of bromine and of nitric acid on (LING), 1889, T., 584; P., 125.  
 nitration of (LING), 1889, T., 590; P., 125.  
 derivatives of (LING), 1887, T., 791.  
 2-chloro-6-bromo-4-nitro-, metallic derivatives of (LING), 1888, P., 122; 1889, T., 57, 58.  
 4-chloro-2-bromo-6-nitro-, action of nitric acid on (LING), 1889, T., 584; P., 125.  
 nitration of (LING), 1889, T., 589; P., 125.  
 derivatives of (LING), 1887, T., 788.  
 calcium derivative of (LING), 1888, P., 122; 1889, T., 60.  
 2:3:5-*tri*chlor-4-iodo- (LAMPERT), 1886, A., 617.  
 2-chloro-4-nitro-, bromination of (LING), 1888, P., 122; 1889, T., 56.  
 4-chloro-2-nitro-, action of bromine on (LING), 1887, T., 787; 1889, T., 588; P., 125.  
 4-chloro-2:6-*di*nitro- (GORDON), 1891, P., 63.  
 4:6-*di*chloro-2-nitro- (LING), 1887, T., 782.  
 action of chlorine on (LING), 1889, T., 586; P., 125.  
 calcium derivative of (LING), 1888, P., 122; 1889, T., 61.  
 2:5-*di*chloro-4-nitro- (KEHRMANN), 1889, A., 244.  
 2:6-*di*chloro-4-nitro- (KOLLREPP), 1886, A., 1018; (LING), 1887, T., 786.

**Phenol**, 2:4-dichloro-3:6-dinitro- (GARZINO), 1890, A., 1107.  
 2:4:6-trichloro-3-nitro- (DACCUMO), 1885, A., 889.  
*o*-cyano-. See Salicylonitrile.  
*p*-cyano-. See *p*-Hydroxybenzonitrile.  
*p*-fluoro- (WALLACH and HEUSLER), 1888, A., 362.  
 iodo-derivatives of (MESSINGER and VORTMANN), 1889, A., 1150.  
*o*-iodo-, solid (NOLTING and STRICKER; SCHALL), 1888, A., 262.  
*m*- and *p*-iodo- (NOLTING and STRICKER), 1888, A., 262.  
 2:4-diiodo- (SCHALL), 1883, A., 1109.  
 4-iodo-3-nitro- (HÄHLE), 1891, A., 431.  
*o*-nitro-, action of chlorine on (LING), 1889, T., 586; P., 125.  
*o*- and *p*-nitro-, preparation of (NOLTING and WILD), 1885, A., 978.  
 action of phenylhydrazine on (BAHR), 1887, A., 722.  
*o*-, *m*-, and *p*-nitro-, sulphonation of (GORDON), 1891, P., 65.  
*p*-nitro- (SCHALL), 1883, A., 1109.  
 action of the nitrate of *o*-diazobenzoic acid on (GRIESS), 1884, A., 1014.  
 chlorinated derivatives of (KOLLREPP), 1886, A., 1018.  
*di*-*o*-nitro-, action of bromine on (GORDON), 1891, P., 63.  
 2:3-dinitro- (WENDER), 1890, A., 751.  
 2:5-dinitro- (HENRIQUES), 1883, A., 327; (LOBBY DE BRUYN), 1891, A., 430.  
*di*- and *tri*-nitro-, physiological action of (GIBBS and REICHLERT), 1891, A., 1281.  
*tri*-nitro-, a (ZEHENTER), 1885, A., 1285.  
 2:4:6-*tri*-nitro-. See Picric acid.  
 3:4:6- and 2:3:6-*tri*-nitro- (HENRIQUES), 1883, A., 327.  
 3-nitro-4-amido-, and its derivatives (HÄHLE), 1891, A., 430.  
 $\beta$ -dinitramido- (HENRIQUES), 1883, A., 328.  
 4:6-dinitro-2-amido- (*picramic acid*) and its salts (LIPPMANN and FLEISSNER), 1886, A., 791; (SMOLKA), 1888, A., 52.  
 2:6-dinitro-4-amido- (*isopicramic acid*) and its salts (STEUDEMANN), 1884, A., 308.  
 nitro-dinitroso-. See Phenyl-1:2-hydroxylamine, 4:6-dinitro-*p*-nitroso-. See Quinoneoxime.  
 thio-. See Phenyl mercaptan.

**Phenol**, detection and estimation:—  
 crude, examination of (STAVELEY), 1890, A., 425.  
 test for organic acids in (BACHMEYER), 1883, A., 385.  
 detection of (DRACENDORFF and JACOBSON), 1887, A., 867.  
 detection of, in creosote (MACEWAN), 1885, A., 1013.  
 estimation of (BECKURTS), 1886, A., 1081; (CARRÉ), 1891, A., 1557.  
 estimation of, in commercial carbolic acid (KLEINERT), 1884, A., 503; (TÓTH), 1886, A., 744; (WILLIAMS), 1890, A., 300.  
 estimation of, as *tri*bromophenol (BECKURTS), 1886, A., 1081.  
 estimation, alkalimetric, of (BADER), 1892, A., 543.  
 estimation, volumetric, of (CHANDOLON), 1883, A., 124.  
 See also Carbolic acid.  
**Phenols**, crude, from blast furnace tar (SMITH, COURTS and BROTHERS), 1885, P., 104; 1886, T., 17.  
 boiling points of (PINETTE), 1888, A., 335.  
 of high boiling point contained in coal tar (NOLTING), 1884, A., 1003; (SCHULZE), 1885, A., 667.  
 molecular lowering of the freezing point of benzene by (PATERNO), 1889, A., 101.  
 synthesis of, isomeric change in (SENKOWSKI), 1892, A., 44.  
 thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 763.  
 heats of combustion and formation of (STOHMANN, RODATZ and HERZBERG), 1887, A., 98.  
 heats of solution, and of neutralisation of (BERTHELOT), 1886, A., 6.  
 of complex function, heats of solution and of neutralisation of (BERTHELOT and WERNER), 1885, A., 628; (BERTHELOT), 1886, A., 7.  
 polyhydric, heat of neutralisation of (BERTHELOT and WERNER), 1885, A., 628.  
 electrical conductivity of (BERTHELOT), 1890, A., 677.  
 specific volumes of (PINETTE), 1888, A., 335.  
 polyvalent, action of acetaldehyde on (CAUSSE), 1887, A., 809.  
 action of aldehydes on (MICHAEL), 1884, A., 597; 1887, A., 825; (MICHAEL and COMEX), 1884, A., 598; (MICHAEL and RYDER), 1886, A., 695; (CLAISEN), 1887, A., 270.

**Phenols**, condensation of aromatic aldehydes with (TRZCINSKI), 1884, A., 590.  
 action of alkali hydrosulphides on (FUCHS), 1889, A., 496; 1891, A., 46.  
 condensation of, with *isomaylene* and cinnamene (KOENIGS and CARL), 1892, A., 446.  
 action of benzaldehyde on (MICHAEL and RYDER), 1887, A., 723; (RUSSANOFF), 1889, A., 1188; 1891, A., 1234.  
 polyhydric, action of borax on (LAMBERT), 1889, A., 864.  
 polyhydric, action of chloro $\delta$ nitrobenzene on (NIETZKI and SCHUNDELEN), 1892, A., 310.  
 action of chlorine on (ZINCKE), 1887, A., 960; 1888, A., 708; 1892, A., 1186; (ZINCKE and KEGEL), 1889, A., 265.  
 higher, action of cyanuric chloride and chlorocyanuric diamide on (OTTO), 1887, A., 1038.  
 action of diazobenzene on (LILBERMANN and v. KOSTANECKI), 1884, A., 1146.  
 action of formaldehyde on (KLEEBERG), 1891, A., 1199.  
 action of hydrazine hydrate on (CURTIUS and THUN), 1891, A., 1360.  
 condensation of unsaturated hydrocarbons with (KOENIGS), 1891, A., 208, 571; (KOENIGS and CARL), 1892, A., 446; (KOENIGS and MAI), 1892, A., 1443.  
 action of hydrogen chloride on a mixture of, with aldehyde (CLAUS and TRAINER), 1887, A., 231.  
 action of hydrogen peroxide on (MARTINON), 1885, A., 658.  
 action of aromatic hydroxy-acids on (MICHAEL), 1884, A., 310.  
 action of methylchloroform and ethylchloroform on alkaline solutions of (HEIBER), 1892, A., 308.  
 action of nitric acid on (STAEDEL), 1883, A., 861.  
 action of nascent nitrous acid on (DENINGER), 1890, A., 38.  
 action of phenylhydrazine on (SEYEWITZ), 1892, A., 49.  
 action of phenylic cyanate on (SNAPE), 1885, T., 770; (LEUCKART and SCHMIDT), 1885, A., 1224.  
 action of phosphorus trisulphide on (GEUTHER), 1884, A., 54.  
 action of phthalic chloride on (MEYER), 1891, A., 1485.  
 action of thionyl chloride on (TASSINARI), 1891, A., 186.

**Phenols**, reaction between diazoamido-compounds and (HEUMANN and OECONOMIDES), 1887, A., 664.  
 desmotropy in (HERZIG and ZEISLER), 1888, A., 522; 1889, A., 247, 966; 1890, A., 243, 1404; 1891, A., 75.  
 behaviour of, towards the alkali hydrosulphides (FUCHS), 1889, A., 496; 1891, A., 46.  
 introduction of the carboxyl-group into (v. KOSTANECKI), 1886, A., 242.  
 iodated (MESSINGER and VORTMANN), 1889, A., 1150.  
 iodation of, in ammoniacal solution (WILLGERODT and KORNBLUM), 1889, A., 697.  
 iodation of, by nitrogen iodide (WILLGERODT), 1888, A., 940.  
 substituted, reduction of (PFAFF), 1883, A., 802.  
 conversion of, into amines (BUCH), 1885, A., 147; (MERZ and MULLER), 1887, A., 576.  
 conversion of, into nitriles and carboxylic acids (MERZ), 1883, A., 802; (HEIM), 1888, A., 1111.  
 colouring matters of. See Colouring matters.  
 combination of camphor with (LÉGER), 1890, A., 1427.  
 some compounds of, with amidobases (DYSON), 1883, T., 466.  
 compounds of benzotrìchloride with (DOEBNER), 1883, A., 861; 1890, A., 901.  
 benzoyl compounds of (SKRAUP), 1889, A., 1152.  
 compounds of, with ethylic acetoacetate (v. FECHMANN and COHEN), 1884, A., 1331; 1885, A., 56.  
 compounds of volatile fatty acids with (NENCKI), 1890, A., 488.  
 carbonates of (WALLACH), 1885, A., 254.  
 ethers of, boiling points and specific volumes of (PINETTE), 1888, A., 335.  
 ethereal derivatives of (STAEDEL), 1883, A., 585.  
 substitution-products of ethereal derivatives of (STAEDEL), 1883, A., 662.  
 preparation of methyl ethers from (VINCENT), 1884, A., 589.  
 phosphates of, and reactions of (KREYSLER), 1885, A., 1054, 1055.  
 silicates of (MARTINI and WEBER), 1883, A., 983; (HERTKORN), 1885, A., 1056.  
 dihydric and trihydric, physiological action of (GIBBS and HARE), 1890, A., 1019.

- Phenols** as reagents for carbohydrates (ILL), 1885, A., 694.  
 as reagents for nitrites, nitrites and chlorates (LINDO), 1888, A., 1337.  
 commercial, analysis of (CASTHILLAZ), 1885, A., 447.  
 detection of, in urine (BAUMANN), 1883, A., 885.  
 estimation of, in urine (BAUMANN), 1883, A., 885; (RUMPF), 1892, A., 544.  
 estimation, volumetric, of (MENSINGER and VORTMANN), 1890, A., 1473.
- Phenolacene**, nitro-dinitroso- (WILLGERODT), 1891, A., 689.
- Phenolanthracene**, nitro-dinitroso- (WILLGERODT), 1891, A., 689.
- Phenolazo-**. See under Azo-.
- Phenolbishydrazobenzene** (*bisphenylhydrazophenol*) (v. BAeyer and KOCHENDOERFER), 1889, A., 1162.
- Phenol-blue** (*dimethylamidophenylquinoneimide*; *quinonedimethyl-anilineimide*) (MÖHLAU), 1886, A., 146; (FOGH), 1888, A., 592.  
 preparation of (MÖHLAU), 1884, A., 594.  
*trichloro-* (MÖHLAU), 1884, A., 595.
- Phenol-mono- and -hemi-camphorides** (LÉGER), 1890, A., 1427.
- Phenolcarbamide** (ECKENROTH), 1886, A., 946.
- Phenoldiammonium** (CURTIUS and THUN), 1891, A., 1360.
- Phenoldisulphonic acid** (ALLAIN LECANU), 1889, A., 1185.
- Phenolic acids**, instability of carboxyl in (CAZENEUVE), 1892, A., 1332.
- Phenolisatin** (v. BAeyer and LAZARUS), 1886, A., 155.
- Phenolphenyamine**, derivatives of (v. BANDROWSKI), 1888, A., 943.
- Phenolphthalein**, addition of, to margarine (HOLM), 1891, A., 872.  
 as an indicator (THOMSON), 1883, A., 682, 824, 827; 1884, A., 691, 869; (LONG), 1885, A., 835; (LÉGER), 1885, A., 931.  
 as an indicator in the estimation of carbonic anhydride in mixtures of gases (BLOHMANN), 1884, A., 1072.  
 behaviour of, with ammonia (LONG), 1889, A., 746.  
 behaviour of alkaline solutions of, in presence of alcohol (H. N. and C. N. DRAPER), 1887, A., 618.  
 anhydride. See Fluoran.  
 ethyl ether (GRANDE), 1892, A., 1096.
- Phenolphthalin ethyl ether** (HERZIG), 1892, A., 1319.
- Phenolquinoline**. See Hydroxyphenyl-quinoline.
- Phenol-series**, isomeric changes in (LING), 1886, P., 268; 1887, T., 147; 1889, T., 583; P., 125.
- Phenolsulphonic acid**, 2-chlor-4-amido- (KOLLREPP), 1886, A., 1019.
- Phenol-4-sulphonic acid**, 2:6-diiodo- (KEHRMANN), 1888, A., 595, 841, 842; (OSTERMAYER), 1888, A., 596.
- o-Phenolsulphonic acid** (*hydroxyphenylsulphonic acid*) (SERRANT), 1886, A., 707; (ALLAIN LECANU), 1889, A., 1183.  
 as an antiseptic (VIGIER), 1885, A., 612; (SERRANT), 1885, A., 1166.  
 bromo- (ALLAIN LECANU), 1889, A., 1184.  
*o,p*-dichloro-, action of sulphuric acid on (GORDON), 1891, P., 64.  
 See also Aseptol.
- p-Phenolsulphonic acid** (ALLAIN LECANU), 1886, A., 1031.  
 dinitro-, preparation of (BEYER and KEGEL), 1885, A., 269.
- Phenolsulphonic acids** from camphor (CAZENEUVE), 1890, A., 791.  
 amido-, and their relationship to Liebermann's colouring matters (BRUNNER and KRAEMER), 1884, A., 1354.  
 action of bleaching powder on (HIRSCH), 1887, A., 834.  
 iodo- (KEHRMANN), 1889, A., 993.
- Phenolsulphuric acid**, preparation of, from urine (BRIEGER), 1884, A., 1853.
- Phenomalic acid**. See Acetylacrylic acid.
- Phenomorpholine** (KNORR), 1889, A., 1220.
- Phenonaphthacridone** (SCHÜFF), 1892, A., 1477.
- Phenonaphtho-xanthone** (v. KOSTANECKI), 1892, A., 1099.
- Phenophenanthrazine**, nitro- and amido- (HEIM), 1888, A., 1097.
- Pheno- $\alpha$ -phenyl-p-azoxine** (LELLMANN and DONNER), 1890, A., 523.
- Phenoquinoline-xanthone** (v. KOSTANECKI), 1892, A., 1099.
- Pheno-quinoxazine and -quinoxazone** (MÖHLAU), 1892, A., 887.
- Phenosaffranine** and its derivatives (NIETZKI), 1883, A., 731; (ANON.), 1884, A., 538; (BARBIER and VIGNON), 1888, A., 688; (NIETZKI and OTTO), 1888, A., 831.  
 constitution of (BERNTHSEN), 1887, A., 140.  
 hydrochloride (WITT), 1887, A., 250.  
 See also Saffranine.

- α*-Phenotriazine (BISCHLER), 1890, A., 143; (HEMPER), 1890, A., 613.  
*p*-bromo- (BISCHLER and BRODSKY), 1890, A., 152.  
 Phenotriazines, synthesis of (BRUCH), 1892, A., 734.  
 Phenoxides, compounds of, with cuprous and mercurous chlorides (POUCHET), 1888, A., 586.  
 Phenoxyacetal and its thio-derivative (AUTENRIETH), 1891, A., 511.  
 Phenoxyacetone, thio- (*acetonphenylic sulphide*) (DELISLE), 1889, A., 489; (AUTENRIETH), 1891, A., 541.  
 Phenoxyacetonedithylmercaptole, thio- (AUTENRIETH), 1891, A., 568.  
 Phenoxyacetonediphenylmercaptole, thio- (AUTENRIETH), 1891, A., 568, 1067.  
 Phenoxyacetophenone and its *p*-nitro-derivative (MÜHLAU), 1883, A., 332.  
 Phenoxyacetylacrylic acids. See Coumaroxyacetic acids.  
 Phenoxyacetyl-*m*- and -*p*-carboxylic acids (*carboxyphenylglycollic acids*) (ELKAN), 1887, A., 258.  
*ε*-Phenoxyamylamine (GABRIEL), 1892, A., 717.  
*o*-Phenoxybenzoic acid, thio- (ZIEGLER), 1890, A., 1292; (GRAEBE and SCHULTESS), 1891, A., 1058.  
*m*-Phenoxybenzoic acid (GRIESS), 1888, A., 589.  
*p*-Phenoxybenzoic acid (KLEPL), 1884, A., 447.  
 Phenoxy-bromacrylic and -bromomaleic acids (HILL and STEVENS), 1885, A., 532.  
*δ*-Phenoxybutylamine (GABRIEL), 1892, A., 131.  
*γ*-Phenoxybutyramidesulphonic acid (LOHMANN), 1891, A., 1468.  
*γ*-Phenoxybutyric acid (LOHMANN), 1891, A., 1468.  
*γ*-Phenoxybutyronitrile (LOHMANN), 1891, A., 1468; (GABRIEL), 1892, A., 131.  
 Phenoxychloro-*α*-naphthaquinonesulphonic acid (CLAUS and VAN DER CLOET), 1888, A., 603.  
 Phenoxychlorophosphine, thio- (SACHS), 1892, A., 966.  
 Phenoxycrotonic acid, *α*- and *β*-thio- (AUTENRIETH), 1890, A., 361.  
*α*-Phenoxyisocrotonic acid, and thio- (AUTENRIETH), 1890, A., 361.  
 Phenoxyisocrotonic acid, *β*-thio- (ESCALES and BAUMANN), 1886, A., 879.  
 Phenoxycoumarin, synthesis of (OGLIA-LORO-TODARO), 1888, A., 277.  
 Phenoxydilactylic acid, *dithio*-, and its salts (BAUMANN), 1885, A., 515.  
 Phenoxydimethylmethane (*diphenozylpropane*), *dithio*- (BAUMANN), 1887, A., 126.  
 Phenoxydiphenyl-benzylphosphonium chloride and -methylphosphonium iodide (MICHAELIS and LA COSTE), 1885, A., 1215.  
 Phenoxydiphenylphosphine and some of its derivatives (MICHAELIS and LA COSTE), 1885, A., 1214.  
 Phenoxydiphenylsulphonepropane, thio- (ORTO and ROSSING), 1891, A., 568.  
 Phenoxyethylamine (SCHREIBER), 1891, A., 552.  
 salts (SCHMIDT), 1890, A., 373.  
 Phenoxyethylene (HENRY), 1883, A., 803.  
*trichloro*- (*phenyl trichlorovinyl ether*) (MICHAEL), 1886, A., 614.  
 Phenoxyethyleneoxybenzoic acids, and some of their derivatives (WAGNER), 1884, A., 435.  
 Phenoxyethyl-phthalamic acid and -phthalimide (SCHMIDT), 1890, A., 373.  
 Phenoxyglyoxal, *tetrathio*- (STUFFER), 1891, A., 186.  
 Phenoxy-*α*-hydroxypropionic acid, thio-, action of certain reagents on (BAUMANN), 1885, A., 514.  
 Phenoxyneobromic acid and its derivatives (HILL), 1884, A., 731; (HILL and STEVENS), 1885, A., 531.  
 1-Phenoxy-4-nicotinic acid, and the action of hydrochloric acid on (V. PECHMANN and WELSH), 1885, T., 153; A., 175.  
 Phenoxyphenylacetic acid, *dithio*- (ESCALES and BAUMANN), 1886, A., 879.  
 Phenoxypropane, *γ*-bromo- (LOHMANN), 1891, A., 1467.  
*γ*-chloro- (GABRIEL), 1892, A., 717.  
 Phenoxypropionic acid, *α*-*dithio*- (BAUMANN), 1885, A., 514; (ESCALES and BAUMANN), 1886, A., 878.  
*γ*-Phenoxy-propylamine and -propylaniline (LOHMANN), 1891, A., 1467.  
*β*-Phenoxypropylene (AUTENRIETH), 1890, A., 362.  
 Phenoxypropylenediphenyldisulphone, thio- (ORTO and ROSSING), 1891, A., 568.  
*γ*-Phenoxypropylmalonic acid (GABRIEL), 1892, A., 717.  
*γ*-Phenoxy-propylphthalamic acid and -propylphthalimide (LOHMANN), 1891, A., 1467.

- p*-Phenoxytoluene, nitro-derivatives of (FRISCHE), 1884, A., 1337.
- $\gamma$ -Phenoxyvaleric acid, *dithio*- (ESCALES and BAUMANN), 1886, A., 879.
- $\delta$ -Phenoxy-valeric acid and -valeronitrile (GABRIEL), 1892, A., 717.
- Phenuvic acid (SCHLOESSER), 1889, A., 595; (COLEFAX), 1890, P., 178; 1891, T., 190.
- Phenyl  $\beta$ -acetylitolyl ketoxime (HANTZSCH), 1891, A., 68.
- Phenyl amidotolyl ketone, amido- (LIEBERMANN), 1883, A., 1097.
- Phenyl isomyl ketone (PERKIN and CALMAN), 1886, T., 166.
- Phenyl benzyl ketone. See Deoxybenzoin.
- Phenyl benzyl oxide (STAEDEL), 1883, A., 585.
- 4:2- and 2:4-bromonitro- (ROLL and HOLZ), 1885, A., 1209.
- 6:4:2- and 6:2:4-dibromonitro- (ROLL and HOLZ), 1885, A., 1209.
- o*- and *p*-nitro- (KUMPF), 1884, A., 1005.
- Phenyl bromalyl oxide (HENRY), 1883, A., 803.
- Phenyl bromopropyl ketone (PERKIN), 1885, T., 842.
- Phenyl bromo- and chloro-propyl oxides. See Phenoxypropane, bromo- and chloro-.
- Phenyl *n*- and *iso*-butyl ketones (PERKIN and CALMAN), 1886, T., 161, 165.
- Phenyl chlorethyl oxide (HENRY), 1883, A., 802.
- Phenyl  $\alpha$ -chlorhydrin ether (*phenoxyp-chloroisopropyllic alcohol*) (LINDEMANN), 1891, A., 1198.
- Phenyl trichloropropenyl ketone (*trichlorethylideneacetophenone*) (KONIGS), 1892, A., 695.
- Phenyl trichlorovinyl ether. See *tri*-Chlorophenoxyethylene.
- Phenyl  $\psi$ -cumyl ketone (ELBS), 1887, A., 942.
- Phenyl *p*-cymyl ketone (ELBS), 1887, A., 942.
- reduction of (CLAUS and ELBS), 1885, A., 1065.
- Phenyl ethoxynaphthyl ketone (*benzoyl- $\alpha$ -chloronaphthulene*) (GATTERMANN, EHRLHARDT and MAISCH), 1890, A., 964.
- Phenyl ethers, action of phenylic cyanate on (LEUCKART and SCHMIDT), 1885, A., 1224.
- synthesis of ketones from, by Friedel and Craft's method (GATTERMANN, EHRLHARDT and MAISCH), 1890, A., 962.
- Phenyl ethers, alkylene derivatives of (GAUFERMANN, EHRLHARDT and MAISCH), 1889, A., 862.
- Phenyl ethyl diketone (MULLER and v. PECHMANN), 1889, A., 1171.
- Phenyl ethyl ether. See Ethoxybenzene.
- Phenyl ethyl ketone. See Propiophenone.
- Phenyl ethyl methylene diketone (*propionylacetophenone*) (BEYER and CLAISEN), 1887, A., 943.
- Phenyl ethyl trimethylene ether (LOHMANN), 1891, A., 1168.
- Phenyl ethylene ethers, *o*-, *m*- and *p*-amido-, preparation, properties and salts of (WAGNER), 1884, A., 433.
- Phenyl formylethyl and formylpropyl ketones (CLAISEN and MEYEROWITZ), 1890, A., 358.
- Phenyl glycidyl ether (LINDEMANN), 1891, A., 1198.
- Phenyl hexyl ketone (KRAFFT), 1887, A., 253; (AUGER), 1887, A., 816.
- Phenyl hydroxypropyl ketone (*benzoyl-propyllic alcohol*) and its oxime (PERKIN), 1885, T., 844; (MARSHALL and PERKIN), 1891, T., 886.
- Phenyl diiodobenzyl ketone (*benzoyl-phenyldiiodomethane*) (CURTIUS and LANG), 1892, A., 451.
- Phenyl mercaptan (*thiophenol*) (BIEDERMANN), 1886, A., 787.
- preparation of (STADLER), 1884, A., 1328.
- sodium salt of, action of, on ethylic chloracetate (OTTO and ROSSING), 1891, A., 712.
- sodium salt of, behaviour of, with isobutylenic bromide (OTTO), 1890, A., 962.
- o*-amido-, and its derivatives (v. HOFMANN), 1887, A., 823, 1039.
- formation of anhydro-compounds of, from thioamides (JACOBSON), 1886, A., 700.
- o*- and *p*-chloro- (DAGGOMO), 1892, A., 308.
- p*-nitro- (WILLGERODT), 1885, A., 519; (LEUCKART), 1890, A., 604.
- d*-nitro- (AUSTEN and SMITH), 1886, A., 693.
- ethers of (WILLGERODT), 1885, A., 519.
- Phenyl mercaptans, preparation of (LUSTIG), 1891, A., 1350.
- Phenyl mesityl ketone and its derivatives (LOUINE), 1883, A., 577; (ELBS), 1887, A., 942.
- Phenyl *o*-methoxytolyl ketone (KONIGS and CALL), 1892, A., 446.

- Phenyl methyl diketone (*benzoylacetyl*; *phenyldiketopropene*) (V. PECHMANN and MÜLLER), 1888, A., 1087; 1889, A., 1170; (MANASSE), 1888, A., 1088.
- Phenyl methyl glycols, two isomeric (ZINCKE), 1884, A., 1003.
- Phenyl methyl ketone. See Acetophenone.
- Phenyl methyl ketoxime (JANNY), 1883, A., 580.
- m*-nitro- (GABRIEL), 1883, A., 582.
- Phenyl methyl oxide. See Anisoil.
- Phenyl  $\alpha$ -naphthyl ketoxime (SPIEGLER), 1884, A., 1182; (KEGEL), 1888, A., 1307.
- Phenyl *p*-nitrobenzyl oxide (KUMPF), 1884, A., 1005.
- Phenyl oxide, molecular refraction and dispersion of (GLADSTONE), 1891, T., 591.
- Phenyl pentadecyl ketone (KRAFFT), 1887, A., 252.
- Phenyl phenylethyl ketone. See Benzylacetophenone.
- Phenyl propyl ether. See Propoxybenzene.
- Phenyl propyl ketone (PERKIN), 1884, T., 181.
- Phenyl pyridyl ketone (BERNTHESEN and METTEGANG), 1887, A., 737.
- Phenyl pyrrol ketone. See  $\psi$ -Benzoylpyrrolone.
- Phenyl tetramethylene ketone and ketoxime (PERKIN and SINCLAIR), 1892, T., 59, 61.
- Phenyl thienyl ketone and its  $\alpha$ -oxime (COMET), 1884, A., 1163.
- Phenyl thienyl ketoximes (HANTZSCH), 1890, A., 1263; 1891, A., 446.
- Phenyl thiotolyl ketone (*phenyl methylthienyl ketone*) (ERNST), 1887, A., 238.
- Phenyl tolyl diketone. See Methylbenzil.
- Phenyl tolyl ethylene ether (SCHREIBER), 1891, A., 553.
- m*-Phenyl tolyl ketone (*methylbenzophenone*) (SENFF), 1884, A., 427.
- reduction products of (SENFF), 1884, A., 427.
- d*-nitro- (SENFF), 1884, A., 428.
- p*-Phenyl tolyl ketone, stereochemical isomerides of (HANTZSCH), 1891, A., 68.
- stereochemically isomeric oximes of (HANTZSCH), 1890, A., 1273.
- o*-Phenyl tolyl ketoximes (SMITH), 1892, A., 490.
- m*-Phenyl tolyl ketoxime (GOLDSCHMIDT and STÜCKER), 1891, A., 1480.
- p*-Phenyl tolyl ketoxime (AUWERS), 1890, A., 503.
- o*-Phenyl xylyl ketone (ELBS), 1887, A., 941.
- Phenyl *p*-xylyl ketones (ELBS and LARSEN), 1885, A., 261; (ELBS), 1887, A., 941; (STRASSMANN), 1889, A., 883.
- $\alpha$ -Phenyl *m*-xylyl ketone (ELBS), 1887, A., 941.
- $\alpha$ -Phenyl *m*-xylyl ketoximes (SMITH), 1892, A., 490.
- Phenylacetaldehyde, condensation of, with ammonia and ethylic acetate (JEANRENAUD), 1888, A., 965.
- action of nitric acid on (FORRER), 1884, A., 1020.
- derivatives of (FORRER), 1884, A., 1020.
- Phenylacetaldehydophenylhydrazone (FINCHER and SCHMIDT), 1888, A., 699.
- Phenylacetaldoxime (DOLLFUS), 1892, A., 1174.
- Phenylacetamide, action of bromine on (V. HOFMANN), 1886, A., 45.
- p*-amido- (PURGOTTI), 1891, A., 562.
- p*-cyano- (MELLINGHOFF), 1890, A., 239.
- m*- and *p*-nitro- (PURGOTTI), 1891, A., 562.
- Phenylacetamidine, and its derivatives (LUCKENBACH), 1884, A., 1134.
- Phenylacetic acid (ANSCHÜTZ and BERNS), 1887, A., 829.
- preparation of (STAEDTEL), 1886, A., 945; (ZINSSER), 1892, A., 344.
- thermochemistry of (STOHMANN, KLEDER and LANGBEIN), 1889, A., 1096.
- influence of, on proteid metabolism (SALKOWSKI and KOTOFF), 1888, A., 513.
- mixtures of  $\beta$ -phenylpropionic acid and, melting point and separation of (SALKOWSKI), 1885, A., 602; 1886, A., 351.
- derivatives of (GABRIEL), 1883, A., 64; (R. MEYER), 1886, A., 63; (A. MEYER), 1888, A., 693; (HAUSSKNECHT), 1889, A., 506.
- ethereal salts of, action of sodium on (HODGKINSON), 1886, P., 188.
- oxime of, and its salts (MÜLLER), 1883, A., 1129; 1884, A., 584; (HANTZSCH), 1890, A., 1274; 1891, A., 444.
- Phenylacetic acid, amido- (GABRIEL and BORGMANN), 1883, A., 1121.

- Phenylacetic acid**, amido-*p*-cyano- (TRAUBE), 1883, A., 193.  
 bromo-, an apparent exception to the Le Bel-van't Hoff hypothesis (EASTERFIELD), 1891, T., 71.  
 action of, on ethylic acetoacetate (WELTNER), 1884, A., 746; 1885, A., 793.  
*m*-bromodinitro- (JACKSON and ROBINSON), 1890, A., 378.  
 bromonitramido- (GABRIEL), 1883, A., 64.  
*p*-cyano- (MELLINGHOFF), 1890, A., 239.  
*m*-nitro- (GABRIEL and BORGMANN), 1883, A., 1121.  
*o*:*p*-dinitro- (HECKMANN), 1884, A., 178.
- Phenylacetic anhydride**, amido- (KOSSEL), 1892, A., 468.
- Phenylacetimido-acetate** (LUCKENBACH), 1884, A., 1134.
- Phenylacetimidoethyl ether**, and its hydrochloride (LUCKENBACH), 1884, A., 1134.
- Phenylaceto-**. See also Phenylacetyl-.
- Phenylacetobromamide** (HOOGWERFF and VAN DORP), 1888, A., 1195.
- Phenylaceto-*m*-chloranilide** (BISCHLER), 1892, A., 1465.
- Phenylaceto-diethylamide** and -di-phenylamide (HAUSKNECHT), 1889, A., 506.
- Phenylacetodiphenylhydrazide** (BÜLSING and TAFEL), 1892, A., 981.
- Phenylacetoneitrile** (*benzyllic cyanide*), heats of combustion and formation of (BREITHELOT and PETIT), 1889, A., 812.  
 displacement of the methylene hydrogen atoms in (JANSEN), 1889, A., 596; (ROSSOLYMO), 1889, A., 861; (RUDENBERG), 1890, A., 1142.  
 action of, on organic acids (COLBY and DODGE), 1891, A., 409.  
 action of phthalic anhydride on (GABRIEL), 1885, A., 902.  
 transformation of, in the organism (GIACOSA), 1884, A., 1061.  
 substituted (NEURR), 1889, A., 597.  
 and its substitution products, condensation of, with aldehyde and with amyllic nitrite (FROST), 1889, A., 597.  
 metallic derivatives of (HAUSKNECHT), 1889, A., 507.  
 derivatives of (LUCKENBACH), 1884, A., 1134; (MEYER), 1888, A., 693.
- Phenylacetoneitrile** (*benzyllic cyanide*), *m*-amido- (FRIEDLÄNDER), 1884, A., 737; (SALKOWSKI), 1884, A., 1176.
- Phenylacetoneitrile** (*benzyllic cyanide*), *p*-amido-, and its salts (FRIEDLÄNDER and MAHL), 1883, A., 919; (FRIEDLÄNDER), 1884, A., 737.  
 chloro- (MICHAEL and JEANPRÉTRE), 1892, A., 1088.  
*o*-cyano- (GABRIEL and OTTO), 1887, A., 1035.  
 action of hydroxylamine on (EICHELBaum), 1890, A., 146.  
*m*-cyano- (REINGLASS), 1891, A., 1344.  
*p*-cyano- (MELLINGHOFF), 1890, A., 239.  
*o*-nitro- (PERKIN), 1883, T., 111; (SALKOWSKI), 1884, A., 1176; (BAMBERGER), 1887, A., 131.  
*m*-nitro- (SALKOWSKI), 1884, A., 1176.  
*p*-nitro-, diazo-derivatives of (PERKIN), 1883, T., 111.  
 condensation products of (REMSE), 1891, A., 208.
- Phenylacetoneitrilecarbamide** (PINNER and LIFSCHÜTZ), 1887, A., 1055.
- Phenylacetoneitrile-*o*-carboxylic acid**, and its salts (WISLÖENUS), 1885, A., 532.
- Phenylacetonylphenylic sulphide** (DELSLE), 1889, A., 489.
- Phenylacetophenylhydrazide** (BÜLOW), 1887, A., 138; (PURGOTTI), 1891, A., 59.
- Phenylaceto-*o*-toluidide** (BISCHLER), 1892, A., 1465.
- Phenylaceto-*p*-toluidide** (PURGOTTI), 1891, A., 59; (BISCHLER), 1892, A., 1465.
- Phenylacetotolylenediamide** (BISTRZYCKI and CYBULSKI), 1891, A., 694.
- Phenylacetoxy-**. See Acetoxyphenyl-.
- Phenylacetylacetone** (FISCHER and BÜLOW), 1885, A., 1237.
- Phenylacetylene** (HOLLEMAN), 1888, A., 261.  
 reduction of (ARONSTEIN and HOLLEMAN), 1889, A., 878.  
 silver derivative of (LIEBERMANN and DAMEROW), 1892, A., 831.
- Phenylacetylenebenzoylactic acid** (KAPF and PAAL), 1888, A., 839; 1889, A., 148.
- Phenylacetylde**, silver derivative of (LIEBERMANN and DAMEROW), 1892, A., 831.
- Phenylacetyl-**. See also Acetylphenyl-.
- Phenylacridine** (BERNTSEN), 1883, A., 580; 1884, A., 1356; (BERNTSEN and BENDER), 1883, A., 1133.  
 from chrysaniine (FISCHER and KÜRNER), 1884, A., 749.

- Phenylacridine**, derivatives of (BERNTSEN), 1884, A., 1356; (CLAUS and NICOLAYSEN), 1886, A., 68.  
 ammonium bases of (BERNTSEN), 1892, A., 1095.  
 hydrochloride (CLAUS and NICOLAYSEN), 1886, A., 68.  
 methhydroxide (BERNTSEN and BENDER), 1883, A., 1133.  
 constitution of (BERNTSEN), 1884, A., 1357.  
 amido-. See Anilidoacridine.  
 diamido-. See Chrysaniline.
- Phenylacrosazones**,  $\alpha$ - and  $\beta$ - (FISCHER and TAFEL), 1888, A., 39.
- $\alpha$ -Phenylacrylic acid**. See Atropic acid.
- $\beta$ -Phenylacrylic acid**. See Cinnamic acid.
- Phenyl- $\alpha$ -alanine**. See  $\alpha$ -Anilidopropionic acid and Phenyl- $\alpha$ -amidopropionic acid.
- Phenyl- $\beta$ -alanine**. See  $\beta$ -Anilidopropionic acid.
- Phenylalanine- $p$ -sulphonic acid** (ERLENMEYER and LIPP), 1883, A., 993.
- Phenylallyl-**. See Cinnamenyl.
- Phenylallylacetonitrile** (BUDEBERG), 1890, A., 1142.
- Phenylallylene** (KÖRNER), 1888, A., 368.  
 and its *di*- and *tetra*-bromide (KÖRNER), 1889, A., 372.
- Phenylallylhydrazine** (FISCHER and KNOEVENAGEL), 1887, A., 933.
- $\alpha\beta$ -Phenylallylhydrazine** (MICHAELIS and CLAESSEN), 1889, A., 1161.
- Phenylallylhydrazonophthalaldehydic acid** (ALLENDOFF), 1891, A., 1371.
- Phenylallylideneamidodimethylaniline** (NUTH), 1885, A., 784.
- Phenylallylsemithiocarbazide** (DIXON), 1890, T., 262; P., 25.
- Phenylallylsulphone** (OTTO), 1891, A., 1067.
- Phenylallyltetrazone** (MICHAELIS and CLAESSEN), 1889, A., 1161.
- Phenylamidine**. See Phenylamidoimidoethenylamidophenyl mercaptan.
- Phenylamidoacetic acid**, derivatives of (KOSSEL), 1892, A., 467.  
 calcium salt of (MAUTHNER and SUIDA), 1889, A., 1068.
- Phenylamidoacetomethylanilide** (*phenylglycinmethylanilide*) (BISCHOFF), 1888, A., 726.
- Phenyl- $m$ -amidobenzylamine** (BORG-MANN), 1886, A., 57.
- 1-Phenylamido-2:5-dimethylpyrroline-3:4-dicarboxylic acid** (KNORR), 1885, A., 555.
- Phenylamidoditolylmethane** (ULLMANN), 1885, A., 1236.
- Phenylamidoimidoethenylamidophenyl mercaptan** (*phenylamidine*) (V. HOFMANN), 1887, A., 1040.
- Phenyl- $\beta$ -amidolactic acid** (ERLENMEYER), 1889, A., 988.
- "Phenylamidomesoxalic chloride"** (NEF), 1892, A., 1439.
- Phenylamidomethenylamido- (*carbanil-amido*)-cresol, -cumenol, - $\alpha$ - and - $\beta$ -naphthols, and -phenanthrol** (JACOBSON and SCHENCKE), 1890, A., 248.
- Phenylamidomethenylamidonaphthol** (JACOBSON), 1888, A., 487.
- Phenylamidomethenylamidothiophenol** (JACOBSON and FRANKENBACHER), 1891, A., 1049.
- 6-Phenylamido-5-methyl-2:4-diethyl- $m$ -diazine** (V. MEYER), 1889, A., 685.
- 4-Phenylamido- $\beta$ -naphthol**, *dichloro*- (ZINKE and KEGEL), 1889, A., 268.
- Phenylamidonaphthylcarbamide** (GOLD-SCHMIDT and ROSELL), 1890, A., 616.
- Phenyl-*di-p*-amidophenylisobutylmethane, *m*- and *p*-nitro-** (BISCHLER), 1889, A., 133.
- Phenyl-*m*-amidophenylmethylcarbamide** (*m-amido-s-diphenylmethylcarbamide*) (LELLMANN and BENZ), 1891, A., 1215.
- Phenyl- $\alpha$ -amidopropionic acid**, formation of, by the action of stannous chloride on albuminoids (SCHULZE and BARBIERI), 1883, A., 1122.  
 formation of, by the decomposition of albumin (SCHULZE and BARBIERI), 1885, A., 581.  
 from the decomposition of proteids (SCHULZE and NÄGELI), 1887, A., 369.  
 See also  $\alpha$ -Anilidopropionic acid.
- $\beta$ -Phenylamidopropionic acid**. See  $\beta$ -Anilidopropionic acid.
- Phenyl- $\alpha$ -amidopropionitrile** (ERLENMEYER and LIPP), 1883, A., 992.
- Phenylamidoquinaldine**. See Anilido-2'-methylquinoline.
- Phenyl-*di-p*-amidotolylmethane, *m*-amido-** (BISCHLER), 1889, A., 133.  
 $\alpha$ - and  $\beta$ -*m*-nitro- (BISCHLER), 1889, A., 133.  
 $\alpha$ - and  $\beta$ -*p*-nitro- (BISCHLER), 1888, A., 287.

- Phenyl-diamido-*m*-xylylmethane**, *m*- and *p*-nitro- (BISCHLER), 1889, A., 134.
- Phenylamido-**. See also Anilido-.
- Phenylamine**. See Aniline.
- Phenylamines**, compounds of benzotrichloride with (DOEBNER), 1883, A., 861.  
substituted, action of silicon tetrachloride on (REYNOLDS), 1892, T., 453.
- Phenylammeline** [m.p. 125°] (SMOLKA and FRIEDREICH), 1890, A., 618.
- Phenylammeline** [m.p. 245°] (OTRO), 1887, A., 1034.
- 1-Phenylammoniochelidonic acid** (LIEBEN and HAITINGER), 1884, A., 1196.
- Phenylamylacetonitrile** (*phenylheptonitrile*) (ROSSOLYMO), 1889, A., 862.
- $\gamma$ -Phenyl- $\alpha$ -isoamylbutenyllactone** (PAAL and HOFFMANN), 1890, A., 1101.
- $\beta$ -Phenyl- $\alpha$ -isoamylbutyrolactone** (PAAL and HOFFMANN), 1890, A., 1101.
- Phenylamylcarbamide** (FREUND and LENZE), 1890, A., 1388.
- Phenylamylene** (*phenylpentylen*) and its dibromide (SCHRAMM), 1883, A., 977.  
See also Amenylbenzene.
- Phenyl- $\alpha$ -isoamylhydrazine** (PHILIP), 1887, A., 1104.
- Phenylamylthiocarbamide** (FREUND and LENZE), 1890, A., 1388.
- Phenylamyl-**. See also Amylphenyl-.
- Phenylangelic acid**, formation of (SLOCUM), 1885, A., 662.  
preparation of (EDELFRAN), 1891, A., 1225.
- Phenylangelicalactones** (ERDMANN), 1890, A., 377; (FITTIG and STERN), 1892, A., 987.
- $\alpha$ -Phenylanisacrylonitrile** (FRONT), 1889, A., 598.
- Phenyl-*o*-anisylcarbamide** (GOLDSCHMIDT and ERNST), 1890, A., 1411.
- Phenylanisylidesaurin** (NEFF), 1888, A., 1198.
- p*-Phenylanisylethane** (FREUND and REMSE), 1890, A., 1423.
- $\beta$ -Phenyl- $\gamma$ -*p*-anisylpropylamine** (FREUND and REMSE), 1890, A., 1423.
- o*-Phenylanisylthiocarbamide** (FORSTER), 1888, A., 946.
- Phenylanisyluramidoxime** (HOCHHEIM), 1890, A., 1265.
- Phenylanthracene**, preparation of (LINEBARGER), 1892, A., 722.
- Phenylanthranilic acid** (GRAEBE and LAGUDZINSKI), 1892, A., 1086.
- Phenylarabinosazone** (SCHEIBLER), 1884, A., 1287.
- Phenylarsine sulphides** (SCHULTE), 1883, A., 186.
- Phenylasparaginphenylimide** (*phenylasparaginanyl*) (PIUTTI), 1885, A., 796; (ANSCHÜTZ and WIRTZ), 1887, A., 934.
- Phenylaspartanil** (OSSIOFF), 1889, A., 124.
- Phenylaspartic acid** (*anilidosuccinic acid*) (ANSCHÜTZ and WIRTZ), 1887, A., 934; (HELL and POLIAKOFF), 1892, A., 819.  
derivatives of (KUSSEROW), 1889, A., 1064.
- Phenylauramine and its salts** (FEHRMANN), 1888, A., 157.
- Phenylazo-**. See under Azo-.
- Phenylbenzenylamidine** (LOSSEN), 1892, A., 51.
- Phenylbenzenylimidoximecarbonyl** (MULLER), 1886, A., 875.
- Phenylbenzenyl- $\alpha\beta$ -naphthylenediamine** (FISCHER), 1892, A., 1472.
- Phenylbenzhydryl-*o*-benzoic lactone** (ELBS), 1890, A., 514.
- Phenylbenzidine**, *di-o*-nitro- (SCHOPPE), 1889, A., 773.
- Phenylbenzimidooethyl ether** (LOSSEN), 1892, A., 52.
- Phenylbenzocreatine** (TRAUBE), 1883, A., 193.
- Phenylbenzoglycocyamidine** (GRIESS), 1885, A., 1227.  
imido- (GRIESS), 1885, A., 1225.
- Phenylbenzoglycocyamidinecarboxylic acid** (GRIESS), 1885, A., 1227.
- Phenylbenzoglycocyamine and amido-, and their hydrochlorides** (GRIESS), 1883, A., 609.
- Phenylbenzoic acid**. See *o*-Diphenylcarboxylic acid.
- Phenylbenzo- $\beta$ -naphthacridine** (CLAUS and RICHTER), 1884, A., 1359.
- p*-Phenylbenzophenone and its oxime and phenylhydrazone** (KOLLER), 1892, A., 186.
- Phenylbenzoyl-**. See Benzoylphenyl-.
- 1-Phenylbenzoyl-oximepyrazole and -phenylhydrazonopyrazole** (BALBIANO), 1890, A., 798.
- Phenylbenzoic acid** [b.p. 330°] (MEYER), 1888, A., 693; (V. MILLER and ROHDE), 1892, A., 1211.
- Phenylbenzylacetoxime-*o*-carboxylic acid** (GABRIEL), 1885, A., 903.

- Phenylbenzylamylcarbiny cyanide (*diphenyloctonitrile*) (ROSSOLYMO), 1889, A., 862.
- Phenylbenzyl-*o*-benzoic acid (ELB<sup>+</sup>), 1890, A., 514.
- Phenyl-*p*-benzylcarbamide (*p*-*diphenylmethanecarbamide*) (MANN'S), 1889, A., 261.
- Phenylbenzylcarbamide, *m*-nitro- (KÜHN and RIESENFELD), 1892, A., 312.
- Phenylbenzylethylthiocarbamide (DIXON), 1891, T., 564.
- Phenylbenzylethylthiocarbamides, isomeric (DIXON), 1892, T., 540.
- Phenylbenzylformamidine (COMSTOCK and CLAPP), 1892, A., 708.
- Phenylbenzylhydrazine phosphenite (MICHAELIS and OSTER), 1892, A., 1325.
- o*-amido-, and *o*-nitro- (PAAL and BODEWIG), 1892, A., 1455.
- Phenyl-*α*-benzylhydrazine (PHILIPS), 1887, A., 1104; 1889, A., 1159.
- Phenyl-*p*-benzylhydrazine (*diphenylmethanecarbamide*) (MANN'S), 1889, A., 261.
- Phenylbenzylhydrazine, thionyl- (MICHAELIS and RUHL), 1892, A., 1324.
- Phenylbenzylhydroxycarbamide (TIEMANN), 1889, A., 1165; (VOLTMER), 1890, A., 1127; 1891, A., 559.
- Phenylbenzylhydroxythiocarbamide (TIEMANN), 1889, A., 1165; (VOLTMER), 1890, A., 1126; 1891, A., 558.
- m*-Phenylbenzyl alcohol (ADAM), 1888, A., 959.
- Phenylbenzylideneallylhydrazine (MICHAELIS and CLAESSEN), 1889, A., 1161.
- Phenylbenzylidenebenzenylamidine (LELLMANN and STICKEL), 1886, A., 793.
- Phenyl-*o*-benzylidenediamine (SODERBAUM and WIDMAN), 1890, A., 1258.
- Phenylbenzylidene-ethylhydrazine (PHILIPS), 1889, A., 1158.
- Phenylbenzylidenehydrazine (REISERT), 1884, A., 1152; (PHILIPS), 1887, A., 1105.
- derivatives of (SCHROEDER), 1884, A., 1223.
- o*-nitro- (BISCHLER), 1890, A., 148.
- m*-nitro- (BISCHLER and BRODSKY), 1890, A., 150.
- thio- (RUHL), 1892, A., 1326.
- "Phenylbenzylidenehydrazine, *di*-cyano-" (BLADIN), 1889, A., 702.
- 2'-Phenylbenzylideneindole (FISCHER and SCHMIDT), 1888, A., 699.
- Phenylbenzylidenemethylhydrazine (ELBERS), 1885, A., 535.
- 1-Phenyl-4-benzylidene-3-methylpyrazolone (KNORR), 1887, A., 602.
- 1-Phenyl-4-benzylidene-3:5-pyrazolidone (MICHAELIS and BURMEISTER), 1892, A., 1005.
- 3':2'-Phenylbenzylindole (TRENKLER), 1889, A., 260.
- Phenylbenzylmethylcarbamide (KÜHN and RIESENFELD), 1892, A., 312.
- 1-Phenyl-3-benzyl-5-methyl-pyrazole (FISCHER and BULOW), 1885, A., 1237.
- Phenylbenzylmethylthiocarbamides (DIXON), 1891, T., 562, 564; P., 85.
- Phenylbenzylnitrosamine, preparation of (ANTRICK), 1885, A., 543.
- p*-nitroso- (BOEDDINGHAUS), 1891, A., 1206.
- Phenylbenzylisophosphine (MICHAELIS and GLEICHMANN), 1883, A., 185.
- Phenylbenzylpropylcarbiny cyanide (ROSSOLYMO), 1889, A., 862.
- Phenylbenzylsemithiocarbazide (DIXON), 1892, T., 1021.
- Phenylbenzylsulphone (KNOEVENAGEL), 1888, A., 706; (OTTO), 1890, A., 380.
- er*ochloro- (OTTO), 1890, A., 379.
- Phenylbenzylthiocarbamide (DIXON), 1889, T., 300.
- asymmetrical (WERNER), 1892, P., 97.
- cyano- (FREUND and IMMERWAHR), 1890, A., 1408.
- Phenylbetainamide chloride (SILBERSTEIN), 1885, A., 160.
- Phenylbiazolone, amido- (FREUND and KUH), 1890, A., 1441.
- Phenylbismuthine *di*bromide (MICHAELIS), 1887, A., 368.
- Phenylbismethyltetrahydroquinolylmethane, amido-. See Phenyldimethyloctohydrodiquinolylmethane, amido-.
- Phenyl-*γδ*-*di*bromethyl-*β*-bromacrylic acid, *p*-nitro- (EINHORN and GEHRENBECCK), 1889, A., 396; 1890, A., 162.
- Phenylbromethylactic acid, *p*-nitro-, lactone of (EINHORN and GEHRENBECCK), 1889, A., 397.
- Phenyl*di*bromobutinenecarboxylic acid, *p*-nitro- (EINHORN and GEHRENBECCK), 1889, A., 396.
- Phenyl*tri*bromomethane (INCE), 1885, P., 131.
- Phenylmono- and -*di*-bromomethylsulphones (OTTO), 1890, A., 381.
- Phenyl*di*bromonitromethane (GABRIEL and KOPPE), 1886, A., 693.

- Phenylisobromoparaconic acid** (FITTIG and LEONI), 1890, A., 895.
- Phenyl-*p*-bromophenylhydrazine**, *o-p*-dinitro- (WILLGERODT and ELLON), 1891, A., 1362.
- Phenylisobromopropenylethoxime chloride** (WOLFF), 1890, A., 42.
- Phenyl- $\beta$ -bromopropionic acid**, and its derivatives (BASLER), 1884, A., 603.
- 5-chloro-2-nitro-** (EICHENGRUN and EINHORN), 1890, A., 1127.
- o*-nitro-**, and its derivatives (EINHORN), 1884, A., 65.
- m*-nitro-** (PRAUSNITZ), 1884, A., 1175.
- $\beta$ -Phenyltribromopropionic acid** (KINNIOTT and PALMER), 1884, A., 603.
- Phenyl- $\beta$ - and - $\gamma$ -bromopropylacetamides** (ELFELDT), 1892, A., 214.
- Phenyl- $\beta$ -bromisuccinic acid**, *o*- and *p*-nitro- (STUART), 1886, T., 362.
- Phenyl $\delta$ bromisuccinic acid** (STUART), 1886, T., 360.
- m*- and *p*-nitro-** (STUART), 1886, T., 361.
- $\alpha$ -Phenyltribromothiophen**, *p*-bromo- (KUES and PAAL), 1887, A., 239.
- n*-Phenylbromotrimethylene- $\psi$ -thiocarbamide** (DIXON), 1892, T., 550.
- Phenylisobutaldehyde** (v. MILLER and ROHDE), 1890, A., 979.
- Phenylbutane**. See Butylbenzene.
- Phenylbutinene methyl ketone**. See Styrylvinyl methyl ketone.
- Phenylbutinenecarboxylic acids**, nitro- (EINHORN and GEHRENBACH), 1889, A., 271; 1890, A., 163.
- Phenylbutinenedicarboxylic acid** (STUART), 1886, T., 366.
- Phenylisobutylallyl-carbamide and -thiocarbamide** (PAAL and HEUPEL), 1892, A., 31.
- Phenylbutylamine** (*butylaniline*) (KAHN), 1886, A., 263.
- Phenylisobutylamine**. See *iso*Butylbenzene, amido-
- Phenylbutylene** (*isobutenylbenzene*) (FITTIG and JAYNE), 1883, A., 471; (FITTIG and LIEBMANN), 1890, A., 777.
- $\beta$ -Phenylbutylene**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.
- Phenyl- $\alpha$ -isobutylhydrazine** (PHILLIPS), 1887, A., 1104.
- Phenylisobutyl-hydrazine and -hydrazone**, thionyl- (MICHAELIS and RUHL), 1892, A., 1324.
- s*-Phenylisobutylthiocarbamide** (HECHT), 1892, A., 702.
- Phenylisobutylthiocarbimide** (PAHL), 1884, A., 1010.
- Phenylbutyric acid** (JAYNE), 1883, A., 473.
- $\alpha$ - and  $\beta$ -bromo-** (JAYNE), 1883, A., 472; (FITTIG and MORRIS), 1890, A., 891.
- $\alpha\beta$ -dibromo-**, decomposition of (FITTIG, OBERMULLER and SCHIFFER), 1892, A., 987.
- $\gamma$ -chloro-** (FITTIG and MORRIS), 1890, A., 891.
- $\alpha$ -iodo-** (FITTIG and MORRIS), 1890, A., 891.
- Phenylisobutyric acid** ( *$\alpha$ -methylhydrocinnamic acid*), derivatives of (EDELEANU), 1887, A., 583; 1888, T., 558; P., 55.
- $\alpha\beta$ -dibromo-** (A. KÖRNER), 1888, A., 368.
- derivatives of (A. KÖRNER), 1888, A., 368; (T. KÖRNER), 1889, A., 372.
- m*-chloro-** (v. MILLER and ROHDE), 1890, A., 1110.
- p*-nitro- and nitramido-** (EDELEANU), 1888, T., 558.
- $\alpha$ -Phenylbutyric acid** (*phenylethylacetic acid*) (NEURR), 1889, A., 597.
- Phenylbutyric-*o*-carboxylic acids** (ROSER), 1886, A., 213.
- Phenylbutyrolactone** (JAYNE), 1883, A., 472.
- action of halogen acids on (FITTIG and MORRIS), 1890, A., 891.
- action of halogen acids and of gaseous ammonia on (FITTIG), 1884, A., 741.
- $\beta$ -bromo- and isobromo-** (FITTIG, OBERMULLER and SCHIFFER), 1892, A., 987.
- Phenylisobutyroxypivalic acid and anhydride** (OTT), 1885, A., 663.
- Phenylacacetyl** (*tetraphenylarsine*) (MICHAELIS and SCHULTE), 1883, A., 187.
- Phenylcarbamic acid**, sulpho- (NOLTING), 1889, A., 144.
- Phenylcarbamide and its derivatives** (PINNOW), 1892, A., 460.
- action of halogenated amines on (GATTERMANN), 1886, A., 795.
- bromo-derivatives of (BERTRAM), 1892, A., 467.
- di-p*-chloro-** (HEWITT), 1891, T., 212.
- Phenylcarbamides**, thio-, melting points of (PASCHKOWETZKY), 1892, A., 324.
- Phenylcarbamyl-**. See Carbanilido-
- Phenylcarbazaclidine** (BIZZARRI), 1891, A., 219.
- Phenylcarbazinecarboxyl-amide and -anilide** (FREUND and GOLDSMITH), 1888, A., 1187.

- Phenylcarbizinecarboxylic acid**, amido- (FREUND and KUH), 1890, A., 1441.
- Phenylcarbizine-thiamide and -thianilide** (FREUND and GOLDSMITH), 1888, A., 1188.
- Phenylcarbylamine**. See Phenyl isocyanide.
- Phenyl-dichlorocarbimethylecarbinol** (WILLGERODT and GENIESER), 1888, A., 811.
- Phenyl-m-chlorophenylhydrazine, *o*-*p*-dinitro-** (WILLGERODT and MÜLLER), 1892, A., 454.
- Phenyl-p-chlorophenylhydrazine, *o*-*p*-dinitro-** (WILLGERODT), 1890, A., 1119; (WILLGERODT and BOHM), 1891, A., 906.
- Phenylchrysylthiocarbamide** (ABEGG), 1891, A., 731.
- $\alpha$ -Phenylecinchonic acid** (2'-phenyl-quinoline-4'-carboxylic acid) (DOENNER), 1887, A., 504.
- homologues of (DOENNER and GIESEKE), 1888, A., 300.
- Phenylcinnamyl-uramidethoxime and -uramidoxime** (WOLFF), 1890, A., 42.
- $\alpha$ -Phenylcinnamic acid**, derivatives of (CABELLA), 1884, A., 1948.
- o*-nitro- (OGGIALORO-TODARO and ROSINI), 1891, A., 214.
- $\alpha$ -Phenylcinnamionitrile** (NEURE), 1889, A., 597.
- $\alpha$ -Phenyl- $\beta$ -cinnamylideneacrylic acid** (REBUFFAT), 1885, A., 1137.
- $\alpha$ -Phenyl- $\beta$ -cinnamylideneneacrylonitrile** (FREUND and IMMERWAHR), 1890, A., 1408.
- Phenylcitrazonazide**, nitro- (MICHAEL), 1886, A., 699.
- 1-Phenylcoumenamic acid** (MENDEL), 1885, A., 1203.
- Phenylconiine, *o*-*p*-dinitro-** (LELLMANN and JUST), 1891, A., 1245.
- Phenyl-p-coumaric acid**, synthesis of (OGGIALORO-TODARO), 1884, A., 176.
- derivatives of (CABELLA), 1888, A., 694.
- Phenylcoumarin**, crystallography of (SCACCHI), 1885, A., 901.
- Phenylcoumarinsulphonic acids**, and their salts (TRATOLO), 1885, A., 539.
- Phenylcrotonaldehyde, *m*-amido-** (v. MILLER and KINKELIN), 1886, A., 701.
- m*-nitro- (v. MILLER and KINKELIN), 1886, A., 560.
- base from (v. MILLER and KINKELIN), 1886, A., 701.
- Phenylcrotonaldehyde, *m*-nitro-**, product of the reduction of (v. MILLER and KINKELIN), 1886, A., 799.
- Phenylcrotonic acid** ( $\alpha$ -methylecinnamic acid: *phenylmethacrylic acid*) (STUART), 1883, T., 104, 407; (RAIKOW), 1888, A., 369.
- preparation of (ERDMANN), 1885, A., 528.
- formation of (SLOCUM), 1885, A., 662.
- nitration of, in the side chain (ERDMANN), 1891, A., 1488.
- action of sulphuric acid on (ERDMANN), 1885, A., 528.
- derivatives of (EDELANT), 1887, A., 583; 1888, T., 558; P., 55.
- $\beta$ -bromo- (KORNER), 1888, A., 363.
- $\beta$ -chloro- (PERKIN and CALMAN), 1886, T., 158; P., 139.
- m*-chloro- (v. MILLER and ROHDE), 1890, A., 1139.
- m*-nitro- (v. MILLER and ROHDE), 1890, A., 1140.
- Phenylisocrotonic acid** ( $\beta$ -phenylcrotonic acid) and its derivatives (JAYNE), 1883, A., 472; (BUCHNER and DESSAUER), 1892, A., 850.
- action of nitric acid on (ERDMANN), 1884, A., 906.
- oxidation of (FITTIG), 1888, A., 595; (FITTIG and OBERMÜLLER), 1892, A., 986.
- p*-chloro- (SCHWECHTEN), 1890, A., 620; (ERDMANN and SCHWECHTEN), 1891, A., 449.
- 2:4- and 2:5-dichloro- (SCHWECHTEN), 1890, A., 620; (ERDMANN and SCHWECHTEN), 1891, A., 450.
- 3:4-dichloro- (ERDMANN), 1889, A., 265; (SCHWECHTEN), 1890, A., 620; (ERDMANN and SCHWECHTEN), 1891, A., 451.
- Phenylcrotonitrilecarbamide** (PINNER and LIPSCHÜTZ), 1887, A., 1055.
- Phenylisocroton- $\alpha$ -lactone** (BIEDERMANN), 1892, A., 472.
- Phenylcumazonic acid** (WIDMAN), 1884, A., 304.
- Phenylcumylthiocarbamide** (GOLDSCHMIDT and GESSNER), 1887, A., 1039.
- Phenyleyanamide** and its derivatives (v. HOFMANN), 1886, A., 233.
- preparation of (BERGER), 1884, A., 1157.
- action of acetamide on (BERGER), 1885, A., 387.
- Phenyleyanethine**. See 6-Phenyl-amido-5-methyl-2:4-diethyl-*m*-diazine.

- Phenyleantetrazole (BLADIN), 1887, A., 139.
- Phenylisocyanuric acid (RATHKE), 1888, A., 591; (SMOLKA and FRIEDREICH), 1890, A., 618.
- Phenyl-*p*-cymylcarbinol (CLAUS and ELBS), 1885, A., 1065; (ELBS), 1887, A., 942.
- Phenyleysteine, bromo-, action of acetic anhydride on (BAUMANN), 1885, A., 514.
- Phenyldehydrohexone (PERKIN), 1887, T., 731.  
action of hydrogen bromide on (PERKIN), 1887, T., 732.
- Phenyldehydrohexonecarboxylic acid (PERKIN), 1887, T., 728; (KIPPING and PERKIN), 1890, T., 308.  
action of hydrogen bromide and of water on (PERKIN), 1887, T., 732.  
*p*-nitro- (PERKIN), 1887, T., 736.
- Phenyldehydropentone (MARSHALL and PERKIN), 1891, T., 886.
- Phenyldi-*p*-acetamidoditolylmethane,  $\beta$ -*p*-nitro- (BISCHLER), 1889, A., 132.
- Phenyldiacetyl (MULLER and v. PECHMANN), 1889, A., 1171.
- Phenyldiisocyaniline (LLOYD), 1887, A., 721; 1889, A., 700.
- Phenyldiamylhydrazine (GRIMALDI), 1891, A., 302.
- Phenyldianethoilmethane, *m*-nitro- (DE VARDA), 1891, A., 1347.
- Phenyldibenzylcarbamide (HAMMERICH), 1892, A., 1083.
- 5-Phenyl-2:4-dibenzyl-*m*-diazine, 6-amido- (WACHE), 1889, A., 684.
- as*-Phenyldibenzylthiocarbamide (DIXON), 1891, T., 567.
- Phenyldiisobutylamine (LLOYD), 1887, A., 721; 1889, A., 700.
- Phenyldiisobutylcarbamide, -guanidine and -thiocarbamide (PAHL), 1884, A., 1010.
- Phenyldi-*o*-cresolmethane (*phenyldihydroxydialylmethane*), *m*-nitro- (SIBONI), 1892, A., 621.
- Phenyldiethyl ethylene oxide (HENRY), 1883, A., 803.
- Phenyldiethylacetamidine and its hydrochloride (LUCKENBACH), 1884, A., 1135.
- Phenyldiethylalkine. See Hydroxyethylthylaniline.
- Phenyldiethylarsine (SCHULTE), 1883, A., 186.  
action of benzylidene chloride on (HOLLE), 1892, A., 984.
- Phenyldiethylazonium iodide (PHILIPS), 1889, A., 1168.
- Phenyldiethylcarbamide (GEBHARDT), 1885, A., 383.
- Phenyldiethylenetriamine (GABRIEL), 1889, A., 1167.
- Phenyldiethylethylidenetrisulphone (LAVES), 1892, A., 613.
- Phenyldiethylformamidine (COMSTOCK and WHEELER), 1892, A., 707.
- Phenyldiethylmethenyltrisulphone, and its chloro- and bromo-derivatives (LAVES), 1892, A., 613.
- Phenyldiethylthiocarbamine derivatives (BILLETER), 1887, A., 823.
- Phenyldifurylnaphthadihydroquinoxaline (FISCHER), 1892, A., 1475.
- Phenyldiguamide derivatives (SMOLKA and FRIEDREICH), 1888, A., 830.
- 2'-Phenyl-1':3'-dihydroindazine (PAAL), 1891, A., 724.
- 2'-Phenyldihydroindole (FISCHER and SCHMIDT), 1888, A., 699.
- Phenyldihydro- $\beta$ -naphthatriazine, (GOLDSCHMIDT and POLTZER), 1891, A., 840.
- Phenyldihydro- $\beta$ -phenotriazine (BUSCH), 1892, A., 734.
- Phenyldihydroquinazoline (PAAL and BUSCH), 1890, A., 72.
- Phenyldihydroquinolylmethane (EINHORN), 1886, A., 720.
- Phenyliisodihydroxybutyric acid (FISCHER and STEWART), 1892, A., 1448.
- Phenyliisodihydroxybutyric acid, salts of (FITTIG and OBERMULLER), 1892, A., 987.
- Phenyldihydroxyphenylmethanedicarboxylic acids, *o*-, *m*- and *p*-nitro- (DE VARDA), 1892, A., 621.
- $\omega$ -Phenyl- $\alpha\beta$ - and - $\alpha\omega$ -diketobutane (MULLER and v. PECHMANN), 1889, A., 1171.
- Phenyldiketodimethylanilidopiperidinecarboxylic acid (REISSERT), 1888, A., 697.
- Phenyldiketomethylanilido-*mono*- and *di*-bromopyrrolidines (REISSERT), 1890, A., 642.
- Phenyldiketomethylanilido-*dichloro*-pyrrolidine (REISSERT), 1890, A., 643.
- Phenyl- $\alpha\beta$ -diketopiperazine (BISCHOFF), 1889, A., 1015.
- $\alpha$ -Phenyl- $\alpha\omega$ -diketopropane. See Phenyl methyl diketone.
- Phenyldimethyl-. See also Xylol-.
- Phenyldimethylacetamidine, *s*- and *as*- (LUCKENBACH), 1884, A., 1135.
- Phenyldimethylarsine, action of benzylidene chloride on (HOLLE), 1892, A., 984.

- Phenyldimethylethylammonium iodide (CLAUS and HOWITZ), 1884, A., 1005.  
*tri-, penta-, and hepta-*iodides (GUTHER), 1887, A., 910.
- 2-Phenyl-4:5-dimethylglyoxaline (WADSWORTH), 1890, T., 9.
- 4-Phenyl-2:6-dimethylhexahydropyridine (*phenyllupetidine*) (BALLY), 1888, A., 65.
- 4-Phenyl-2:6-dimethylhexahydropyridinedicarboxylic acid (KIRCHNER), 1892, A., 1487.
- Phenyldimethyloctahydrodiquinolymethane, amido- (v. MILLER and PLOCHL), 1891, A., 1102.
- n*-Phenyldimethylsotriazole (BALTZER and v. PECHMANN), 1891, A., 1115.
- Phenyldimethylsotriazone (v. PECHMANN), 1888, A., 1288.
- 1-Phenyl-3:5-dimethylpyrazole (COMBES), 1889, A., 57.  
 4-bromo- (BALBIANO), 1890, A., 1165.
- 1-Phenyl-3:5-dimethylpyrazole-4-carboxylic acid (KNORR), 1887, A., 678.
- 1-Phenyl-3:5-dimethylpyrazole-1-sulphonic acid (CLAISEN and ROOSEN), 1891, A., 1107.
- 1-Phenyl-2:3-dimethylpyrazolidone (KNORR and DUDEN), 1892, A., 731.
- 1-Phenyl-2:3-dimethylpyrazolone (*antipyrin; dimethylxiquinoline*) (KNORR), 1884, A., 1153, 1378; (KNORR and BULOW), 1884, A., 1382.  
 See also Antipyrin.
- 1-Phenyl-3:4-dimethylpyrazolone (KNORR and BLANK), 1884, A., 1380; (KNORR), 1887, A., 601; (PELLIZZARI), 1889, A., 518.
- 1-Phenyl-2:3-dimethylisopyrazolone (LEDERER), 1892, A., 635.
- 1-Phenyl-2:3-dimethylpyrazolone-4-tartronyl-imide and -carbamide (PELLIZZARI), 1889, A., 517.
- Phenyldimethylpyridazine (KNORR), 1885, A., 995.
- Phenyldimethylpyridazinedicarboxylic acid. See 1-Phenylamido-2:5-dimethylpyrroline-3:4-dicarboxylic acid.
- 4-Phenyl-2:6-dimethylpyridine (*phenyl-lutidine*) (BALLY), 1888, A., 65.  
*m*-amido- (LEPETIT), 1887, A., 1053.
- 4-Phenyl-2:6-dimethylpyridine-3-carboxylic acid and its derivatives (HANTZSCH), 1885, A., 397.
- 4-Phenyl-2:6-dimethylpyridine-3:5-dicarboxylic acid (KIRCHNER), 1892, A., 1486.  
*m*-amido- (LEPETIT), 1887, A., 1053.
- Phenyl-8-dimethylpyridinedicarboxylic acid (REED), 1887, A., 681.
- 4-Phenyl-1:6-dimethyl-2-pyridone (*methylalutyl-carboxystyryl of phenylpyrroline*) (HANTZSCH), 1885, A., 398.
- Phenyl-2:6-dimethylpyridone (*phenyl-lutidone*) (PERKIN), 1887, T., 499; (CONRAD and GUTHZEIT), 1887, A., 501.
- Phenyl-2:6-dimethylpyridone-*mono-* and -*di-*carboxylic acids (CONRAD and GUTHZEIT), 1887, A., 500.
- 1-Phenyl-2:5-dimethylpyrroline (KNORR), 1887, A., 275.
- 1-Phenyl-2:5-dimethylpyrroline-3:4-dicarboxylic acid (KNORR), 1885, A., 555.
- 2'-Phenyl-1':4'-dimethylquinolinium hydroxide (*methylfluorolinium hydroxide*) (BERNTINEN and HESS), 1885, A., 559.
- Phenyldimethylquinoxaline (MÜLLER and v. PECHMANN), 1889, A., 1171.
- Phenyldimethylsulphonediamide (BEHREND), 1884, A., 285.
- Phenyldimethyltetrahydronaphthalene (ERDMANN), 1885, A., 528.
- Phenyldimethylthiocarbamide (DIXON), 1892, T., 539.
- s*-Phenyldimethylthiocarbamide (GEBHARDT), 1885, A., 333.
- Phenyldimethylthiohydantoin (MARCKWALD, NEUMARK and STELZNER), 1892, A., 150.
- 1-Phenyl-4-dimethyl-2-thiomethoxyglyoxaline (MARCKWALD, NEUMARK and STELZNER), 1892, A., 153.
- Phenyldimethylurazole (PINNER), 1888, A., 688.
- Phenyldiarsinolmethane, *m*-nitro- (BERTONI), 1891, A., 1378.
- Phenyldiphloroglucinolmethane, *m*-nitro- (BERTONI), 1891, A., 1378.
- Phenyldipiperidyl, *p*-nitro-, and *o*:*p*-dinitro- (LELLMANN and JUST), 1891, A., 1245.
- Phenyldipropyl-carbamide, -guanidine and -thiocarbamide (FRANCKSEN), 1884, A., 1008.
- Phenyldiquinolylmethane, *p*-nitro- (EINHORN), 1886, A., 720.
- Phenyldiresorcinolmethane, *m*-nitro- (DE VARDA and ZENONI), 1891, A., 1346.
- Phenyldithienyl (RENARD), 1890, A., 1420.  
*tribromo-* and *dinitro-* (RENARD), 1890, A., 1420.
- Phenyldithienylsulphonic acid (RENARD), 1890, A., 1421.

- Phenyldithymolmethane (RUSSANOFF), 1889, A., 1188; 1891, A., 1235.
- Phenyl-*p*-ditolylbiuret (KUHN and HENSCHKE), 1888, A., 471.
- Phenyl-*p*-ditolylcarbamide (HAMMERICH), 1892, A., 1083.
- s*-Phenyldi-*o*-tolylguanidine (HUHN), 1886, A., 1036.
- Phenylditolylmethane, *m*-nitro- (TSCHACHER), 1887, A., 44; 1888, A., 373.
- Phenylditolylphosphine (DÜRKEN), 1888, A., 833.
- Phenyldi-*p*-tolyltriazole (BLADIN), 1890, A., 271.
- Phenyldi-*p*-xylylmethane (ELBS), 1887, A., 941.
- Phenyldixylyl- $\beta$ -pinacoline (ELBS), 1887, A., 941.
- Phenyldulcitosazone (FISCHER and TAFEL), 1888, A., 358.
- Phenylisodurylcarbinyl benzoate and acetate (ESSNER and GOSSIN), 1885, A., 253.
- Phenylisodurylglucolic acid (ESSNER and GOSSIN), 1885, A., 253.
- o*-Phenylene hydrogen antimonite (CAUSSE), 1892, A., 1078.
- Phenyleneamidinebenzenyl-*o*-carboxylic acid (BISTRZYCKI), 1890, A., 970.
- Phenylene-*p*-amidobenzoylurethane (HAGER), 1885, A., 150.
- Phenylenediamidodiacetic acid (*phenylenediglycine*), hydrochloride of (ZIMMERMANN and KNYRIM), 1883, A., 797.
- Phenylenebenzenyldiamine (AUWERS and v. MEYENBURG), 1891, A., 1378.
- ethyl-derivative and nitrile of (HOWE), 1884, A., 741.
- Phenylenedibromacetylene ketone. See Ketohydrene, *di*bromo-.
- Phenylenecarbamide (*amidocarbamidophenol*) (KALCKHOFF), 1883, A., 1110.
- amido- (JENTZSCH), 1889, A., 46.
- Phenylenetrichlorethylene ketone. See Ketohydrene, *trichloro*-.
- Phenylenetetrachlorethylene ketone. See Ketohydrene, *tetrachloro*-.
- Phenylenetrichlorethyleneglycollic acid (ZINCKE), 1888, A., 158.
- Phenylenedichlorodibromethylene ketone. See Ketohydrene, *di*-chlorodibromo-.
- Phenylenechlorohydroxyacetylene ketone (ZINCKE), 1887, A., 728.
- Phenylene-*p*-diacetamidine (GLOCK), 1886, A., 1290.
- o*-Phenylenediacetic acid (v. BAEYER and PATE), 1884, A., 898.
- Phenylenediacetic acids, *m*- and *p*- (KIPPING), 1888, T., 42.
- Phenylene-*p*-diacetamidooethyl ether (GLOCK), 1888, A., 1290.
- p*-Phenylenediacryl methyl ketone (LÖW), 1886, A., 461.
- o*-Phenylenediacrylic acid (PERKIN), 1886, A., 469; 1888, T., 14.
- p*-Phenylenediacrylic acid (LÖW), 1886, A., 461; (KIPPING), 1888, T., 41.
- o*-Phenylenediallylthiocarbamide (LELLMANN and WURTNER), 1885, A., 977.
- Phenylenediamine (*diamidobenzene*), azo- and diazo-derivatives of (WALLACH and SCHULZE), 1883, A., 583.
- o*-Phenylenediamine, preparation of (LELLMANN), 1884, A., 49.
- action of cyanogen on (BLADIN), 1885, A., 257, 785.
- action of ferric chloride on (WIESINGER), 1884, A., 1322.
- action of formaldehyde on (FISCHER and WRZESINSKI), 1892, A., 1496.
- oxidation of (FISCHER and HEPP), 1889, A., 499; 1890, A., 800.
- detection of, in *m,p*-tolenylenediamine (HINSBERG), 1885, A., 934.
- "*o*-Phenylenediamine, *di*cyno-" (BLADIN), 1885, A., 257, 785.
- m*-Phenylenediamine, preparation of, from resorcinol (SEYEWITZ), 1890, A., 245.
- action of carbon disulphide on (GUCCI), 1885, A., 156; 1886, A., 1023; 1888, A., 588.
- condensation of, with cinnamaldehyde (v. MILLER), 1891, A., 1103.
- physiological action of (DUBOIS and VIGNON), 1889, A., 66.
- preservation of solutions of, and its use as a reagent (DENIGES), 1892, A., 1124.
- di*nitro- [*m.p.* 250°] (BARR), 1888, A., 823.
- [*m.p.* 300°] (NIEZKI and HAGENBACH), 1887, A., 477.
- trinitro*- (NOLTING and COLLIN), 1881, A., 1001; (BARR), 1888, A., 823.
- p*-Phenylenediamine, preparation of (LELLMANN), 1884, A., 49.
- nitration of (LADENBURG), 1884, A., 738.
- oxidation of (v. BANDROWSKI), 1889, A., 973.
- physiological action of (DUBOIS and VIGNON), 1889, A., 66.
- salts, heat of formation of (VIGNON), 1888, A., 1012.

- p*-Phenylenediamine, dichloro-, hydrochloride (MOHLAR), 1886, A., 941.
- Phenylenediamines and their derivatives (LELLMANN), 1883, A., 321.
- thermochemistry of (VIGNON), 1889, A., 1099.
- condensation of, with acetaldehyde (SCHIFF and VANNI), 1890, A., 139.
- condensation of, with butaldehydes (LASSAR-COHN), 1890, A., 135.
- action of *p*-diazobenzenesulphonic acids on (GRIESS), 1883, A., 183.
- action of ethylic chloracetate on (ZIMMERMANN and KNYRIN), 1883, A., 797.
- mono-additive products of phenylic cyanate and (LELLMANN and WÜRTHER), 1885, A., 975.
- benzyl derivatives of (LELLMANN and COSTE), 1889, T., 590; P., 116.
- cyanic acid derivatives of (LELLMANN), 1883, A., 795.
- p*-Phenylenediaminedibenzylidene-sulphonic acid, sodium salt of (KAFKA), 1891, A., 721.
- o*-Phenylenediaminesulphonic acid (NIETZKI and LERCH), 1889, A., 144.
- o*-Phenylenediamine-*p*-sulphonic acid (LERCH), 1889, A., 851.
- 2:5-Phenylenediaminethiosulphonic acid (BERNTHSEN), 1889, A., 777.
- o*-Phenylenediazosulphide (JACOBSON), 1889, A., 135.
- Phenylenediazosulphidecarboxylic acid (PFITZINGER and GATTERMANN), 1889, A., 868.
- Phenylenedibenzylidiacetic acid (MEYER and OELKERS), 1888, A., 704.
- Phenylenedicarbamides, three isomeric (LELLMANN), 1883, A., 798.
- Phenylenediethyldisulphone (OTTO and CASANOVA), 1888, A., 255.
- Phenylenediglycocine. See Phenylene-*d*/amidodiacetic acid.
- p*-Phenylenedimethylaminediethyl-methylphosphonium iodide (MICHAELIS and SCHENK), 1891, A., 436.
- p*-Phenylenedimethylaminediethyl-phosphine and its oxide and sulphide (MICHAELIS and SCHENK), 1891, A., 436.
- p*-Phenylenedimethylaminedimethyl-phosphine and its oxide and sulphide (MICHAELIS and SCHENK), 1891, A., 435.
- p*-Phenylenedimethylaminediphenyl-methylphosphonium iodide and *p*-phenylenedimethylaminediphenyl-phosphine oxide and sulphide (MICHAELIS and SCHENK), 1891, A., 436.
- Phenylenedimethylaminephenyl-methylphosphine oxide and phenylenedimethylamine-triethyl- and tri-methyl-phosphonium iodides (MICHAELIS and SCHENK), 1891, A., 435.
- m*-Phenylenedimethylidinitramine, trinitro- (VAN ROMBURGH), 1888, A., 1079, 1185.
- o*-Phenylenedipropionic acid (PERKIN), 1886, A., 469; 1888, T., 18.
- Phenylenedipropionic acids, *m*- and *p*- (KIPPING), 1888, T., 32, 39.
- Phenylene-ethenylamidine, nitro- (*nitr-ethyl-o-phenylenediamine*) (HEIM), 1888, A., 1097.
- Phenylene-ethenylethylamidine (*eth-ethyl-o-phenylenediamine*) (HEMPPEL), 1889, A., 600; 1890, A., 612.
- Phenylene-ethyl-*o*-diamines (*amido-ethylaniline*) (HEMPPEL), 1889, A., 600; 1890, A., 612.
- Phenylene-ethyl-*m*-diamine (NOLTING and STRICKER), 1886, A., 545.
- Phenylene-ethyl-*p*-diamine (SCHWEITZER), 1886, A., 347; (FISCHER and HEPP), 1887, A., 244.
- o*-Phenylene-ethylenediamine and its derivatives (MERZ and RIS), 1887, A., 722; (RIS), 1888, A., 468.
- Phenylene-ethylenedisulphone (OTTO and CASANOVA), 1888, A., 256.
- Phenylenehydroxylamine, dinitro- (WILLGERODT), 1892, A., 594.
- Phenylenedimidobutyric acid, synthesis of (KNORR), 1884, A., 1198.
- o*-Phenylenemethyldiamine (FISCHER), 1892, A., 1475.
- m*-Phenylenemethyldiamine (NOLTING and STRICKER), 1886, A., 544.
- p*-Phenylenemethyldiamine (BERNTHSEN and GOSKE), 1887, A., 667.
- Phenylenemethylethenylamidine (FISCHER), 1892, A., 1475.
- $\beta$ -Phenylenenaphthylenemethane oxide (PHOMINA), 1890, A., 901.
- Phenylene- $\beta$ -naphthylethenyldiamine, nitro- (HEIM), 1888, A., 488.
- m*-Phenyleneoxytrichlorethylene (MICHAEL), 1886, A., 614.
- Phenylenepropyldiamine, action of bromine on (SMITH), 1885, A., 524.
- Phenylenepropyldiamine (WACKER), 1888, A., 466.
- Phenylenepropylenediamine (RIS), 1888, A., 468.
- Phenylenepyridineketonedicarboxylic acids,  $\alpha$ - and  $\beta$ - (DOEBNER and PETERS), 1890, A., 1008.
- formation of, by the oxidation of naphthaquinoline derivatives (DOEBNER and PETERS), 1890, A., 1007.

- Phenylenequinaldine.** See Phenyl-2'-methylquinoline.
- m*-Phenylenesuccinamic acid** (GRIESS), 1885, A., 1220.
- Phenylenetetramethyl-**. See Tetramethylphenylene-.
- o*-Phenylenethiocarbamide** (LELLMANN), 1883, A., 324; 1884, A., 49.
- Phenylenethiocarbamides** (LELLMANN), 1883, A., 185; (BILLETTER and STEINER), 1887, A., 366.
- Phenylenedithiocarbamides and their derivatives** (LELLMANN), 1883, A., 324; 1884, A., 49.
- o*-Phenylene-*p*-tolylguanidine** (KELLER), 1891, A., 1470.
- p*-Phenylenurethane** (GATTERMANN and WRAMPPELMEYER), 1886, A., 50.
- Phenylenic carbamates, *o*-, *m*-, and *p*-** (GATTERMANN), 1888, A., 575.
- Phenylenic cyanates, *m*- and *p*-** (GATTERMANN and WRAMPPELMEYER), 1886, A., 50.
- Phenylenic oxide** (VAUBEL), 1892, A., 1187.
- p*-Phenylenic disulphide** (LEUCKART), 1890, A., 605.
- m*-Phenylenic *o*-tolylcarbamate** (GATTERMANN and CANTZLER), 1892, A., 832.
- Phenylethenylidiamidoacetone** (RÜGHEIMER and MISCHKE), 1892, A., 952.
- Phenylethenylamidoxime, and its derivatives** (KNUDSEN), 1885, A., 897, 1218.
- p*-cyano-** (ROSENTHAL), 1890, A., 147.
- Phenylethenylamidoximebenzenesulphone** (PINNOW), 1892, A., 461.
- Phenylethenylazidine hydrochloride** (PINNER), 1884, A., 1323.
- Phenylethenylazo-**. See Azo.
- Phenylethenylphenylramidoxime** (KNUDSEN), 1885, A., 898.
- ethyl ether** (KNUDSEN), 1885, A., 1218.
- Phenylethoxynaphthalene, diamido-** (WEINBERG), 1888, A., 286.
- Phenylethylacetanilide,  $\beta$ -bromo-** (ELFELDT), 1892, A., 214.
- Phenylethylacetic acid** (NEURE), 1889, A., 597.
- Phenylethylallylthiocarbamide** (GEBHARDT), 1885, A., 383.
- Phenylethylamidacetic acid** (HEUMANN), 1891, A., 837.
- Phenylethylamidobenzeneazophenylethylaniline** (LIPPMANN and FLEISSNER), 1884, A., 180.
- $\alpha$ -Phenylethylamine** (TAFEL), 1886, A., 940.
- derivatives** (TAFEL), 1889, A., 976.
- $\omega$ -Phenylethylamine** (ERLENMEYER and LIPP), 1883, A., 993.
- preparation of** (HOOGWERFF and VAN DORP), 1887, A., 245.
- oxalate** (HOOGWERFF and VAN DORP), 1888, A., 1196.
- as*-Phenylethylcarbamide** (GEBHARDT), 1884, A., 1321.
- Phenylethylcarbinol** (ERRERA), 1887, A., 35.
- Phenylethylene.** See Styrene.
- Phenylethylene-carbamide and -thiocarbamide** (NEWMAN), 1891, A., 1206.
- Phenylethylenediamine** (GABRIEL), 1889, A., 1166.
- Phenylethyl-hydantoin and - $\psi$ -hydantoin** (PINNER), 1888, A., 1103.
- Phenylethylhydrazine acetoacetate, action of hydrocyanic acid on** (v. MILLER and PLOCHL), 1892, A., 1196.
- o*-amido-** (HEMPPEL), 1890, A., 612.
- Phenylethylhydrazine-glyoxal and -glyoxylic acid** (ELBERS), 1885, A., 535.
- Phenylethylhydrazone, thionyl-** (MICHAELIS), 1889, A., 1163.
- Phenylethyl alcohol, oximido-** (MEYER and NAGEL), 1883, A., 1076.
- Phenylethyl salicylate, *o*-nitro-** (*salicyl ethylene nitrophenol ether*) (WAGNER), 1884, A., 436.
- Phenylethylidene cyanhydrin** (ERLENMEYER and LIPP), 1883, A., 992.
- Phenylethylidenebenzenylamidoxime** (ZIMMER), 1890, A., 253.
- Phenylethylketone-*o*-carboxylic acid** (*benzoyl ethyl-*o*-carboxylic acid*) (ROSER), 1886, A., 243.
- Phenylethyllactic acid, behaviour of** (SLOCUM), 1885, A., 662.
- $\beta$ -Phenyl- $\alpha$ -ethylactic acid** (PERKIN and STENHOUSE), 1891, P., 43.
- Phenylethylmalonamide** (FREUND and GOLDSMITH), 1888, A., 676.
- Phenylethyl nitrosamine, *p*-nitro-** (MELDOLA and STREATFIELD), 1886, T., 631.
- 5-Phenyl-1-ethyloxy- $\psi$ -thiazole** (HUBACHER), 1891, A., 222.
- Phenylethylphenol.** See Hydroxydiphenylethane.
- Phenylethylphenylthiocarbamide** (MAINZER), 1883, A., 1106.
- Phenylethylphthalamic acid and its salts** (PIUTTI), 1884, A., 449.
- Phenylethylpropionic acid, preparation and properties of** (ANSCHÜTZ and BERNS), 1891, A., 914.

- 1:5-Phenylethylpyrazole (CLAISEN and STYLOS), 1888, A., 871.
- Phenylethylsemithiocarbazide (DIXON), 1889, T., 302.
- Phenylethylsulphone (OTTO), 1885, A., 537.
- $\alpha$ -Phenyl- $\mu$ -ethylthiazole (HUBACHER), 1891, A., 221.
- Phenylethylthiobiuret (TURSINI), 1884, A., 1141.
- Phenylethylthiocarbamide (NEUBERT), 1886, A., 873.
- $\alpha\beta$ -Phenylethylthiocarbamide (GEBHARDT), 1884, A., 1321.
- Phenylethylthiocarbamine chloride and oxide (BILLETTER), 1887, A., 822.
- Phenylethylthiocarbimide (NEUBERT), 1886, A., 873.
- Phenylethylthiohydantoin hydrochloride (NEUBERT), 1886, A., 873.
- 2-Phenyl-4-ethylthiophen (DITTRICH and PAAL), 1889, A., 258.
- Phenylethyltriazoledicarboxylic acid (BLADIN), 1892, A., 637.
- Phenylethylurethane, nitro- (STEDTMANN), 1883, A., 802.
- Phenylfenchylamine (WALLACH), 1891, A., 1088.
- Phenylformamidine, cyano- (COMSTOCK and WHEELER), 1892, A., 707.
- Phenylfurazan (RUSSANOFF), 1892, A., 322.
- $\alpha$ -Phenylfurfuracrylonitrile (FROST), 1889, A., 598.
- $p$ -amido-, and  $p$ -nitro- (FREUND and IMMERWAHR), 1890, A., 1408.
- Phenylfurfuryl-carbamide and thiocarbamide (DEUTZMANN), 1892, A., 43.
- Phenylgalactosazone (SCHEIBLER), 1884, A., 1287; (FISCHER), 1885, A., 54.
- Phenylglucosazone (FISCHER), 1885, A., 53; 1886, A., 933.
- Phenylglucosazonecarboxylic acid (RODER), 1887, A., 150.
- Phenylglutaric acid (MICHAEL), 1887, A., 672.
- $\beta$ -Phenylglyceric acid ( $\alpha\beta$ -dihydroxy-phenylpropionic acid) (LIPP), 1883, A., 994; (FITTIG and RUER), 1892, A., 986.
- Phenylglycerol (dihydroxyphenoxypropane) (LINDEMANN), 1891, A., 1198.
- Phenylglycerosazone (FISCHER and TAFEL), 1887, A., 651.
- Phenylglycidic acid ( $\beta$ -phenylhydroxyacrylic acid) (PLÜCHL), 1884, A., 604; 1887, A., 254; (ERLENMEYER), 1887, A., 142, 1046; (WISLICENUS), 1887, A., 587.
- Phenylglycidic acid ( $\beta$ -phenylhydroxyacrylic acid), synthesis of (ERLENMEYER), 1889, A., 990.
- sodium salt of, behaviour of ammonia and organic bases with (ERLENMEYER), 1889, A., 988.
- $o$ - and  $p$ -nitro- (LIPP), 1887, A., 142.
- Phenylglycidic acids, optically active (ERLENMEYER), 1891, A., 1482.
- $o$ -Phenylglycincarboxylic acid. See Carboxyanilidoacetic acid.
- Phenylglycinmethylanilide. See Phenylamidoacetomethylanilide.
- Phenylglycinphenylamidoacetic acid. See Anilidoacetanilidoacetic acid.
- Phenylglycocine. See Anilidoacetic acid.
- "Phenylglycocinesulphonic acid" (ZEHENTER), 1885, A., 55, 1235.
- Phenylglycollic acid. See Mandelic acid.
- Phenylglyeauronic acid (KÜLZ), 1885, A., 283; 1890, A., 1286.
- Phenylglyoxal (v. PECHMANN), 1888, A., 146; (MÜLLER and v. PECHMANN), 1890, A., 51.
- hydrate (v. PECHMANN), 1888, A., 146.
- 1-Phenylglyoxaline (WOHL and MARCKWALD), 1892, A., 624.
- 2-Phenylglyoxaline (MAQUENNE), 1891, A., 331.
- 2-Phenylglyoxalinedicarboxylic acid (MAQUENNE), 1890, A., 1440.
- Phenylglyoxalmethylphenylosazone (CULMANN), 1888, A., 1287.
- 1-Phenylglyoxalylmercaptide (WOHL and MARCKWALD), 1892, A., 624.
- Phenylglyoxime (SCHRAMM), 1884, A., 52; (STRASSMANN), 1889, A., 610.
- peroxide (SCHOLL), 1891, A., 316.
- Phenylglyoximes (RUSSANOFF), 1892, A., 321.
- Phenyl-*amphi*- and -*syn*-glyoximecarboxylic acids (NUSSBERGER), 1892, A., 1177.
- Phenylglyoxylic acid, formation of, from benzoic cyanide (v. BUCHKA), 1887, A., 487.
- preparation of, from acetophenone (v. BUCHKA and IRNH), 1887, A., 483.
- condensation products of (HOMOLKA), 1885, A., 758.
- derivatives of (HAUSKNECHT), 1889, A., 506.
- stereochemically isomeric oximes of (MÜLLER), 1883, A., 1129; 1884, A., 584; (HANTZSCH), 1890, A., 1274; 1891, A., 444.

- Phenylglyoxylic acid**, phenylhydrazone and phenylethylhydrazone of (ELBERS), 1885, A., 531.
- Phenylglyoxylic acid**, *o*-amido-. See Isatinic acid.
- amidoeyano-** (GRIESS), 1855, A., 1226.
- o*-nitro-**, hydrazone, isomeric form of (KRAUSE), 1891, A., 302.
- methylphenylhydrazone** (FEHLIN), 1890, A., 1118.
- o*- and *m*-nitro-**, hydrazone (FEHLIN), 1890, A., 1117.
- Phenylglyoxylic lactim**, *o*-amido-. See Isatin.
- Phenylglyoxylic-*o*-toluidide** (NEF), 1892, A., 1442.
- Phenyl-group**, negative nature of the (MEYER), 1887, A., 572.
- Phenylguanazole** (TELLIZZARI), 1892, A., 356.
- Phenylguanidine picrate** (PRELINGER), 1892, A., 950.
- o*-Phenylglucosazone** (FISCHER and CURTISS), 1892, A., 823.
- p*-bromo-** (FISCHER and CURTISS), 1892, A., 823.
- Phenylhalogenacrylic acids** (ERLENMEYER), 1883, A., 196.
- Phenylheptonitrile**. See Phenylamylacetoneitrile.
- Phenylhexamethylene**, derivatives of (KIPPING and PERKIN), 1889, P., 161; 1890, T., 304.
- Phenylhexamethylene methyl ketone and ketoxime** (KIPPING and PERKIN), 1890, T., 320.
- Phenylhexamethylenecarboxylic acid** (KIPPING and PERKIN), 1890, T., 316, 322.
- Phenylhexamethylenedicarboxylic acid** (KIPPING and PERKIN), 1890, T., 315.
- s*-Phenyl- $\psi$ -hexylcarbamide** (FREUND and HERRMANN), 1890, A., 174.
- Phenylhexyldihydro- $\beta$ -naphthatriazine** (GOLDSCHMIDT and POLTZER), 1891, A., 841.
- Phenylisohexylene** and its dihydromide (SCHRAMM), 1883, A., 977.
- s*-Phenyl- $\psi$ -hexylthiocarbamide** (FREUND and HERRMANN), 1890, A., 474.
- Phenylhexyltriazolecarboxylic acid** (BLADIN), 1892, A., 597.
- Phenylhippuric acid** (KOSSEL), 1892, A., 468.
- Phenylhomotamallic acid**. See Hydroxybenzylpyrotartaric acid.
- Phenylhomoparaconic acid**, and its salts (PENFIELD), 1883, A., 473.
- Phenylisohomoparaconic acid** (FITTIG), 1855, A., 252.
- $\alpha$ -Phenylhydantoic acid** (PINNER), 1888, A., 1103.
- $\alpha$ -Phenylhydantoic amide** (PINNER and SPILKER), 1889, A., 706.
- $\alpha$ -Phenylhydantoin** (PINNER), 1888, A., 1102.
- $\gamma$ -Phenylhydantoin** (GUARENCHI), 1892, A., 828.
- $\psi$ -Phenylhydantoin** (PINNER), 1888, A., 1102.
- Phenylhydracrylic acid**. See  $\beta$ -Hydroxyphenylpropionic acid.
- Phenylhydrazides**, formation of (FISCHER and PASSMORE), 1890, A., 152.
- Phenylhydrazidoacetic acid** (ELBERS), 1885, A., 535.
- asymmetrical** (REISSERT and KAYSER), 1891, A., 1054.
- Phenylhydrazidobenzylidenephénylhydrazone**. See Benzoyldiphenylazidine.
- $\alpha$ -Phenylhydrazidobutyramide** (v. MILLER and PLOCH), 1892, A., 1192.
- $\alpha$ -Phenylhydrazidobutyric acid** (JAPP and KLINGEMANN), 1888, T., 538.
- as*-Phenylhydrazidobutyric acid** (LEDERER), 1892, A., 635.
- $\alpha$ -Phenylhydrazidoisobutyric anhydride** (REISSERT), 1884, A., 1153.
- $\alpha$ -Phenylhydrazidoisobutyrimide and isobutyronitrile** (REISSERT), 1884, A., 1152.
- Phenylhydrazido-*o*- and -*p*-cresotoils** (NOLTING and WERNER), 1891, A., 212.
- $\psi$ -Phenylhydrazido- $\alpha$ -hydroxybutyric acid**, and its derivatives (REISSERT and KAYSER), 1890, A., 155.
- $\psi$ -Phenylhydrazidomandelic acid** (REISSERT and KAYSER), 1890, A., 156.
- nitroso-** (REISSERT and KAYSER), 1891, A., 439.
- 2'-Phenylhydrazido-1'-methylquinoline** (2'-phenylhydrazolopidine) (EPHRAIM), 1892, A., 1488.
- Phenylhydrazidophenylacetic acid** (ELBERS), 1885, A., 531; (REISSERT and KAYSER), 1891, A., 438.
- Phenylhydrazidophenylbiazolone** (FREUND and KUHN), 1890, A., 1441.
- Phenylhydrazidophenyl-*mono*- and -*di*-thiobiazolones** (FREUND and KUHN), 1890, A., 1441.
- $\alpha$ -Phenylhydrazidopropionic acid** (FISCHER and JOURDAN), 1884, A., 53; (v. MILLER and PLOCH), 1892, A., 1196; (REISSERT), 1892, A., 1456.
- salts of** (REISSERT), 1884, A., 1152.

***α*-Phenylhydrazidopropionitrile** (REISSERT), 1884, A., 1152; (V. MILLER and PLÜCHL), 1892, A., 1195.  
 amide of (REISSERT), 1884, A., 1152.  
**2'-Phenylhydrazidoquinoline** (EPHRAIM), 1891, A., 1509.  
**Phenylhydrazide acids**, formation of, from the anhydrides of dibasic acids (ANSCHUTZ), 1888, A., 367.  
**Phenylhydrazine** (FISCHER), 1887, A., 188.  
 preparation of (MEYER and LECO), 1884, A., 597; (REYCHLER), 1884, A., 1042.  
 commercial, substance contained in (V. MEYER), 1886, A., 349.  
 and acid amides (JUNT), 1886, A., 700.  
 action of substituted acetoacetates on (KNORR), 1884, A., 302; (KNORR and BLANK), 1884, A., 1380; 1885, A., 555, 810.  
 action of, on amido-compounds of the benzene series (JUNT), 1886, A., 699.  
 action of arsenic chloride on (MICHAELIS and OSTER), 1892, A., 1326.  
 action of, on benzoylacetylcarboxylic acid (ROSER), 1885, A., 797.  
 action of, on benzoylacetone and its nitro-derivative (FISCHER and BULOW), 1885, A., 1237.  
 action of boron chloride on (MICHAELIS and OSTER), 1892, A., 1326.  
 action of carbamide on (PINNER), 1887, A., 1042; (EDELEANU), 1892, A., 1323.  
 action of carbonyl chloride and of carbonyl sulphide on (FISCHER), 1889, A., 1164; (HELLER), 1891, A., 1212.  
 action of, on *tetrachloracetone* (LEVY and WITTE), 1889, A., 1160.  
 action of copper sulphate on hot acid solutions of (GATTERMANN and HÜLZLE), 1892, A., 842.  
 action of, on cyanhydrins (REISSERT), 1884, A., 1152.  
 action of cyanogen chloride on (PELLIZZARI and TIVOLI), 1892, A., 1323.  
 action of ethylic acetoacetate on (KNORR), 1884, A., 302.  
 action of ethylic acetylbenzalacetate on (KNORR and BLANK), 1885, A., 810.  
 action of ethylic benzoylacetate on (KNORR and BLANK), 1885, A., 555.  
 action of ethylic chlorocarbonate on (FISCHER), 1889, A., 1165; (HELLER), 1891, A., 1212.

**Phenylhydrazine**, action of ethylic diacetylsuccinate on (KNORR and BULOW), 1884, A., 1381; (KNORR), 1885, A., 995.  
 action of ethylic *o*- and *p*-nitrobenzoylacetate on (KNORR and JUDICKE), 1885, A., 1247.  
 action of ethylic succinosuccinate on (KNORR), 1884, A., 1154; (KNORR and BULOW), 1884, A., 1380.  
 action of, on imido-ethers (PINNER), 1884, A., 743, 1323.  
 action of *o*-nitrobenzyl chloride on (PAAL and BODEWIG), 1892, A., 1455.  
 action of nitroso-bases on (FISCHER and WACKER), 1888, A., 1286; 1889, A., 702.  
 action of, on phloroglucinol and resorcinol (V. BAAYER and KOCHENDOERFER), 1889, A., 1162.  
 action of phosphorus trichloride on (MICHAELIS and OSTER), 1892, A., 1324.  
 action of, on phthalic anhydride (HOTTE), 1885, A., 1221.  
 action of silicon chloride on (MICHAELIS and OSTER), 1892, A., 1326.  
 action of, on sulphinic acids (ESCALES), 1885, A., 798.  
 nitration of (MICHAEL), 1886, A., 699.  
 oxidation of, with Fehling's solution (STRACHE and KITZ), 1892, A., 1322.  
 effects of, on the organism (HOPPE-SEYLER), 1885, A., 574.  
 action of, on the skin (BREYTHIEN and TOLLENS), 1890, A., 582.  
 compounds of glucoses and sucroses with (FISCHER), 1885, A., 53.  
 compounds of, with ketonic and aldehydic acids (FISCHER), 1884, A., 1151.  
 derivatives of (MARCKWALDT), 1889, A., 392; (WILLGERODT and MUEH), 1892, A., 453.  
 action of, on the blood (HEINZ), 1891, A., 602.  
*p*-alkyloxy-derivatives of (ALTSCHUL), 1892, A., 1080, 1198.  
 benzoyl-derivatives of (TAFEL), 1885, A., 1060.  
 halogen derivatives of (NEUFELD), 1889, A., 251.  
 inorganic derivatives of (MICHAELIS), 1889, A., 1163; 1892, A., 1324; (MICHAELIS and RUHL), 1890, A., 617.  
 metallic derivatives of (MARTINI), 1892, A., 1454.

- Phenylhydrazine** salts, reactions of (CROSS and BEVAN), 1884, A., 897.  
 reagent for aldehydes and ketones (FISCHER), 1884, A., 1150.  
 titration of (v. MEYER), 1887, A., 1042.
- Phenylhydrazine acetate** (DE VRIES and HOLLEMAN), 1892, A., 981.  
 acetoacetate, phenylhydrazone of (v. PECHMANN and JENISCH), 1892, A., 162.  
 benzenesulphinate (ESCALES), 1885, A., 798.  
 benzoylformate, phenylhydrazone of (CURTIUS and LANG), 1892, A., 453.  
 carbonyl chloroplatinate (FOERSTER), 1892, A., 353.  
 cinnamaldehydrazonesulphonate (HEUSLER), 1891, A., 1052.  
 cinnamate and *allocinnamate* (LIEBERMANN), 1891, A., 833.  
 cyanuric chloride (FRIES), 1886, T., 742.  
 hydrocinnamate (LIEBERMANN), 1891, A., 833.  
 hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1001.  
 isonitrile of (RUHEMANN and ELLIOTT), 1888, T., 850; P., 88.  
 dinitro- $\alpha$ -naphtholsulphonate (RICHARDSON), 1888, A., 1286.  
 parabanate (SKINNER and RUHEMANN), 1888, T., 555.  
 phenylsemithiocarbazate (HELLER), 1891, A., 1212.  
 phosphenite and phosphite (MICHAELIS and OSTER), 1892, A., 1325.  
 $\beta$ -phthalylphenylhydrazinate (OTTO and HOLST), 1890, A., 1327.  
 potassium salt of (MICHAELIS and SCHMIDT), 1887, A., 366.  
 pyrocinchonylphenylhydrazinate (OTTO and HOLST), 1890, A., 1327.  
 sodium salt of (MICHAELIS), 1886, A., 1025; 1889, A., 1158.  
 action of acid chlorides and anhydrides on (MICHAELIS and SCHMIDT), 1889, A., 1159.  
 action of alkyl bromides and of benzylic chloride on (PHILIPS), 1889, A., 1158.  
*p*-tolylphosphenite (MICHAELIS and OSTER), 1892, A., 1325.
- Phenylhydrazine, o-amido-** (BISCHLER), 1889, A., 501.  
*m*-amido-, and its hydrochloride (GRIESS), 1885, A., 789.  
*p*-bromo-*o*-nitro- (BISCHLER and BRODSKY), 1890, A., 151..
- Phenylhydrazine, o-chloro-** (HEWITT), 1891, T., 209; P., 3; (WILLGERODT), 1891, A., 1043.  
*o*-chloro-, hydrochloride (HEWITT), 1891, T., 209.  
*m*-chloro-, and its derivatives (WILLGERODT and MUHE), 1892, A., 454.  
*p*-chloro- (HEWITT), 1891, T., 211; P., 3.  
 action of chloroform and alcoholic potash on (HEWITT), 1891, T., 213.  
 cyano-, and its hydrochloride (SENF), 1887, A., 929.  
 dicyano-, action of ethylic acetoacetate on (BLADIN), 1892, A., 597.  
 condensation of, with fatty aldehydes (BLADIN), 1892, A., 596.  
 derivatives of (BLADIN), 1885, A., 979; 1886, A., 146; 1887, A., 138; 1889, A., 702.  
*o*-nitro- (BISCHLER), 1889, A., 501; 1890, A., 148.  
*m*-nitro- (BISCHLER and BRODSKY), 1890, A., 150.  
*p*-thio- (RUHL), 1891, A., 301; 1892, A., 1326.  
 thionyl- (MICHAELIS), 1889, A., 1163; 1891, A., 717; (MICHAELIS and RUHL), 1890, A., 617.  
 thionylthio- (RUHL), 1892, A., 1326.
- Phenylhydrazines** (WILLGERODT and FERKO), 1888, A., 829.  
 asymmetrical secondary, preparation of (PHILIPS), 1889, A., 1158.  
 chlorinated (HEWITT), 1891, T., 209.  
 sulphonation of (GALLINEK and v. RICHTER), 1886, A., 236.  
 nitro-, action of heat on, in presence of various liquids (WILLGERODT), 1890, A., 40.  
*s*-nitro-, of the aromatic series (WILLGERODT), 1890, A., 40.
- "Phenylhydrazine-alloxan"** (SKINNER and RUHEMANN), 1888, T., 557.
- Phenylhydrazinedisulphonic acids, m- and p-** (*hydrazinbenzenedisulphonic acids*) (LIMPRICHT), 1889, A., 397.
- Phenylhydrazinehydroxyazonaphthalenesulphonic acid** (RICHARDSON), 1888, A., 1286.
- Phenylhydrazineketophenylmethylpyrazolone.** See Phenylmethylpyrazoloneazobenzene under Azo.
- Phenylhydrazinesulphonic acid, di-bromo-** (LIMPRICHT), 1889, A., 398.
- Phenylhydrazine-*o*-sulphonic acid, 5-amido-, and 5-nitro-** (LIMPRICHT), 1885, A., 1216.

- Phenylhydrazine-*m*-sulphonic acid** (LIMPRICHT), 1889, A., 397.
- Phenylhydrazine-*p*-sulphonic acid** (LIMPRICHT), 1885, A., 1216; (PFULF), 1887, A., 933.
- o*-amido-, and *o*-nitro- (NIETZKI and LERCH), 1889, A., 144; (LERCH), 1889, A., 881.
- Phenylhydrazinesulphonic acids**, *o*- and *p*-, and their salts (GALLINEK and v. RICHTER), 1886, A., 237.
- Phenylhydrazones** (RUDOLPH), 1889, A., 251; (FISCHER and ACH), 1890, A., 40.
- Phenylhydrindone** (v. MILLER and ROHDE), 1892, A., 1220; (LIEBERMANN and HARTMANN), 1892, A., 1228.
- Phenylhydroacridine** and its derivatives (BERNTSEN and BENDER), 1883, A., 1134, 1135.
- Phenylhydrocarbazacridine** (BIZZARRI), 1891, A., 220.
- Phenylhydrocarbostryl** (OGLIALORO-TODARO and ROSINI), 1891, A., 214.
- $\alpha$ -Phenylhydrocinnamic acid.** See Phenylbenzylacetic acid.
- Phenylhydrocoumarin** (LIEBERMANN and HARTMANN), 1891, A., 1484.
- Phenylhydrouracil** (HOOGWERFF and VAN DORP), 1891, A., 197.
- Phenylhydroxybenzoic acid.** See Phenylsalicylic acid.
- Phenyl-1:2-hydroxylamine, 4:6-dinitro-** (WILLGERODT), 1891, A., 638; 1892, A., 594.
- Phenylisohydroxybutyrolactone** (FITTING and OBERMULLER), 1892, A., 987.
- 2'-Phenyl-4'-hydroxy-2-ketotetrahydroquinazoline** (PINNER), 1890, A., 70.
- Phenylhydroxy-**. See also Hydroxy-phenyl.
- Phenylic salts**, action of sodium mercaptide on (SEIFERT), 1885, A., 1057.
- acetate, action of chlorine and bromine on (SEELIG), 1889, A., 599.
- crystallised (PERKIN), 1889, P., 106.
- o*-acetate (HEIBER), 1892, A., 308.
- acetylsalicylate and its nitro-derivatives (KNEBEL), 1891, A., 915.
- amidoethylic acetate (ELFELDT), 1892, A., 214.
- anthranilate (SCHMIDT), 1888, A., 371.
- benzenesulphonate (OTTO), 1886, A., 383; (GEORGESCU), 1891, A., 568.
- Phenylic benzenethiosulphonate** (ESCALES), 1885, A., 798.
- benzoate, tribromo-, and its nitro-derivative (DACCOMO), 1895, A., 890.
- o*-, *m*-, and *p*-chloro- (MOSSO), 1888, A., 456; (DACCOMO), 1892, A., 308.
- chlorodibromo- (GARZINO), 1890, A., 1108.
- o*-, *m*-, and *p*-nitro- (NEUMANN), 1886, A., 350, 939; 1887, A., 254.
- o*-nitro-, reduction of (BOTTCHE), 1885, A., 658.
- nitroso- (WALKER), 1884, A., 1003.
- bromide. See Benzene, bromo-.
- butyrate (PERKIN), 1889, T., 547.
- carbamate (GATTERMANN), 1888, A., 575.
- carbonate, reactions of (ECKENROTH and RUCKEL), 1890, A., 750.
- dibromo-, dinitro-, and nitramido- (LOWENBERG), 1886, A., 759.
- chloride. See Benzene, chloro-.
- trichlorophosphate (LAMPERT), 1886, A., 616.
- cinnamate (ANSCHÜTZ and WIRTZ), 1885, T., 901; (ANSCHÜTZ), 1885, A., 1064.
- action of heat on (ANSCHÜTZ and WIRTZ; ANSCHÜTZ), 1885, A., 1064.
- decomposition of, by heat (ANSCHÜTZ), 1885, T., 898.
- citrate and the action of sodium mercaptide on (SEIFERT), 1885, A., 1057.
- cyanate, preparation of (HENTSCHEL), 1884, A., 1002; (KUHN and LIEBERT), 1890, A., 962.
- synthesis by means of (LEUCKART), 1890, A., 759.
- action of benzene and its homologues on (LEUCKART), 1885, A., 773.
- action of hydroxylamine on (FISCHER), 1889, A., 1164.
- action of, on phenols and phenol ethers (LEUCKART and SCHMIDT), 1885, A., 1224.
- action of, on polyhydric alcohols (TESMER), 1885, A., 774; 1886, A., 49.
- action of, on polyhydric and certain monohydric alcohols and phenols (SNAPE), 1885, T., 770.
- conversion of, into phenylic cyanurate (v. HOFMANN), 1885, A., 774.
- compounds of polyhydric alcohols with (TESMER), 1885, A., 774; 1886, A., 49.

**Phenylic cyanate**, derivatives of (GUMPERT), 1885, A., 656.  
 hydrochloride of (HENTSCHEL), 1885, A., 888.  
*isocyanate* (*carbunil*) (GUMPERT), 1886, A., 342.  
 action of, on amido-compounds (KÜHN), 1885, A., 260, 979.  
 action of, on formyl- and thioformyl-derivatives of aniline and its homologues (SENIER), 1885, T., 770.  
 cyanide. See Benzonitrile.  
*isocyanide*, preparation and properties of (NEF), 1892, A., 1438.  
 cyanurate, conversion of phenylic cyanate into (v. HOFMANN), 1885, A., 774.  
*tri-p-nitro-* (OTTO), 1887, A., 1033.  
*isocyanurate* (v. HOFMANN), 1886, A., 233.  
 diazobenzenesalicylate (LIMPRICHT), 1891, A., 1036.  
 $\Delta^{1:4}$ -dihydroterephthalate (v. BAeyer and HERB), 1890, A., 1132.  
 diphenylcarbamate (LELLMANN and BONHOFFER), 1887, A., 936.  
*o-amido-*, and *o-nitro-* (LELLMANN and BONHOFFER), 1887, A., 936.  
 diphenylcarbamates, amido-, and nitro- (LELLMANN and BENZ), 1891, A., 1215.  
 diphenylphosphinate (MICHAELIS and LA COSTE), 1885, A., 1214.  
 ethylic carbonate, *o-nitro-* (BENDER), 1887, A., 37.  
 ethylic 4-hydroxyisophthalate (HÄHLE), 1891, A., 1369.  
 ethylic *o-oxalate* (CLAPARÈDE and SMITH), 1883, T., 360; (STAUB and SMITH), 1884, T., 301.  
 ethylic *disulphide* (OTTO and ROSSING), 1887, A., 243.  
 ethylphenyl-*mono-* and *di-thiocarbamates* (BILLETER and STROHL), 1888, A., 365.  
 ethylxanthate and *p-amido-* (LEUCKART), 1890, A., 603.  
*o-formate* (TIEMANN), 1883, A., 340.  
 tribasic nitro- (WEDDIGE), 1883, A., 340.  
 fumarate (ANSCHÜTZ and WIRTZ), 1885, T., 900.  
 decomposition of, by heat (ANSCHÜTZ and WIRTZ), 1885, A., 1064.  
 $\Delta^{2 \text{ is trans}}$ -hexahydroterephthalate (v. BAeyer and HERB), 1890, A., 1134.  
*p-hydroxybenzoate* (KLEPL), 1884, A., 448.

**Phenylic hydroxyisophthalate** (HÄHLE), 1891, A., 1369.  
 hydroxypyrotartrates (*itumalates*) (JAYNE), 1883, A., 473.  
 iodide. See Benzene, iodo-  
 laurate (KRAFFT and BURGER), 1884, A., 1125.  
 methylic sulphide (OBERMEYER), 1888, A., 124.  
*o-amido-* (v. HOFMANN), 1887, A., 823.  
 myristate (KRAFFT and BURGER), 1884, A., 1125.  
 $\alpha$ -naphthyllic sulphide (ZIEGLER), 1890, A., 1292.  
 naphthyllic sulphides (KRAFFT and BOURGEOIS), 1891, A., 77.  
 nitrobenzoates, *trichloro-* and *trichloronitro-* (DARCOMO), 1885, A., 890.  
 nitro- (NEUMANN), 1886, A., 350, 939; 1887, A., 254.  
 nitrosalicylates (KNEBEL), 1890, A., 1284; 1891, A., 915.  
*o-oxalate* (STAUB and SMITH), 1884, T., 301.  
 palmitate (KRAFFT and BURGER), 1884, A., 1125.  
 phenylcarbamate (GUMPERT), 1885, A., 656; 1886, A., 342.  
 nitro- (GUMPERT), 1886, A., 342.  
 phenyl-*p-hydroxybenzoate* (KLEPL), 1884, A., 447.  
 phenylmethylcarbamate, and nitro- and amido- (LELLMANN and BENZ), 1891, A., 1214.  
 phenyl- $\beta$ -naphthylcarbamate (PASCHKOWETZKY), 1892, A., 166.  
 phenylthiocarbamate (SNAPE), 1885, T., 778; (DIXON), 1890, T., 268.  
 phosphate, *p-nitro-* (RAFF), 1884, A., 1337.  
 phthalate, chloro- (MOSSO), 1888, A., 456.  
 propionate (PERKIN), 1889, T., 546; (NEUCKR), 1890, A., 488.  
 salicylate, and the action of sodium mercaptide on (SEIFERT), 1885, A., 1057.  
 derivatives of (KNEBEL), 1891, A., 915.  
 nitro-derivatives of (KNEBEL), 1890, A., 1284; 1891, A., 915.  
 selenide (CHABRIÉ), 1889, A., 41, 1167.  
 sodium sulphite (SCHALL), 1892, A., 970; (SCHALL and UHL), 1892, A., 1076.  
 action of iodoform on (SCHALL and UHL), 1892, A., 1076.  
 stearate (KRAFFT and BURGER), 1884, A., 1126.

- Phenyl succinate**, decomposition of, by heat (ASCHUTZ and WIRLZ, 1885, T., 899; (ASCHUTZ), 1885, A., 1065.
- sulphide**, chloro- (MICHAELIS and GONCHAUZ), 1891, A., 715.
- dinitro-** (AUSTEN and SMITH), 1886, A., 693.
- disulphide**, *o*-amido- (v. HOFMANN), 1887, A., 823.
- m*-nitro-** (LEUCKART), 1890, A., 604.
- p*-nitro-** (WILLGERODT), 1885, A., 519.
- tetrasulphide** (OTTO), 1887, A., 923.
- $\Delta^1$ -tetrahydroterephthalate** (v. BAeyer and HERB), 1890, A., 1133.
- $\Delta^2$ -tetrahydroterephthalate** (v. BAeyer and HERB), 1890, A., 1134.
- o*-thioacetate** (LAVES), 1892, A., 612.
- thioallophanate** (GATTERMANN), 1889, A., 575.
- thiobenzenesulphonate**, reduction of (OTTO and RÖSING), 1887, A., 954.
- thiobenzoate**,  $\alpha$ -*d*-nitro- (WILLGERODT), 1885, A., 519.
- thiocarbonate** (BERGREEN), 1888, A., 445.
- dithiocarbonate** (LOWENBERG), 1886, A., 789.
- chloro-** (DACCOMO), 1892, A., 306, 307.
- thiocyanate** (THURNAUER), 1890, A., 749.
- diamido-** (AUSTEN), 1889, A., 700.
- dinitro-** (AUSTEN and SMITH), 1886, A., 693.
- thiodi- $\beta$ -naphthylcarbamate** (PASCH-KOWETZKY), 1892, A., 166.
- thiodiphenylcarbamate** (PASCH-KOWETZKY), 1892, A., 164.
- trithioformate**, oxidation of (LAVES), 1890, A., 988.
- tolylcarbamates**, *o*- and *p*- (ECKENROTH and RUCKEL), 1890, A., 750.
- p*-tolyl disulphide** (OTTO and RÖSING), 1887, A., 242.
- xanthate**, chloro- (DACCOMO), 1892, A., 308.
- Phenylimidoacetone**, oxime of (KNORR), 1884, A., 1368; (HOLLEMAN), 1892, A., 985.
- Phenylimidoalloxan** (PELLIZZARI), 1888, A., 682.
- Phenylimidobenzil** (BANDROWSKI), 1889, A., 147.
- Phenylimidobenzoin** (VOIGT), 1886, A., 887.
- action of hydrocyanic acid on (v. MILLER and FLOCHL), 1892, A., 1196.
- Phenylimidobenzoin**, bromo- (VOIGT), 1886, A., 888.
- Phenylimidobromacetic acid** (KNORR and ANTRICK), 1885, A., 273.
- Phenyl- $\beta$ -imidobutyric acid**, synthesis of (KNORR), 1884, A., 1198.
- action of nitrous acid on (KNORR), 1884, A., 1363.
- Phenylimidocarbonyl chloride** (NEF), 1892, A., 1439.
- Phenylimidocyanamide** (PELLIZZARI and TRIVOLI), 1892, A., 1323.
- Phenylimidodiacetic acid** (BISCHOFF and NASTVUGEL), 1889, A., 1013.
- Phenylimidodiacetic anhydride** (BISCHOFF and HAUSDORFER), 1892, A., 1334.
- Phenylimidodiacetic anilide and dianilide** (HAUSDORFER), 1889, A., 1014.
- Phenylimidodiphenylguanidine** (MARCKWALDT), 1889, A., 393.
- Phenylimidoformic chloride hydrochloride** (NEF), 1892, A., 1440.
- Phenylimidoguanidine** (PELLIZZARI), 1891, A., 1471.
- action of ethylic acetoacetate on (PELLIZZARI), 1891, A., 1472.
- Phenylimidomethylpropionylacetone nitrile** (BOUVEAULT), 1891, A., 52.
- Phenylimidomethoxyhydroxy-bromic and -chloric acids** (HILL and PALMER), 1888, A., 452.
- Phenylimidophenyl** (SEIFERT), 1890, A., 490.
- Phenylimidopropionic acid** (*anilpyruvic acid*) (BÖTTINGER), 1883, A., 1128; 1891, A., 1054.
- condensation of (BÖTTINGER), 1892, A., 54.
- bromo-derivative of (BÖTTINGER), 1883, A., 1128.
- Phenylimidopropionic chloride** (NEF), 1892, A., 1410.
- Phenylimidopropionitrile** (*benzoylmethyl cyanide, imido-*) (HOLZWART), 1889, A., 953.
- $\alpha$ -Phenylimidopropionitrile** (ERLENMEYER and LIPP), 1883, A., 992.
- Phenylimidopyrrolylpyruvic acid and anhydride** (ANGELI), 1890, A., 1243.
- $\mu$ -Phenylimidothiazoline** (NAF), 1891, A., 1517.
- 2'-Phenylindazine** (PAAL), 1891, A., 723.
- p*-chloro- (PAAL), 1891, A., 724.
- 1'-Phenylindazine-3'-carboxylic acid**, nitro-, action of stannous chloride on (SCHULHOFER), 1891, A., 1231.
- 1'-Phenyl- $\psi$ -indazine-3'-carboxylic acid**, nitro- (MEYER), 1889, A., 517.

- 1'-Phenylindole (PFULF), 1887, A., 956.
- 2'-Phenylindole and its derivatives (ETARD, 1883, A., 179; (PICTET), 1886, A., 711; (FISCHER and SCHMIDT), 1888, A., 698; (BISCHLER), 1892, A., 1465.  
amido-, and nitroso- (FISCHER and SCHMIDT), 1888, A., 698.  
chloro- (BISCHLER), 1892, A., 1466.  
See also Methylphenanthridine.
- 3'-Phenylindole (FISCHER and SCHMIDT), 1888, A., 958.  
reactions of (INCE), 1890, A., 57.
- Phenylindoles, formation of, by isomeric change (INCE), 1889, P., 90.
- 1'-Phenylindole-3'-carboxylic acid, synthesis of (FISCHER and HESS), 1884, A., 1181.
- Phenylinduline (FISCHER and HEPP), 1891, A., 1046.  
action of acetic acid on (FISCHER and HEPP), 1892, A., 341.  
amido- (FISCHER and HEPP), 1891, A., 1046.  
action of sulphuric acid on (FISCHER and HEPP), 1892, A., 341.
- Phenyl- $\psi$ -isatin (PFULF), 1887, A., 956.
- Phenylitaconic acid (FITTIG and LEONI), 1890, A., 894; (FITTIG and RÖDEBS), 1890, A., 895.
- Phenylitamalic acid. See Hydroxyphenylpyrotartaric acid.
- Phenylum-. See Phenylammonium.
- Phenylizinedihydroxytartaric acid (ZIEGLER and LOCHER), 1887, A., 578.  
*m*-nitro- (BISCHLER and BRODSKY), 1890, A., 151.
- 3'-Phenyl-2'-ketodihydroquinazoline (SÖDERBAUM and WIDMAN), 1890, A., 178.
- 3'-Phenyl-4'-ketodihydroquinazoline (PAAL and BUSCH), 1890, A., 72; (PAAL and KRECKE), 1892, A., 81.
- 3'-Phenyl-4'-ketodihydroquinazoline-2'-carboxylic acid (PAAL and KRECKE), 1892, A., 81.
- 3'-Phenyl-4' ketohydrazodihydroquinazoline (PAAL and BUSCH), 1890, A., 72.
- Phenylketohydroxybutyric acid (FISCHER and STEWART), 1892, A., 1448.
- Phenylketohydroxydimethylanilido-tetrahydropyridinecarboxylic lactone, real nature of (ANSCHUTZ), 1891, A., 741.
- Phenylketopentene. See Phenylmethylfurfuran.
- 1-Phenylketopyrazolone 4-phenylhydrazone (KNORR), 1888, A., 724.
- 1-Phenylketopyrazolone-3-carboxylic acid 4-phenylhydrazone (KNORR), 1888, A., 724.
- 3'-Phenyl-2'-ketotetrahydroquinazoline and its derivatives (SÖDERBAUM and WIDMAN), 1889, A., 973; (NIETZKI), 1890, A., 178; (PAAL and BODEWIG), 1891, A., 944; (BUSCH), 1892, A., 1495.
- Phenyl- $\alpha$ -lactic acid,  $\beta$ -amido- (ERLENMEYER), 1889, A., 988.  
*p*-amido- (ERLENMEYER and LIPP), 1883, A., 994.  
nitro-, nitrate of (ERLENMEYER and LIPP), 1883, A., 993.
- Phenyl- $\beta$ -lactic acid. See  $\beta$ -Hydroxyphenylpropionic acid.
- Phenyl- $\beta$ -lactic methyl ketone. See  $\beta$ -Hydroxyphenylpropionyl methyl ketone.
- Phenylactimide (ERLENMEYER and LIPP), 1883, A., 993.
- Phenyl- $\alpha$ -lactonitrile (ERLENMEYER and LIPP), 1883, A., 992.
- Phenylactosazone (FISCHER), 1885, A., 54; 1887, A., 567.
- Phenyl- $\beta$ -lacturamic acid (HOOGEWERFF and VAN DORP), 1891, A., 197.
- Phenyllepidineamine. See 2'-Anilido-4'-methylquinoline.
- $\alpha$ -Phenyllevulinic acid (FITTIG and STERN), 1892, A., 988.
- $\gamma$ -Phenyllupetidine. See 4-Phenyl-2:6-dimethylhexahydropyridine.
- Phenyllutidine. See 4-Phenyl-2:6-dimethylpyridine.
- Phenyllutidone. See Phenyl-2:6-dimethylpyridone.
- Phenylmaleic acid and anhydride (ALEXANDER), 1890, A., 1186.
- Phenylmalic acids,  $\alpha$ - and  $\beta$ - ( $\alpha$ - and  $\beta$ -hydroxy- $\alpha$ -phenylsuccinic acids) (ALEXANDER), 1890, A., 1135.
- Phenylmalonamic acid. See Malonanilic acid.
- Phenylmalonamide (FREUND), 1884, A., 728.
- Phenylmaltosazone (FISCHER), 1885, A., 54; 1887, A., 567.
- Phenylmannosazone (FISCHER and HIRSCHBERGER), 1888, A., 934.
- Phenylmelamine (KLASON), 1886, A., 523.
- Phenylmelamines and their derivatives: normal-, iso-, and asymmetric-compounds (v. HOFMANN), 1886, A., 233.
- Phenylmellilotic acid, synthesis of (SARDO), 1884, A., 176.
- Phenylmercaptan-benzoylformic acid and the action of hydrogen chloride on (BAUMANN), 1885, A., 750.

- Phenylmercaptomethylmercaptan, amido- (JACOBSON and FRANKENBACHER), 1891, A., 1048.
- Phenylmesitylenylcarbinol (*phenyltrimethylphenylcarbinol*) and its derivatives (LOVINE), 1886, A., 542.
- Phenylmethaneazobenzene, *o*-nitro- (PAAL and BODEWIG), 1892, A., 1456.
- Phenylmethenylazidine (FISCHER), 1889, A., 1164.
- Phenylmethenylhydroxyamidine (*hydroxyphenylformamidine*) (COMSTOCK and CLAPP), 1892, A., 708.
- Phenylmethoxytolylethanes (KOENIGS and CARL), 1892, A., 446.
- Phenylmethylacridine (BONNA), 1887, A., 928.  
ethoxide and hydroxide (DECKER), 1892, A., 881.
- Phenylmethylacrylic acid. See Phenylcrotonic acid.
- Phenylmethylallylpyrroline (LEDERER and PAAL), 1886, A., 75.
- Phenylmethylallylpyrrolinecarboxylic acid, and its ethylic salt (LEDERER and PAAL), 1886, A., 75.
- Phenylmethylamidobenzeneazotri-bromobenzene (SILBERSTEIN), 1883, A., 662.
- Phenylmethylamidobenzeneazodiphenylmethylamine (LIPPMANN and FLEISSNER), 1884, A., 180.
- Phenylmethylamidobenzenephosphinic acid and chloride (MICHAELIS and SCHENK), 1891, A., 437.
- $\alpha$ -Phenyl- $\mu$ -methylamidothiazole (TRAUMANN), 1889, A., 415.
- Phenylmethylanthracene (v. HEMILIAN), 1884, A., 322.
- Phenylmethylanthranol (v. HEMILIAN), 1884, A., 322; 1887, A., 266.
- Phenylmethylbiazoline (FREUND and KUH), 1890, A., 1442.
- Phenyl- $\alpha$ -methyl- $\beta$ -bromacrylic acid (KORNER), 1889, A., 372.
- $\alpha$ -Phenylmethylcarbamide (GEBHARDT), 1884, A., 1321.
- Phenylmethylchlorobiazolone (FREUND and KUH), 1890, A., 1441.
- Phenylmethylchloroformamide, compounds from (LELLMANN and BENZ), 1891, A., 1214.
- 2'-Phenyl-1- and -3-methyl-4'-cinchonic acids (DOEBNER and GIESEKE), 1888, A., 300.
- Phenyl- $\alpha$ - and - $\beta$ -methylisocrotonic acids (*phenylpentenoic acid*) (FITZIG and LIEBMANN), 1890, A., 775.
- Phenylmethylcyantriazole (BLADIN), 1887, A., 138.
- 2-Phenyl-6-methyl-*m*-diazine, amido-, and *di*amido- (PINNER), 1887, A., 1054.
- Phenylmethyldihydro- $\beta$ -naphthatriazine, and methiodide of (GOLD-SCHMIDT and POLTZER), 1891, A., 840, 841.
- 3'-Phenyl-2'-methyldihydroquinazoline (PAAL and KRECKE), 1890, A., 1443; 1892, A., 81.
- Phenylmethyldihydroxyglutaric acid (*dihydroxyphenylmethylglutaric acid*) (CARLSON), 1892, A., 1471.
- Phenylmethyldiphenylazimethylene (CURTIUS and PFLEGER), 1892, A., 457.
- Phenylmethylenehydrazine (CURTIUS and PFLEGER), 1892, A., 456.
- Phenylmethylethylalkine. See Hydroxyethylmethylamine.
- Phenylmethylethylenediamine (NEWMAN), 1891, A., 1208.
- n*-Phenylmethylethylsotriazole (BALTZER and v. PUCHMANN), 1891, A., 1116.
- 1-Phenyl-4-methyl-3-ethylpyrazole (CLAISEN and MEYEROWITZ), 1890, A., 358.  
5-amido- (BOUVEAULT), 1891, A., 52.
- 1-Phenyl-4-methyl-5-ethylpyrazole platinocloride (BALBIANO), 1892, A., 885.
- 1-Phenyl-3-methyl-4-ethylpyrazolone (KNORR and BLANK), 1884, A., 1880.
- Phenylmethylethylthiocarbamide (GEBHARDT), 1885, A., 383; (BILLETTER), 1887, A., 823.
- Phenylmethylfumaramic acid (PIUTTI), 1886, A., 792.
- Phenylmethylfumaride (PIUTTI), 1886, A., 621.
- Phenylmethylfurfuran and its derivatives (PAAL), 1885, A., 248; (SCHLOESSER), 1889, A., 595.
- Phenylmethylfurfurancarboxylic acid (PAAL), 1885, A., 249.  
relationship of, to phenuvic acid (COLEFAX), 1891, T., 190.
- Phenylmethylfurfurandicarboxylic acid (*phenylthronic acid*) (FITZIG and SCHLOESSER), 1888, A., 1089; (SCHLOESSER), 1889, A., 595.
- Phenylmethylglucosazone (FISCHER), 1889, A., 484.
- Phenylmethylglycoluric acid. See Phenylmethylumamidobenzoic acid.
- 2:5-Phenylmethylglyoxaline (LEWY), 1888, A., 1102.
- Phenylmethylhydantoic acid (KÜHN), 1885, A., 261.
- Phenylmethylhydantoin (PINNER), 1888, A., 1103.

- Phenylmethylhydrazine** and its salts (ERLENMEYER), 1883, A., 1103; (TAFEL), 1885, A., 1061; (FISCHER), 1887, A., 138.  
 derivatives of (STANER), 1890, A., 1259.  
*o*-amido- (HEMPER), 1890, A., 613.  
 thionyl- (MICHAELIS and RUTH), 1892, A., 1324.
- Phenylmethylhydrazinephenylglyoxylic acid** (ELBERS), 1885, A., 535.
- Phenylmethylhydrazinesulphonic acid** (PFULF), 1887, A., 934.
- 1:5-Phenylmethylhydroisopyrazolone** (LEDERER), 1892, A., 635.
- 2'-Phenyl-3'-methylhydroquinoline, *m*-amido-** (V. MILLER and KINKELIN), 1886, A., 561.
- Phenylmethylhydroxyanthranol** (V. HEMILIAN), 1887, A., 267.
- Phenylmethylimidobiazole** (FREUND and KUH), 1890, A., 1442.
- $\alpha$ -Phenylmethyl- $\mu$ -imidothiazoline** (TRAUMANN), 1889, A., 415.
- 2'-Phenyl-1-methylindole** (BISCHLER), 1892, A., 1465.
- 2'-Phenyl-3-methylindole** (BISCHLER), 1892, A., 1466.
- 2'-Phenyl-1'-methylindole** (DEGEN), 1887, A., 149; (STAEDEL), 1888, A., 1093.
- 3'-Phenyl-1'-methylindole** (INCE), 1890, A., 57.
- 3'-Phenyl-2'-methylindole** (TRENKLER), 1889, A., 260.
- 3':2'-Phenylmethyl-4'-ketodihydroquinazoline** (PAAL and KRECKE), 1892, A., 81.
- 1-Phenyl-3-methylketopyrazolone-4-hydrazone** (KNORR), 1888, A., 721.
- Phenylmethylketoxime-*o*-carboxylic acid, anhydride of** (GABRIEL), 1888, A., 1128.
- $\beta$ -Phenyl- $\alpha$ -methylactic acid.** See Hydroxy- $\beta$ -phenyl- $\alpha$ -methylpropionic acid.
- Phenylmethylmethylenebisthioglycollic acid** (BONGARTZ), 1888, A., 479.
- 1-Phenyl-3-methyl-4-methylenehydrazine** (CURTIUS and PFUG), 1892, A., 457.
- 1-Phenyl-3-methyl-4-methylenepyr-azolone** (PELLIZZARI), 1889, A., 518.
- Phenyl-*ald*-methylinaphthatriazine, *ac-p*-nitro-** (MELDOLA and FORSTER), 1891, T., 697.  
 reduction of (MELDOLA and FORSTER), 1891, T., 712.
- Phenylmethyl- $\beta$ -naphthylamine, thio-** (KYM), 1890, A., 1307.
- Phenylmethylnitramine, 2:3:4:6-tetra-** nitro-, and its conversion into *m*-phenylenediamine derivatives (VAN ROMBURGH), 1889, A., 1154.
- Phenylmethylnitrosamine**, constitution of (ERLENMEYER), 1883, A., 1103.  
*p*-nitro- (FISCHER and HEPP), 1887, A., 244; (MELDOLA and SALMON), 1888, T., 775.  
*p*-nitroso- (FISCHER and HEPP), 1887, A., 244.  
 See also Methylaniline, nitroso-.
- m*-Phenylmethylsotriazole** and its derivatives (JONAS and V. PECHMANN), 1891, A., 1111.
- m*-Phenylmethylsotriazolecarboxylic acid** (BALTZER and V. PECHMANN), 1891, A., 1115.
- m*-Phenylmethylsotriazolesulphonic acid** (JONAS and V. PECHMANN), 1891, A., 1112.
- Phenylmethylsotriazole** (V. PECHMANN), 1888, A., 1289.
- Phenylmethylloxazole** (LEWY), 1888, A., 593, 1101.
- Phenylmethyl-*iso*-oxazole** (HANTZSCH), 1891, A., 741.
- Phenylmethylloxanthranol** (V. HEMILIAN), 1884, A., 322.
- $\mu\beta$ -Phenylmethylloxazoline** (GABRIEL and HEYMANN), 1890, A., 1267.  
*m*-nitro- (ELFELDT), 1892, A., 214.
- Phenylmethylparaconic acids,  $\alpha$ - and  $\beta$ -** (FITTIG and LIERMANN), 1890, A., 775.
- Phenyl- $\alpha$ -methylpiperidine, *o-p-d*nitro-** (LELLMANN and JUST), 1891, A., 1245.
- Phenyl- $\beta$ -methylpiperidine,  $\mu$ -nitro-, and *o-p-d*nitro-** (LELLMANN and BUTTNER), 1890, A., 1003.
- Phenylmethylpropionic acid.** See Methylhydrocinnamic acid and Tulylpropionic acid.
- Phenylmethylpropylalkine.** See Hydroxypropylmethylaniline.
- 1-Phenyl-3-methyl-4-*isopropylene*pyrazolone** (KNORR), 1887, A., 602.
- Phenylmethylpropylene- $\psi$ -thiocarbamide** (PRAGER), 1890, A., 159.
- 1-Phenyl-3-methylpyrazole** (CLAISEN and STYLOS), 1888, A., 671; (ACH), 1890, A., 71; (CLAISEN and ROOSEN), 1891, A., 1106.
- 1-Phenyl-5-methylpyrazole** (KNORR and LAUBMANN), 1889, A., 410; (CLAISEN and ROOSEN), 1891, A., 1106.
- 1-Phenyl-3-methylpyrazole-5-carboxylic acid** (ACH), 1890, A., 71.
- 1-Phenyl-5-methylpyrazole-3-carboxylic acid** (CLAISEN and STYLOS), 1888, A., 676; (CLAISEN and ROOSEN), 1891, A., 1107.

- 1-Phenyl-5-methylpyrazole-3:4-dicarboxylic acid (KNORR and LAUBMANN), 1888, A., 410.
- 1-Phenyl-3-methylpyrazolidone (KNORR and DUDEN), 1892, A., 731.
- 1-Phenyl-3-methylpyrazolone and its derivatives (KNORR), 1884, A., 1103; 1887, A., 601; (MOLLENHOFF), 1892, A., 1245.
- action of sulphur dichloride on (SPRAGUE), 1891, T., 334.
- 4-mono- and di-bromo- (KNORR and DUDEN), 1892, A., 731.
- 4-dibromo-*p*-bromo- (KNORR and DUDEN), 1892, A., 731; (MOLLENHOFF), 1892, A., 1246.
- 4-nitro- (KNORR), 1884, A., 302, 1153, 1378; 1887, A., 602; (KNORR and DUDEN), 1892, A., 731.
- 4-oxime (KNORR), 1887, A., 602.
- 4-thio- (4-thiobis-1-phenyl-3-methylpyrazolone) (v. BUCHKA and SPRAGUE), 1890, A., 796; (MICHAELIS), 1890, A., 1269; (SPRAGUE), 1891, T., 332, 335.
- Phenylmethylisopyrazolones, 1:2- and 1:5- (LEDERER), 1892, A., 635.
- 1-Phenyl-3-methylpyrazolone-4-acetic acid (KNORR and BLANK), 1884, A., 1880.
- Phenylmethylpyrazoloneazobenzene. See under Azo.
- 1-Phenyl-3-methylpyrazolone-4-carbinol and -4-malonylcarbamide (PELLIZZARI), 1889, A., 518.
- 1-Phenyl-3-methylpyrazolone-4-ketophenylhydrazone (v. BUCHKA and SPRAGUE), 1890, A., 28.
- 1-Phenyl-3-methylpyrazolone-*p*-sulphonic acid (MOLLENHOFF), 1892, A., 1245.
- 1-Phenyl-3-methylpyrazolone-*p*-sulphonic chloride, 4-dichloro- (MOLLENHOFF), 1892, A., 1246.
- Phenyl- $\alpha$ -methylpyridazone, and  $\gamma$ -chloro- (ACU), 1890, A., 71.
- 4-Phenyl-2-methylpyrroldiazolone (ANDREOCCI), 1890, A., 889.
- 1-Phenyl-2-methylpyrrolidone-2-carbonitrile and -carboxylic acid (KUHNING), 1889, A., 1211, 1212.
- Phenylmethylpyrroline, synthesis of (PAAL), 1885, A., 516.
- 5-Phenyl-2-methylpyrroline-3-carboxylic acid (LEDERER and PAAL), 1886, A., 75.
- $\gamma$ -Phenyl- $\beta$ -methyl- and  $\beta$ -phenyl- $\gamma$ -methyl- $\psi$ -quinazolones (KORNER), 1887, A., 1045.
- 2'-Phenyl-1-methylquinoline (DOMBER and GIESEKE), 1888, A., 300.
- 2'-Phenyl-2-methylquinoline, *p*-amido- (WEDEL and BAMBERGER), 1888, A., 966.
- 2'-Phenyl-3'-methylquinoline, 4-amido-. See Flavaniline.
- m*-amido- and *m*-nitro- (v. MILLER and KINKELIN), 1886, A., 561.
- Phenyl-2'-methylquinoline, amido- (SCHIFF and VANNI), 1890, A., 1298.
- 4'-Phenyl-2'-methylquinoline (*phenylquinaldine*) and its derivatives (GEIGY and KOENIGS), 1885, A., 1236.
- synthesis of (BEYER), 1886, A., 630.
- 2'-Phenylmethylquinoxaline, constitution of (LELLMANN and DONNER), 1890, A., 525.
- $\mu$ -Phenyl- $\alpha$ -methyl-selenazole and -selenazole- $\beta$ -carboxylic acid (HOFMANN), 1889, A., 727.
- Phenylmethylsemithiocarbazides (DIXON), 1890, T., 261; P., 26; (v. BRUNING), 1890, A., 23.
- Phenylmethylsuccinic acids (ZELINSKY and BUCHSTAB), 1891, A., 1065.
- Phenylmethylsulphonamic acid, ammonium salt of (TRAUBE), 1891, A., 569.
- Phenylmethylsulphone (OTTO), 1885, A., 536.
- mono*- and *di*-chloro- (OTTO), 1888, A., 483; 1890, A., 380.
- iodo- (MICHAEL and PALMER), 1885, A., 536.
- Phenylmethyltaurine (*antididoxethionic acid*) and its salts (ANDREASCH), 1883, A., 665.
- preparation of (JAMES), 1885, T., 372; P., 47.
- Phenyl- $\beta$ -methyltaurocarbamicanhydride (PRAGRI), 1890, A., 159.
- Phenylmethyltetrahydrofurfuran (*phenylmethyltetramethylene oxide*) (PAAL), 1885, A., 250.
- properties of (COLEFAX), 1891, T., 194.
- Phenylmethyltetrahydroketoquinoxaline (GEORGESEU), 1892, A., 886.
- 1-Phenyl-2-methyltetrahydropyridine (LIPP), 1892, A., 1244.
- 3-Phenyl-1-methyltetrahydroquinoline, derivatives of (LA COSTE and SORGER), 1886, A., 81.
- 3'-Phenyl-2'-methyltetrahydroquinazoline (PAAL and KRECKE), 1892, A., 81.
- $\alpha$ -Phenyl- $\mu$ -methylthiazole (HANTZSCH), 1888, A., 574; 1889, A., 724.
- $\mu$ -Phenyl- $\alpha$ -methylthiazole (HUBACHER), 1891, A., 221.
- $\mu$ -Phenylmethylthiazoline and its derivatives (GABRIEL and HEYMANN), 1891, A., 701.

- Phenylmethylthiocarbamides** (GEBHARDT), 1884, A., 1321; 1885, A., 383.
- Phenylmethylthiocarbamine chloride and oxide** (BILLETTER), 1887, A., 823.
- Phenylmethylthiohydantoin** (MARCKWALD, NEUMANN and STELZNER), 1892, A., 150.
- 4:2-Phenylmethylthiophen** and its derivatives (PAAL and PÜSCHEL), 1887, A., 1101.
- 5:2-Phenylmethylthiophen**, synthesis of (PAAL), 1885, A., 516.
- Phenylmethyl-*p*-toluamide** (LELLMANN and BENZ), 1891, A., 1215.
- Phenylmethyltriazenylamidoxime derivatives** (BLADIN), 1889, A., 977.
- Phenylmethyltriazenylazoxime-benzoyl and -ethenyl** (BLADIN), 1889, A., 978.
- Phenylmethyltriazole** (BLADIN), 1887, A., 139.
- Phenylmethyltriazolecarboxylic acid** and its derivatives (BLADIN), 1887, A., 138; 1890, A., 1165; 1891, A., 472.
- p*-Phenylmethyluramidobenzoic acid** (*p*-phenylmethylglycoluric acid) (GUARESCHI), 1892, A., 828.
- Phenylmethylurethane** (GEBHARDT), 1885, A., 384.
- Phenylmethylxylylamide** (LELLMANN and BENZ), 1891, A., 1215.
- Phenylmethyl-**. See also Methylphenyl-.
- 1-Phenylmorpholine** (KNORR), 1889, A., 1219.
- $\alpha$ -Phenyl- $\alpha$ - and - $\beta$ -naphthacinchonic acids** (DOEBNER and KUNTZE), 1889, A., 411.
- $\beta$ -Phenyl-naphthalene** (SMITH), 1889, P., 70.
- Phenyl- $\beta$ -naphthacridine** (RIS), 1884, A., 1357; (CLAUS and RICHTER), 1884, A., 1358.
- Phenyl-naphthaphenanthrazonium hydroxide** and its salts (WITT), 1887, A., 730.
- 2'-Phenyl- $\alpha$ - and - $\beta$ -naphthaquinolines** (DOEBNER and KUNTZE), 1889, A., 411, 412.
- Phenyl-naphthaquinone** from the hydrocarbon  $C_{18}H_{12}$  (ZINCKE and BREUER), 1885, A., 269.
- Phenyl- $\beta$ -naphthindoles**, 2'- and 3'- (INCE), 1890, A., 57.
- Phenyl- $\beta$ -naphthol**, *N*-amido-, and 2:4-*d*-nitro- (ERNST), 1891, A., 300.
- Phenyl-naphthostilborosindene** (WITT and SCHMIDT), 1892, A., 1247.
- Phenyl-naphthyl- acetic acid and -acetonitrile** (MICHAEL and JEANPRÉTRE), 1892, A., 1094.
- Phenyl- $\alpha$ -naphthylamine** (FRIEDLÄNDER), 1881, A., 80.
- 2:1-*d*-nitro-** (HEIM), 1888, A., 488, 1096.
- (?) 4:2-nitranido-** (HEIM), 1888, A., 1096.
- thio-** (KYM), 1890, A., 1307.
- Phenyl- $\beta$ -naphthylamine** (FRIEDLÄNDER), 1884, A., 80.
- action of oxalic acid on** (MELDOLA), 1888, A., 807.
- amido-**. See Phenyl-naphthylenediamine.
- N*-amido-** (ERNST), 1891, A., 301.
- azo-derivatives of** (ZINCKE and LAWSON), 1887, A., 730; (ZINCKE), 1890, A., 990.
- 2:4-*d*-nitro-** (HEIM), 1888, A., 488; (ERNST), 1891, A., 300.
- nitranido-** (HEIM), 1888, A., 488.
- thio-** (KYM), 1890, A., 1307.
- Phenyl-naphthylamine-blue** (HAUSDÖRFER), 1890, A., 1308.
- Phenyl- $\alpha$ -naphthylbiazolon** (FREUND), 1892, A., 509.
- Phenyl- $\beta$ -naphthylcarbamide** [m.p. 220°] (GOLDSCHMIDT and MOLINARI), 1888, A., 1284.
- $\alpha$ -Phenyl- $\beta$ -naphthylcarbamide** [m.p. 189° and chloride (KYM), 1890, A., 633.
- Phenyl- $\alpha$ -naphthylcarbazole** (KYM), 1890, A., 1307.
- Phenyl-naphthylcarbazole**, boiling point of (SCHWEITZER), 1891, A., 1240.
- $\alpha$ -Phenyl-naphthylcarbinol** (BECKMANN), 1889, A., 781.
- Phenyl- $\alpha$ -naphthylenediamine** (ZINCKE and LAWSON), 1887, A., 730; (HARDEN), 1890, A., 631.
- action of benzaldehyde and of salicylaldehyde on** (FISCHER), 1892, A., 1472.
- action of nitrous acid on** (ZINCKE and CAMPBELL), 1890, A., 788.
- condensation of, with benzoin** (FISCHER), 1891, A., 748.
- Phenyl-naphthylene-ethyldiamine** action of benzaldehyde on (FISCHER), 1892, A., 1472.
- Phenyl-naphthylethylazamonium iodide** (ZINCKE and CAMPBELL), 1890, A., 787.
- Phenyl- $\alpha$ -naphthylethylthiocarbamide** (MAINZER), 1883, A., 1106.
- Phenyl- $\alpha$ -naphthylformamidine** (COMSTOCK and WHEELER), 1892, A., 706.
- Phenyl- $\alpha$ -naphthylglycollic acid** (BECKMANN), 1889, A., 781; (BECKMANN and PAUL), 1892, A., 170.

- Phenyl- $\alpha$ - and - $\beta$ -naphthylhydrazines, *o*-*p*-dinitro- (WILGERODT and SCHMIDT), 1891, A., 572.
- 5-Phenyl- $\alpha$ - and - $\beta$ -1-naphthyl-2-methylpyrroline-3-carboxylic acids (LEDERER and PAAL), 1886, A., 76.
- Phenyl- $\beta$ -naphthylmethylthiocarbamide (GERHARDT), 1884, A., 1321.
- al*-Phenyl- $\alpha$ - $\beta$ -naphthyl-naphthatriazine (MELDOLA and FORSTER), 1891, T., 698.
- Phenyl-naphthylpinacolone (ELBS), 1887, A., 943.
- Phenyl- $\alpha$ - and - $\beta$ -naphthylsemithiocarbazides (DIXON), 1892, T., 1019; (FREUND), 1892, A., 508.
- Phenyl- $\alpha$ -naphthyl- $\psi$ -thiobiazolone (FREUND), 1892, A., 510.
- Phenyl-naphthylthiocarbamides (MAINZER), 1883, A., 1107; (FREUND and WOLF), 1892, A., 984.
- Phenyl-nitroethylene. See Styrene, nitro-.
- Phenyl-nitrobenzenesulphazide, *m*- and *p*-nitro- (LIMPRICHT), 1887, A., 723.
- Phenyl-*m*-nitrobenzenylamidine (LOSTEN), 1892, A., 52.
- Phenyl-*o*-, *m*- and *p*-nitrobenzenyl-naphthylenediamines (FISCHER), 1892, A., 1473.
- Phenyl-*m*-nitrobenzimidazo-ether (LOSTEN), 1892, A., 52.
- Phenyl-*m*-nitrobenzylamine (BORMANN), 1886, A., 57.
- Phenyl-*di*-*o*-nitro-dibenzylhydrazine (PAAL and BODEWITZ), 1892, A., 1456.
- Phenyl-nitromethane. See Toluene, nitro-.
- Phenyl-tetranitronaphthylamine (MERZ and WEITH), 1883, A., 344.
- Phenyl-*p*- and -*o*-nitrophenyl oxides, *di*- and *tri*-nitro- (*tri*- and *tetranitro-diphenyl oxides*) (WILGERODT and HURPIN), 1884, A., 1328.
- Phenyl-*o*-*p*-dinitrophenylcarbin cyanide, *p*-nitro- (*trinitrodiphenylacet-nitrile*) (v. RICHTER), 1888, A., 1186.
- Phenyl-*m*-nitrophenylmethylthiocarbamide (*m*-nitro-*s*-diphenylmethylthiocarbamide) (LELLMANN and BENZ), 1891, A., 1215.
- $\alpha$ -Phenyl-*al*-*m*- and *p*-nitrophenyl-naphthatriazines and *p*- and *m*-nitro- (MELDOLA and FORSTER), 1891, T., 693.
- Phenyl-nitropropionic acid, *p*-nitro-, derivatives of (FRIEDLANDER and MÄHLK), 1885, A., 1137.
- Phenyl-*l*-nitropropionic acid (GABRIEL), 1885, A., 1229.
- Phenyl-nitropropylene and its derivatives (PRIEN), 1881, A., 313; 1885, A., 161.
- Phenyl-nitrosoimidothiazoline (SCHATZMANN), 1891, A., 745; (NAP), 1891, A., 1517.
- Phenyl-nitrososulphone (ROESING), 1890, A., 781.
- Phenyl-*l*-nitrotoluidine ( $\gamma$ -*dinitrotolyl-phenylamine*) (HIPP), 1883, A., 317.
- Phenyl-*m*-nitro-*p*-tolylthiocarbamide (LEUCKART), 1890, A., 760.
- Phenyl-*o*-nitro-*p*-tolylthiocarbamide, *m*-nitro- (STEUDEMANN), 1884, A., 307.
- Phenyl-nonyl-carbamide and -thiocarbamide (FREUND and SCHÖNFELD), 1892, A., 132, 133.
- Phenyl-octane. See Octylbenzene.
- Phenyl-octonitrile (*heptylbenzyl cyanide*) (ROSSOLIMO), 1889, A., 562.
- Phenyl-oxazoneglyoxalcarboxylic acid (NASTROGEL), 1889, A., 237.
- n*-Phenyl-oxotriazaldehyde (JONAS and v. PECHMANN), 1891, A., 1113.
- n*-Phenyl-oxotriazole and its homologues (JONAS and v. PECHMANN), 1891, A., 1113.
- cyano- (JONAS and v. PECHMANN), 1891, A., 1114.
- n*-Phenyl-oxotriazolecarboxylic acid and its derivatives (JONAS and v. PECHMANN), 1891, A., 1112.
- amido-, and nitro- (BALTZER and v. PECHMANN), 1891, A., 1116.
- n*-Phenyl-oxotriazole-dicarboxylic acid (BALTZER and v. PECHMANN), 1891, A., 1116.
- n*-Phenyl-oxotriazolethiamide (JONAS and v. PECHMANN), 1891, A., 1114.
- Phenyl-oxotriazolecarboxylic acid (v. PECHMANN), 1888, A., 1289.
- n*-Phenyl-oxotriazylamine and *n*-phenyl-oxotriazyl alcohol (JONAS and v. PECHMANN), 1891, A., 1114.
- Phenyl-oxamic acid. See Oxanilic acid.
- $\mu$ -Phenyl-oxazoline (GABRIEL and HEYMANN), 1890, A., 1267.
- preparation of (GABRIEL and NEUMANN), 1892, A., 1332.
- m*-nitro- (ELFELDT), 1892, A., 213.
- Phenyl-oxoxazole (CLAISEN and STOCK), 1891, A., 451.
- Phenyl-oxoxazolone (PERKIN and STENHOUSE), 1891, T., 1005; (CLAISEN and ZEDER), 1891, A., 468; (HANTZSCH), 1891, A., 740; (NITSCHBERGER), 1892, A., 1177.

- Phenylisooxazolone**, oxime of (CLAISEN and ZEPPEL), 1891, A., 468.
- Phenylximidoacetic acids**,  $\alpha$ - and  $\beta$ - (MULLER), 1883, A., 1129; 1884, A., 584; (HANTZSCH), 1890, A., 1274; 1891, A., 444.
- Phenylximidoacetoneitrile** (RUSSANOFF), 1892, A., 322.
- $\alpha$ -Phenylxyacrylic acid**. See Coumaric acid.
- $\beta$ -Phenylxyacrylic acid**. See Phenylglycidic acid.
- Phenylparabanic acid** (V. STOLTEN), 1885, A., 1196.
- Phenylparaconic acid** and its salts (JAYNE), 1883, A., 472; (FITTIG and RÖDER), 1890, A., 621.
- constitution of (ERDMANN), 1884, A., 906.
- nitration of (ERDMANN), 1886, A., 67.
- bromo- and isobromo- (FITTIG and LEONT), 1890, A., 895.
- chloro- (*o*-, *m*- and *p*-), disubstituted naphthalenes from (ERDMANN and KIRCHHOFF), 1889, A., 150.
- 2:4-, 2:5- and 3:4-dichloro-, and their derivatives (ERDMANN), 1889, A., 265; (SCHWECHTEN), 1890, A., 619; (ERDMANN and SCHWECHTEN), 1891, A., 450.
- nitro- (SALOMONSON), 1885, A., 1224; 1888, A., 480.
- Phenylparamide** (*acetic acid, phenylimide of*) (HOTTE), 1885, A., 1220.
- Phenylpentane**. See Amylbenzene.
- $\omega$ -Phenylpentamethylene glycol** and **bromide** (KIPPING and PERKIN), 1890, T., 311, 313.
- Phenylpentamethylpyrazolone** (1- $\psi$ -*cumyl-2:3-dimethylpyrazolone*) (HALLER), 1885, A., 818.
- Phenylpentenoic acid**. See Hydrostyrylacrylic acid and Phenylmethylisocrotonic acid.
- $\mu$ -Phenylpentoxazoline** (GABRIEL and ELFEINT), 1892, A., 212.
- m*-nitro- (ELFEINT), 1892, A., 211.
- Phenylpentylene**. See Phenylamylene.
- Phenylisopentylene**. See *iso*Amylbenzene.
- Phenylphenacyl oxide**, *m*-nitro- (LELLMANN and DONNER), 1890, A., 523.
- 2'-Phenylphen-*p*-azoxine** (LELLMANN and DONNER), 1890, A., 524.
- Phenylphenotriazole**, *meso*- (KEHRMANN and MESSINGER), 1892, A., 889.
- Phenyl-*o*-phenylenediamine** (*amidodiphenylamine*) (SCHÜPF), 1890, A., 1113.
- Phenyl-*p*-phenylenediamine** (IKUTA), 1888, A., 167; (HENCKE), 1890, A., 609.
- Phenyl-*o*-phenyleneguanidine** (KETLER), 1891, A., 1469.
- "Phenyl-*p*-phenylglycoluric acid"** (GUARIESCHI), 1892, A., 828.
- Phenylphenylhydrazine**, 3-bromo-6-nitro- (WILLGERODT), 1888, A., 949.
- allo-m*-chloro-*o*-nitro-, preparation of (WILLGERODT and ELLON), 1891, A., 1361.
- Phenyl-*all*-phenylnaphthatriazine**. See Diphenyl- $\alpha\beta$ -naphthatriazine.
- Phenylphenylsemithiocarbazides**, *o*- and *p*-chloro- (HEWITT), 1891, T., 210, 212.
- Phenylphosphoric acid**. See Phenyl phosphate.
- Phenylphosphorous acid** (NOACK), 1883, A., 736.
- Phenylphosphoryl chloride** (NOACK), 1883, A., 735.
- Phenylphosphoryl *di*-, *tetra*- and *thio*-chlorides** (ANSCHÜTZ and EMERY), 1890, A., 34, 35.
- 5-Phenylisophthalic acid** (DOEBNER), 1890, A., 1284; 1891, A., 1065.
- o*-Phenylphthalidecarboxylic acid**, isomeride of (JULLIARD), 1888, A., 955.
- Phenylphthalimide**, preparation of (HALLER), 1892, A., 1204.
- Phenylpiperazine**, *p*-nitro- (SCHMIDT and WICHMANN), 1892, A., 210.
- 1-Phenyl-3:6-*o*-piperazone** (MICHAELIS and HERMENS), 1892, A., 1494.
- 1-Phenylpiperidine** and its derivatives (LELLMANN), 1887, A., 604; (LELLMANN and GELLER), 1888, A., 1107.
- o*-amido- (LELLMANN and JUST), 1891, A., 1245.
- p*-amido-, formation of dyes from (LELLMANN and GELLER), 1888, A., 1108.
- p*-bromo- (LELLMANN and JUST), 1891, A., 1244.
- nitro-derivatives of (LELLMANN), 1887, A., 604.
- $\gamma$ -Phenylpiperidine** (BALLY), 1888, A., 65.
- Phenylpiperidylcarbamide** (GERHARDT), 1885, A., 384; (WALLACH and LEHMANN), 1887, A., 385.
- Phenylpiperidylactic acid** (ERLENMEYER), 1889, A., 988.
- Phenylpiperidylthiocarbamide** (SKINNER and RUIHEMANN), 1888, T., 558.
- $\alpha$ -Phenylpropaldehyde** (V. MILLER and RÖHDE), 1891, A., 898.
- $\beta$ -Phenylpropaldehyde** (*hydrocinnamaldehyde*) (V. MILLER and RÖHDE), 1890, A., 979.
- Phenylpropargyl oxide** (HENRY), 1883, A., 803.

**Phenylpropenylamidine** (MICHAEL and WING), 1885, A., 963.

**Phenylpropionic acid** (PERKIN and BELLENOT), 1886, T., 441.

preparation of (PERKIN), 1884, T., 171.

direct addition of hydrogen to (ARONSTEIN and HOLLEMAN), 1889, A., 878.

formation of *allorcinnamic* acid from (LIEBERMANN and SCHOLZ), 1892, A., 848.

*d*-chloride (NISSEN), 1892, A., 1464.

*o*-amido- and its derivatives (v. BABYER and BLOEM), 1883, A., 196.

**$\alpha$ -Phenylpropionamide** (JANSSEN), 1889, A., 596.

**$\beta$ -Phenylpropionamide** (v. HOFMANN), 1886, A., 45; (HUGHES), 1891, P., 71.

**Phenylpropionic acid**, formation of a hydrocarbon,  $C_{12}H_{12}$ , from (KIRPING), 1892, P., 107.

**$\alpha$ -Phenylpropionic acid** (*hydratropic acid*) (OLIVIERI), 1890, A., 375.

preparation of (JANSSEN), 1889, A., 596.

derivatives of (TRINIUS), 1885, A., 529.

**$\beta$ -Phenylpropionic acid** (*hydrocinnamic acid*) and its derivatives (GABRIEL), 1883, A., 195; (GABRIEL and HERZBERG), 1883, A., 1123; (HERZBERG), 1885, A., 661.

thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.

melting point and separation of mixtures of phenylacetic acid and (SALKOWSKI), 1885, A., 602.

3:4-diamido- (GABRIEL), 1883, A., 195.

*m*-bromo- (GABRIEL), 1883, A., 195.

3:4-bromamido- (GABRIEL), 1883, A., 195.

*o*-, *m*- and *p*-chloro- (HERZBERG), 1885, A., 661.

*p*-chloro- (MYERS), 1892, A., 1222.

*αβ*-*d*-chloro- (ERLENMEYER), 1883, A., 196.

chlorobromo- (ERLENMEYER), 1883, A., 196.

*o*-, *m*- and *p*-iodo- (HERZBERG), 1885, A., 661.

3:5-dinitro-4-amido- (STOEHR), 1884, A., 1350.

**$\alpha$ -Phenylpropionic anhydride**, *o*-amido-. See Atroxindole.

**$\beta$ -Phenylpropionic anhydride**, *o*-amido-. See Hydrocarbostyrl.

**$\beta$ -Phenylpropionic** (*cinnamic*) **chloride** (HUGHES), 1891, P., 71.

**$\alpha$ -Phenylpropionitrile** (MEYER), 1889, A., 596.

**Phenylpropionylcarbamide** (KÜHN), 1885, A., 260.

**Phenylpropylacetamide**,  $\beta$ - and  $\gamma$ -bromo- (ELFELDT), 1892, A., 214.

**Phenylpropylacetic acid** (RONSOLYMO), 1889, A., 861.

**Phenylisopropylacetylglucolic acid**. See Acetylumylglucolic acid.

**Phenylpropylamine** and its derivatives (TAFEL), 1886, A., 940; 1889, A., 976; (GARELLI), 1892, A., 845.

*di*- and *tri*-nitro- (VAN ROMBURGH), 1886, A., 455.

**Phenylisopropylamine** (EDELEANU), 1887, A., 583.

**Phenylisopropylbenzyl-naphthylendiamine** (FISCHER), 1892, A., 1473.

**Phenylpropylcarbinol** (MARSHALL and PERKIN), 1891, T., 886.

**Phenylpropylene**. See Allylbenzene.

**1-Phenyl-4-isopropylene-3:5-pyrazolidone** (MICHAELIS and BURMEISTER), 1892, A., 1005.

**Phenylpropylene- $\psi$ -semithiocarbazide** (AVENARIUS), 1891, A., 550.

**Phenylpropylene- $\psi$ -thiocarbamide** (PRAGER), 1890, A., 159.

**Phenylisopropylethylene glycol** (FOSSEK), 1884, A., 833.

**Phenylisopropylhydrazine** (PHILIPS), 1887, A., 1104.

**Phenylpropylic alcohol** (ERRERA), 1887, A., 35.

**Phenylisopropylic alcohol** (*benzylmethylcarbinol*) (ERRERA), 1887, A., 35.

**Phenylisopropylketone-*o*-carboxylic acid** (*benzoylisopropyl-*o*-carboxyllin acid*) (ROSER), 1885, A., 268.

**Phenylpropylnitramine**, *trinitro*- (VAN ROMBURGH), 1886, A., 455.

**Phenylpropylthiocarbamine chloride** (BILLETTER and STROHL), 1888, A., 364.

**Phenyl-propyl- and -isopropyl-triazole-carboxylic acids** (BLADIN), 1892, A., 638.

**Phenylpropyl-**. See also Propylphenyl-.

**Phenylmetapyrazole** (PINNER and LIFSCHÜTZ), 1887, A., 1055.

**1-Phenylpyrazole** (BALBIANO), 1887, A., 1054; 1889, A., 1215; (KNORR and LAUBMANN), 1889, A., 410.

derivatives of (BALBIANO), 1890, A., 1164.

4-bromo- and *di*- and *tri*-bromo- (BALBIANO), 1890, A., 797.

**2-Phenyl- $\beta$ -pyrazole**. See 2-Phenylglyoxaline.

- 1-Phenylpyrazole-4-carboxylic acid (KNORR and LAUBMANN), 1889, A., 410.
- 1-Phenylpyrazole-5-carboxylic acid (CLAISEN and ROOSEN), 1891, A., 1107.
- 1-Phenylpyrazole 3:5-dicarboxylic acid (BALBIANO), 1890, A., 1164; (CLAISEN and ROOSEN), 1891, A., 1107.
- 4-bromo- (BALBIANO), 1890, A., 1165.
- 1-Phenylpyrazole-3:4:5-tricarboxylic acid (KNORR and LAUBMANN), 1889, A., 410.
- 1-Phenylpyrazolidine (MICHAELIS and LAMPE), 1892, A., 355.
- 1-Phenyl-3:5-pyrazolidone (MICHAELIS and BURMEISTER), 1892, A., 1001.
- 4-oxime of (MICHAELIS and BURMEISTER), 1892, A., 1005.
- 1-Phenyl-3:5-pyrazolidone-4-azobenzene (MICHAELIS and BURMEISTER), 1892, A., 1005.
- 1-Phenylpyrazoline (FISCHER and KNOEVENAGEL), 1887, A., 932; (BALBIANO), 1889, A., 1215.
- Phenylmetapyrazolone (*α*-phenylthylantoin) (PINNER), 1888, A., 1102.
- Phenylpyrazolone (*quinidine*) derivatives, constitution of (KNORR), 1884, A., 1377; 1887, A., 601.
- 1-Phenylpyrazolone (RUEHMANN and MORRELL), 1892, T., 799.
- 1-Phenylisopyrazolone and 4-bromo- (FISCHER and KNOEVENAGEL), 1887, A., 933.
- 1-Phenylpyrazolone-3-carboxylic acid (BUCHNER), 1890, A., 156.
- 1-Phenylpyrazolone-4-carboxylic acid (RUEHMANN and MORRELL), 1892, T., 797, 799.
- 1-Phenylpyrazolone-3-carboxylic acid, 4-amido- (TAFEL), 1887, A., 468.
- 2-Phenylpyridine (SKRAUP and COBENZL), 1883, A., 1015.
- 3-Phenylpyridine, and its diketone (SKRAUP and COBENZL), 1883, A., 1013.
- 4-Phenylpyridine, and its salts (HANTZSCH), 1884, A., 1194.
- 2-Phenylpyridine ketone, and its salts (SKRAUP and COBENZL), 1883, A., 1015.
- 3-Phenylpyridinecarboxylic acid and its salts (SKRAUP and COBENZL), 1883, A., 1012.
- Phenylpyridinedicarboxylic acids, 2- and 3-, and their salts (SKRAUP and COBENZL), 1883, A., 1014, 1011.
- 2-Phenylpyridinedicarboxylic acid, dibromo-, and its salts (SKRAUP and COBENZL), 1883, A., 1014.
- 2-Phenylpyridinephenyleneketonecarboxylic acid (DOEBNER and KUNTZE), 1889, A., 412.
- 3-Phenylpyridinesulphodicarboxylic acid (IMMERHEIMER), 1889, A., 527.
- 4-Phenylpyridinetetracarboxylic acid, and its salts (HANTZSCH), 1884, A., 1193.
- 1-Phenyl-4-pyridone, *αβ*-trichloro- (ZINCKE), 1890, A., 965; (ZINCKE and FUCHS), 1892, A., 418.
- 1-Phenyl-4-pyridonecarboxylic acid, *αβ*-trichloro- (ZINCKE), 1890, A., 965; (ZINCKE and FUCHS), 1892, A., 448.
- Phenylpyrroldiazolecarboxylic acid, 1:3-, synthesis of (ANDREOCOT), 1892, A., 636.
- 1-Phenylpyrrolineazobenzene (FISCHER and HERT), 1886, A., 1042.
- 1-Phenylpyrroline-2:5-dibenzoic acid (BAUMANN), 1887, A., 735.
- Phenylpyruvic acid (PLOCCHI), 1884, A., 604; 1887, A., 254; (ERLENMEYER), 1887, A., 142, 1046; (WISLICHENUS), 1887, A., 587.
- synthesis of (ERLENMEYER), 1889, A., 990.
- Phenylquinaldine. See Phenyl-2'-methylquinoline.
- Phenylquinaldinic acid. See 4'-Phenylquinoline-2'-carboxylic acid.
- 2'-Phenylquinazoline (GABRIEL and JANSEN), 1890, A., 1442.
- α*-Phenylquininic acid (DOEBNER), 1889, A., 411.
- Phenylquinoline, amido- [m.p. 136°] (JELLINEK), 1886, A., 1045.
- 1-Phenylquinoline and its derivatives (LA COSTE and SORGER), 1886, A., 80.
- 3-Phenylquinoline and its derivatives (LA COSTE and SORGER), 1886, A., 81.
- amido- (WEIDEL and v. GEORGEVICS), 1888, A., 967.
- 2'-Phenylquinoline, preparation of (FRIEDLÄNDER and GÖHRING), 1883, A., 1148; (DOEBNER and v. MILLER), 1883, A., 1149.
- derivatives of (DOEBNER and v. MILLER), 1886, A., 721; (MURMANN), 1892, A., 1003.
- 2-amido- (v. MILLER and KINKELIN), 1885, A., 1141.
- 3'-Phenylquinoline, preparation of (FRIEDLÄNDER and GÖHRING), 1883, A., 1148.
- 4'-Phenylquinoline and its derivatives (GRIMAUD), 1883, A., 668; (KORNIG and NEF), 1886, A., 1015; 1887, A., 599.

- 3'-Phenylisoquinoline and 4'-amido-, and 1':4'-chloronitro- (GABRIEL), 1886, A., 265, 630.
- Phenylquinolineamine, and its salts (FRIEDLÄNDER and WEINBERG), 1885, A., 990.
- 2'-Phenylquinoline-4'-carboxylic acid (*α*-phenyleinchonic acid) (DOERNER), 1887, A., 504.
- homologues of (DOERNER and GIESKE), 1888, A., 300.
- 4'-Phenylquinoline-2'-carboxylic acid (*phenylquinoldinic acid*) (KOENIGS and NEF), 1886, A., 1045.
- 3-Phenylquinoline-mono- and -di-carboxylic acids (CLAUS and NICOLAYSEN), 1886, A., 68.
- 2-Phenylquinolinesulphonic acids (MURMANN), 1892, A., 1003.
- 3-Phenylquinoline-*p*- and -*β*-sulphonic acids and their salts (LA COSTE and SORGER), 1886, A., 82.
- Phenylquinonediiimide (HFNCKE), 1890, A., 609.
- Phenylrosaniline, *dinitro*- (NOLTING), 1883, A., 54.
- Phenylrosinduline (*rosinduline*) (FISCHER and HEPP), 1888, A., 1291; 1890, A., 909.
- amido- (FISCHER and HEPP), 1890, A., 765.
- Phenylrosindulinesulphonic acid (FISCHER and HEPP), 1891, A., 1045.
- Phenylsalicyluramidoxime (SPILKER), 1890, A., 144.
- Phenylsalicylic acid (GRAEBE), 1888, A., 477; (ARBENZ), 1890, A., 892.
- tribromo*-, and *dinitro*- (ARBENZ), 1890, A., 893.
- Phenylsantoninmethane, *m*-nitro- (BERTONI), 1892, A., 622.
- α*-Phenylselenazylamine (HOFFMANN), 1889, A., 726.
- Phenylseleniocarbamide (STOLTE), 1886, A., 781.
- Phenylseleniocarbimide (STOLTE), 1887, A., 43.
- Phenylsemicarbazide (EDULEANU), 1892, A., 1323.
- o*-chloro- (HEWITT), 1891, T., 210.
- Phenylsemithiocarbazide (SKINNER and RUHEMANN), 1888, A., 271.
- Phenylsorbinosazone (FISCHER), 1887, A., 567.
- Phenylsucceinylamidine (COMSTOCK and WHEELER), 1892, A., 702.
- Phenylsuccinamide, *p*-bromo- (HOOGWERFF and VAN DORP), 1891, A., 196.
- Phenylsuccinamide, constitution of (HOOGWERFF and VAN DORP), 1891, A., 197.
- action of potassium hypobromite on (HOOGWERFF and VAN DORP), 1891, A., 196.
- p*-bromo-, and bromamido- (HOOGWERFF and VAN DORP), 1891, A., 196.
- Phenylsuccinazone (CIAMICIAN and ZANETTI), 1890, A., 1120.
- Phenylsuccinimide (MOINE), 1887, A., 489.
- preparation of (HALLER), 1892, A., 1201.
- Phenylsulpharsenic acid, disodium salt of (SCHULTE), 1883, A., 187.
- Phenylsulphineacetic acid, non-existence of (OTTO and ENGELHARDT), 1887, A., 263.
- "Phenylsulphocycamine," *α*-amido- (VILLER), 1887, A., 833.
- Phenylsulphonamic acid (TRAUBE), 1890, A., 1137.
- tribromo*-, barium salt of (TRAUBE), 1891, A., 569.
- Phenylsulphone. See Diphenylsulphone.
- Phenylsulphoneacetates, properties of (MICHAEL and PALMER), 1885, A., 986.
- Phenylsulphoneacetanamine (R. and W. OTTO), 1888, A., 282.
- Phenylsulphoneacetone (OTTO), 1886, A., 801; (OTTO and ROSSING), 1890, A., 780.
- Phenylsulphoneacetonephenylmercaptole (R. and W. OTTO), 1888, A., 282; (OTTO and ROSSING), 1891, A., 568.
- Phenylsulphoneacetoxime (R. and W. OTTO), 1888, A., 282.
- Phenylsulphone-*o*-amido- and -*o*-nitro-anilides and -*m*-amido- and -*m*-nitro-*p*-toluidides (LEGLMANN), 1884, A., 51.
- Phenylsulphone-*δ*-amidovaleric acid (SCHOTTEN and SCHULMANN), 1892, A., 354.
- Phenylsulphone-mono- and -di-bromacetones (R. and W. OTTO), 1888, A., 282.
- Phenylsulphone-*tribromamide* (HOOGWERFF and VAN DORP), 1888, A., 1194.
- α*-Phenylsulphone-*α*-bromopropionic acid (OTTO), 1890, A., 381.
- α*-Phenylsulphonebutyric acid (R. and W. OTTO), 1888, A., 577.
- β*-Phenylsulphone-crotonic and -isocrotonic acids (AUTENRIETH), 1891, A., 203.
- Phenylsulphone-ethyl alcohol, and its derivatives (OTTO and DAMKÖHLER), 1885, A., 262.

- Phenylsulphone-ethyl sulphate and chloride (OTTO and DAMKÖHLER), 1885, A., 262, 263.
- Phenylsulphonehydroxypropionic acid, *p*-chloro- (KONIG), 1892, A., 1091.
- Phenylsulphonephenylbenzenylamidine (WALLACH), 1883, A., 48.
- Phenylsulphonephenylhydrazine (E-CALES), 1885, A., 798.
- $\alpha$ -Phenylsulphonepropionic acid (OTTO), 1890, A., 381.  
preparation of the ethylic salts of (OTTO), 1885, A., 537.
- $\beta$ -Phenylsulphonepropionic acid (OTTO), 1888, A., 360.
- Phenylsulphonepropionic acid, *p*-chloro- $\alpha$ -amido- (KONIG), 1892, A., 1091.
- Phenylsulphonetetrahydroquinoline (SCHOTTEN and SCHLÖMANN), 1892, A., 355.
- Phenyltaurine and its salts (ANDRÉASCH), 1883, A., 664.  
preparation of (JAMES), 1885, T., 369.  
anilide, and its hydrochloride (LEYMANN), 1885, A., 786.
- Phenyltaurocyamine, formation of (JAMES), 1885, T., 373.
- Phenyltetrahydro- $\alpha$ - and - $\beta$ -naphtha-benzyl-carbamides and -thiocarb-amides (BAMBERGER and HELWIG), 1889, A., 1198.
- 2'-Phenyltetrahydro- $\alpha$ -naphthaquinoline (DOEBNER and KUNTZE), 1889, A., 412.
- Phenyl- $\alpha$ -tetrahydronaphthyl-carb-amide and -thiocarbamide (BAMBERGER and ALTHAUSSE), 1888, A., 960.
- 1-Phenyl- $\Delta^2$ -tetrahydropicoline (ILPP), 1892, A., 1214.
- 3'-Phenyltetrahydroquinazoline (PAAL and BUSCH), 1890, A., 73.  
2'-thio- (SÜDERBAUM and WIDMAN), 1889, A., 973; (BUSCH), 1892, A., 1495.
- 2'-Phenyltetrahydroquinoline and its nitroso-derivative (DOEBNER and V. MILLER), 1886, A., 722.  
*m*-amido- and *m*-nitro- (V. MILLER and KINKELIN), 1885, A., 1145.
- Phenyltetra-*m*-hydroxydiphenyl-methane, *p*-nitro- (SIBONI), 1892, A., 621.
- Phenyltetra-*p*-hydroxydiphenyl-methane, *o*-nitro- (SIBONI), 1892, A., 621.
- Phenyltetra-*p*-hydroxydiphenyl-methanes, *m*- and *p*-nitro- (BERTONI and ZENONI), 1892, A., 620.
- Phenyltetramethylene dibromide and glycol (MARSHALL and PERKIN), 1891, T., 890.
- Phenyltetramethylpyrazolone (1-*ψ*-cumylmethylaryguanizine) and its oxime (HALLER), 1885, A., 818.
- Phenyltetrazenylamidoxime (BLADIN), 1889, A., 979.
- Phenyltetrazolecarboxylic acid, amido- and nitro- (BLADIN), 1892, A., 1009.
- Phenyltetrazolecarboxylthiamide (BLADIN), 1892, A., 638.
- Phenyltetric acid (MOSCHELES and CORNELIUS), 1888, A., 1272.
- Phenyltetrose (FISCHLER and STEWART), 1892, A., 1447.
- m*-Phenylthiamidobenzoic acid (ASCHAN), 1884, A., 907.
- $\alpha$ -Phenylthiazole (ARAPINE), 1889, A., 411; (POPP), 1889, A., 725.
- $\mu$ -Phenylthiazole (HUBACHER), 1891, A., 221.
- Phenylthiazoline (HANTZSCH and TRAUMANN), 1888, A., 573; (GABRIEL and HEYMAN), 1890, A., 524.
- Phenylthiazylamine (TRAUMANN), 1889, A., 415.
- Phenylthienylmethane (PETER), 1884, A., 1001.
- $\alpha$ -Phenyl- $\beta$ -thiobiuret (HECHT), 1892, A., 704; (FROMM), 1892, A., 844.
- Phenyl- $\beta$ -thiocarbamic thioanhydride (LOSANITSCH), 1892, A., 55.
- Phenylthiocarbamide (BERTRAM), 1890, A., 1291; 1892, A., 465.  
action of benzylic chloride and of allylic bromide on (WERNER), 1890, T., 295, 301.  
action of chlorosulphonic acid on (PAWLEWSKI), 1889, A., 1165.  
action of hydrogen peroxide on (HECTOR), 1889, A., 872.  
action of silicon tetrachloride on (REYNOLDS), 1888, T., 856.  
compounds of, with metallic salts (RATHKE), 1884, A., 1018.
- Phenylthiocarbamide allylic, benzylic, ethylic, methylic and propylic cyanides (HECHT), 1890, A., 1104.
- Phenylthiocarbamine isobutylcyanide (HECHT), 1892, A., 703.
- Phenylthiocarbimide, preparation of (WERNER), 1891, T., 398.  
and chloral-ammonia (DIXON), 1892, T., 529.  
action of acetic acid on (CAYN and COHEN), 1891, T., 327; P., 70; (WERNER), 1891, T., 544; P., 85.  
action of aldehyde- and of valer-aldehyde-ammonia on (DIXON), 1888, T., 416, 417.  
action of, on amido-acids (ASCHAN), 1883, A., 1107.

- Phenylthiocarbimide**, action of benzaldehyde and of benzoic acid on (COHEN), 1891, T., 67.  
 action of dimethylaniline on (DIXON), 1892, T., 538.  
 action of propionic acid on (WERNER), 1891, T., 550.  
 action of thialdine on (DIXON), 1889, T., 627.  
 action of water on (CAIN and COHEN), 1891, T., 328.  
 oxide (HELMERS), 1887, A., 581.  
*m*-nitro-, and its derivatives (STEUDEMANN), 1883, A., 801; 1884, A., 306.
- Phenylthiocarbimide-aldehyde-ammonia**, and action of silver nitrate on (DIXON), 1892, T., 518, 521.
- $\alpha$ -Phenyl-dithiodimethylketuret** (FROMM), 1892, A., 844.
- Phenylthio-hydantoic acid and -hydantoin** (ASCHAN), 1884, A., 907.
- Phenylthiophen** and its derivatives (RENNARD), 1890, A., 134.
- $\alpha$ -Phenylthiophen**, synthesis of (KUES and PAAL), 1887, A., 238.
- Phenylthiophen-di- and -tetraphosphonic acids** (RENNARD), 1890, A., 134.
- Phenylthiosalicyclic acid**. See *o*-Phenoxybenzoic acid.
- o*-Phenylthio-uramidocinnamic acid** (ROTHSCHILD), 1890, A., 1123; 1891, A., 198.
- Phenylthiouramido-*p*-tolylurethane** (*thiocarbamyltolylurethane*) (SCHIFF and VANNI), 1890, A., 1125; 1892, A., 600.
- Phenylthiourethane** (SCHIFF and VANNI), 1892, A., 600.  
 oxidation of (JACOBSON), 1886, A., 876.  
 nitro- (LOSANITSCH), 1883, A., 582.
- Phenyltoluene**. See Methyl-diphenyl.
- Phenyl-*m*-toluidine**, trinitro-. See *tri*-Nitranilidololuene.
- Phenyl-*p*-toluidine** and its derivatives (BUCH), 1885, A., 147; (BONNA), 1887, A., 927; (REICHOLD), 1890, A., 609.  
*o*-amido- (HEIDENLEBEN), 1891, A., 307.  
*p*-amido- (REICHOLD), 1890, A., 610.  
*di*amido- and *di*nitramido- (ERNST), 1891, A., 300.  
*o*-nitro- (SCHOPFF), 1890, A., 1113.  
*p*-nitroso- (REICHOLD), 1890, A., 609.
- p*-Phenyltolylacetonitrile** (NEURE), 1889, A., 597; (MICHAEL and JEAN-PRÉTRE), 1892, A., 1094.
- Phenyltolylbenzylacetoneitrile** (NEURE), 1889, A., 597.
- Phenyl-*p*-tolylbenzylbiuret** (KUHN and HENSCHKE), 1888, A., 471.
- Phenyl-*p*-tolylbenzylcarbamide** (HAMMERICH), 1892, A., 1083.
- Phenyl-*m*-tolylcarbamide** (v. BUCHKA and SCHACHTEBECK), 1889, A., 702.
- Phenyl-*o*-, -*m*-, and -*p*-tolylcarbinyamines** (GOLDSCHMIDT and STOCKER), 1890, A., 1480, 1479.
- Phenyl-*m*-tolylcarbiny-carbamide** (*homobenzyldiarylcabamide*) (GOLDSCHMIDT and STOCKER), 1891, A., 1480.
- Phenyl-*p*-tolylcarbiny-phenylcarbamide and -thiocarbamide** (GOLDSCHMIDT and STOCKER), 1891, A., 1480.
- Phenyl-*o*-tolyl-diketodihydropyrazine** (ABENIUS), 1890, A., 270.
- Phenyl-*o*-tolyl-diketopyrazine**, *dichloro*- (ABENIUS), 1890, A., 526.
- Phenyl-*o*- and -*p*-tolyl- $\alpha$ -diketopiperazines** (BISCHOFF and HAUSDORFER), 1890, A., 1285, 1286.
- Phenyl-*p*-tolylethylene**. See *p*-Methylstilbene.
- Phenyl-*p*-tolylethylthiocarbamide** (GERHARDT), 1884, A., 1321.
- Phenyl-*m*-tolylmethane and *d*/nitro-** (SENFF), 1884, A., 427.
- Phenyltolylmethanes, diamido-** (ULLMANN), 1888, A., 288.
- 5-Phenyl-1-*o*- and -*p*-tolyl-2-methylpyrrolines** and their 3-carboxylic acids (LEDERER and PAAL), 1886, A., 75.
- Phenyl-*o*-tolylmethylthiocarbamide**, action of aniline on (GERHARDT), 1885, A., 383.
- Phenyl-*p*-tolylmethylthiocarbamide** (GERHARDT), 1884, A., 1321; 1885, A., 383.
- Phenyltolylpropane** (KRAEMER and SPILKER), 1891, A., 207.
- $\alpha\beta$ -Phenyl-*o*-, -*m*- and -*p*-tolylpropanes** (KRAEMER, SPILKER and GERHARDT), 1891, A., 207.
- Phenyl-*o*-tolylsemithiocarbazides** [m. p. 163° and 146°] (DIXON), 1890, T., 258, 259.
- Phenyl-*p*-tolylsemithiocarbazides** [m. p. 173° and 172°] (DIXON), 1892, T., 1013.
- Phenyl-*p*-tolylsulphone** (OTTO), 1885, A., 536.
- Phenyl-*p*-tolylthiocarbamide, *o*- and -*m*-nitro-** (STEUDEMANN), 1884, A., 307.

- Phenyltriazolecarboxylic acid** (BLADIN), 1890, A., 1166.  
 constitution of (PURDIE and MARSHALL), 1891, A., 172.  
 amido- and nitro- (BLADIN), 1892, A., 735.
- Phenyltriazolecarboxylic acid and its salts** (BLADIN), 1890, A., 1165; 1891, A., 472.
- n*-Phenyltrihydrothiazole** (FORSTER), 1888, A., 946.
- Phenyltrimethylammonium chloride** and hydroxide, action of heat on (COLLIE and SCHRYVER), 1890, T., 777.  
 iodide, action of potassium on (THOMPSON and CUNDALL), 1888, T., 763.  
*tri*- and *pent*-iodides (DAFERT), 1883, A., 979.  
*m*-nitro-, hydroxide, bromide and *m*-nitrophenoxide (STAEDEL and BAUER), 1886, A., 941.
- Gal*-Phenyltrimethylene-2:3-dicarboxylic acid** (BUCHNER), 1888, A., 1275; (BUCHNER and DESHAUER), 1892, A., 849.
- Gal*-Phenyltrimethylene-2:2:3-tricarboxylic acid** (BUCHNER and DESHAUER), 1892, A., 849.
- Phenyltrimethylenimine** (BALBIANO), 1889, A., 252.
- Phenyltrimethylmethane.** See *tert*-Butylbenzene.  
*o*- and *p*-amido- (SENKOWSKI), 1890, A., 1296; 1892, A., 44.
- Phenyltrimethylphenylacetoneitrile** (MICHAEL and JEANPRISTRE), 1892, A., 1094.
- Phenyltrimethylphenylcarbinol** (*phenylmesitylphenylcarbinol*) (LOUIS), 1886, A., 542.
- Phenyltrimethylpyrazole derivatives** (HALLER), 1885, A., 818.
- 1-Phenyl-3:5:5-trimethylpyrazoline** (FISCHER and KNOVENAGEL), 1887, A., 933.
- 1-Phenyl-3:4:4-trimethylpyrazolone** (KNORR), 1887, A., 601.
- Phenyltrimethylrosinduline** (FISCHER and HEPF), 1890, A., 909.
- Phenyltri- $\beta$ -naphthylcarbamide** (PASCHKOWETZKY), 1892, A., 167.
- Phenyltripropylguanidine** (FRANKSEN), 1884, A., 1003.
- $\beta$ -Phenylumbelliferone** (v. RECHMANN and DUISBERG), 1884, A., 67.  
 reduction of (LIEBERMANN and HARTMANN), 1892, A., 1228.
- Phenyluracil, imido-** (JAEGER), 1891, A., 1007.
- Phenyluramidobenzoic acid** (KÜHN), 1885, A., 260.
- Phenyl- $\beta$ -uramidopropionic acid** (HOOGWERFF and VAN DORP), 1891, A., 197.  
*p*-bromo-, 2:4-*di*bromo- and 2:1:6-*tri*bromo- (HOOGWERFF and VAN DORP), 1891, A., 198.
- Phenyluranilidoacetic acid** (KOSSET), 1892, A., 468.
- Phenylurazole** (PINNER), 1887, A., 1013; (SKINNER and RUHEMANN), 1888, T., 554.  
 preparation of (PROBST), 1892, A., 966.  
*p*-chloro- (HEWITT), 1891, T., 212.
- Phenylurethane, *p*-amido-, and *p*-nitro-, and their derivatives** (HAGER), 1885, A., 149.  
*o*-*p*-nitro- and *p*-nitro-*o*-amido- (HAGER), 1885, A., 150; (VAN ROMBURGH), 1892, A., 712.
- Phenylvaleric acid, derivatives of** (ANSCHUTZ and BERNIS), 1891, A., 913.  
*o*-amido-, derivatives of (DIEHL and EINHORN), 1887, A., 485.  
*ortho*- and *tetra*-brom-*o*-amido- (DIEHL and EINHORN), 1887, A., 486.  
(*benzylethylacetic acid*), *p*-nitro- (LEILMANN and SCHLEICH), 1887, A., 490.  
(*phenylethylpropionic acid*) (ANSCHUTZ and BERNIS), 1891, A., 914.  
(*phenylpropylacetic acid*) (ROS-SOLYMO), 1889, A., 861.
- Phenyl-*y*-valeric acid, bromo-** (FITTING and STERN), 1892, A., 988.  
*di*bromo-, decomposition of (FITTING and STERN), 1892, A., 987.
- Phenylisovaleric acid, bromo-** (FITTING and LIEBMANN), 1890, A., 776.
- Phenylvalerolactone and bromo-** (FITTING and STERN), 1892, A., 987, 988.
- Phenylvalerolactonecarboxylic acid, and its salts** (WEITNER), 1885, A., 793.
- Phenylisovalerolactone** (FITTING and LIEBMANN), 1890, A., 776.
- Phenylxanthogenamide, formation of** (BAMBERGER), 1883, A., 185.
- Phenylxylenyl-uramidoxime and -thio-uramidoxime** (OPPENHEIMER), 1890, A., 50.
- Phenyl-*m*-xylolacetoxime-*o*-carboxylic anhydride, oxime of** (LEILMANN), 1890, A., 625.
- Phenyl-*m*-xylolcarbamide** (BRÜMME), 1888, A., 1296.
- Phenylxylolcarbinols, *o*-, *m*- and *p*-** (ELBS), 1887, A., 941.

**$\alpha$ -Phenylxylylpropane** (KRAEMER, SPILKER and EBERHARDT), 1891, A., 207.

**$\beta$ -Phenyl- $\beta$ -*m*-xylylpropionic acid** (LIEBERMANN and HARTMANN), 1892, A., 819.

**Phenylthronic acid.** See Phenylmethylfurfurandicarboxylic acid.

**Phillipsite** from Brazil (GORCEIX), 1886, A., 319.

from Somoskö (KALEUSINSZKY), 1890, A., 718.

group (RAMMELSDERG), 1886, A., 318.

**Philothion** (DE REY-PAILHADE), 1888, A., 1101; 1890, A., 905.

**Phlebin** (HOPPE-SEYLER), 1889, A., 787.

**Phlein** (EKSTRAND and JOHANSSON), 1888, A., 439; (EKSTRAND and MAUZELIUS), 1890, A., 227.

See also Irisin.

***Phleum pratense***, analyses of (WILSON), 1886, A., 909.

changes occurring in, during growth (LADD), 1888, A., 1220.

**Phlobaphen** (ETTI), 1883, A., 995; (BÖTTINGER), 1881, A., 321.

formation of (TSCHIRCH), 1891, A., 1287.

**Phlogopite**, rutile in (v. SANDBERGER), 1883, A., 34.

See also Mica.

**Phloionic acid** (GIBSON), 1891, A., 465.

**Phloretic acid.** See *p*-Hydroxy- $\alpha$ -phenylpropionic acid.

**Phloretin** (RENNIE), 1886, T., 860.

**Phloridzin** (*phlorizin*) and dextrose from (RENNIE), 1887, T., 634; P., 86.

**isoPhloridzin**, so-called (SCHIFF), 1885, A., 1142.

**Phloridzin-diabetes** (MORITZ and PRATSNITZ), 1890, A., 1336; (KULZ and WRIGHT), 1890, A., 1337.

**Phloroglucinol** (SKRAUP), 1890, A., 136.

presence and function of, in plants (WAAGE), 1891, A., 605; 1892, A., 1120.

synthesis of (v. BAEYER), 1886, A., 223.

melting point of (v. BAEYER), 1886, A., 1020.

action of aniline and of *p*-toluidine on (MINUNNI), 1888, A., 1081; 1891, A., 190.

action of bromine on (ZINCKE and KEGEL), 1890, A., 1108.

action of chlorine on (ZINCKE and KEGEL), 1889, A., 967; 1890, A., 488.

**Phloroglucinol**, action of methylic iodide and potash on (MARGULIES), 1889, A., 197.

action of phenylhydrazine on (v. BAEYER and KOCHENDOERFER), 1889, A., 1162.

chlorination of (WEBSTER), 1885, T., 423; P., 51.

relationship between ethylic succino-succinate and (v. BAEYER), 1891, A., 1485.

physiological action of (GIBBS and HARE), 1890, A., 1019.

derivatives of (WILL and ALBRECHT), 1884, A., 1335; (HERZIG), 1886, A., 232.

their relation to daphnetin and resculotin (WILL and ALBRECHT), 1884, A., 1335.

benzenesulphonate (GEORGESCU), 1891, A., 569.

*p*-coumarate (WILL), 1887, A., 497. diethyl ether. See 1:3:5-Diethoxyhydroxybenzene.

furfuran-derivatives from (LANG), 1887, A., 262.

methyl-derivatives of (SPITZER), 1890, A., 1110.

tribenzoate (SKRAUP), 1890, A., 136.

trioxine of (v. BAEYER), 1886, A., 350.

as an antiseptic (ANDER), 1885, A., 454.

supposed reaction for (CAZENEUVE and HUGOUNENQ), 1888, A., 994.

detection of diresorcinol in synthetically prepared (HERZIG and ZEISEL), 1891, A., 125.

**Phloroglucinol**, tribromo- (BENEDIKT and HAZURA), 1885, A., 554; (HERZIG), 1886, A., 232.

action of potassium iodide on (BENEDIKT and v. SCHMIDT), 1883, A., 1119.

acetate (ZINCKE and KEGEL), 1890, A., 1109.

heptabromo-, dibromide (HAZURA and BENEDIKT), 1886, A., 52.

trichloro- (WEBSTER), 1885, T., 423; (HAZURA and BENEDIKT), 1886, A., 52; (ZINCKE and KEGEL), 1889, A., 967.

trinitro- (BENEDIKT and HAZURA), 1885, A., 554.

**Phloroglucinolcarboxylic acid** (2:4:6-trihydroxybenzoic acid) (WILL and ALBRECHT), 1884, A., 1335.

**Phloroglucinoltannic acid** (SCHIFF), 1888, A., 840; 1889, A., 1063.

**Phloroglucinolvanillin** (ETTI), 1883, A., 62;.

- Phlorol** (*2-ethylphenol*) (OLIVERI), 1884, A., 174; (SUIDA), 1890, A., 134; (ALEXANDER), 1892, A., 1318.
- Phlorolcarboxylic acid** (*ethylphenolcarboxylic acid*) (OLIVERI), 1884, A., 174.
- Phlorone**. See *p*-Xyloquinone.
- Phloroquinone** (DE CLERMONT and CHAUTARD), 1886, A., 696.
- Phlorose**, identity of, with dextrose (FISCHER), 1888, A., 590.
- Phlorotannin-red** (SCHIFF), 1889, A., 1063.
- Phœnicochroite**, synthesis of (LUEDEKING), 1892, A., 792.
- Pholidolite** (NORDENSKIÖLD), 1892, A., 1408.
- Phoma Gentianæ**, a parasitic fungus (KUHN), 1883, A., 1025.
- Phonolites** from Colorado (CROSS), 1890, A., 1075.
- of Elfdalen (TÖRNEBOHM), 1884, A., 276.
- of Hegau, chemical composition of (FOHR), 1884, A., 568.
- analysis of (DOELTER), 1883, A., 721.
- Phonolite-pumice** from S. Antão, analysis of (DOELTER), 1883, A., 723.
- Phorone** (CLAUS), 1890, A., 769.
- Phoroneoxime** (NÄGELI), 1883, A., 728.
- Phoronepyrroline** (DENNSTEDT), 1890, A., 1000.
- iso***Phorone** (LAYCOCK), 1890, A., 1235.
- Phosgene**. See Carbonyl chloride under Carbon.
- Phosgenite**. See Cronfordite.
- Phospham**, action of methylic or ethylic alcohol on (VIDAL), 1891, A., 1003.
- Phosphamide** (BESSON), 1892, A., 1152.
- fluoro-** (POULENC), 1891, A., 1418.
- Phosphates**. See Phosphoric acid under Phosphorus.
- Phosphenyl-benzylphenylhydrazine**, -phenylhydrazine and -*p*-tolylhydrazine (MICHAELIS and OSTER), 1892, A., 1325.
- Phosphine**. See Hydrogen phosphide.
- Phosphines**, action of zinc-ethyl on (GAL), 1883, A., 653; 1881, A., 985.
- tertiary, action of carbon disulphide on (CZIMATIS), 1883, A., 58.
- action of benzylidene chloride on (HOLLE), 1892, A., 984.
- mixed, preparation of (COLLIE), 1888, T., 714; P., 78.
- mixed aromatic (CZIMATIS), 1883, A., 57.
- iso***Phosphines**, aromatic (MICHAELIS and GLEICHMANN), 1883, A., 185.
- Phosphino-benzene**, -*ψ*-cumene and -*p*-toluene (MICHAELIS and ROTH), 1892, A., 1084.
- Phosphoarsenosotungstates** (GIBBS), 1886, A., 427.
- Phospho-*bis*chloro-muconic acid and -muconyl chloride** (RUHEMANN and DUFFON), 1891, T., 27, 31.
- Phosphododecamolybdic acid** (HUNDENHAGEN), 1889, A., 760.
- Phosphododecatungstic acid** (KEHRMANN and FREINKEL), 1891, A., 1159.
- Phosphohypophosphotungstates** (GIBBS), 1886, A., 427.
- Phosphiodides** (MOISSAN), 1892, A., 114.
- Phosphomolybdic acid**, solubility of, in ether and water (PARMENTIER), 1887, A., 547.
- Phosphomolybdates**, constitution of (KEHRMANN), 1887, A., 777.
- Hypophospho-molybdates and -tungstates** (GIBBS), 1884, A., 560.
- Phosphonium** bromide, dissociation of (NEWTN), 1892, A., 401.
- chloride, critical point of (SKINNER), 1887, A., 882.
- sulphate (BESSON), 1890, A., 9.
- Phosphopalladium compounds** (FINKE), 1892, A., 1285.
- Phosphoplatinous chloride** (POMEY), 1887, A., 458.
- Phosphorescence** (LOMMEL), 1887, A., 410.
- theory of (RADZISZEWSKI), 1883, A., 763.
- and absorption of uranium compounds, relation between (BECCQUEMEL), 1886, A., 189.
- Phosphoretted hydrogen**. See Hydrogen phosphide.
- Phosphoric acid**. See under Phosphorus.
- dianilide (JACKSON and MENKE), 1885, A., 255.
- ortho***Phosphoric acid** mono- and dianilides (MICHAELIS and V. SODEN), 1885, A., 1134.
- Phosphoric anhydride** or *pentoxide*. See Phosphoric oxide under Phosphorus.
- Phosphorite** of Beauval, origin of (NANTIER), 1889, A., 837.
- of Capo di Leuca (GIGLIOLI), 1888, A., 1259.
- from the Rata Island, composition of (ANON.), 1884, A., 360.
- from Redonda, treatment of (WILLIAMS), 1885, A., 1018.
- Phosphorites** in the south-west of France, origin of (DIEULAFAIT), 1885, A., 30.
- from the Government of Smolensk (WERNADSKI), 1890, A., 1071.
- in limestone districts (DIEULAFAIT), 1884, A., 1272.

**Phosphorites**, iodine in (V. SANDERGER), 1887, A., 222.

**Phosphoroscope**, modification of (CROOKES), 1887, A., 1066.

**Phosphoroso-molybdates and -tungstates** (GIBBS), 1884, A., 561; 1886, A., 427.

**Phosphorosoppho-molybdates and -tungstates** (GIBBS), 1886, A., 427.

**Phosphorous acid**. See under Phosphorus.

**Phosphorous anhydride**. See Phosphorous oxide under Phosphorus.

**Phosphorsellinic acid**, and its derivatives (SCHIFF), 1885, A., 795.

**Phosphor-tin**, estimation of phosphorus in (HEMPFEL), 1890, A., 83.

**Phosphorus** in the blast furnace (HILGENSTOCK), 1885, A., 616.

origin and distribution of, in coal and cannel coal (CARNOT), 1884, A., 1270.

in pig-iron, influence of charcoal on the amount of (ANON.), 1883, A., 403.

in the ores of the Ludington Mine, Michigan (BROWNE), 1889, A., 763.

dissemination of, in masses of metal (WARREN), 1889, A., 13.

atomic weight of (VAN DER PLAATS), 1885, A., 348.

molecular weight of, in solution (PATERNO and NASINI), 1888, A., 1027; (BECKMANN), 1890, A., 447; (HERTZ), 1891, A., 260.

valency of (MICHAELIS and LA COSTE), 1885, A., 1182.

allotropic modification of (VERNON), 1891, P., 3.

allotropic modifications of arsenic and, analogy between (ENGEL), 1883, A., 901.

allotropic states of (PETERSEN), 1892, A., 405.

amorphous, properties of (PEDLER), 1890, T., 599; P., 66.

black (TUENARD), 1883, A., 150.

white (REMSEN and KEISER), 1884, A., 154.

dispersion equivalent of (GLADSTONE), 1888, A., 389.

vapour density of (BILTZ and MEYER), 1889, A., 673.

vapour density of, at a white heat (MENSCHING and MEYER), 1887, A., 888.

specific volume of (THORPE and TUTTON), 1890, T., 562.

dilatation of, and its change of volume at the melting point (LEDUC), 1892, A., 7.

odour of (THORPE and TUTTON), 1890, T., 573.

**Phosphorus**, action of light on (PEDLER), 1890, T., 599; P., 66.

action of light on hydrogen bromide and iodide in presence of red moist (RICHARDSON), 1887, T., 806.

action of amorphous, on solutions of silver and copper nitrates (SENDERENS), 1887, A., 332.

action of sulphur on amorphous (ISAMBERT), 1885, A., 483.

action of sulphuric anhydride on (ADIE), 1891, T., 231.

combustion of, in dried oxygen (BAKER), 1889, A., 465.

oxidation of (BAUMANN), 1884, A., 14, 1092; (LEEDS), 1884, A., 15, 660; (REMSEN and KEISER), 1884, A., 149, 711.

oxidation of, at a low temperature (COWPER and LEWIS), 1881, T., 10.

behaviour of, with iron and slags (BRACKELBERG), 1886, A., 426.

influence of, on iron (SCHNEIDER), 1888, A., 421.

analysis of a slag from the manufacture of, in electrical furnaces (CHORLEY), 1892, A., 1401.

poisoning in man and in the dog (BLENDERMANN), 1883, A., 878.

formation and migration of fat in (LEO), 1885, A., 1002.

acute, gastric juice in (CAHN), 1886, A., 1053.

the urine in a case of (STARLING and HOPKINS), 1892, A., 650.

**Phosphorus** bromides, combination of ammonia with (BESSON), 1891, A., 398.

iridium bromides (GEISENHEIMER), 1890, A., 1383.

chlorides, conversion of tricalcium phosphate into (RIBAN), 1883, A., 287.

heat of formation of (THOMSEN), 1883, A., 514.

combination of ammonia with (BESSON), 1891, A., 398.

trichloride, preparation of, from phosphorus oxychloride (RIBAN), 1883, A., 288.

and oxychloride, method of distinguishing (DENIGES), 1890, A., 664.

action of, on organic acids and water (BOTHAMLEY and THOMPSON), 1891, A., 170.

action of bromine on (STERN), 1886, T., 815; P., 229.

gold chloride (LINNET), 1884, A., 968; 1887, A., 227.

- Phosphorus iridium chlorides** (HEISENHEIMER), 1890, A., 1068.  
 chlorobromides (STERN), 1886, T., 815.  
 oxychloride. See Phosphoryl chloride.  
 fluorides, action of red hot platinum on (MOISSAN), 1886, A., 592.  
 trifluoride (MOISSAN), 1885, A., 15; 1891, A., 261.  
 preparation of (MOISSAN), 1885, A., 482.  
 thermochemistry of (BERTHELOT), 1885, A., 328.  
 action of fluorine on (MOISSAN), 1892, A., 12.  
 action of the induction spark on (MOISSAN), 1885, A., 215.  
 combination of bromine with (MOISSAN), 1885, A., 955.  
 trifluorodichloride (POULENC), 1891, A., 1417.  
 pentafluoride (MOISSAN), 1886, A., 303; 1887, A., 212.  
 action of, on heated spongy platinum (MOISSAN), 1891, A., 1433.  
 combination of, with nitrogen peroxide (TASSEL), 1890, A., 1052.  
 oxyfluoride. See Phosphoryl fluoride.  
 bromonitride (BESSON), 1892, A., 1272.  
 chloronitride (v. HOFMANN), 1885, A., 15; (BESSON), 1892, A., 1152, 1272.
- Phosphorus oxides**, compounds of, with sulphuric anhydride (ADIE), 1891, T., 230; P., 19.
- Phosphorus suboxide** (THORPE and TUTTON), 1886, T., 834.
- Phosphorous oxide** (*phosphorous anhydride*), physical properties and chemical reactions of (THORPE and TUTTON), 1890, T., 545; P., 61; 1891, T., 1019; P., 156.  
 crystalline (ABELL), 1885, A., 121.  
 action of sunlight on (IRVING), 1884, A., 156.  
 alleged decomposition of, by sunlight (COWPER and LEWIS), 1881, T., 10.  
 action of sulphuric anhydride on (ADIE), 1891, T., 230.
- Phosphorus tetroxide** (THORPE and TUTTON), 1886, T., 833; P., 235.
- Phosphoric oxide** ( $P_2O_5$ ) (*phosphorus pentoxide*; *phosphoric anhydride*) in felspar (LINDSTRÖM), 1887, A., 347.  
 three modifications of (HAUTEFEUILLE and PERREY), 1884, A., 1258.  
 action of hydrogen chloride on (BAILEY and FOWLER), 1888, T., 756.
- Phosphoric oxide** ( $P_2O_5$ ), action of phosphoryl chloride on (HUNTLEY), 1890, P., 178; 1891, T., 202.  
 combination of, with sulphuric anhydride (WEBER), 1887, A., 328.
- Phosphorus sulphoxide** (THORPE and TUTTON), 1891, T., 1023.
- Hypophosphorous acid**, oxidation of, by spongy palladium (ENGEL), 1890, A., 690.  
 estimation of (AMAT), 1891, A., 243.
- Hypophosphites**, elimination of, by the urine (EYMONNET), 1884, A., 1058.  
 the molybdate test for (MILLARD), 1889, A., 548.  
 estimation of (MOERK), 1890, A., 293.
- Phosphorous acid** (AMAT), 1889, A., 825.  
 constitution of (WEDENSKY), 1889, A., 103.  
 estimation of (REITMAIR), 1891, A., 243.  
 diamide of (THORPE and TUTTON), 1891, T., 1027.  
 dihydrazide of (MICHAELIS and OSTER), 1892, A., 1325.  
 ethereal salts of (JAEHNE), 1890, A., 358.  
 fluoro- (BERTHELOT), 1885, A., 328.
- Pyrophosphites** (AMAT), 1888, A., 914.
- Hypophosphoric acid** and its salts (JOLY), 1886, A., 200; (SÄNGER), 1886, A., 419; (SÄLZER), 1886, A., 420; (DRAWÉ), 1889, A., 341.  
 thermochemistry of (JOLY), 1886, A., 408.  
 decomposition of (JOLY), 1886, A., 593, 662.  
 estimation of (AMAT), 1891, A., 243.  
 hydrates of (JOLY), 1886, A., 303.
- Hypophosphates** (DRAWÉ), 1889, A., 341; (RAMMELSBERG), 1892, A., 403.
- Phosphorus acids**, titration of (ENGEL), 1886, A., 189.
- Phosphoric acids**, electrolysis of (JANEŽEK), 1888, A., 911.  
 thio-, and their salts (KUBIERSCHKY), 1885, A., 632.
- Phosphates**, thio-, reactions of (KUBIERSCHKY), 1885, A., 633.
- Phosphoric acid** in urine (CARLES), 1892, A., 1115.  
 preparation of (ZIEGLER), 1886, A., 201.  
 pure, preparation of (NICOLAS), 1891, A., 398.

**Phosphoric acid, preparation of, by the oxidation of phosphorus with air in presence of moisture** (WENZELL), 1883, A., 1050.  
**manufacture of** (RUNYON), 1884, A., 260.  
**electrical conductivity of solutions of** (CROMPTON), 1888, T., 122.  
**crystallisation of** (HUSKISSON), 1885, A., 347; (JOLY), 1885, A., 482.  
**basicity of** (BERTHELOT), 1892, A., 394.  
**reversion of, by heat** (PHILLIPS), 1885, A., 615.  
**saturation of, by bases** (JOLY), 1885, A., 348.  
**biological function of** (MAIRET), 1884, A., 1392.  
**elimination of, in the urine in insanity and epilepsy** (LAILLER), 1885, A., 73.  
**a derivative of boric acid and** (MEYER), 1890, A., 108.  
**combination of, with silica** (HAUTEFEUILLE and MARGOTTET), 1883, A., 732.  
**combinations of, with titanitic, zirconic and stannic acids** (HAUTEFEUILLE and MARGOTTET), 1886, A., 670.  
**glacial, sodium phosphate in** (BETENDORFF), 1888, A., 321.  
**Phosphoric acid, detection, estimation and separation:—**  
**of mineral origin, detection of** (STOKLASA), 1889, A., 1032; 1890, A., 83.  
**analysis of** (DUGAST), 1884, A., 1075; (LANNE), 1890, A., 293; (JONES), 1892, A., 99; (VOGEL), 1892, A., 912.  
**estimation of** (V. DER PFORDTEN), 1883, A., 121; (GLADDING), 1883, A., 240; (MAYER and V. SCHMID), 1883, A., 241; (BROCKMANN; KRAISCHMER and SZTANKOVÁNKY), 1883, A., 330; (OLLECH), 1883, A., 508; (DE GASPARIN), 1883, A., 619; (ANON.), 1883, A., 620; (TAUBER), 1883, A., 750; (GRETE), 1883, A., 1031; (OGSTON), 1884, A., 871; (GLASER), 1885, A., 837; (MOHR), 1886, A., 834; 1887, A., 864; (RENTE), 1887, A., 397; 1888, A., 753; (MALOT), 1887, A., 1063; (ISBERT and STUTZER), 1888, A., 191; (STUTZER), 1889, A., 186; (LINOSSIER), 1889, A., 308; (BURNEX), 1892, A., 1125.

**Phosphoric acid, estimation and separation:—**  
**estimations, calculation of** (MIELOKE), 1889, A., 439.  
**method for the valuation of** (THOMSON), 1883, A., 827.  
**estimation, volumetric, of** (CALDWELL), 1884, A., 110; (BONGARTZ), 1885, A., 438; (WHITE), 1888, A., 751; (SCHINDLER), 1888, A., 753; (GRETE), 1888, A., 1341; (SPICA), 1892, A., 912.  
**estimation of, as tricalcium phosphate** (TZSCHUCKE), 1889, A., 439.  
**estimation of, by the citrate method** (REITMAIR), 1890, A., 416; 1891, A., 243.  
**estimation of, by the molybdate method** (LINDO), 1884, A., 493; (THILO), 1887, A., 526; (HUNDENHAGEN), 1889, A., 762; (FOERSTER), 1892, A., 1519.  
**estimation of: oxalic acid method as compared with the molybdic method** (LINDO), 1884, A., 929.  
**estimation of, with silver nitrate** (CLARK), 1889, A., 307.  
**estimation of, in the presence of ammonium citrate** (SEYFERT), 1889, A., 548.  
**estimation of, in commercial products** (JOULIE), 1885, A., 931.  
**estimation of, in organic substances** (LANGER), 1889, A., 547.  
**estimation of, in rock analysis** (CHATARD), 1891, A., 768.  
**estimation of, in presence of silica** (PREIS), 1890, A., 825.  
**estimation of, in slags** (KOSMANN), 1886, A., 489; (ARTII), 1890, A., 292; (EDWARDS), 1892, A., 382.  
**estimation of, in urine** (GUILAUME-GENTIL), 1892, A., 619.  
**estimation of, in sweet wines** (FERNSENIUS), 1889, A., 547.  
**estimation of, in contaminated waters** (PHIPSON), 1888, A., 533.  
**estimation of iron and aluminium in the presence of** (KRETZSCHMAR), 1886, A., 393; (DYER; E. W. T. JONES), 1886, A., 491; (THOMSON), 1887, A., 302; (R. JONES), 1891, A., 114; (STUTZER), 1891, A., 245; (V. GRUBER), 1891, A., 501, 963; (SHEPHERD), 1891, A., 1138; (MEYER), 1892, A., 536; (KRUG), 1892, A., 755.  
**separation of, from mercury and from nitric acid, sodium and chlorine** (HAAK), 1892, A., 530.

**Phosphoric acid, separation:—**

separation of, from tungstic acid (KEHRMANN), 1887, A., 866.

separation of vanadic acid from (HOLVERSCHEIT), 1890, A., 1343.

See also Agricultural Chemistry.

**Diphosphoric acid, mono- and diimido-** (MENTE), 1889, A., 210.

**Diphosphormonamic acid** (*diphosphaminic acid*), diimido- (MENTE), 1889, A., 210.

**Phosphates, distribution of, in Bohemia** (STOKLASA), 1885, A., 877.

arsenates and vanadates, analogous (HALL), 1886, P., 259; 1887, T., 94.

in urine in different diseases (VANNI and PONS), 1888, A., 621.

preparation of (HAUTEFEUILLE and MARGOTTET), 1883, A., 782; (GRANDEAU), 1885, A., 872.

manufacture of, from basic slags, according to Scheibler's method (HASENCLEVER), 1885, A., 615.

methods for obtaining (ANON.), 1885, A., 454.

raw, treating (DIETRICH), 1886, A., 108.

magnetic rotation of (PERKIN), 1890, P., 144.

thermochemistry of (BERTHELOT), 1887, A., 94.

decomposition of, by potassium sulphate at high temperatures (GRANDEAU), 1883, A., 151.

acid, of the alkaline earths, decomposition of, in presence of water (JOLY), 1884, A., 556.

alkali, neutral (FILHOL and SENDERENS), 1883, A., 151.

method for the valuation of (THOMSON), 1883, A., 827.

alkaline (BERTHELOT), 1887, A., 877.

action of, on the alkaline earths (OUVRARD), 1888, A., 1033.

action of sulphur on (FILHOL and SENDERENS), 1883, A., 783.

behaviour of, to various indicators (TOBIAS), 1883, A., 380.

aromatic, and reactions of (KREYSER), 1885, A., 1054, 1055.

colloidal and crystallised, thermochemistry of (BERTHELOT), 1887, A., 94.

crystallised (HAUTEFEUILLE and MARGOTTET), 1883, A., 711.

**Phosphates of dyad, triad, and tetrad metals, double** (WALLROTH), 1883, A., 850.

dimetallic (JOLY), 1887, A., 211; (GOUNARD), 1888, A., 429.

thermochemistry of (JOLY), 1887, A., 202.

trimetallic, heat of formation of (JOLY), 1887, A., 877.

of polyvalent metals (JOHNSON), 1889, A., 756.

metallic, electrolysis of, in acid solution (SMITH), 1891, A., 1140.

estimation of calcium in (VOGEL), 1892, A., 534.

natural, estimation of fluorine in (LASNE), 1889, A., 74; (CARNOT), 1892, A., 1055.

See also Agricultural Chemistry.

**Orthophosphoric acid** (JOLY), 1886, A., 418.

neutralisation of (BLAREZ), 1886, A., 1057.

**Metaphosphoric acid, molecular refraction and dispersion of, in solution** (GLADSTONE), 1891, T., 593.

rate of transformation of (SABATIER), 1888, A., 404; 1889, A., 671.

**Metaphosphates** (TAMMANN), 1892, A., 1050.

crystallised (HAUTEFEUILLE and MARGOTTET), 1883, A., 711.

isomerism of (TAMMANN), 1891, A., 7.

molecular weight of (JAWIN and THILLOT), 1889, A., 671.

**Nitroltrimetaphosphates** (MENIE), 1889, A., 211.

**Pyrophosphates** (v. KNORRE and OPPELT), 1888, A., 413.

double, use of, in electrolytic estimations and separations (BRAND), 1890, A., 294.

metallic, action of ammonium sulphide on (BUCHNER), 1884, A., 218.

**Phosphorus sulphides** (ISAMBERT), 1883, A., 901, 1019; (DERVIN), 1881, A., 1259; (KEBE), 1888, A., 1155; (MAIL), 1892, A., 14.

**trisulphide** (ISAMBERT), 1886, A., 768.

sulphur salts derived from (LEMOINE), 1884, A., 555.

**pentasulphide** (ISAMBERT), 1886, A., 767.

**Phosphorus compounds, organic** (HEERMANN), 1892, A., 875.

**Phosphorus, detection and estimation:—**

Mitscherlich's test for (POLSTORFF and MENSCHING), 1886, A., 919; (MANKIEWICZ), 1887, A., 526.

estimation of carbon in (REMSEN and KEISER), 1885, A., 482.

estimation of, in iron (TAMM), 1884, A., 875; (TROILIUS), 1885, A., 597; (KALMANN; WOOD), 1886, A., 280; (MACKINTOSH), 1886, A., 488; (V. REIS), 1886, A., 835; 1889, A., 648; (HUNS), 1886, A., 1078; (DEANE), 1887, A., 188; (VORWERK), 1887, A., 299; (MEINEKE), 1887, A., 396; 1888, A., 1130; (SCHNEIDER), 1887, A., 527; (WEDDING), 1887, A., 865; (SHIMER), 1889, A., 76; (JENNINGS), 1889, A., 189; (DROWN), 1889, A., 1245; (BORMANN), 1890, A., 416; (JONES), 1891, A., 363; (METZ), 1891, A., 961; (MALOT), 1892, A., 528; (EMMERSON), 1892, A., 529; (HAMILTON), 1892, A., 911; (REINHARDT), 1892, A., 912.

estimation of, in organic compounds (MENSINGER), 1889, A., 81.

estimation of, in phosphor-tin (HEMPFEL), 1890, A., 83.

estimation of, in urine (CHAPPELLE), 1890, A., 825.

estimation, colorimetric, of (OSMOND), 1887, A., 999.

**Phosphorus-trianhydropyruvic acid and its derivatives (MENSINGER and ENGELS), 1889, A., 36.****Phosphoryl chloride (*phosphorus oxychloride*), preparation of (DERVIN), 1884, A., 155.**

preparation of, from phosphates (OGLIALORO-TONARO), 1884, A., 392.

heat of formation of (THOMSEN), 1884, A., 250.

action of nitric acid on (WILLIAMS), 1886, T., 224.

action of, on phosphoric anhydride (HUNTLY), 1891, T., 202.

reaction of, with sulphites and nitrites (DIVERS), 1885, T., 205.

**Phosphoryl fluoride (*phosphorus oxyfluoride*) (MOISSAN), 1885, A., 15; 1886, A., 767; 1891, A., 264.**

preparation of (THORPE and HAMBLY), 1889, T., 759; P., 132.

thio-. See Thiophosphoryl fluoride.

**Phosphorylphenylhydrazide, and thio- (MICHAELIS and OSTER), 1892, A., 1325.****Phosphoryltolylhydrazide (MICHAELIS and OSTER), 1892, A., 1325.**

Phosphosiderite (BRUNNS and BUSZ), 1890, A., 1073.

Phosphotrimetatungstic acid (PÉCHARD), 1890, A., 704.

Phospho-tungstates, ortho-, meta-, and pyro- (GIBBS), 1886, A., 511.

Phosphotungstic acid (DRECHSEL), 1887, A., 703; (KEHRMANN), 1888, A., 788; (BRANDHORST and KRAUT), 1889, A., 469; (PÉCHARD), 1889, A., 1121.

Phosphotungstic acids (KEHRMANN), 1887, A., 777; (KEHRMANN and FREINKEL), 1892, A., 1160.

Phosphovanadates (GIBBS), 1886, A., 205; (FRIEDHEIM and SZAMATOLSKI), 1890, A., 1067.

Phosphovanadocovanadates (GIBBS), 1886, A., 205.

Phosphovanadio-molybdates, -tungstates and -vanadicotungstates (GIBBS), 1884, A., 713.

Photoanetholl (DEVARDA), 1891, A., 1347.

*Photobacterium phosphorescens* (WIJSMAN), 1890, A., 998.

**PHOTOCHEMISTRY—**

**Light**, absorption of, relation between molecular structure and the (V. KLOBUKOFF), 1885, A., 1173.

absorption of, evidence afforded by, of the decomposition of molecular groups in solutions (WALTER), 1889, A., 554.

absorption of, in the infra-red of the solar spectrum (LANGLEY), 1883, A., 137; (ABNEY and FESTING), 1883, A., 837.

absorption of, by the atmosphere (LANGLEY), 1885, A., 319.

absorption of, by aqueous vapour (ABNEY and FESTING), 1884, A., 241.

absorption of, by coloured salts (MAGNANINI), 1892, A., 757.

absorption of, and photographic sensitiveness, connection between (EDER), 1886, A., 405, 958.

separation of rays of, of high and low refrangibility (VAN ANSCHIE), 1884, A., 241.

spectroscopic study of compounds rendered phosphorescent by the action of, or by the electric discharge (BECQUEREL), 1885, A., 1098.

spectrographic investigations of different standards of; their use in measuring photographic sensitiveness (EDER), 1885, A., 1026.

electrochemical energy of (GRIVEAUX), 1884, A., 332.

## PHOTOCHEMISTRY—

- Light**, constant of electromagnetic rotation of, in carbon disulphide (RAYLEIGH), 1885, A., 325.  
 electromagnetic rotation of the plane of polarisation of, by iron, nickel and cobalt (KUNDT), 1885, A., 5.  
 transformation of, into electricity in quartz (HANKEL), 1883, A., 412; 1885, A., 1187.  
 oscillations of the plane of, and polarisation of, by electric discharges (BICHAT and BLONDLOT), 1883, A., 4.  
**Radiation**, comparative, of fused platinum and fused silver (VIOLE), 1887, A., 1010.  
 from silver at the solidifying point (VIOLE), 1888, A., 771.  
 solar, comparative action of heat and (DUCLAUX), 1887, A., 411.  
**Photometry** (ANON.), 1885, A., 1260.  
 application of the pupil of the eye to (GORHAM), 1885, A., 320.  
 application of Algae to (PHIPSON), 1884, A., 201.  
 application of oxalic acid to (DUCLAUX), 1887, A., 202.  
 measurement of light intensity by the expansion of chlorine (RICHARDSON), 1892, A., 253.  
**Colour-photometry** (ABNEY), 1891, P., 150.  
**Diffusion photometer** (CROVA), 1885, A., 320.  
**Electrochemical actinometer** (GOUY and RIGOLLOT), 1888, A., 883.  
**Optical units** (INTERNATIONAL CONFERENCE), 1885, A., 2.  
**Light**, chemical action of (LEMOINE), 1884, A., 381; 1891, A., 905; (AMATO), 1884, A., 1237; (EDER), 1885, A., 1173; (DUCLAUX), 1887, A., 93.  
 reflection of actinic rays (DE CHARDONNET), 1883, A., 138.  
 concentration of the sun's rays for chemical reactions (BRUHL), 1890, A., 1033.  
 action of, on chloric acid (PEDLER), 1890, T., 624; P., 65.  
 decomposition of chlorine-water in (POPPER), 1885, A., 681; 1886, A., 301; (v. PERAL), 1886, A., 302.  
 rate of decomposition of chlorine water by (GORE), 1890, A., 849.  
 influence of hydrochloric acid on the decomposition of chlorine water by (RICHARDSON), 1891, T., 539.

## PHOTOCHEMISTRY—

- Light**, action of, of chlorine on water in (PEDLER), 1890, T., 613; P., 65.  
 action of, on a mixture of chlorine and hydrogen (AMATO), 1884, A., 1237; (PRINGSHEIM), 1888, A., 205.  
 action of, on an explosive mixture of chlorine and hydrogen; a lecture experiment (MEYER), 1884, A., 552.  
 liberation of chlorine from hydrogen chloride by the action of, in presence of oxygen (McLEOD), 1886, T., 608; (RICHARDSON), 1887, T., 802; (BERTHELOT), 1890, A., 6.  
 influence of water in promoting the interaction between oxygen and hydrochloric acid in presence of (ARMSTRONG), 1887, T., 806.  
 action of, on hypochlorous acid (POPPER), 1885, A., 681; (PEDLER), 1890, T., 622; P., 65.  
 action of, on hydrogen bromide and iodide in presence of red moist phosphorus (RICHARDSON), 1887, T., 806.  
 action of, on nitrogen iodide (GUYARD), 1884, A., 818.  
 use of nitrogen iodide to determine the chemical and mechanical equivalent of (GUYARD), 1884, A., 153.  
 action of, on a mixture of nitric acid and carbon disulphide (TIFFEREAU), 1885, A., 1110.  
 action of, on moist oxygen (RICHARDSON), 1889, P., 131.  
 action of, on oxyhydrogen gas (ASKENASY and MEYER), 1892, A., 939.  
 action of, on phosphorus (PEDLER), 1890, T., 599; P., 66.  
 action of, on phosphorous oxide (COWPER and LEWIS), 1884, T., 10; (IRVING), 1884, A., 156; (THORPE and TUTTON), 1890, T., 552; 1891, T., 1019; P., 156.  
 action of, on mercurous iodide (EDER), 1885, A., 1173; (YVON), 1886, A., 17.  
 action of, on potassium ferricyanide (EDER), 1885, A., 1173.  
 action of, on potassium iodide solutions (BERTHELOT), 1890, A., 7.  
 action of, on ruthenium peroxide (JOLY), 1892, A., 282.  
 action of, on silver salts in presence of reducing agents (LEA), 1888, A., 1.

## PHOTOCHEMISTRY—

- Light**, action of, on the haloid salts of silver (GRIVEAUX), 1889, A., 199.  
 action of, on silver bromide (TOMMANI), 1883, A., 3.  
 action of, on silver chloride (NEWBURY), 1885, A., 956; (HITCHCOCK), 1890, A., 213; 1891, A., 1155; (RICHARDSON), 1891, T., 536; P., 81; (GUNTZ), 1891, A., 1420; (BAKER), 1892, T., 728; P., 120; (BÉCHAMP), 1892, A., 775.  
 action of, on iodised silver plates in sulphuric acid (BORGSMANN), 1883, A., 625.  
 action of, on some organic compounds (KLINGER), 1886, A., 888; 1889, A., 405; (KLINGER and STANDKE), 1891, A., 900.  
 alteration of compounds of the benzene series when exposed to air and (BIDET), 1890, A., 1401.  
 influence of, on the action of halogens on aromatic compounds (SCHRAMM), 1885, A., 518, 767, 888; 1886, A., 451; 1887, A., 807; 1889, A., 240; 1891, A., 898; (SCHRAMM and ZAKRZEWSKI), 1888, A., 9.  
 influence of temperature and, on chlorination (GAUTIER), 1887, A., 922.  
 influence of, on the decomposition of organic acids (DE VRIES), 1885, A., 964.  
 action of, on acetic fermentation (GIUNTI), 1890, A., 1181.  
 decomposition of glutaric and succinic acids by, in presence of an uranium salt (WISBAR), 1891, A., 1013.  
 action of, on anethoil (DE VARDA), 1891, A., 1347.  
 action of, on cane- and invert-sugar (GLADSTONE and TRIBE), 1883, T., 341, 343.  
 action of, on ethyl ether (RICHARDSON), 1889, P., 134; 1890, P., 146; 1891, T., 51; (DUNSTAN and DYMOND), 1890, T., 574, 988; P., 69.  
 action of, on iodoform (DACCOMO), 1886, A., 1000.  
 action of, on alcoholic solutions of nitrobenzene (CIAMICIAN and SILBER), 1887, A., 240.  
 action of, on 3-nitro-*n*-cuminic acid (ALEXÉEFF), 1885, A., 794.  
 oxidation of nitrosocamphor in presence of (CAZENEUVE), 1889, A., 1203.

## PHOTOCHEMISTRY—

- Light**, oxidation of turpentine oil and terabenthen in (ARMS-TRONG), 1891, T., 311; (ARMS-TRONG and POPE), 1891, T., 315.  
 action of, on water and oil colours used in dyeing and printing (DECAUX), 1884, A., 700.  
 decolouration and recolouration of litmus solutions by (BELLAMY), 1889, A., 199.  
 influence of, on oxidation in animals (LOEB), 1889, A., 172.  
 production of oxygen by the action of, on *Protococcus pluviialis* (PHIPSON), 1884, A., 201.  
**Photographic methods and processes**:—  
**Photography** in natural colours (VOGEL), 1886, A., 749.  
**Orthochromatic photography** (LOHSE), 1885, A., 612; (EDER), 1885, A., 936; (BOTHAMLEY), 1887, A., 874.  
 oxalate developer for (LORD), 1886, A., 106.  
 photographs, transferring, on to porcelain or wood (PAVLOFFSKI), 1885, A., 612.  
 photographic films, expedient for rendering them sensitive to green, yellow, and red rays (VOGEL), 1884, A., 1081.  
 method, new (GREEN, CROSS and BEVAN), 1891, A., 138.  
 paper, a new (CROS and VERGERAUD), 1883, A., 752.  
 copying-paper, new (SHAWCROSS), 1886, A., 106.  
 plate, measurement of the relative density of the deposit on (ABNEY and EDWARDS), 1890, A., 933.  
 plates, borax in developers for (MERCIER), 1891, A., 139.  
 sensitisers (BOTHAMLEY), 1887, A., 874.  
 sensitisers for rays of low refrangibility (HIGGS), 1891, A., 1145.  
 silver bromide-gelatin-emulsion (OBERNETTER), 1883, A., 395.  
 bromide, sensitising action of dyes on, relation between the absorption spectrum and (VOGEL), 1886, A., 585.  
 chloride and bromide, sensitising action of dyes on (EDER), 1886, A., 497.  
 chloride, photochromatic properties of (STAATS), 1887, A., 1071; 1888, A., 1001.

## PHOTOCHEMISTRY—

**Photographic methods, continued:**—  
silver, haloid salts sensitised by dyes,  
photoelectric currents produced  
from (MOSER), 1888, A., 9.

spectroscopic studies of dyes used  
as sensitisers (MESSERSCHMITT),  
1885, A., 1097.

application of the radiometer to  
the measurement of photographic  
action (OLIVIER), 1885, A., 319.

photo-salts, identity of, with the  
substance forming the invisible  
photographic image (LEA), 1888,  
A., 7.

formation of (LEA), 1888, A., 1.

**Polarisation:**—

**Rotatory power**, explanation of  
(FOCK), 1891, A., 513.

laws of, and stereochemistry (COL-  
SON), 1892, A., 758; (GUYE),  
1892, A., 759.

variation of (OUDEMANS), 1886, A.,  
406.

change of, under the influence of  
various solvents (BREMER), 1885,  
A., 622; 1888, A., 1141.

of singly-linked carbon atoms,  
limitation of free (BISCHOFF),  
1890, A., 723.

of carbon compounds, sign and  
variations of, and their chemical  
constitution (GUYE), 1890, A., 722.

of carbon compounds, relation  
between the constitution and  
(SOROKIN), 1888, A., 768.

and refractive power of chemical  
compounds, relation between  
(KANONNIKOFF), 1891, A., 138.

of optically active substances in  
very dilute solution (PILBRAM),  
1887, A., 755.

of optically active substances in  
mixtures of two solvents (RIM-  
BACH), 1892, A., 1137.

and refractive power of certain  
carbohydrates, relation between  
(KANONNIKOFF), 1889, A., 326.

and refractive power of certain  
alkaloids, camphor, menthol, tar-  
tar emetic, quinic acid, and of  
terpene, relation between (KA-  
NONNIKOFF), 1889, A., 453.

of alkaloids, laws of variation of,  
under the influence of acids  
(OUDEMANS), 1883, A., 81.

of aconitine (DUNSTAN and INCE),  
1891, T., 281.

of anhydroecgonine and ecgonine  
hydrochlorides (EINHORN), 1889,  
A., 1018.

## PHOTOCHEMISTRY—

**Rotatory power** of apocinchonine and  
hydrochloroapocinchonine under  
the influence of acids (OUDE-  
MANS), 1883, A., 359.

of cocaine and cocaine hydrochloride  
(ANTRICK), 1887, A., 506.

of cupreine and its salts (OUDE-  
MANS), 1889, A., 1019.

of nicotine salts (SCHWABEL), 1883,  
A., 354.

of papaverine (GOLDSCHMIEDT),  
1888, A., 611.

supposed, of picoline (LANDOLT),  
1886, A., 368.

of piperidine bases (LADENBURG),  
1887, A., 164, 282.

absence of, in amine salts (LE BEL),  
1890, A., 228.

of benzene derivatives (LEW-  
KOWITSCH), 1888, T., 781; P.,  
87.

of borneols and isborneols, influence  
of solvents on (HALLER), 1889,  
A., 1206; 1891, A., 575.

of camphor, when dissolved in  
various oils (CHABOT), 1890, A.,  
1427.

of  $\alpha$ -camphoric acid and its salts  
(HARTMANN), 1888, A., 378.

of terpene-derivatives (WALLACH;  
WALLACH and CONRADY), 1889,  
A., 1071.

of turpentine (DUNWODY), 1891,  
A., 217.

of turpentine, change of, on keeping  
(MARSH and GARDNER), 1891,  
T., 726.

of solutions of cellulose in Schweizer's  
solution (LEVALLOIS), 1884, A.,  
577, 833, 1288; 1885, A., 500;  
(BÉCHAMP), 1885, A., 369.

of pyroxylin (BÉCHAMP), 1885, A.,  
237.

of cane-sugar (TOLLENS), 1884, A.,  
1285.

of cane-sugar in dilute solution  
(NASINI and VILLAVESCHIA),  
1892, A., 801.

of cane-sugar, influence of temper-  
ature on (ANDREWS), 1890, A.,  
579.

of cane-sugar, action of inorganic  
salts on (FARNSTEINER), 1891,  
A., 283.

of dextrose (TOLLENS), 1885, A., 40.

of grape-sugar, influence of inactive  
substances on (WENDER), 1891,  
A., 1178.

of invert-sugar (GUBBER), 1885, A.,  
1194.

## PHOTOCHEMISTRY—

**Rotatory power** of invert-sugar and of dextrose obtained from cane sugar by means of invertase (O'SULLIVAN), 1892, T., 408; P., 56.

of lactose (DENIGES and BONNANS), 1888, A., 933.

of levulose (JUNGFLEISCH and GRIMBERT), 1889, A., 479.

of levulose and invert-sugar (TOLLENS), 1891, A., 1178.

of compounds of mannitol with acid molybdates (GERNEZ), 1891, A., 1443.

of matezite and matezodambose (COMBES; GIRARD), 1890, A., 471.

of compounds of perseitol with acid molybdates (GERNEZ), 1892, A., 800.

of rhamnose and of the saccharins (SCHNELLE and TOLLENS), 1892, A., 1420.

of xylose (SCHULZE and TOLLENS), 1892, A., 1420.

of galactonic, gluconic and rhammonic acids (WELD, LINDSEY, SCHNELLE and TOLLENS), 1891, A., 43.

of galactonic, gluconic and rhammonic acids and their lactones (SCHNELLE and TOLLENS), 1892, A., 1431.

of glutamic acid (SCHEIBLER), 1884, A., 1308.

of compounds of malic acid with normal lithium and magnesium molybdates (GERNEZ), 1890, A., 744.

of photosantonin acid (NASINI), 1884, A., 464.

of tartaric acid and its salts (KANONNIKOFF), 1892, A., 1308.

of tartaric acid solutions (THOMSEN), 1886, A., 12; (GERNEZ), 1887, A., 540; 1888, A., 97; (PŘIBRAM), 1887, A., 755; 1888, A., 1229; 1889, A., 378; (LONG), 1889, A., 380; 1890, A., 313; 1891, A., 249.

of diacetyltartaric derivatives (LEBEL; COLSON), 1892, A., 669.

of leucine (LEWKOWITZ), 1884, A., 1115.

of oils (BISHOP), 1888, A., 388; (PETER), 1888, A., 766.

of quartz (SORET and SARASIN), 1883, A., 140.

of silk (VIGNON), 1892, A., 254, 645.

**Multi-rotation** of sugars (PARCUS and TOLLENS), 1890, A., 1084.

## PHOTOCHEMISTRY—

**Multi-rotation** of sugars, influence of ammonia on the (SCHULZE and TOLLENS), 1892, A., 1419.

of arabinose (BAUER), 1889, A., 1182.

of some glucoses and sucroses, with regard to their constitutional formulæ and the extent of affinity (URECH), 1886, A., 220.

of glucose and milk-sugar (URECH), 1884, A., 1112.

of milk sugar, rate of transition of the, into its normal rotation (URECH), 1883, A., 174; 1884, A., 36.

of rhamnose and of the saccharins (SCHNELLE and TOLLENS), 1892, A., 1420.

**Polarimetric estimations** (LANDOLT), 1888, A., 386.

sources of error in (HOLZER), 1883, A., 3; (SCHMIDT and HANSON), 1885, A., 321.

influence of lead precipitate on (SACHS and DE BARBIERI), 1885, A., 694.

of dextrose, influence of inactive substances on the (PŘIBRAM), 1888, A., 1133.

of dextrose in urine (WORM-MÜLLER), 1885, A., 702.

of lactose in milk (WILEY), 1885, A., 601; (SCHMOEGER), 1885, A., 693; (VIETH), 1889, A., 315.

of sugar in sweet wines (BORN-TRAGER), 1890, A., 426.

of a mixture of potassium and sodium chlorides (SCHÜTT), 1888, A., 1341.

of quinine sulphate (HOOPER), 1886, A., 1086.

rotation, left-handed, determining, with the Scheibler-Ventzke-Soleil polariscope (EYSTER), 1884, A., 691.

**Magnetic rotation** of compounds in relation to their chemical constitution (PERKIN), 1884, T., 421; (OSTWALD), 1891, T., 198; P., 1.

of acetyltrimethylene (FREER and PERKIN), 1887, T., 832.

of saturated and unsaturated dibasic acids and their derivatives (PERKIN), 1887, P., 98; 1888, T., 561.

of the ethereal salts of tartaric and racemic acids (PERKIN), 1887, T., 362; P., 29.

of allylactic acid, diallylactic acid, ethyl diallylmalonate and of undecylenic acid (PERKIN), 1886, T., 205; P., 153.

## PHOTOCHEMISTRY—

- Magnetic rotation** of compounds supposed to contain acetyl. or to be of ketonic origin (PERKIN), 1892, T., 800; P., 100.
- of hydrated ethylic alcohol (PERKIN), 1886, T., 780.
- of chloral, chloral hydrate and hydrated aldehydes (PERKIN), 1887, T., 808; P., 82.
- of methyl isobutenyl ketone (*mesityl oxide*) (PERKIN), 1887, P., 98; 1888, T., 586, 591.
- of water with some of the acids of the fatty series, with alcohol and with sulphuric acid (PERKIN), 1886, T., 777; P., 229.
- of hydrochloric, hydrobromic and hydriodic acids (PERKIN), 1889, T., 702, 739; P., 130.
- of saline solutions (PERKIN), 1890, P., 141; (OSTWALD), 1892, P., 12.
- of solutions of ammonium and sodium salts of some fatty acids (PERKIN), 1891, T., 981; P., 125.
- of nitrogen compounds (PERKIN), 1889, T., 680; P., 83, 130.
- of phosphorous oxide (THORPE and TUTTON), 1890, T., 567; P., 61.
- and the refraction and dispersion of light by carbon compounds containing nitrogen and by some acids, correspondence between (GLADSTONE and PERKIN), 1889, T., 750; P., 114.
- constant of, of light in carbon disulphide (RAYLEIGH), 1885, A., 325.
- Reflectometer**, total (BRÜHL), 1891, A., 513.
- Refraction**, influence of the change of volume by admixture of two liquids on (BUCHHEIMER), 1891, A., 2.
- of liquids between wide limits of temperature (KETTLER), 1888, A., 541; 1889, A., 197.
- of liquids, change of, by electric forces (QUINCK), 1883, A., 948.
- of chemical compounds (KANONNIKOFF), 1885, A., 949.
- of carbon compounds (GLADSTONE), 1884, T., 241; (KANONNIKOFF), 1886, A., 385.
- of carbon compounds in solution (KANONNIKOFF), 1883, A., 1041.
- of carbon compounds at different temperatures (PERKIN), 1891, P., 115; 1892, T., 287.

## PHOTOCHEMISTRY—

- Refraction** and molecular volume, new theory of (KETTLER), 1889, A., 326; (NASINI), 1892, A., 253.
- relation between chemical constitution and (NASINI and BEHNHEIMER), 1885, A., 1097.
- and chemical constitution of gases and vapours (BRÜHL), 1891, A., 629.
- of liquid carbon compounds, dependence of, on their chemical constitution (SCHRODER), 1883, A., 538.
- density, molecular weight, and diathermanous power of substances, relation between (AYMONNET), 1892, A., 1.
- and molecular heat of combustion of benzene compared with those of dipropargyl (BRÜHL), 1892, A., 1436.
- in reference to the double bond (NASINI), 1885, A., 210.
- of compounds, influence of simple and so-called multiple union of atoms on (BRÜHL), 1887, A., 1005.
- of the hydrocarbon  $C_{12}H_{20}$  (ALBITZKY), 1885, A., 211.
- of the hydrocarbons, supposed influence of multiple bonds of union on (THOMSEN), 1887, A., 198; (BRÜHL), 1887, A., 200.
- and compressibility of liquids, relations between (QUINCK), 1892, A., 669.
- and dispersion of carbon compounds (G. GLADSTONE), 1891, T., 290; P., 35; (J. H. and G. GLADSTONE), 1891, A., 774.
- of carbon compounds of high dispersive power (BRÜHL), 1887, A., 191; (NASINI), 1887, A., 626.
- and dispersion of light and magnetic rotation by carbon compounds containing nitrogen and by some acids, correspondence between (GLADSTONE and PERKIN), 1889, T., 750; P., 114.
- and dispersive power of aromatic compounds with saturated lateral chains, relation between (COSTA), 1890, A., 1201.
- and dispersive power of compounds supposed to contain acetyl or to be of ketonic origin (PERKIN), 1892, T., 800.
- and dispersion of alums (GLADSTONE), 1886, A., 293.

## PHOTOCHEMISTRY—

- Refraction** and dispersive power of essential oils (GLADSTONE), 1886, T., 609; P., 216.  
 and dispersion of sodium chlorate (DUSSAUD), 1892, A., 1.  
 and dispersion of silicon tetrabromide and tetrachloride and titanium tetrachloride (GLADSTONE), 1891, T., 299.  
 and dispersion equivalents of terpenes (GLADSTONE), 1886, T., 612.  
 and rotatory power of chemical compounds, relation between (KANONNIKOFF), 1891, A., 138.  
 and rotatory power of certain carbohydrates, relation between (KANONNIKOFF), 1889, A., 326.  
 and specific rotatory power of certain alkaloids, camphor, menthol, tartaric emetic, quinic acid, terpene and of Russian turpentine, relation between (KANONNIKOFF), 1889, A., 453.  
 of allylbenzene- and propenylbenzene-derivatives (ELJMAN), 1890, A., 748.  
 of allylthiocarbimide (LONG), 1889, A., 86.  
 of alums (SORET), 1885, A., 109, 1097.  
 of boracite, determination of the (MALLARD), 1886, A., 209.  
 of bromine, chlorine, iodine, hydrogen, oxygen and nitrogen (GLADSTONE), 1884, T., 256; (BRÜHL), 1887, A., 193.  
 of camphene (WALLACH), 1889, A., 1069.  
 as a means of determining the constitution of the terpene-group (WALLACH), 1888, A., 145.  
 of carbon (GLADSTONE), 1884, T., 251; (BRÜHL), 1887, A., 193.  
 of carbon dioxide (CHAPPUIS and RIVIÈRE), 1886, A., 837.  
 of carbon disulphide derivatives (NASINI and SCALA), 1887, A., 753.  
 of cyanogen (CHAPPUIS and RIVIÈRE), 1886, A., 837; 1887, A., 753.  
 of isocyanides and nitriles (COSTA), 1892, A., 757.  
 of some bromo-derivatives of ethane and ethylene (WEGMANN), 1888, A., 999.  
 of ethyl ether (OUDEMANS), 1886, A., 437.  
 of fluorine (GLADSTONE), 1886, A., 497.

## PHOTOCHEMISTRY—

- Refraction** of fluorspar (SARASIN), 1886, A., 22.  
 of the isomerides fumaric and maleic acids, of citraconic, itaconic and mesaconic acids, and of thiophen (KNOPS), 1888, A., 938; 1889, A., 198.  
 of gases (DALE), 1890, A., 201.  
 of liquefied gases (BLEEKRODE), 1885, A., 467; (DECIANT), 1885, A., 621.  
 of the halogen salts of lithium, sodium and potassium (WEGNER), 1890, A., 549.  
 of levulose and invert sugar (OST), 1891, A., 1000.  
 of metals (KUNDT), 1888, A., 997; (DU BOIS and RUBENS), 1891, A., 373.  
 of three methylic acrylates (KAHLBAUM), 1885, A., 1173.  
 of nickel carbonyl (MOND and NASINI), 1891, A., 1322.  
 of nitrogen compounds (LÖRWENHERZ), 1890, A., 1201; 1891, A., 373; (BACH), 1892, A., 933.  
 of certain oils (LONG), 1889, A., 86.  
 of phosphorous oxide (THORPE and TUTTON), 1890, T., 564.  
 of pyrene (BRÜHL), 1891, A., 1195.  
 of certain salts crystallising in the regular system (BRAUNS), 1883, A., 1041.  
 of salts in solution (WALTER), 1890, A., 202, 673; (DOUMER), 1890, A., 433, 1033; (BARY), 1892, A., 929.  
 of normal salt solutions (BENDER), 1890, A., 549.  
 of solids in their solutions, determination of (SCHÜTT), 1890, A., 1033; 1892, A., 929.  
 of various substances in solution (GLADSTONE), 1891, T., 589; P., 103.  
 of sulphines (NASINI and COSTA), 1891, A., 1305; 1892, A., 34.  
 of sulphur (NASINI), 1883, A., 264; 1884, A., 149; (GLADSTONE), 1884, T., 257.  
 of sulphur dichloride (COSTA), 1891, A., 149.  
 of turbid media (HASCHKE), 1889, A., 197.  
 of water (BRÜHL), 1891, A., 629.  
 of water and quartz, variation of the, with the temperature (DUFET), 1883, A., 762.  
 of water, influence of pressure on the (ZEHNDER), 1888, A., 765.

## PHOTOCHEMISTRY—

**Refraction** of water cooled below 0°  
(PULFRICH), 1888, A., 881.  
of ice (MEYER), 1887, A., 753.

**Atomic Refraction** of the elements  
(KANONNIKOFF), 1885, A., 1;  
(LE BLANC), 1890, A., 313.  
calculation of, for sodium light  
(CONRADY), 1889, A., 661.

**Double refraction**, electric liquid condenser for examining the phenomenon of (QUINCKE), 1883, A., 947.

of liquids (FLEISCHL VON MARXOW), 1885, A., 318.

of insulating liquids (QUINCKE), 1883, A., 946.

of minerals, determination of (MICHEL-LÉVY), 1885, A., 621.

**Molecular refraction** (WIENERMANN), 1883, A., 762; (SUTHERLAND), 1889, A., 464; (LANDOLT), 1890, A., 1.

**Refractive index**, measurement of, at high temperatures (BRÜHL), 1891, A., 513.

estimation of glycerol in aqueous solution by means of its (STROHMER), 1884, A., 877.

estimation of oils and fats by means of their (JEAN), 1890, A., 89, 671; 1891, A., 625; (AMAGAT and JEAN), 1890, A., 91; (ELLINGER), 1891, A., 1305, 1401.

estimation of the strength of solution by means of their (ELLINGER), 1891, A., 1305.

estimation of albumin in urine by means of its (ELLINGER), 1891, A., 1103.

of liquids, instrument for comparing (SONDÉN), 1891, A., 959.

**Dispersion**, phenomena of (GLADSTONE), 1884, T., 258.

formula, experimental examination of the older and more recent (BRÜHL), 1887, A., 195.

anomalous, produced by glowing vapours (WINKELMANN), 1888, A., 207.

relation between chemical constitution and (BRÜHL), 1891, A., 774.

influence of, on molecular refractive power (BRÜHL), 1887, A., 191.

of certain elements (GLADSTONE), 1888, A., 389.

of the diamond (SCHRAUF), 1885, A., 14.

of phosphorous oxide (THORPE and TUTTON), 1890, T., 566; P., 61.

## PHOTOCHEMISTRY—

**Dispersion** of sulphur (SCHRAUF), 1886, A., 406.

of certain metals (DU BOIS and RUBENS), 1891, A., 373.

of rock salt (KETTLER), 1887, A., 751.

of sodium chromate (WYRUBOFF), 1885, A., 211.

of aqueous solutions (BARBIER and ROUX), 1890, A., 673.

of carbon compounds (BARBIER and ROUX), 1889, A., 805; 1890, A., 1353; 1891, A., 774; (GLADSTONE), 1891, T., 290; P., 35; (NASINI), 1891, A., 138.

of acids of the acetic series (BARBIER and ROUX), 1890, A., 1353.

of alcohols of the acetic series (BARBIER and ROUX), 1890, A., 1034.

of allylbenzene- and propenylbenzene derivatives (ELIKMAN), 1890, A., 748.

anomalous, of turpentine (v. WYSS), 1888, A., 542.

crossed, of several rhombic substances (WYRUBOFF), 1884, A., 381.

molecular, of various substances in solution (GLADSTONE), 1891, T., 589; P., 103.

and molecular refractive energy of aromatic derivatives with saturated lateral chains, relation between (COSTA), 1890, A., 1201.

magnetic rotation and refraction, correspondence between, in carbon compounds containing nitrogen (GLADSTONE and PERKIN), 1889, T., 750; P., 111.

**Dispersion, rotatory**, of certain alkaloids, camphor, cholesterol, certain sugars and of essence of terphenylene (GRIMBERT), 1888, A., 329.

of tartarates (KUMMEL), 1891, A., 1115.

anomalous, of iron, cobalt and nickel (LOHACH), 1890, A., 673.

new method of determining (v. WYSS), 1888, A., 542.

**Spectroscopy**, radiant matter (CROOKS), 1884, A., 241; 1887, A., 1066.

**Spectrum**, production of white light by mixing the colours of the (STROMBO), 1887, A., 1.

**Spectra**, comparing (LOVE), 1888, A., 542.

## PHOTOCHEMISTRY—

- Spectra** and molecular aggregation, connection between (STENGER), 1888, A., 543.
- comparative effect of different parts of the, on silver salts (ABNEY), 1886, A., 749; (ABNEY and EDWARDS), 1890, A., 933.
- relation between the lines of various (AMES), 1891, A., 1; (HARTLEY), 1891, A., 773.
- reversal of metallic lines in overexposed photographs of (HARTLEY), 1883, A., 263.
- method of investigating faint bands in (DESLANDRES), 1891, A., 773.
- spontaneously reversible lines in (CORNU), 1885, A., 853.
- of solar and terrestrial origin, distinction between lines of (CORNU), 1887, A., 313.
- fluorescence with well defined (LECOQ DE BOISBAUDRAN), 1887, A., 1008; 1888, A., 97; 1890, A., 435.
- of compounds rendered phosphorescent by the action of light or by the electric discharge (BECQUEREL), 1885, A., 1098.
- of coloured salts and electrolytic dissociation (MAGNANINI), 1892, A., 757.
- infra-red, observations of, by means of phosphorescence (BECQUEREL), 1883, A., 761.
- infra-red (BECQUEREL), 1884, A., 1.
- infra-red, of metallic vapours (BECQUEREL), 1884, A., 1237.
- ultra-red rays, incandescence by (LOMMEL), 1886, A., 5.
- ultra-violet rays, absorption of, by various substances (LIVEING and DEWAR), 1883, A., 837.
- activity of chlorophyll under the (BONNIER and MANGIN), 1886, A., 387.
- disappearance of some lines of (LIVEING and DEWAR), 1883, A., 2.
- obtained with coils of low tension (DEMARÇAY), 1887, A., 537.
- of thin metallic films (DUNLAP), 1892, A., 1037.
- of coated terminals (BROOKS), 1891, A., 249.
- of the aurora borealis (KOCH), 1890, A., 313.
- of meteorites (LOCKYER), 1888, A., 638.
- of the elements (RYDBERG), 1890, A., 674.

## PHOTOCHEMISTRY—

- Spectra**, ultra-violet, of elements (LIVEING and DEWAR), 1883, A., 262.
- of elements of the second periodic group (KAYSER and RUNGE), 1891, A., 965.
- of gases at low temperatures (SUNDELL), 1887, A., 1066; (KOCH), 1890, A., 313.
- of non-metals, influence of temperature on (VAN MONCKHOVEN), 1883, A., 140.
- of ammonia (MAGNANINI), 1890, A., 97.
- of ammonia with a reversed induced current (LECOQ DE BOISBAUDRAN), 1885, A., 1025.
- of the ammonia-oxygen flame (EDER), 1891, A., 1305.
- of boron (HARTLEY), 1883, T., 397; 1884, A., 242.
- of carbon (LIVEING and DEWAR), 1883, A., 1, 261.
- of carbon, mathematical analysis of (GRÜNWARD), 1888, A., 389, 882.
- of fluorine (MOISSAN), 1890, A., 329.
- of hydrogen (VAN MONCKHOVEN), 1883, A., 139; (LAGARDE), 1883, A., 537; (LIVEING and DEWAR), 1883, A., 838; (HASSELBERG), 1885, A., 317; (BALMER), 1885, A., 1025; (AMES), 1891, A., 1; (GRÜNWARD), 1892, A., 1381.
- of iodine solutions (RIGOLLOT), 1891, A., 374.
- of nitric peroxide (BELL), 1885, A., 949.
- of nitrogen (DESLANDRES), 1886, A., 189, 957; (AMES), 1891, A., 1.
- of nitrosyl chloride (MAGNANINI), 1890, A., 97.
- of oxygen (EGOROFF), 1886, A., 189; (JANSSEN), 1886, A., 749; 1888, A., 765; (LIVEING and DEWAR), 1889, A., 1; 1890, A., 675.
- of liquid oxygen (OLSZEWSKI), 1887, A., 625; 1891, A., 773.
- of ozone (SCHÖNE), 1885, A., 713.
- of atmospheric air (EGOROFF), 1883, A., 137; 1886, A., 189; (JANSSEN), 1886, A., 1; (OLSZEWSKI), 1887, A., 625.
- of silicon (HARTLEY), 1883, T., 397; 1884, A., 242.
- of silicon fluoride and hydride (WESSENDONCK), 1884, A., 649.
- of tellurium (HARTLEY), 1883, T., 399.

## PHOTOCHEMISTRY—

- Spectra** of thiophosphoryl fluoride (THORPE and RODGER), 1889, T., 322.
- of water (LIVING and DEWAR), 1883, A., 140; (SORER and SARASIN), 1884, A., 701.
- of water vapour (JANSSEN), 1883, A., 261.
- ultra-violet, of water vapour, relation between the telluric bands, A, B,  $\alpha$ , in the solar spectrum, and (DESLANDRES), 1885, A., 713.
- of the oxyhydrogen flame (LIVING and DEWAR), 1888, A., 637.
- of metals (LECOQ DE BOISBAUDRAN), 1885, A., 949; (TROWBRIDGE and SABINE), 1889, A., 1.
- of metals, variations of, due to mixed vapours (LIVING and DEWAR), 1888, A., 2.
- emitted by metallic elements under varying conditions (HARTLEY), 1884, A., 137; (WIEDEMANN), 1884, A., 801.
- of the metals produced by explosions (LIVING and DEWAR), 1885, A., 817, 465.
- of aluminium (HARTLEY), 1883, T., 396.
- of phosphorescent alumina (CROOKES), 1887, A., 1006, 1069; 1889, T., 281.
- of beryllium (HARTLEY), 1883, T., 316.
- of cadmium (HARTLEY), 1883, T., 395; (GRUNWALD), 1889, A., 455; (AMES), 1891, A., 1; (KAYSER and RUNGE), 1891, A., 965.
- ultra-violet, of cadmium (BELL), 1886, A., 957.
- of caesium (KAYSER and RUNGE), 1891, A., 137.
- of the cerium-group (SCHOTTLÄNDER), 1892, A., 686.
- of chromic acid and alkaline chromates (SABATIER), 1886, A., 838; (VOGEL), 1888, A., 1129.
- ultra-violet, of cobalt (LIVING and DEWAR), 1889, A., 89.
- of cobalt compounds (RUSSELL and ORSMAN), 1889, P., 14.
- of dissolved cobaltous chloride (RUSSELL), 1885, P., 67.
- of copper (HARTLEY), 1883, T., 396.
- of rare earths (KRUS and NILSON), 1887, A., 890; 1888, A., 208; (BAILLY), 1888, A., 1, 208; (KIESEWETTER and KRUS), 1888, A., 1038; (CROOKES), 1889, T., 255.

## PHOTOCHEMISTRY—

- Spectra** of the rare earths present in gadolinite and samarskite (CROOKES), 1887, A., 334.
- of didymium (DEMARÇAY), 1886, A., 837; 1887, A., 1008; (BECQUEREL), 1887, A., 537, 873; (SCHOTTLÄNDER), 1892, A., 686.
- of the didymium group (BECQUEREL), 1887, A., 873; (CROOKES), 1889, T., 259; (SCHOTTLÄNDER), 1892, A., 686.
- of didymium salts, variations in the (BECQUEREL), 1887, A., 873.
- of neodymium and praseodymium oxides and of luminous solids containing neodymium (HARTINGER), 1892, A., 2.
- of praseodymium (LECOQ DE BOISBAUDRAN), 1888, A., 97.
- of erbium (THALÉN), 1883, A., 954.
- of the erbium group (CROOKES), 1889, T., 265.
- of erbia (CROOKES), 1886, A., 749.
- of epidote (BECQUEREL), 1889, A., 553.
- of ferric chloride (RUSSELL and ORSMAN), 1889, P., 14.
- of gallium (LECOQ DE BOISBAUDRAN), 1888, A., 97; 1892, A., 930.
- of gadolinium chloride (LECOQ DE BOISBAUDRAN), 1891, A., 2.
- of germanium (LECOQ DE BOISBAUDRAN), 1886, A., 768; (KOB), 1887, A., 313.
- of gold (KRUS), 1887, A., 555; (DEMARÇAY), 1888, A., 765.
- of lanthana (CROOKES), 1887, A., 1070.
- of lithium (KAYSER and RUNGE), 1891, A., 137.
- of lithium, order of reversibility of the lines of (LIVING and DEWAR), 1883, A., 839.
- of magnesium (HARTLEY), 1883, T., 392; (LIVING and DEWAR), 1883, A., 2; 1889, A., 89; (AMES), 1891, A., 1.
- of magnesium, mathematical analysis of (GRUNWALD), 1888, A., 389, 882.
- ultra-violet, of nickel (LIVING and DEWAR), 1889, A., 89.
- of potassium, wave length of the two red lines in (DESLANDRES), 1888, A., 637; (KAYSER and RUNGE), 1891, A., 137.
- of rubidium (KAYSER and RUNGE), 1891, A., 137.

## PHOTOCHEMISTRY—

- Spectra of samarium (CLEVE)**, 1883, T., 366; (LECOQ DE BOISBAUDRAN), 1885, A., 621; 1892, A., 780; (CROOKES), 1885, A., 1025; (DEMARÇAY), 1886, A., 837; 1887, A., 1008.
- of scandium (THALÉN), 1883, A., 954.
- of silver (HARTLEY), 1883, T., 396.
- of sodium (KAYSER and RUNGE), 1891, A., 137.
- of the terbia earths (LECOQ DE BOISBAUDRAN), 1886, A., 293.
- of thulium (THALÉN), 1883, A., 954.
- of ytterbium (THALÉN), 1883, A., 954.
- of yttrium (CROOKES), 1885, A., 1025; (LECOQ DE BOISBAUDRAN), 1886, A., 338.
- of yttria (LECOQ DE BOISBAUDRAN), 1889, A., 456; 1890, A., 566.
- of phosphorescent yttria (CROOKES), 1886, A., 853; 1887, A., 1066, 1070.
- of yttrium and samarium, mutual extinction of (CROOKES), 1885, A., 1025.
- of the yttrium group (CROOKES), 1889, T., 269.
- of Z<sub>a</sub> and Z<sub>B</sub> (LECOQ DE BOISBAUDRAN), 1885, A., 666.
- of Z<sub>B</sub> (LECOQ DE BOISBAUDRAN), 1886, A., 958.
- of zinc (HARTLEY), 1883, T., 394; (AMES), 1891, A., 1.
- of zircons (LINNEMANN), 1885, A., 1173.
- of carbon compounds (LIVING and DEWAR), 1883, A., 261; (WESSENDONCK), 1883, A., 761.
- ultra-violet, of carbon compounds (DESLANDRES), 1888, A., 637.
- relation between the molecular structure of carbon compounds and their (KRÜSS and OERCONOMIDES), 1883, A., 1041; (HARTLEY), 1885, T., 685; P., 59; 1886, P., 245; 1887, T., 152; 1888, T., 641; P., 66; (KRÜSS), 1885, A., 949; 1888, A., 1141; (ALTHAUSSE and KRÜSS), 1889, A., 1098.
- of hydrocarbons (DESLANDRES), 1891, A., 773.
- of hydrocarbon flame, origin of (LIVING and DEWAR), 1883, A., 641.
- ultra-violet of the paraffin derivatives (SORET and RILLIET), 1890, A., 434.

## PHOTOCHEMISTRY—

- Spectra, ultra-violet, of albuminoids (SORET)**, 1884, A., 242.
- of albuminoids from grain (HARTLEY), 1886, P., 247; 1887, T., 58.
- of albumin, casein, diastase, gelatin, invertase, maize-starch, serin, cane-sugar, and of glucose (HARTLEY), 1887, T., 59.
- of alkaloids (HARTLEY), 1885, A., 1174.
- of benzene, naphthalene, toluidines, xylenes, dipyrindine, picoline, piperidine, pyridine, quinoline, and of tetrahydroquinoline and its hydrochloride (HARTLEY), 1885, T., 694.
- of blue pigments (PITCHER), 1889, A., 325.
- of colouring matters (GIRARD and PABST), 1885, A., 1098.
- relation between the composition and, of organic dyes (VOGEL), 1888, A., 97.
- of acid brown, amidoazo- $\alpha$ - and - $\beta$ -naphthalenes, aurin, azobenzene, benzeneazo- $\beta$ -naphtholsulphonic acid, Biebrich scarlet, Bismarck brown, chrysoidine, crocein-scarlet, cumeneazo- $\beta$ -naphtholdisulphonic acid, dimethylamidobenzeneazobenzene-sulphonic acid, "fast red," helianthin (*methyl-orange*), Hofmann's violet, iodine green, murexide, rosaniline, sulphoxyleneazo- $\beta$ -naphtholdisulphonic acid, triphenylmethane and of tropcolins (HARTLEY), 1887, T., 167.
- of cresols, *m*- and *p*-hydroxybenzoic acids, pyrocatechol, quinol and resorcinol (HARTLEY), 1888, T., 643.
- of methyl derivatives of hydroxyanthraquinone (LIEBERMANN and v. KOSTANECKI), 1887, A., 1.
- of alkoxyanthraquinones (LIEBERMANN), 1888, A., 1203.
- of  $\zeta$ -invertan (O'SULLIVAN and TOMTSON), 1890, T., 912.
- of peppermint oil (ANDRES), 1891, A., 2.
- influence of certain rays of, on the growth of plants (GRIFFITHS), 1884, T., 74.
- of bilberries and wine (VOGEL), 1888, A., 1137.
- of chlorophyll (STENGER), 1887, A., 693; (HARTLEY), 1890, P., 161; 1891, T., 106.

## PHOTOCHEMISTRY—

- Spectra** of bile (WERTHEIMER and MEYER), 1889, A., 636.  
 of blood (SORET), 1884, A., 381;  
 (LINOSSIER), 1888, A., 1139.  
 of hematin, sensitiveness of  
 (JANEČEK), 1892, A., 1369.  
 of acid methæmoglobin (BERTIN-  
 SANS), 1888, A., 858.

**Absorption-spectra** thermograms  
 (ABNEY and FESTING), 1885, A.,  
 1175.

**Homologous spectra** (HARTLEY),  
 1883, T., 390.

**Incandescence spectra** (CROOKES),  
 1889, P., 267.

**Invisible lunar and solar spectra**  
 (LANGLEY), 1889, A., 325.

**Phosphorescence spectra** (CROOKES),  
 1887, A., 1006, 1069; 1889, T.,  
 267.

action of different earths on  
 (CROOKES), 1889, T., 275.

interference of (CROOKES), 1889,  
 T., 276.

**Reversion spectra** (CROOKES), 1889,  
 T., 279.

**Solar spectrum** (LANGLEY), 1883,  
 A., 137.

atmospheric absorption in the infra-  
 red of the (ABNEY and FESTING),  
 1883, A., 837.

distribution of heat in the ultra-  
 violet region of the (DESAINS), 1883,  
 A., 143.

relation between the ultra-violet  
 spectrum of water-vapour and  
 the telluric bands, A, B,  $\alpha$  in the  
 (DESLANDRES), 1885, A., 713.

behaviour of the haloid salts of  
 silver in the (EDER), 1885, A.,  
 703, 986.

effect of dyes on the behaviour of  
 silver bromide towards the  
 (EDER), 1886, A., 405.

influence of certain rays of the. on  
 root absorption and the growth of  
 plants (A. B. and F. E. GRIF-  
 FITHS), 1888, A., 623.

chlorophyll and the distribution of  
 energy in the (TIMIRIAZOFF),  
 1888, A., 697.

**Spectroscope**, absorption (DE THI-  
 ERY), 1886, A., 113.

universal (KRÜSS), 1887, A., 179.

for furnaces and for the Bessemer

process (ZENGER), 1886, A., 190.

**Spectrum analysis** (SUNDELL), 1887,  
 A., 1066.

influence of temperature on

(KRÜSS), 1885, A., 209.

## PHOTOCHEMISTRY—

**Spectrum analysis**, application of the  
 method of high interference to  
 (EBERT), 1888, A., 766.

application of, to chemical physi-  
 ology (LAMBLING), 1889, A., 73.

application of photography to  
 (HARTLEY), 1883, A., 263; 1885,  
 A., 406; (EDER), 1887, A., 93.

lecture experiments on (OLEMIN-  
 SHAW), 1885, A., 1035.

quantitative (KRÜSS), 1885, A.,  
 835.

estimation of colouring matters by  
 means of (PATTERSON), 1890, A.,  
 1476.

quantitative estimation of lithium  
 by means of (BELL), 1885, A.,  
 1012; (HOFMANN), 1886, A.,  
 178.

observations of columns of liquids  
 in (VOGEL), 1888, A., 1129.

estimation of iron and thiocyanates  
 by means of (KRÜSS and  
 MORAHT), 1889, A., 1247.

estimation of hæmoglobin in blood  
 by means of (BLANLEY), 1883,  
 A., 394.

estimation of indican in urine by  
 means of (MACMUNN), 1884, A.,  
 198.

estimation of the rate of consump-  
 tion of oxygen in tissues by  
 means of (DENNIG), 1884, A.,  
 1391.

of vapours evolved on heating  
 metals, at atmospheric pressure  
 (PARRY), 1884, A., 801; 1885,  
 A., 318.

methods of (DEMARÇAY), 1885, A.,  
 465.

coal-gas volatiliser for use in  
 (VOGEL), 1888, A., 1129.

method of studying reversal of  
 spectral lines (LIVING and  
 DEWAR), 1883, A., 262.

**Photography**. See Photochemistry.

**Photosantonic acid** (CANNIZZARO), 1886,  
 A., 73.

specific rotatory power of (NASINI),  
 1884, A., 464.

*iso*Photosantonic acid (CANNIZZARO and  
 FABRI), 1887, A., 57.

**Photosantonins**, two isomeric (VILLA-  
 VERMILIA), 1886, A., 73.

**Phthalacene** (GABRIEL), 1884, A., 1176.

derivatives (GABRIEL), 1884, A., 1180.

**Phthalacenic acid** (GABRIEL), 1884, A.,  
 1190.

**Phthalaconecarboxylic acid** and its

derivatives (GABRIEL), 1884, A., 1176.

- Phthalaldehyde** (MÜNCHMEYER), 1887, A., 482.
- isoPhthalaldehyde** (MEYER), 1887, A., 940.
- o-Phthalaldehydic acid** (*aldehydo-benzoic acid*) and its derivatives (RACINE), 1886, A., 549; 1887, A., 951; 1888, A., 693; (ALLENDORFF), 1891, A., 1369.
- action of ortho-diamines on (BISTRZYCKI), 1890, A., 969; 1891, A., 746.
- action of potassium cyanide on (GRAEBE and LANDRISER), 1891, A., 1225.
- phenylmethylhydrazones of (ALLENDORFF), 1891, A., 1371.
- Phthalaldoxime and isophthalaldoxime** (MÜNCHMEYER), 1887, A., 482.
- Phthalamic acid** (ASCHAN), 1886, A., 705; (AUGER), 1888, A., 953.
- Phthalamide**, compounds of, with phenols (OSTERSETZER), 1891, A., 65.
- amido- (PELLIZZARI), 1886, A., 1025.
- 4-sulpho- (RÉE), 1886, T., 521.
- 3- and 4-sulpho- (REMSEN and COMSTOCK), 1884, A., 320.
- isoPhthalamide**, thio- (LUCKENBACH), 1884, A., 1157.
- isoPhthalamidine**, and its salts (LUCKENBACH), 1884, A., 1158.
- nitrite (LOSSEN), 1892, A., 53.
- Phthalamidoacetic acid**, derivatives of (REES), 1888, A., 143.
- Phthalamidobenzanilide** (PIUTTI), 1883, A., 999.
- Phthalamidobenzoic acid** (PELLIZZARI), 1885, A., 534.
- action of aniline and *p*-toluidine on (PIUTTI), 1883, A., 999.
- Phthalamidodiphenylamine** (HENCKE), 1890, A., 609.
- Phthalamidohexoic acid** (REES), 1888, A., 149.
- Phthalamidones** (BISTRZYCKI and CYBULSKI), 1892, A., 1248.
- 1-Phthalamidoquinoline** (KYRITZ), 1890, A., 1324.
- Phthalanilphenylic phenylcarbamate** (LEUCKART), 1890, A., 761.
- Phthaleins** (MEYER), 1891, A., 1029.
- constitution of (ARMSTRONG), 1888, P., 30.
- compounds analogous to (REMSEN), 1885, A., 539.
- isoPhthalenediamidoxime** (GOLDBERG), 1890, A., 147.
- Phthalethimidyacetic acid** (MERTENS), 1887, A., 61.
- Phthalethylidene** (ROSER), 1886, A., 243.
- Phthalic acids**, constitution of (NOLTING), 1886, A., 67.
- reduction of (v. BAEYER), 1887, A., 370.
- conversion of the three amidobenzoic acids into (SANDMEYER), 1885, A., 981.
- brominated (BLUMLEIN), 1885, A., 162.
- tetrabromo-** (FRIEDEL and CRAFTS), 1886, A., 230.
- Phthalic acid**, thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.
- specific heat of (HESN), 1889, A., 93.
- action of ammonium and potassium thiocyanates on (ASCHAN), 1886, A., 704.
- action of, on amido-acids (DRECHSEL), 1883, A., 1126; (REES), 1888, A., 369.
- reduction products of (v. BAEYER), 1890, A., 1275; 1892, A., 1211.
- amidobenzoic acid derivatives of (PELLIZZARI), 1885, A., 533.
- phenylhydrazine (HORFE), 1887, A., 669.
- sodium salt of, action of phosphorus trisulphide on (VOLHARD and ERMANN), 1885, A., 763.
- Phthalic acid**, amido-, salts of (LANDSBERG), 1883, A., 476.
- 3-bromo- (GUARESCHI), 1884, A., 843; 1886, A., 353; 1888, A., 1300; (MELDOLA), 1885, T., 511; (STALLARD), 1886, T., 187; P., 138.
- 4-bromo- (CARNELLEY and THOMSON), 1885, T., 591; P., 88; (NOURRISON), 1887, A., 668.
- 1:4-*di*bromo- (GUARENCHI), 1881, A., 812.
- tri*bromo-, and its salts (FLEISSA), 1884, A., 1186.
- 3-chloro- (GUARESCHI), 1886, A., 353; 1887, A., 837.
- 4-chloro- (CLAUS and KAUTZ), 1885, A., 972; (GRAEBE and RÉE), 1886, T., 526; P., 211.
- constitution of (RÉE), 1886, A., 353.
- 4:5-*di*chloro- (CLAUS and KAUTZ), 1885, A., 972; (CLAUS and GRONWEG), 1891, A., 921.
- ( $\beta$ -acid) (CLAUS and SCHMIDT), 1887, A., 270.
- o*- $\beta$ -acid (LE ROYER), 1887, A., 831.
- tri*chloro- (CLAUS and KAUTZ), 1885, A., 972.
- tetra*chloro-, and its derivatives (GRAEBE), 1887, A., 832.

- Phthalic acid**, *tetrachloro-*, from *tetrachlorobenzoic acid* (TUST), 1888, A., 836.  
 preparation of (ANON.), 1885, A., 1274.  
 4-chloro-5-bromo- (CLAUS and GRONEWEG), 1891, A., 921.  
 5:3- and 6:3-*dinitro-* (MERZ and WEITH), 1883, A., 344.  
 3-sulpho- (REMSEN and COMSTOCK), 1884, A., 320; (STOKES), 1885, A., 540; (RÉE), 1886, T., 512; (MOULTON), 1891, A., 1064.  
 salts of (REMSEN and COMSTOCK), 1884, A., 320; (STOKES), 1885, A., 540.  
 4-sulpho- (REMSEN and COMSTOCK), 1884, A., 320; (GRAEBE), 1885, A., 902; (RÉE), 1886, T., 510; P., 211.  
 from phthalic acid (RÉE), 1885, A., 1062.  
 salts of (REMSEN and COMSTOCK), 1884, A., 320.  
*iso*Phthalic acid (*m-phthalic acid*), preparation of (KIPPING), 1888, T., 45.  
 thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.  
 4-amido- (LOEWENHERZ), 1892, A., 1464.  
*di*amido- (CLAUS and WYNDHAM), 1889, A., 143.  
 4-bromo- (SCHOPFF), 1892, A., 337.  
*di*bromo- (CLAUS and WYNDHAM), 1889, A., 143.  
 4-chloro- (CLAUS), 1892, A., 1201.  
 4:6-*di*chloro-, and 2:4:6-*tri*chloro- (CLAUS and BURNERT), 1890, A., 1106.  
 iodo-, and its salts (KLINGEL), 1886, A., 61; (HAMMERICH), 1890, A., 1107.  
 4-nitro- (CLAUS and WYNDHAM), 1889, A., 142; (NOYES), 1889, A., 395.  
*di*nitro- (CLAUS and WYNDHAM), 1889, A., 142.  
 2:4-*disulpho-* (WISCHIN), 1891, A., 73.  
*p*-Phthalic acid. See Terephthalic acid.  
**Phthalates**, heats of formation of (COLSON), 1885, A., 1104.  
**Phthalic alcohol**, oxidation of (HJELT), 1886, A., 455.  
 action of sulphuric acid on (HJELT), 1886, A., 791.  
**Phthalic anhydride**, thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.  
**Phthalic anhydride**, action of, on amido-acids (REMSE), 1888, A., 148.  
 action of, on benzylic cyanide (GABRIEL), 1885, A., 902.  
 action of phenylhydrazine on (HÖTTE), 1885, A., 1221.  
 action of phosphoric chloride on (CLAUS and HOCH), 1886, A., 705.  
 action of, on secondary monamines (PIUTTI), 1884, A., 448.  
 reduction of, by zinc and glacial acetic acid (WISLICIENUS), 1885, A., 57.  
 condensation products from (GABRIEL), 1884, A., 1176.  
**Phthalic anhydride**, bromo- (GUARESCHI), 1884, A., 843; 1888, A., 1300.  
 3:6-*di*bromo- [m.p. 207.5°] (GUARESCHI), 1884, A., 842.  
*di*bromo- [m.p. 208°] (BLÜMLEIN), 1885, A., 163.  
*tri*bromo- (FLESSA), 1884, A., 1186.  
*tetra*bromo- (BLÜMLEIN), 1885, A., 164; (FRIEDEL and CRAFTS), 1886, A., 230.  
 4-chloro- (GRAEBE and RÉE), 1886, T., 528.  
 4:5-*di*chloro- (CLAUS and GRONEWEG), 1891, A., 921.  
*tetra*chloro-, preparation of (ANON.) 1885, A., 1274.  
 crystalline form of (SORET), 1886, A., 620.  
 4-chloro-5-bromo- (CLAUS and GRONEWEG), 1891, A., 921.  
 4-sulpho- (RÉE), 1886, T., 515.  
 thio- (GRAEBE and ZSCHOKKE), 1884, A., 1025; (RAYMAN), 1887, A., 951;  
**Phthalic chloride** (CLAUS and HOCH), 1886, A., 705; (AUGER), 1888, A., 953.  
 constitution of (NÖLTING and DE BECH), 1884, A., 1021; (MEYER), 1881, A., 1187.  
 action of, on ethylic sodiomalonate (WISLICIENUS), 1888, A., 149.  
 action of, on phenols (MEYER), 1891, A., 1485.  
 action of zinc ethyl and zinc methyl on (RUSANTZIEFF), 1889, A., 1059.  
 4-chloro- (GRAEBE and RÉE), 1886, T., 527.  
**Phthalic mono- and di-chlorides**, 4-sulpho- (RÉE), 1886, T., 520.  
**Phthalic glycol** (COLSON), 1884, A., 1000.  
**Phthalic-sulphinide** (STOKES), 1885, A., 539.

- Phthalic-sulphinide**, derivatives of (MOULTON), 1891, A., 1063.  
salts (REMSEN and COMBROCK), 1884, A., 320.
- Phthalide** (HJELT), 1886, A., 469.  
action of phenylhydrazine on (MEYER and MUNCHMEYER), 1886, A., 883; (WISLICIENUS), 1887, A., 489.  
action of potassium cyanide on (WISLICIENUS), 1885, A., 532.  
reduction of (GRAEBE), 1885, A., 165.  
derivatives of (HONIG), 1886, A., 242.
- Phthalide, amido-** [m.p. 167°] (RACINE), 1887, A., 951.  
**5-amido-** [m.p. 178°] (HONIG), 1886, A., 242.  
bromo- (RACINE), 1886, A., 549.  
**di**bromo- (GUARESCHI), 1884, A., 842.  
**di**chloro- (LE ROYER), 1887, A., 832.  
**3:6-di**chloro- (GUARESCHI), 1886, A., 808.  
chlorobromo- (GUARESCHI and BIGNELLI), 1887, A., 1114.  
thio- (GRAEBE), 1889, A., 140.
- Phthalidecarboxylic acid** (SCHERKS), 1885, A., 533; (JUILLARD), 1888, A., 707.
- Phthalidohydrazobenzene** (ALLEN-DORFF), 1891, A., 1370.
- Phthalidomethylene** (GABRIEL), 1885, A., 165.
- Phthalido- $\beta$ -propionic acid**, and its salts (ROSER), 1885, A., 267.
- Phthalimide** (LANDSBERG), 1883, A., 475; (RAMBERGER and MULLER), 1888, A., 950; (AUGER), 1888, A., 953.  
action of hypobromites on (HOOGWERFF and VAN DORP), 1891, A., 1217.  
reduction of (GRAEBE), 1885, A., 165.  
isomeride of (HOOGWERFF and VAN DORP), 1891, A., 1218.  
derivatives of (LANDSBERG), 1883, A., 475; (GOFDECKEMEYER), 1888, A., 1291.
- Phthalimide**, 4-chloro- (GRAEBE and RÉE), 1886, T., 529.  
4 **5-di**chloro- (LE ROYER), 1887, A., 832.  
4-sulpho-ammonium derivative of (RÉE), 1886, T., 519.
- Phthalimides**, substituted, and their conversion into the corresponding amines (NEUMANN), 1890, A., 890.
- Phthalimidine** (GRAEBE), 1885, A., 166, 979; 1889, A., 140; (BARBIER), 1889, A., 253.  
derivatives of (GRAEBE), 1889, A., 140.
- Phthalimidine, nitroso-** (GRAEBE), 1885, A., 166.  
thio-, derivatives of (DAY and GABRIEL), 1890, A., 1250.
- $\psi$ -Phthalimidine** (GABRIEL), 1887, A., 1038.
- Phthalimidines**, substituted (GRAEBE and PICTET), 1889, A., 141.
- Phthalimidobenzenesulphonic acid**, sodium salt of (PELLIZZARI and MATTEUCCI), 1888, A., 1302.
- iso**Phthalimido-ether, -**di**methyl ether and -**di**thiodiethyl ether and their hydrochlorides (LUCKENBACH), 1884, A., 1157.
- Phthalimido-isethionic acid** and -**naphthalenesulphonic acid**, potassium salts of (PELLIZZARI and MATTEUCCI), 1888, A., 1302.
- Phthalimidopropiophenone** (SCHMIDT), 1890, A., 372.
- $\beta$ -Phthalimidopropyl mercaptan** (SEITZ), 1891, A., 1473.
- Phthalimidoxime** (MULLER), 1886, A., 803.
- Phthalimidylacetic acid** (ROSER), 1885, A., 159; (GABRIEL), 1885, A., 1228.
- Phthalimidylbenzyl**. See Benzylidene-phthalimidine.
- Phthalimidylpropiolactone** and  **$\beta$ -phthalimidylpropionic acid** (ROSER), 1886, A., 243.
- Phthalobenzophenylhydrazides**,  $\alpha$ - and  $\beta$ - (HOTTE), 1887, A., 670.
- Phthalo- $\psi$ -cumidamide** and - **$\psi$ -cumidide** (FROELICH), 1884, A., 1318.
- Phthalo-*m*-isocymidide**, and its nitro-compound (KELBE and WARTH), 1884, A., 47.
- Phthalodiamide** (WISLICIENUS), 1888, A., 150.  
action of hypochlorites and hypobromites on (HOOGWERFF and VAN DORP), 1891, A., 1216.
- Phthalodiethylbenzidine** (SCHIFF and VANNI), 1890, A., 1297.
- Phthalodiphenylamineaspartides** (PIUTTI), 1885, A., 797; 1886, A., 621.
- Phthalodiphenylasparagines**, two isomeric (PIUTTI), 1885, A., 797.
- Phthalodiphenyldihydrazide** and  $\alpha$ -**phthalodiphenylhydrazide** (HOTTE), 1887, A., 670.
- Phthalodiphenylene** (REULAND), 1890, A., 167.
- Phthalodisarcosine** (REESE), 1888, A., 369.
- Phthalomethimidylacetic acid** (GABRIEL), 1885, A., 1228.
- Phthalo- $\beta$ -naphthylimide** (MASCHKE), 1887, A., 839.

- iso*Phthalonitrile, preparation of (GOLDBERG), 1890, A., 147.  
 derivatives of (LUCKENBACH), 1884, A., 1157.
- $\alpha$ -Phthalonitrosophenylhydrazide (HÖTTE), 1887, A., 670.
- iso*Phthalophenonedioxime (MÜNCHMEYER), 1886, A., 877.
- Phthalophenyl-benzohydrazinic acid and -hydrazidamide (HÖTTE), 1887, A., 670.
- $\alpha$ -Phthalophenylhydrazide (HÖTTE), 1886, A., 353; 1887, A., 670; (PELLIZZARI), 1886, A., 1025; 1888, A., 54.  
*mono-* and *di-*nitro- and nitroso-derivatives of (HÖTTE), 1887, A., 670.
- $\beta$ -Phthalophenylhydrazide (PELLIZZARI), 1886, A., 1025; 1888, A., 54; (HÖTTE), 1887, A., 670.
- Phthalophenylmethylasparagine (PIUTTI), 1886, A., 621.
- Phthalotaurine (GABRIEL), 1891, A., 816.
- Phthalotoluidides, *o*-, *m*- and *p*- (FRÖHLICH), 1885, A., 155.
- Phthaluric acid and its salts (DRECHSEL), 1883, A., 1126.
- Phthalyl derivatives (ROSER), 1885, A., 165, 267, 797; 1886, A., 243.
- Phthalylacetic acid, and its salts (DRECHSEL), 1883, A., 1126; (ROSER), 1885, A., 165.  
 constitution of (GABRIEL), 1883, A., 1127; 1885, A., 164.  
 action of amines on (GABRIEL), 1885, A., 1228; 1887, A., 51.
- Phthalylaspartic acid and its derivatives (PIUTTI), 1885, A., 796; 1886, A., 621.
- Phthalylechloroacetic acid (ZINCKE and COOKSEY), 1890, A., 785.
- Phthalyl- $\psi$ -cumidic acid and its salts (FRÖHLICH), 1884, A., 1319.
- Phthalyleyanethine (v. MEYER), 1889, A., 685.
- Phthalylidieogonine (EINHORN and KLEIN), 1889, A., 283.
- o*-Phthalyl-di- $\alpha$ -ecgonine (DECKERS and EINHORN), 1891, A., 476.
- Phthalylglycocine. See Phthalamido-acetic acid.
- Phthalylisopropylidene (ROSER), 1885, A., 268.
- Phthalyltropine (LADENBURG), 1883, A., 672.
- Phthysical patients, sugar from the lungs and saliva of (POUCHET), 1883, A., 929.
- Phycite. See Erythritol.
- Phycerythrin, isomeric modifications of (SCHUTT), 1889, A., 623.
- Phycophæin (SCHUTT), 1888, A., 496.
- Phycopyrin (SCHUTT), 1890, A., 1173.
- Phyllite from Rimmogens, in the Ardennes (GEINITZ), 1883, A., 447.
- Phyllites of the Tyrolean Alps (PICHLER), 1884, A., 274.
- Phyllocyanic acid (TROCHTON), 1887, A., 1117; (WOLLHEIM), 1888, A., 723.
- Phyllocyanin (SACHSSE), 1885, A., 670; (SCHUNCK), 1885, A., 1241; (WOLLHEIM), 1888, A., 723.
- Phyllorubin (WOLLHEIM), 1888, A., 723.
- Phyllotaonin (SCHUNCK), 1889, A., 279.
- Phylloxanthin (SCHUNCK), 1885, A., 1241.
- Phylloxera. See Agricultural Chemistry.
- Phymatorusin (MÖRNER), 1887, A., 168.
- Physiological action, relation between chemical constitution and (BRUNTON and CASH), 1884, A., 348; 1887, A., 985; 1891, A., 1279; (GIBBS and HANE), 1890, A., 280.  
 relation between chemical constitution of aromatic compounds and (ODDO), 1892, A., 366.  
 relation between chemical constitution of certain sulphones and (BAUMANN and KAST), 1889, A., 1232.  
 parallelism between optical properties of inorganic substances and (BLAKE), 1890, A., 813.  
 of acetaldehyde (GAUBE), 1890, A., 188.  
 of paracetaldehyde (CERVELLO), 1884, A., 199; (BOOKAL), 1887, A., 391.  
 of acetanilide (LÉPINI), 1888, A., 181; (JAFFÉ and HILBERT), 1888, A., 735; (MÖRNER), 1889, A., 289; (CHITTENDEN and STEWART), 1889, A., 533.  
 of acetic acid (MALLÉVRE), 1891, A., 344.  
 of acetophenone (DUJARDIN-BEAUMETZ and BARDET), 1886, A., 169; (MAIRET and COMBEMALE), 1886, A., 385; (KARMENSKI), 1889, A., 1076.  
 of acetotoluidides (JAFFÉ and HILBERT), 1888, A., 735.  
 of acetoximes and ketones (PASCHIKIN and OBERMAYER), 1892, A., 1506.  
 of acids and alkalis (LEHMANN), 1885, A., 279.  
 of fatty acids (MUNK), 1884, A., 852; 1891, A., 345.  
 of atmospheric air deficient in oxygen (WALLACE), 1883, A., 819; (KEMPNER), 1884, A., 344.

**Physiological action of expired atmospheric air** (BROWN-SÉQUARD and D'ARSONVAL), 1889, A., 629.  
 of rarefied atmospheric air (FRAENKEL and GERPERT), 1884, A., 470.  
 of air charged with petroleum vapour (POINCARÉ), 1884, A., 1057.  
 of some digestion products of albumin (POLLITZER), 1886, A., 377.  
 of albumose (OTT and COLLMAR), 1888, A., 1325.  
 of albumose from jequirity seeds (MARTIN), 1890, A., 398.  
 of albumoses and peptones (NEUMEISTER), 1888, A., 516.  
 of alcohols (GIBBS and REICHERT), 1891, A., 1393.  
 of tertiary alcohols (THIERFELDER and V. MERING), 1885, A., 1002; (SCHAPIROFF), 1887, A., 857.  
 of alcohols and artificial bouquets (LABORDE and MAGNAN), 1888, A., 737.  
 of aldehyde-ammonia (GIBBS and REICHERT), 1891, A., 1393.  
 of aldehydes (COHN), 1892, A., 1504.  
 of alkaline earths (BRUNTON and CASH), 1884, A., 348; (RICHTER), 1886, A., 385; (CURCI), 1888, A., 621.  
 of alkalis (BRUNTON and CASH), 1884, A., 348; (CURCI), 1888, A., 621; (DUFOURT), 1891, A., 758.  
 of alkalis and acids (LEHMANN), 1885, A., 279.  
 of the alkaloid sulphates (CHITTENDEN and CUMMINS), 1888, A., 77.  
 of alloxantin (KOWALROWSKY), 1887, A., 508.  
 of amides (ZUNTZ), 1884, A., 472; (WEISKE and SCHULZE), 1885, A., 409; (GIBBS and REICHERT), 1891, A., 1282.  
 of amidobenzoic acid (GIBBS and HARE), 1890, A., 280.  
 of certain amido-compounds (BAHLMANN), 1887, A., 512.  
 of ammonia (RÖHMANN), 1887, A., 68; (BELKY), 1887, A., 392.  
 of ammonium bases (GLAUBE and LUCHSINGER), 1885, A., 415.  
 of *n*-amyllic nitrite (BRUNTON and BOKENHAM), 1889, A., 433.  
 of anilides (GIBBS and REICHERT), 1891, A., 1282.  
 of aniline (MÜLLER), 1887, A., 514; (FALKENBERG), 1891, A., 853.  
 of aniline-*p*-sulphonic acid (VILLE), 1892, A., 903.

**Physiological action of antharobin and chrysarobin** (LIEBERMANN), 1888, A., 518; (WEYL), 1889, A., 539.  
 of antipyrin (CHITTENDEN and CUMMINS), 1888, A., 77; (NEBELTHAU), 1891, A., 1527.  
 of arbutin and of *Folia uvae ursi* (LEWIN), 1884, A., 915.  
 of certain aromatic substances (KLINGENBERG), 1891, A., 1529.  
 of arsenic and antimony (CHITTENDEN and BLAKE), 1889, A., 537.  
 of arsenious oxide (CHITTENDEN and CUMMINS), 1888, A., 77.  
 of *Arum italicum* (SPICA and BISCARO), 1886, A., 94.  
 of asparagine (WEISKE and SCHULZE), 1885, A., 409; (MUNK; v. VOIT), 1885, A., 412; (WEISKE), 1888, A., 80; (KÖNIG), 1891, A., 1525; (GRAFFENBERGER), 1892, A., 904.  
 of atropine (HAMMERBACHER), 1884, A., 1396; (LANGLEY), 1888, A., 1216; 1890, A., 397.  
 of iscatropylcocaine (HESS), 1889, A., 732.  
 of azoimide (LOEW), 1892, A., 90.  
 of balsams (STOCKMAN), 1891, A., 600.  
 of base  $C_7H_{10}N_2$  (WURTZ), 1888, A., 622.  
 of hot baths (FORMÁNEK), 1892, A., 1503.  
 of hot and cold baths (PLETZER), 1884, A., 621.  
 of benzaldehyde (COHN), 1890, A., 188.  
 of benzene and its derivatives (BRUNTON and CASH), 1891, A., 1279.  
 of benzoic anhydride (SALKOWSKI), 1888, A., 864.  
 of boric acid (FORSTER), 1883, A., 1178; 1884, A., 732; (JOHNSON), 1886, A., 572.  
 of borneol (STOCKMAN), 1888, A., 1216.  
 of bromostychnine (BRUNTON), 1885, T., 143; P., 5.  
 of brucine (BRUNTON), 1885, T., 143; P., 5; (MAYS), 1888, A., 312.  
 of butylchloral hydrate (KOCH), 1887, A., 391.  
 of cacodylic acid (MARSHALL and GREEN), 1886, A., 730.  
 of caffeine (MALY and ANDREASCH), 1883, A., 1018; (BRUNTON and CASH), 1887, A., 985; 1888, A., 1217; (COPPOLA), 1888, A., 312; (CHITTENDEN and STEWART), 1889, A., 534.

**Physiological action of calcium salts** (IRVINE and WOODHEAD), 1889, A., 653; (PRKELHARING), 1892, A., 87; (GRTEBACH), 1892, A., 1112.  
 of calcium  $\beta$ -naphthol- $\alpha$ -sulphonate (STACKLER), 1892, A., 1116.  
 of calcium sulphate (GREEN), 1888, A., 306; (IRVINE and WOODHEAD), 1889, A., 429.  
 of calomel (WASSILIEFF), 1883, A., 743.  
 of camphors and of their compounds with chloral (SCHMITT), 1892, A., 227.  
 of carbohydrates (ALBERTONI), 1889, A., 1023.  
 of carbolic acid (BISCHOFF), 1888, A., 1021; (ZWAARDEMAKER), 1891, A., 762.  
 of carbon tetrachloride (REGNAULD and VILLEJEAN), 1885, A., 926.  
 of carbon disulphide (OKIANDI-BRY), 1885, A., 97; (WESTBERG), 1892, A., 1520.  
 of trichloroacetic acid (HERMANN), 1885, A., 575.  
 of chloral (KAST), 1887, A., 613.  
 of chloral hydrate (Koch), 1887, A., 391; (NEBELTHAU), 1891, A., 1527.  
 of chlorates (MARCHAND), 1888, A., 977; (CAHN), 1888, A., 978; (FALKENBERG), 1891, A., 853.  
 of trichlorethyl alcohol (KÜLZ), 1885, A., 283.  
 of mono- and *s*-dichlorethyl sulphides (MEYER), 1887, A., 857.  
 of chlorides (GIRARD), 1889, A., 1227.  
 of chlorine compounds (KAST), 1887, A., 612.  
 of trichlorobutyl alcohol (KÜLZ), 1885, A., 283.  
 of chloroform (ZELLER), 1884, A., 1062; (KAST), 1887, A., 612.  
 of impure chloroform (DU BOIS REYMOND), 1892, A., 745.  
 of chloromethane (REGNAULD and VILLEJEAN), 1885, A., 926.  
 of dichloromethane when compared with that of chloroform (REGNAULD and VILLEJEAN), 1885, A., 285, 926.  
 of choline, neurine and allied compounds (SCHMIDT), 1892, A., 905.  
 of chrysarobin and antharobin (LEBERMANN), 1888, A., 518; (WEYL), 1889, A., 539.  
 of cinchonamine (SÉE and BOCHFON-TAINE), 1885, A., 571, 682.  
 of three coal-tar yellows (CAZENEUVE and LÉPINÉ), 1886, A., 273.  
 of cobalt salts (CHITTENDEN and NORRIS), 1889, A., 538.

**Physiological action of cocaine** (GRASSET), 1885, A., 285, 415; (GRASSET and JEANNIN), 1885, A., 571; (RICHARD), 1885, A., 1002; (SIGNIELLI), 1888, A., 312; (MOSSO), 1888, A., 864; 1891, A., 486.  
 of coffee (FORT), 1883, A., 745; (COUTY), 1884, A., 1392.  
 of colchicine (MAIRET and COMBEMALE), 1887, A., 515, 614.  
 of  $\beta$ -collidine (MARCUS and OCHSNER DE CONINCK), 1883, A., 104.  
 of  $\beta$ -collidine hexahydride (BOCHFON-TAINE and OCHSNER DE CONINCK), 1885, A., 681.  
 of convolvulin (DRAGENDORFF), 1887, A., 291.  
 of copper (ELLENBERGER and HOFMEISTER), 1884, A., 474.  
 of copper compounds (DU MOULIN), 1886, A., 483.  
 of copper sulphate (CHITTENDEN and CUMMINS), 1888, A., 77.  
 of corn-cockle (*Agrostemma githago*; *Filago segetum*) (LEHMANN and MORT), 1890, A., 1458; (KORNAUTH and ARCHE), 1892, A., 1018.  
 of the three cresols (GIBBS and HARE), 1890, A., 813.  
 of croton oil (SENIER), 1884, A., 947.  
 of curare (DEMANR), 1886, A., 1054; (NIKOLSKY and DOGIEL), 1891, A., 487.  
 of cyanuric acid (GIBBS and REICHERT), 1891, A., 1393.  
 of cystein (GOLDMANN), 1885, A., 922.  
 of dihydroxy-naphthalene (LÉPINÉ), 1888, A., 184.  
 of drugs (STUMPF), 1883, A., 818.  
 of artificial dyes (WEYL), 1888, A., 1122.  
 of ethylene chloride (DEBOIS and ROUX), 1888, A., 517.  
 of ethylic alcohol (KUIJPER), 1884, A., 370; (ALBERTONI), 1888, A., 973; (BODIÄNDER), 1888, A., 977; (KELLER), 1889, A., 288; (CHITTENDEN and SMITH), 1891, A., 1272; (KLINGEMANN), 1892, A., 365.  
 of ethylic carbamate (v. JAKSCH), 1886, A., 572; (MAIRET and COMBEMALE), 1886, A., 640.  
 of ethylic lactate (PELLACANI and BERTONI), 1888, A., 309.  
 of euxanthone (v. KOSTANECKI), 1887, A., 272.  
 of fibrin (GRAFFENBERGER), 1892, A., 904.  
 of fish (ATWATER), 1887, A., 1130.

**Physiological action of fluorobenzoic acids** (COPPOLA), 1884, A., 446.  
 of *Folium uvæ ursi* and of arbutin (LEWIN), 1884, A., 915.  
 of acidified food (WEISKE), 1887, A., 855.  
 of formates (GRÉHANT and QUINQUAUD), 1887, A., 513.  
 of edible fungi (DUPETIT), 1883, A., 611; 1884, A., 204; (MORNER), 1886, A., 1053.  
 of furfuraldehyde sodium hydrogen sulphite (GIBBS and REICHERT), 1891, A., 1393.  
 of gallic and tannic acids (MORNER), 1892, A., 904.  
 of the products of incomplete combustion of illuminating gas (GRÉHANT), 1888, A., 517.  
 of gaseous poisons (BELKY), 1887, A., 392.  
 of gelatin (CHITTENDEN and SOLLEY), 1891, A., 949; (GRAFFENBERGER), 1892, A., 904.  
 of glycerol (ARNSCHINK), 1887, A., 509; (RANSOM), 1887, A., 985; (v. TORRING), 1889, A., 736; (MUNK), 1891, A., 345.  
 of glycerolphosphoric acid (EYMONNET), 1884, A., 1058.  
 of glyceryl trinitrate (*nitroglycerol*) (HAY), 1885, A., 681.  
 of guaiacol (MARFORI), 1891, A., 99.  
 of heat (SENATOR), 1884, A., 1893; (GRANDIS), 1890, A., 1334.  
 of hydrazine (LOEW), 1891, A., 239.  
 of hydrazines (GIBBS and REICHERT), 1891, A., 1280.  
 of hydrochloric acid (WHITE), 1892, A., 1117.  
 of hydrogen peroxide (BÉCHAMP), 1883, A., 103, 227.  
 of hydrogen sulphide (BROUARDEL and LOYE), 1885, A., 1151; (BELKY), 1887, A., 392; (MULLER), 1888, A., 178.  
 of hydroxylamine (LOEW), 1885, A., 830; (BRUNTON and BOKENHAM), 1889, A., 630; (GIBBS and REICHERT), 1891, A., 1393.  
 of derivatives of hydroxyquinolines (FISCHER), 1883, A., 1147.  
 of *o*-hydroxyquinolinecarboxylic acid and its derivatives (KRÓLIKOWSKI and NENCKI), 1888, A., 864.  
 of hydroxytrimethylethylammonium hydroxide (CERVELLO), 1885, A., 925; 1888, A., 309.  
 of hyoscine hydrochloride (GLEV and RONDEAU), 1888, A., 182; (PAWLOFF), 1890, A., 1019.

**Physiological action of iodine**, dissolved in potassium iodide (GROFF), 1883, A., 104.  
 of iodoform (ZELLER), 1884, A., 1062; (GRUNDLER), 1885, A., 413.  
 of iron (BUNGE), 1885, A., 574; (SKVORTZOW), 1888, A., 1325; (SOCIN), 1891, A., 478.  
 of iron compounds (LANDWEHR), 1888, A., 176.  
 of jalapin (DRAGENDORFF), 1887, A., 291.  
 of the active principle of jequirity (*Abrus precatorius*) (MARTIN), 1887, A., 990; 1889, A., 1026; 1890, A., 398; (MARTIN and WOLFENDEN), 1890, A., 398.  
 of kairin and kairiline (FILEHNE), 1884, A., 474; (RICHTER), 1891, A., 602; (NEBELTHAU), 1891, A., 1527.  
 of ketones and acetoximes (PASCHIKS and OBERMAYER), 1892, A., 1506.  
 of lactose (VOIT), 1892, A., 903.  
 of lecithin (HASEBROEK), 1888, A., 173.  
 of leech extract (HAYCRAFT), 1885, A., 571; (DICKINSON), 1891, A., 481.  
 of light (LOEB), 1889, A., 172.  
 of lupetidine and allied substances in relation to their chemical constitution (GURBER), 1891, A., 854.  
 of manganese (MAUMENÉ), 1885, A., 421.  
 of meat (HÖNIGSBERG), 1883, A., 815; (JESSEN), 1884, A., 470; (ATWATER), 1887, A., 1130; (SCHULZE), 1890, A., 278; (STUTZER), 1892, A., 1367.  
 of meat-extract (RUBNER), 1885, A., 409.  
 of Liebig's extract of meat (LEHMANN), 1886, A., 89.  
 of meat-peptones (ZUNTZ), 1886, A., 378.  
 of mercury salicylate (BOHM), 1891, A., 351.  
 of methylal (MAIRET and COMBEMALE), 1887, A., 391, 684.  
 of micro-organisms from the mouth and of feces (VIGNAL), 1887, A., 1059.  
 of morphine (ELIASOR), 1885, A., 577; (TAUBER), 1891, A., 479; (GUINARD), 1891, A., 486; (SPITZER), 1891, A., 852.  
 of morphine and its derivatives (STOCKMAN and DOTT), 1890, A., 1178.  
 of naphthol (DESEQUELLE), 1891, A., 98.

**Physiological action of  $\alpha$ -naphthol** (LESNIK and NENCKI), 1886, A., 822; (MAXIMOVITCH), 1888, A., 621, 978.

of  $\beta$ -naphthol (LESNIK and NENCKI), 1886, A., 822; (BOUCHARD), 1888, A., 183; (MAXIMOVITCH), 1888, A., 621, 978.

of narcotine, thebaine and their derivatives (STOCKMAN and DOTT), 1891, A., 762.

of neurine (BRIEGER; MARINO-ZUCO), 1884, A., 1056; (OTT and COLLMAR), 1888, A., 1325.

of commercial neurine (CERVELLO), 1885, A., 925.

of neurine, choline and allied compounds (SCHMIDT), 1892, A., 905.

of nickel salts (GURKENS), 1885, A., 681; (LABORDE and RICHE), 1888, A., 738; (CHITTENDEN and NORRIS), 1889, A., 538.

of nickel carbonyl (MCKENDRICK and SNODGRASS), 1891, A., 1180; (HANRIOT and RICHET; LANGLOIS), 1892, A., 365.

of nicotine (RABOT), 1885, A., 416; (LANGLEY), 1890, A., 397; (LANGLEY and DICKINSON), 1890, A., 1178; (COLAS), 1891, A., 96.

of nitranilines (GIBBS and HARE), 1890, A., 280.

of nitriles (GIACOSA), 1884, A., 1061.

of nitrites (BRUNTON and BOKENHAM), 1889, A., 630.

of *o*-, *m*- and *p*-nitrobenzaldehydes (SIEBER and SMIRNOW), 1887, A., 684.

of *o*-nitrobenzene (HUBER), 1892, A., 366.

of nitrobenzenes (BRUNTON and CASH), 1891, A., 1250; (GIBBS and REICHERT), 1891, A., 1281.

of nitrobenzoic acid (GIBBS and HARE), 1890, A., 280.

of *o*-nitro-*p*-cresol (WEYL), 1888, A., 520, 1122.

of nitromethane (GIBBS and REICHERT), 1891, A., 1393.

of nitrophenols (GIBBS and HARE), 1890, A., 280; (GIBBS and REICHERT), 1891, A., 1281.

of nitrosodiethylene (GIBBS and REICHERT), 1891, A., 1393.

of nitroso- $\beta$ -naphthol (GIBBS and REICHERT), 1891, A., 1393.

of nitrothiophen (MEYER), 1885, A., 1051.

of opium (SPITZER), 1891, A., 852.

of ouabain (GLEBY), 1888, A., 1326.

of oxalic acid (GAGLIO), 1888, A., 619.

**Physiological action of oxamic acid** (GIBBS and REICHERT), 1891, A., 1393.

of oxygen (RICHARDSON), 1887, A., 855; (WURSTER), 1888, A., 863; (BERTHELOT), 1890, A., 274; (HUNIER), 1891, A., 1267; (WERRIGO), 1892, A., 1309.

of ozone (BINZ), 1883, A., 486; 1884, A., 95; (LABBÉ and OUDIN), 1891, A., 1531.

of paraffinic nitrates (CASH and DUNSTAN), 1891, A., 1270.

of paraxanthine (SALOMON), 1889, A., 293.

of pentoses (EBSTEIN), 1892, A., 1506.

of peptone (OTT and COLLMAR), 1888, A., 1325; (SHORE), 1891, A., 481; (GRAFFENBERGER), 1892, A., 904.

of peptones and albumoses (NEUMEISTER), 1888, A., 516.

of phenol (BISCHOFF), 1888, A., 1021; (ZWAARDEMAKER), 1891, A., 762.

of dihydric and trihydric phenols (GIBBS and HARE), 1890, A., 1019.

of phenylacetic acid (SALKOWSKI and KOTOFF), 1888, A., 513.

of *p*- and *m*-phenylenediamine (DUBOIS and VIGNON), 1889, A., 66.

of phenylhydrazine (HOPPE-SEYLER), 1885, A., 574; (BEYTHIEN and TOLLENS), 1890, A., 532.

of phenylhydrazine derivatives (HEINZ), 1891, A., 602.

of phosphorus (BLENDERMANN), 1883, A., 878; (LEO), 1885, A., 1002; (CAHN), 1886, A., 1053; (STARRING and HOPKINS), 1892, A., 650.

of phosphorous oxide (THORPE and TUTTON), 1890, T., 573.

of pilocarpine (HAMMERBACHER), 1884, A., 1396; (CORNFVIN), 1892, A., 365.

of pituri (LANGLEY and DICKINSON), 1890, A., 1178.

of poisons and drugs (HAYEM), 1881, A., 761.

of potassium bromide (SCHULZE), 1881, A., 850.

of potassium chlorate (v. MERING), 1885, A., 1002.

of potassium ferrocyanide (COMMERMAL and DURIGNET), 1891, A., 99.

of potassium nitrite (HNOOCUR), 1885, A., 682.

of potato spirit (BROCKHAUS), 1883, A., 362.

of ptomaine (BRIEGER), 1887, A., 284.

of ptomaine hydrochloride (GUARISCHI and MOSCO), 1884, A., 618.

of ptomaines (v. ANREP), 1885, A., 682.

**Physiological action** of pyridine, quinoline, etc. (HEINZ), 1891, A., 602.  
 of hydrogenised pyridine derivatives (HOFFMANN and KOENIG), 1883, A., 1145.  
 of pyrocatechol and of pyrogallol (GIBBS and HARE), 1890, A., 1019.  
 of quinine (NEBELTHAU), 1891, A., 1527; (BINZ), 1891, A., 1531.  
 of quinol (GIBBS and HARE), 1890, A., 1019.  
 of quinoline, pyridine, etc. (HEINZ), 1891, A., 602.  
 of quinone and its derivatives (SCHULZ), 1892, A., 1115.  
 of resorcinol (GIBBS and HARE), 1890, A., 1019.  
 of rosaniline sulphate (CAZENEUVE and LÉPINE), 1886, A., 272.  
 of safranine (CAZENEUVE and LÉPINE), 1886, A., 272; (WEYL), 1888, A., 1122.  
 of saline solutions and various drugs (HEINZ), 1891, A., 601.  
 of salts (PFEIFFER), 1885, A., 827; (LEWIS), 1889, A., 424; (LOEWY), 1889, A., 533.  
 of salts of the alkalis and alkaline earths (RINGER and SAINSBURY), 1890, A., 1176.  
 of salts of lithium, potassium and rubidium (RICHERT), 1886, A., 88, 385; (BLAKE), 1886, A., 385.  
 of ethereal salts (BAAS), 1890, A., 1013.  
 of inorganic salts (RINGER), 1890, A., 393.  
 of metallic salts (BLAKE), 1883, A., 745; (BRUNTON and CASE), 1883, A., 875; (FLÖEL), 1885, A., 578.  
 of neutral salts (JAWORSKI), 1884, A., 193.  
 of santonin and its derivatives (COPPOLA), 1888, A., 310.  
 of saponins (ROBERT), 1891, A., 1531.  
 of selenious acid (CHABRIÉ and LAPIQUE), 1890, A., 542.  
 of sesame seed (LANGLEBERT), 1884, A., 852.  
 of sodium biborate (*borax*) (VIGIER), 1884, A., 1061; (DE CYON), 1884, A., 1440; (JOHNSON), 1886, A., 572.  
 of sodium chloride (STUTZER), 1891, A., 752; (DUBELIN), 1892, A., 904.  
 of sodium nitroprusside (GIBBS and REICHERT), 1891, A., 1393.  
 of sodium phosphate (HAIG), 1890, A., 397.  
 of sodium phthalate (JUVALTA), 1889, A., 289.

**Physiological action** of sodium benzene-sulphinate (HECKEL), 1888, A., 182.  
 of aqueous solutions obtained from fresh animal organs (DR MATTEI), 1884, A., 199.  
 of sparteine sulphate (SÉE), 1886, A., 273.  
 of strontium salts (LABORDE), 1891, A., 99; 1892, A., 227.  
 of strophanthin (GLEF), 1888, A., 1326.  
 of strychnine (PLUGGE), 1884, A., 188; (DEMANT), 1886, A., 1054; (MAYS), 1888, A., 312; (LOVETT), 1888, A., 1217; (SCHLICK), 1891, A., 486.  
 of some substances in relation to diabetes (ALBERTONI), 1885, A., 683.  
 of sugars (ALBERTONI), 1891, A., 1526.  
 of sulphonal (GORDON), 1890, A., 542; (HAHN), 1891, A., 1523; (SMITH), 1892, A., 1507.  
 of sulphones (LAVES), 1892, A., 153.  
 of sulphur (SALKOWSKI), 1889, A., 432; (PRESCH), 1890, A., 812.  
 of tannic and gallic acids (MORNER), 1892, A., 904.  
 of tartar emetic (CHITTENDEN and CUMMINS), 1888, A., 77.  
 of the tetrahydronaphthylamine-compounds (BAMBERGER and FLEHNE), 1889, A., 737.  
 of tetrahydro-*p*-quinanisoil (ANON.), 1885, A., 1023.  
 of tetrahydro-*p*-quinanisoil sulphate (CHITTENDEN and STEWART), 1889, A., 534.  
 of thallium salts (BLAKE), 1890, A., 1452.  
 of thebaine, narcotine and their derivatives (STOCKMAN and DOTY), 1891, A., 762.  
 of certain therapeutic agents (CHITTENDEN and STEWART), 1889, A., 533.  
 of thymol (MAIRET, PILATTE and COMBEMALE), 1885, A., 1085.  
 of tin (WHITE), 1886, A., 1058.  
 of various tissues (HÉRICOURT and RICHERT), 1892, A., 228.  
 of toluidines (GIBBS and HARE), 1890, A., 1018.  
 of tolylenediamine (ENGEL and KRENER), 1888, A., 81; (GIBBS and REICHERT), 1891, A., 1281.  
 of trimethylamine (COMBEMALE and BRUNELLE), 1892, A., 366.  
 of trimethylvinylammonium hydroxide (CERVELLO), 1885, A., 925; 1888, A., 309.

**Physiological action** of tyrosine (BLUNDERMANN), 1883, A., 879; (COHN), 1890, A., 187.  
 of ulexine (BRADFORD), 1888, A., 1325.  
 of uranium salts (CHITTENDEN and HUTCHINSON), 1888, A., 78; (CHITTENDEN and LAMBERT), 1889, A., 537.  
 of uranyl nitrate (CHITTENDEN and CUMMINS), 1888, A., 77.  
 of urea (GRÉHANT and QUINQUAUD), 1884, A., 1398.  
 of valerian extract (BUTTE), 1891, A., 754.  
 of water (HENNEBERG), 1889, A., 287; (SCHÜNDORFF), 1891, A., 348; (DUBELIE), 1892, A., 904.  
 of wheaton gluten (CONSTANTINIDI), 1887, A., 511.  
 of xylene (GLEBITSCH and MOELLER), 1889, A., 708.  
 of yeast (NEUMAYER), 1891, A., 237.  
 of zinc sulphate (LEPETIT), 1886, A., 641.  
 See also Poisons, Poisoning and Toxicological investigations.  
**Physiological function**, relation between atomic weight and (SESTINI), 1885, A., 1150.  
 of maltose and sucrose (BOURQUELOT), 1884, A., 345.  
**Physiological oxidation** (NASSE), 1892, A., 1018.  
**Physiological significance** of gum (FRANK), 1885, A., 684.  
**Physiology**, chemical, applications of spectrophotometry to (LAMBLING), 1889, A., 73.  
 "Phytalbumose, insoluble" (MARTIN), 1886, A., 1065.  
**Phytochemical studies** (BRUNNER and CHUARD), 1886, A., 576.  
**Phytocollite** (LEWIS), 1883, A., 427.  
**Phytophagous larvae** and their pupæ, essential nature of the colouring of (POULTON), 1885, A., 1253.  
**Phytosterin** (*phytosterol*) (PASCHKIS), 1885, A., 291; (KERNSTEIN), 1890, A., 74; (SCHMIDT and KERSTEIN), 1890, A., 649; (GÉRARDI), 1892, A., 1294.  
**Paraphytosterin** (LIKIERNIK), 1891, A., 606.  
 See also Cholesterin.  
**Piaselenole** (HINSBERG), 1890, A., 160.  
 constitution of (HINSBERG), 1891, A., 394.  
 amido- (HINSBERG), 1890, A., 161.  
**Piaselenoles** (HINSBERG), 1889, A., 785; 1890, A., 972.

**Piazine**. See Pyrazine.  
**Piazothiole** (HINSBERG), 1890, A., 161.  
**Piazothioles** (HINSBERG), 1890, A., 972.  
**Picamar**, Reichenbach's, and its derivatives and potassium salt (PASTROVICH; NIEDERIST), 1883, A., 1004.  
*Picea vulgaris*, resin from (BAMBERGER), 1892, A., 205.  
**Picene** (LESPLEAU), 1892, A., 623.  
 boiling point of (SCHWEITZER), 1891, A., 1240.  
 iodo-hydride, and perhydride (LIEBERMANN and SPINGEL), 1889, A., 720.  
**Pickeringite** from Tarapaca (SCHULZE), 1891, A., 1436.  
**Picoline** (*methylpyridine*), commercial (LADENBURG and ROTU), 1885, A., 557.  
 spectrum of (HANTLEY), 1885, T., 719.  
*di*bromo- (LADENBURG), 1883, A., 672.  
 **$\alpha$ -Picoline** (*2-methylpyridine*) (HANTZSCH), 1883, A., 85; (LANGE), 1886, A., 256; (LADENBURG), 1887, A., 59; (STOEHR), 1891, A., 81.  
 preparation of  $\alpha$ - and  $\beta$ -pyridylactic acids from (EINHORN), 1892, A., 75.  
 action of chloral on (EINHORN and LIEBRECHT), 1887, A., 845.  
 behaviour of, with metallic salts (ORCHSNER DE CONINCK), 1885, A., 671.  
 derivatives of (LANGE), 1886, A., 256.  
*mono*-, *penta*- and *hexa*-chloro- (OST), 1883, A., 793.  
 4:6-*di*chloro- (COLLIE and MYERS), 1892, T., 725.  
 chloriodo- (OST), 1883, A., 793.  
 **$\beta$ -Picoline** (*3-methylpyridine*) (HENSEKIEL), 1886, A., 256; (LADENBURG), 1887, A., 59; 1890, A., 1432; 1891, A., 325; (STOEHR), 1888, A., 63; 1891, A., 219; (BACHÉ), 1888, A., 498; (SCHWARZ), 1891, A., 1092.  
 synthesis of (LADENBURG and SIEBER), 1890, A., 1394.  
 properties of (STOEHR), 1891, A., 579.  
 supposed optical rotatory power of (LANDOLT), 1886, A., 368.  
***p*-Picoline** (*4-methylpyridine*) (BEHRMANN and v. HOFMANN), 1885, A., 139; (LANGE), 1886, A., 256; (LADENBURG), 1887, A., 59; 1888, A., 498.  
 derivatives of (LANGE), 1886, A., 256.

- Picoline** hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1001.
- $\beta$ -Picolinebetaine**, and its salts (KRUGER), 1891, A., 942.
- 2-Picoline-4-carboxylic acid** (2-methylpyridine-4-carboxylic acid) (BORTINGER), 1884, A., 758.
- 4-Picolinetetracarboxylic acid** and its salts (HANTZSCH), 1883, A., 85.
- 2-Picoline-3:5:6-tricarboxylic acid** (WEBER), 1887, A., 1117.
- 4-Picoline-2:5:6-tricarboxylic acid** and its salts (BESTHORN and FISCHER), 1883, A., 600; (MICHAEL), 1885, A., 62; (FISCHER and TAUBER), 1885, A., 400.
- 4-Picoline-3:5:6-tricarboxylic acid** (WEBER), 1887, A., 1119; (V. MILLER), 1891, A., 1096.
- Picolinic acid** (2-pyridinecarboxylic acid) (OST), 1883, A., 794; (SKRAUP and COBENZL), 1883, A., 1015; (V. HOFMANN), 1884, A., 1201.
- distillation of salts of (BLAU), 1889, A., 1212.
- action of sodium amalgam on (WEIDEL), 1891, A., 734.
- chloro- [m.p. 180°] (SEYFFERTH), 1887, A., 157.
- [m.p. 168°] and dichloro-, and their salts (OST), 1883, A., 794.
- Picolylalkine**. See Hydroxyethylpyridine.
- Picolylethylalkine**. See Hydroxybutylpyridine.
- Picolylfurylalkine**. See Furfurylhydroxyethylpyridine.
- $\alpha$ -Picolylmethylalkine**. See  $\beta$ -Hydroxypropylpyridine.
- Picraconitine** (DUNSTAN and INCE), 1891, T., 272; (EHRENBERG and PURFÜRST), 1892, A., 1254.
- Picraena excelsa**, constituents of (MANUTE), 1890, A., 791.
- Picramic acid** (4:6-dinitro-2-amidophenol) and its salts (LIPPMANN and FLEISSNER), 1886, A., 791; (SMOLKA), 1888, A., 52.
- isoPicramic acid** (2:6-dinitro-4-amidophenol) and its derivatives (STEDLMANN), 1884, A., 308.
- Picramide** (2:4:6-trinitraniline), derivatives of (HEPP), 1883, A., 316.
- Picramidophenols**, o- and p- (TURPIN), 1891, T., 719.
- Picranalcime**. See Analcite.
- Picrasmic acid** and **picrasmin** (MASUTE), 1890, A., 792.
- Picrates**, heat of formation of (TSCHELZOFF), 1885, A., 1103; 1886, A., 841.
- Picrates**, heats of hydration and solution of (TSCHELZOFF), 1885, A., 1103.
- Picric acid** (2:4:6-trinitrophenol), bromination of (MACKERROW), 1892, A., 156.
- and other nitro-derivatives, explosive decomposition of (BERTHELOT), 1888, A., 216.
- colour reactions of (FLECK), 1887, A., 624.
- as a test for albumin and sugar in urine (JOHNSON), 1883, A., 1176.
- detection and estimation of (CHRISTEL), 1884, A., 221.
- Picric chloride**, action of, on amines in presence of alkali (TURPIN), 1891, T., 714.
- action of, on ethylic sodacetate (DITTRICH), 1890, A., 1418.
- Picrocarmin**, preparation of (GEDOLST), 1887, A., 1117.
- Picrocrocin**, from saffron (KAYSER), 1885, A., 60.
- Picro-epidote** (DAMOUR and DES CLOIZEAUX), 1885, A., 32.
- Picrolite** from Lower Silesia, analysis of (TRAUBE), 1886, A., 212.
- Picromerite** (*schonite*) (LUEDEKE), 1887, A., 1085.
- working up the mother-liquors from, in the production of kainite (VORSTER and GRUNEBERG), 1885, A., 306.
- Picropharmacolite** from Missouri (GENTH), 1891, A., 275.
- Picropodophyllie acid** and **picropodophyllin** (KURSFEN), 1891, A., 1134.
- Picrotin**, action of hydriodic acid and phosphorus on (OGGIALORO-TODARO and FORTE), 1892, A., 319.
- Picrotoxic acid** (OGGIALORO-TODARO and FORTE), 1892, A., 349.
- Picrotoxin** (SCHMIDT), 1884, A., 845; (BARTH and KRITSCHY), 1884, A., 846; (VAN DER MARCK), 1888, A., 848.
- detection of, in beer (PALM), 1888, A., 877.
- forensic chemical detection of, in animal liquids and tissues (CHLOPINSKY), 1885, A., 449.
- separation of (PALM), 1886, A., 284.
- Picrotoxininbenzoic anhydride** (SCHMIDT), 1884, A., 845.
- Picrylazo-**. See Azo-.
- Picryl-p-bromophenylhydrazine** (WILLGERODT and ELLON), 1891, A., 1361.
- Picryl-o-chlorophenylhydrazine** (WILLGERODT), 1891, A., 1043.

- Picryl-*m*-chlorophenylhydrazine** (WILLGERODT), 1890, A., 1119; (WILLGERODT and MUHR), 1892, A., 454.
- Picryl-*p*-chlorophenylhydrazine** (WILLGERODT), 1890, A., 1118; (WILLGERODT and BOHM), 1891, A., 905.
- Picrylheptadecylamine** (TURPIN), 1891, T., 715.
- Picrylhydrazine** (WILLGERODT and FERRO), 1888, A., 829.
- Picrylhydroxylamine** (MICHAEL and BROWNE), 1887, A., 663.
- Picryl- $\alpha$ -naphthylhydrazine** (WILLGERODT), 1890, A., 40.
- Picrylnaphthylhydrazines** (WILLGERODT and SCHULZ), 1891, A., 571.
- Picrylphthalimide** (SCHMIDT), 1890, A., 374.
- Picryl-*o*- and -*p*-tolylhydrazines** (WILLGERODT), 1890, A., 40.
- Piedmontite** (*manganese-epidote*) (KOTÉ), 1889, A., 25.  
from Sweden (FLINK), 1889, A., 221.
- Piezoelectricity of quartz** (HANKEL), 1883, A., 412, 950.
- Pig.** See Agricultural Chemistry.
- Pigeons.** See Agricultural Chemistry.
- Pig-iron.** See Iron.
- Pigment, black, of the choroid** (HIRSCHFELD), 1889, A., 788.  
cutaneous, as an antecedent of hæmoglobin (DELÉPINE), 1891, A., 480.  
yellow, in butterflies (HOPKINS), 1889, P., 117.
- Pigments of the Aplysiæ** (SAINT-LOUP), 1891, A., 96.  
bile-. See Bile.  
blood-. See Blood.  
blue, of the Crustaceæ (HEIM), 1892, A., 898.  
absorption spectra of (PIRHER), 1889, A., 325.  
cadmium, of commerce (BUCHNER), 1888, A., 221.  
of melanotic sarcomata (MORNER), 1887, A., 168; 1888, A., 518.  
muscle- (LEVY), 1889, A., 633; (HOPPE-SYLER), 1889, A., 1231.  
pathological (NEUMANN), 1888, A., 864.  
of the Peridinia (SCHÜTT), 1890, A., 1172.  
urinary. See Urine.
- Pile.** See Electrochemistry.
- Piliganine** (ADRIAN), 1886, A., 816; (ARATA and CANZONERI), 1892, A., 894.
- Pilocarpidine and its salts** (HARNAUK), 1886, A., 85; (HARDY and CALMELS), 1886, A., 725.
- Pilocarpidine, synthesis of** (HARDY and CALMELS), 1887, A., 1058.
- Pilocarpine** (HARDY and CALMELS), 1886, A., 1048.  
synthesis of (HARDY and CALMELS), 1887, A., 1057.  
decomposition of (HARDY and CALMELS), 1886, A., 900.  
action of bromine on (CHASTAING), 1884, A., 468.  
action of chlorine and iodine on (CHASTAING), 1885, A., 1081.  
influence of, on lactation (HAMMERBACHER), 1884, A., 1396; (CORNEVIN), 1892, A., 365.  
salts (HARDY and CALMELS), 1886, A., 725.  
alkyl-derivatives of (CHASTAING), 1885, A., 1250.  
ethiodide and ethobromide (CHASTAING), 1885, A., 1250.  
ferrocyanide (BECKURTS), 1890, A., 1318.  
hydrogen diaminochromium thiocyanate (CHRISTENSEN), 1892, A., 1001.  
iodo-, ethiodide of (CHASTAING), 1885, A., 1250.
- Pimaric acid and sylvic acid and the hydrocarbons therefrom** (LIEBERMANN), 1884, A., 1364; (HALLER), 1885, A., 1241.
- Pimaric acids, *d*- and *l*-, and their derivatives** (VESTERBERG), 1886, A., 365, 1038; 1888, A., 294.
- Pimelic acids** (BISCHOFF and JAUNSNICKER), 1891, A., 289.
- Pimelic acid** (*isopropylsuccinic acid*) [m.p. 103°] and its derivatives (WALTZ), 1883, A., 46; (ROSER), 1884, A., 423; (SCHLEICHER), 1892, A., 428.  
from camphoric acid (HJELT), 1884, A., 296.
- n*-Pimelic acid** [m.p. 105°] (PERKIN), 1887, T., 212.  
thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (STOHMANN and KLEBER), 1892, A., 1041.  
boiling points of (KRAFFT and NORDLINGER), 1889, A., 691.  
preparation of (PERKIN and PRENTON), 1891, T., 825.  
dissociation constant of (WALKER), 1892, T., 700.  
homologues of, synthesis of (PERKIN and PRENTICE), 1891, T., 818.
- Pimelic acid** [m.p. 102°-9 - 103°-9] from hydrochelidonic acid (HAITINGER and LIEBEN), 1885, A., 48.

- iso*Pinelic acid (BAUER), 1883, A., 998; (HELL), 1891, A., 1017.
- $\beta$ -Pinelic acid [m.p. 106°] amongst the oxidation products of castor oil (GANTTER and HELL), 1885, A., 44.
- $\gamma$ -Pinelic acid [m.p. 87°] from menthol (ARTH), 1888, A., 1273.
- Pinelic acid, imide of (ROSER), 1884, A., 423.
- Pinelimide, imido- (MARCKWALD), 1888, A., 678.
- Pinacoline (*methyl tert.-butyl ketone*), oxidation of (GLÜCKSMANN), 1890, A., 237.
- Pinacone (ELTEKOFF), 1883, A., 568.
- thio- (SPRING and VAN MARSENILLE), 1892, A., 1317.
- Pinakiolite from Sweden (FLINK), 1891, A., 404.
- Pines, presence of mannitol in the cambium sap of (KACHLER), 1886, A., 1062.
- Pine tree honey-dew and honey (WILEY), 1891, A., 412.
- Pine wood resin, a delicate reaction for (MORAWSKI), 1889, A., 660.
- Pineapple, mannitol in (LINET), 1884, A., 629.
- juice, ferments in (CHITTENDEN, JOSLIN and MEARA), 1892, A., 650.
- Pinene. See Terpenes.
- Pinite from Auvergne (BRUN), 1884, A., 403.
- from Madison Co., N. Carolina, analysis of (REESE), 1885, A., 130.
- $\beta$ -Pinite (*malezite*) (MAQUENNE), 1890, A., 244; (COMBES; GIRARD), 1890, A., 471.
- rotatory power of (COMBES; GIRARD), 1890, A., 471.
- Pinna squamosa*, blood of (GRIFFITHS), 1892, A., 649, 1016.
- Pinnaglobin, a globulin (GRIFFITHS), 1892, A., 1016.
- Pinnoite, a new borate from Stassfurt (STAUTE), 1884, A., 1271; 1885, A., 1117.
- Pinol. See Terpenes.
- Pinus Abies*, terpene from (KURILOFF), 1890, A., 789.
- terpenes from the resin of (KURILOFF), 1892, A., 625.
- Pinus Cembra*, dextrorotatory terpene from (FLAWITZKY), 1890, A., 789.
- Pinus khasyana*, turpentine oil from (ARMSTRONG), 1891, T., 311.
- Pinus Laricio*, resin from (BAMBERGER), 1892, A., 204.
- Pinus sylvestris*, phenol in the stem, leaves, and cones of (GRIFFITHS), 1884, A., 863.
- Pinus sylvestris*, pollen of (v. PLANTA), 1886, A., 91; (SCHULZE and v. PLANTA), 1886, A., 736; (KRESLING), 1892, A., 232.
- ash of the pollen of (FAMINTZIN and PRZYBYTEK), 1886, A., 172.
- Russian white resin from (SCHKATELOFF), 1889, A., 406.
- Pinylamine and pinylcarbamide (WALLACH and LORENTZ), 1892, A., 996.
- $\alpha$ -Pipecoline (*2-methylpiperidine*), (LADENBURG), 1887, A., 740.
- $\alpha$ -Pipecoline (*2-methylpiperidine*) and its derivatives (LADENBURG), 1884, A., 1054; 1887, A., 64; (LADENBURG and ROTH), 1885, A., 557.
- synthesis of (LADENBURG), 1884, A., 1054.
- specific rotation of (LADENBURG), 1887, A., 283.
- oxidation of (BUNZEL), 1889, A., 904.
- $\alpha$ -methylpiperylthiocarbamate (LADENBURG and ROTH), 1885, A., 557.
- $\beta$ -Pipecoline (*3-methylpiperidine*) and its derivatives (LADENBURG), 1884, A., 760; 1887, A., 64; (HESEKIEL), 1885, A., 812; (STOEHR), 1888, A., 63; 1892, A., 629.
- action of methylic iodide on (HESEKIEL), 1886, A., 257.
- bases (LELLMANN and BÜTTNER), 1890, A., 1003.
- $\gamma$ -Pipecoline (*4-methylpiperidine*) (LADENBURG), 1888, A., 499.
- Pipecolinic acid (*piperidine-2-carboxylic acid*), preparation of (LADENBURG), 1891, A., 735.
- Pipecolylalkine. See 2-Hydroxyethylpiperidine.
- Pipecolylethylalkine. See Hydroxybutylpiperidine.
- $\alpha$ -Pipecolylfurylalkine (*furfurylhydroxyethylpiperidine*) (KLEIN), 1890, A., 1437.
- $\alpha$ -Pipecolylmethylalkine. See  $\beta$ -Hydroxypropylpiperidine.
- Piper Betle*, oil of (BERTRAM and GILDEMEISTER), 1889, A., 863.
- "Piperazidin." See Diethylenediamine.
- Piperazine (*pyrazine hexahydride*) (MAJERT and SCHMIDT; v. HOFMANN), 1891, A., 169, 415; (LADENBURG), 1891, A., 416; (BISCHLER), 1891, A., 735; (SCHMIDT and WICHMANN), 1892, A., 210.
- non-identity of spermine with (MAJERT and SCHMIDT; v. POEHL), 1891, A., 538.

**Piperazine** (*pyrazine hexahydrate*) group, stereochemical studies in (BISCHOFF), 1890, A., 1331.  
*dichloro-* (SCHMIDT and WICHMANN), 1892, A., 211.  
*dimitroso-* (LADENBURG), 1891, A., 1333.  
 See also Diethylenediamine and Ethyleneimine.  
**"Piperethylalkine bromide."** See Vinylpiperidine, bromo-, hydrobromide of.  
**Piperhydraic acid.** See Piperonyl-valeric acid.  
**Piperic acid**, synthesis of (GABRIEL), 1890, A., 1129.  
 oxidation of (DOEBNER), 1890, A., 1274.  
**Piperidine** (*tetrahydropyridine*) (LELLMANN and SCHWADERMER), 1889, A., 901; (WOLFFENSTEIN), 1892, A., 1484.  
 series (LADENBURG), 1887, A., 740.  
 derivatives, synthesis of, and conversion of, into piperidine derivatives (LIPP), 1892, A., 1243.  
*iso***Piperidine** (HEUSLER), 1891, A., 556.  
**Piperidine** (*hexahydropyridine*) (ANON.), 1884, A., 945; (LADENBURG), 1886, A., 139; (DENNSTEDT), 1890, A., 1429.  
 from pentamethylenediamine (LADENBURG), 1886, A., 269.  
 in pepper (JOHNSTONE), 1890, A., 95.  
 synthesis of (LADENBURG), 1884, A., 760, 1054; (LADENBURG and ROTH), 1884, A., 1202; (GABRIEL), 1892, A., 717.  
 introduction of bivalent radicals into (RÜGHRIMER), 1891, A., 1216.  
 equilibrium between, and other basic substances (BERTHELOT), 1890, A., 1363.  
 spectrum of (HARTLEY), 1885, T., 731.  
 magnetic rotatory power of (PERKIN), 1889, T., 699, 733, 736.  
 thermochemistry of (COLSON), 1890, A., 101, 1368; (BERTHELOT), 1890, A., 1363.  
 action of alcohol on (DENNSTEDT), 1890, A., 1429.  
 action of bromine on, in alkaline solution (v. HOFMANN), 1883, A., 739.  
 action of chlorine on (BALLY), 1888, A., 964.  
 action of phosphoric chloride on (WALLACH and LEHMANN), 1887, A., 384.

**Piperidine** (*hexahydropyridine*), action of picric chloride on (TURPIN), 1891, T., 716.  
 action of, on calcium chloride (COLSON), 1891, A., 377.  
 oxidation of (SCHOTTEN), 1883, A., 813; 1885, A., 176; (TAFEL), 1892, A., 1104.  
 oxidation of, by hydrogen peroxide (WOLFFENSTEIN), 1892, A., 1484.  
 condensation of furfuraldehyde and (DE CHALMOT), 1892, A., 1452.  
 conversion of, into  $\delta$ -amidovaleric acid and into oxypiperidine (SCHOTTEN), 1888, A., 1104.  
 conversion of, into pyridine (v. HOFMANN), 1883, A., 813; (LELLMANN and GELLER), 1888, A., 970.  
**Piperidine**, derivatives of (LELLMANN and JUST), 1891, A., 1244.  
 synthesis of (MEHLING), 1887, A., 164; (PAAL and STRASSER), 1888, A., 62.  
 oxidation of (SCHOTTEN and SCHLÜMANN), 1892, A., 354.  
 benzyl derivatives of (LELLMANN and PEKRUN), 1891, A., 88.  
 chloridide (PIOTER and KRAFFT), 1892, A., 1357.  
 homologues, synthesis of (LADENBURG), 1884, A., 1054.  
 hydrochloride, magnetic rotatory power of (PERKIN), 1889, T., 716.  
 action of methylic alcohol on (LADENBURG), 1883, A., 1154.  
 hydroferrocyanide, crystalline form of (HORTDAHL), 1886, A., 522.  
 isomeride of (LADENBURG), 1883, A., 910.  
 silver salts (VARET), 1892, A., 1483.  
 thiocyanate (v. HOFMANN and GABRIEL), 1892, A., 1110.  
 $\gamma$ -truxillopiperidate (HERNSTEIN), 1889, A., 1213.  
 nitro- (FRANCHIMONT and KLOBBER), 1889, A., 1145.  
**Piperidine-bases** (LADENBURG), 1887, A., 64; (LELLMANN and BÜTTNER), 1890, A., 1002.  
 from acetone and aldehyde-ammonia (DUNKOPF), 1888, A., 1313.  
 conversion of pyridine bases into (LADENBURG), 1884, A., 760.  
 synthesis of (LADENBURG), 1884, A., 1195; 1885, A., 992; 1890, A., 67; 1891, A., 1092.  
 specific rotation of (LADENBURG), 1887, A., 164, 282.  
 behaviour of towards aromatic halogen compounds (LELLMANN and JUST), 1891, A., 1245.

- Piperidine-bases of the  $\beta$ -series (STOEHR), 1892, A., 628.  
 phenylated (BALLY), 1888, A., 65.  
 Piperidine-dyes (LACHOWICZ), 1888, A., 1314.  
 Piperidine*di*bromisatin (SCHOTTEN), 1891, A., 1491.  
 Piperidinecarboxylic acid (MARINO-ZUCCO), 1892, A., 85.  
 Piperidinecarboxylic acids (LADENBURG), 1891, A., 735; 1892, A., 1485, 1486; (LADENBURG and KARAU), 1892, A., 1486.  
 Piperidinic acid ( *$\gamma$ -amidobutyric acid*) and its salts (SCHOTTEN), 1883, A., 813; (GABRIEL), 1890, A., 360.  
 Piperidone (SCHOTTEN), 1888, A., 1105.  
 Piperidylacetoguanamine (BAMBERGER and SEEBERGER), 1892, A., 736.  
 Piperidylbenzylcarbamide (KUHN and RIESENFELD), 1892, A., 312.  
 Piperidylbenzylidenethyldiazine (KNORR), 1884, A., 468.  
 Piperidylbenzylthiocarbamide (DIXON), 1891, T., 568.  
 Piperidylcarbamide (FRANCHIMONT and KLOBBE), 1889, A., 1145.  
 Piperidylguanidine (BAMBERGER), 1891, A., 735; (BAMBERGER and SEEBERGER), 1891, A., 839; 1892, A., 735.  
 copper salt of (BAMBERGER and SEEBERGER), 1891, A., 839.  
 Piperidylethylurethane, action of bromine on (SCHOTTEN), 1883, A., 814.  
 Piperidylformoguanamine (BAMBERGER and SEEBERGER), 1892, A., 735.  
 Piperidylfurfuryl ethyl alcohol (KLEIN), 1890, A., 1437.  
 Piperidylhydrazine, and its derivatives (KNORR), 1884, A., 467.  
 Piperidylmethyleurethane and its nitrodehydro-derivative (SCHOTTEN), 1883, A., 814.  
 Piperidylloxamic acid (WALLACH and LEHMANN), 1887, A., 385.  
 Piperidylrhodamine (LELLMANN and BUTTNER), 1890, A., 1003.  
 Piperidyl-semicarbazide, semithiocarbazide and -thiocarbazide (KNORR), 1884, A., 468.  
 Piperidylthiocarbamides (GEBHARDT), 1885, A., 384.  
 Piperidyl-1-thiocarbaniide (LELLMANN and JUST), 1891, A., 1245.  
 Piperidyl-thiosinamine and - $\psi$ -thiosinamine (AVENARIUS), 1891, A., 549.  
 Piperno of the Collina del Vomero (FREDA), 1889, A., 222.  
 Pirohydro lactone and piperoketonic acid (WEINSTEIN), 1885, A., 664.  
 Piperon (CHODAT and CHUIT), 1890, A., 80.  
 Piperonal, derivatives of (HABER), 1891, A., 704.  
 bromo-, derivatives of (OELKER), 1891, A., 1474.  
 Piperonalaldoxime (MARCUS), 1892, A., 318.  
 bromo- (OELKER), 1891, A., 1475.  
 Piperonaloxime, 6-amido- (HABER), 1891, A., 706.  
 Piperonalphenylhydrazone (RUDOLPH), 1889, A., 252.  
 o-nitro- (HABER), 1891, A., 706.  
 Piperonenylaldoxime (MARCUS), 1892, A., 318.  
 Piperonenylaldoxime-ethenyl (MARCUS), 1892, A., 318.  
 Piperonyl, some derivatives of (PERKIN), 1891, T., 150; P., 27.  
 Piperonylacryl methyl ketone. See Piperonylvinyl methyl ketone.  
 Piperonylacrylic acid (PERKIN), 1891, T., 152.  
 action of nitric acid on (PERKIN), 1891, T., 153.  
 6-nitro-, 6-amido-, tetrabromo- and  $\alpha$ - and  $\beta$ -tribromo- (PERKIN), 1891, T., 153, 158, 160, 163; P., 27.  
 Piperonylethylene, tribromo- (PERKIN), 1891, T., 161; P., 27.  
 Piperonylideneamidodimethylaniline (NUTT), 1885, A., 784.  
 Piperonylketonic acid (CIAMICIAN and SILBER), 1890, A., 966.  
 hydrazone of (GARELLI), 1891, A., 711.  
 Piperonyllactyl methyl ketone. See  $\beta$ -Hydroxypiperonylethyl methyl ketone.  
 Piperonylnitrile (GARELLI), 1891, A., 711; (MARCUS), 1892, A., 318.  
 2-nitro- (HABER), 1891, A., 706.  
 Piperonyloin (PERKIN), 1891, T., 164.  
 Piperonylpropionic acid, bromo- (WEINSTEIN), 1885, A., 665.  
 Piperonylvinyl methyl ketone (*piperonylacryl methyl ketone*) (HABER), 1891, A., 705.  
 bromo- (OELKER), 1891, A., 1475.  
 o-nitro- (HABER), 1891, A., 705.  
 isoPiperonylvinyl methyl ketone (HABER), 1891, A., 705.  
 Piperonylvaleric acid (*piperhydraonic acid*) (BURI), 1883, A., 485.  
 dibromo-, and its derivatives (WEINSTEIN), 1885, A., 664.

- Piperpropylalkine.** See Hydroxypropylpiperidine.
- Piperylene.** See Pentinene.
- Pipette** for weighing fuming liquids (LUNGE and REY), 1892, A., 13.  
improved, for gas absorptions (GILL), 1892, A., 1124, 1374.
- Pipitzaholic acid.** See Perczone.
- Piscidin**, the active principle of Jamaica dogwood (HART), 1884, A., 332.
- Pistomesite** from the coal-measures (WEISS), 1886, A., 775.
- Pisum arvense***, composition of (NILSON), 1892, A., 522.  
cultivation of (MARCKER), 1884, A., 769.
- Pisum sativum***, composition of the seeds of (SCHULZE, SREIGER and MAXWELL), 1891, A., 1542.  
constituents of the seed pods of (LIKIERNIK), 1891, A., 606.  
nitrogen assimilation by (NOBBE, SCHMID, HILTNER and HOTTER), 1891, A., 1538.  
See also Agricultural Chemistry.
- "Pitch," brewer's, examination of (v. MILKOWSKI), 1891, A., 512.
- Pitch**, coal-tar, nitrogen in (SMITH), 1884, T., 146.
- Pitchblende.** See Uraninite.
- Pitchstone-porphyrite** (TEALL), 1884, A., 413.
- Pith parenchyma** (URBAIN), 1884, A., 861.
- Pithecolobium bigeminum*** and *P. Saman*, alkaloids from (GRESHOFF), 1891, A., 336.
- Pitticite** from Utah (GENTH), 1891, A., 275.
- Pituri**, physiological action of (LANGLEY and DICKINSON), 1890, A., 1178.
- Piuri.** See Purree.
- Plagioclase** from California (v. CHRUST-SHOFF), 1887, A., 20.  
from Chili, analysis of (ZIRGEN-SPECK), 1886, A., 214.  
from Parthalla Cove, Cornwall (COLLINS), 1887, A., 1022.  
from the Tynemouth dyke (TEALL), 1887, A., 784.  
artificial formation of (KOZIOROWSKI), 1890, A., 718.  
and scapolite minerals, chemical resemblance between (TSCHERMAK), 1884, A., 567.
- Plant.** See Agricultural Chemistry.
- Plantago Psyllium***, sugar obtained from (BAUER), 1889, A., 238.
- Plasma** and serum (WRIGHT), 1892, A., 1118.
- Plasmolysis** (DE VRIES), 1884, A., 1065.
- Plaster**, method of hardening (JULHE), 1885, A., 707.
- Plaster of Paris.** See Calcium sulphate.
- "Plastering," influence of, on the composition of wine (MAGNIER DE LA SOURCE), 1884, A., 646.
- Plastin** (ZACHARIAS), 1884, A., 90.
- Platinates** of the alkalis and alkaline earths (ROUSNEAU), 1889, A., 1125.
- Platinethylsulphine salts** (BLONSTRAND), 1889, A., 230.
- Platinibenzylsulphine** and **platinibutylsulphine chlorides** (LÜNDHAL), 1889, A., 368.
- Platinisobutylsulphine salts** (LÜNDHAL), 1889, A., 369.
- Platinic bromide** and **chloride.** See Platinum tetrabromide and tetrachloride.
- Platinidihydroxylamine salts** (ALEXANDER), 1888, A., 426.
- Platiniferous nickel ore** from Canada (CLARKE and CATLETT), 1889, A., 835.
- Platinimethylsulphine salts** (ENEBUSKE), 1889, A., 230.
- Platini-isopropylsulphine iodide** and **platinipropylsulphine salts** (RUDELIUS), 1889, A., 868.
- Platiniselenostannates** (SCHNEIDER), 1892, A., 282.
- Platinithiocyanates** (GUARESCHI), 1892, A., 286.  
of the alkaloids and amines (GUARESCHI), 1892, A., 287.
- Platinous chloride.** See Platinum dichloride.
- Platinum**, atomic weight of (HALBERSTADT), 1885, A., 355; (DITTMAR and McARTHUR), 1888, A., 425; (SEUBERT), 1888, A., 1043; 1891, A., 885.  
native, from Canada (HOFFMANN), 1889, A., 109.  
new substance in (WILM), 1883, A., 954.  
discovery of, in the sun (HUTCHINS and HOLDEN), 1887, A., 1065.  
thallium in (WARREN), 1887, A., 702.  
production of, in Russia (ANON.), 1885, A., 942.  
preparation and assaying of pure (MYLUS and FÖRSTER), 1892, A., 789.  
fused, comparative radiation of fused silver and (VIOLE), 1887, A., 1010.  
electric properties of, when containing hydrogen (FROMME), 1883, A., 763.

**Platinum**, electric resistance of (LE CHATELIER), 1891, A., 5.  
 glowing, disintegration of (KAYSER), 1888, A., 1014.  
 occlusion of hydrogen by (NEUMANN and STREINTZ), 1892, A., 567.  
 absorption of gases by (BERTHELOT), 1884, A., 702.  
 absorption of oxygen by (NEUMANN), 1892, A., 943.  
 action of chlorine and carbonic oxide on (PULLINGER), 1891, T., 598.  
 action of incandescent, on gases and vapours (HODGKINSON and LOWNDES), 1889, A., 20, 208.  
 action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 663.  
 action of silicon on (WARREN), 1889, A., 1125.  
 behaviour of, in chromic and nitric acids (FROMME), 1883, A., 698.  
 reducing action of hydrogen in presence of (COOKE), 1888, A., 1245.  
 obtaining very sensitive, spongy (WARREN), 1891, A., 1321.  
 lowering of the freezing points of bismuth, cadmium and lead by (HEYCOCK and NEVILLE), 1892, T., 896, 901, 909.  
**Platinum-black**, preparation of very active (LOWE), 1890, A., 453.  
 absorption of mercury vapour by (IHMORI), 1886, A., 766.  
**Platinum alloys**, certain generic, electrical relations of (BARUS), 1889, A., 201.  
 with gold, liquation of (MATTHEY), 1890, A., 947.  
 with iron and copper (MAUMENÉ), 1887, A., 778.  
 with tin (DEBRAY), 1887, A., 779.  
**Platinum compounds**, ammoniacal (COSMA), 1887, A., 642.  
 with arsenic (TIVOLI), 1885, A., 728.  
 volatile (PULLINGER), 1891, T., 598; P., 111.  
 bromonitro-compounds of (VEZES), 1891, A., 807; 1892, A., 280.  
 carbides formed at comparatively low temperatures (GRIFFITHS), 1885, A., 487.  
 iodonitro-compounds of (VEZES), 1892, A., 280.  
 nitrogen compounds of (VEZES), 1892, A., 1283.  
 salts, double, constitution of (JORGENSEN), 1886, A., 857.  
 basic salts of (PROST), 1886, A., 987.

**Platinum dibromide**, action of carbonic oxide on (PULLINGER), 1891, T., 603.  
*tetrabromide (platinic bromide)* and its compounds, heat of formation of (PIGEON), 1892, A., 3.  
*dichloride (platinous chloride)* (SHENSTONE and BECK), 1892, T., 445; P., 70.  
 use of, as a source of chlorine (SHENSTONE and BECK), 1892, T., 445; P., 70.  
*tetrachloride (platinic chloride)* (ENGEL), 1889, A., 20; (PIGEON), 1889, A., 834.  
 anhydrous (PULLINGER), 1892, T., 422; P., 54.  
 testing the purity of (HOLLEMAN), 1892, A., 1526.  
 and its compounds, thermochemistry of (PIGEON), 1891, A. 966.  
 heat of formation of (PIGEON), 1890, A., 439.  
 electrolytic conductivity of (HAMPE), 1888, A., 891.  
 decomposition of, in solution (FOUSSERAU), 1886, A., 975.  
 compounds of, with hydrogen chloride (PIGEON), 1891, A., 1325.  
*tetrafluoride* (MOISSAN), 1890, A., 217.  
*phosphorus fluoride* (MOISSAN), 1891, A., 1438.  
*hydroxides* (PROST), 1886, A., 987.  
**Platinic hydroxide**, action of, on tungstates (ROSENHEIM), 1891, A., 1328.  
**Platinum hydroxyarsenide** (TIVOLI), 1885, A., 728.  
*phosphides* (CLARKE and JOSLIN), 1884, A., 400.  
*potassium salts*. See Potassium platinum salts.  
*silicide* (MEMMINGER), 1886, A., 124; (MILES), 1887, A., 450.  
*sodium salts*. See Sodium platinum salts.  
*tin compounds* (SCHÜTZENBERGER), 1884, A., 823.  
*thiocarbide* (SCHÜTZENBERGER), 1891, A., 19.  
*thiocyanate* (GUARESCHI), 1892, A., 286.  
**Platinum, estimation and separation**:—  
 native, analysis of (WILM), 1886, A., 181.  
 estimation, electrolytic, of (CLASSEN), 1885, A., 191; (SMITH), 1891, A., 1140.

**Platinum, separation:—**

- separation of, from antimony, arsenic and tin (FRIESENHUS), 1886, A., 651.
- separation of gold and, from antimony, arsenic and tin (DE KONINCK and LECRENIER), 1888, A., 1344.
- separation, electrolytic, of, from cadmium, gold, silver, and from mercury (SMITH and MUHR), 1891, A., 1396.
- separation of, from the rare metals (PIRNGRUBER), 1888, A., 656.
- separation, electrolytic, of, from silver (SMITH and MUHR), 1891, A., 1296.
- Platinum-metals**, atomic weights of (SEUBERT), 1891, A., 885.
- chemistry of (WILM), 1883, A., 1057.
- alloy, explosive, with zinc (SAINT-CLAIRE DEVILLE and DEBRAY), 1883, A., 19.
- alloys, products of the action of acids on (DEBRAY), 1887, A., 900.
- detection and estimation of the, in presence of other metals (JOLY and LEIDIE), 1891, A., 1554.
- separation of, from gold (BETTEL), 1887, A., 1084.
- Platinum nugget**, a remarkable (COLLIER), 1883, A., 426.
- Platinum ore**, magnetic property of (WILM), 1883, A., 859.
- Platinum thermometer**. See Thermometer under Thermochemistry.
- Platinum residues**, a black powder obtained from (WILM), 1883, A., 1057.
- Platinum vessels**, permeability of, to gases from flames (MOUSE and BURTON), 1888, A., 652.
- action of lithium carbonate on (DIRTMAN), 1884, A., 1071.
- Platinum-water pyrometer** (Hoadley), 1883, A., 769.
- Platoso-ammonium carbonate**, -diammonium carbonate and -diammonium nitrate (DRECHSEL), 1883, A., 28.
- Platoso-benzylsulphine**, -butylsulphine and -isobutylsulphine salts (LONDAUL), 1889, A., 368.
- Platoso-diethylenediamine chloride** and -ethylenediamine-amine chloride (JORGENSEN), 1889, A., 352.
- Platosodihydroxylamine hydroxide** and salts (ALEXANDER), 1888, A., 426.
- Platosodipyridine bromide** and chloride (FOERSTER), 1892, A., 352.
- Platoso-ethylmethylsulphine chloride**, -ethylpropylsulphine chloride and -ethylsulphine salts (BLOMSTRAND), 1889, A., 280.

- Platosoethylpropylsulphine iodide** (RUDELIIUS), 1889, A., 368.
- Platosomethyl disulphine** and -sulphine salts (ENERTSKI), 1889, A., 229.
- Platoso-oxalic acid** (SÖDERBAUM), 1886, A., 532.
- Platoso-propylisopropylsulphineiodide**, -propylsulphine salts and -isopropylsulphine salts (RUDELIIUS), 1889, A., 367.
- Platosopyridine dibromide** and chloride (FOERSTER), 1892, A., 352.
- Platosemiamine chloride** (CONSA), 1890, A., 1218.
- Platosemiediethylenediamine chloride** (JORGENSEN), 1889, A., 351.
- Platosemipyridine chloride** (FOERSTER), 1892, A., 352.
- Plattnerite** (KINCH), 1887, A., 451.
- from Idaho (WHEELER), 1890, A., 339.
- Pleochroic crystals**, explanation of the colour phenomena of (VOIGT), 1885, A., 621.
- Pleonectite** from Sweden (IGELSTROM), 1890, A., 112.
- Plessite** from the Welland meteoric iron (DAVISON), 1892, A., 24.
- Pleurasite** (IGELSTROM), 1890, A., 1076.
- Pleurisy**, nature of the effusion in (HALLIBURTON), 1890, A., 1173.
- Plumbo-aragonite** from Leadhills (COLLIE), 1889, T., 95.
- Plumbocalcite** from Leadhills (COLLIE), 1889, T., 95.
- from Wanlock Head (LACROIX), 1887, A., 557.
- Plumboferrite** from Sweden (IGELSTROM), 1891, A., 1435.
- Plumbonacrite**. See Hydrocerussite.
- Plum-gum**, galactose from (BAUER), 1888, A., 1329.
- Plums**, sugar from the pectin of (BAUER), 1891, A., 413.
- Plutonic rocks**. See Rocks.
- Plyntite**, from Skye (HILDER), 1886, A., 130.
- Pneumococcus* of Friedlander, fermentations induced by (FRANKLAND, STANLEY and FREW), 1891, T., 253; P., 30.
- Pneumonia**, ptomaine of (GRIFFITHS), 1892, A., 1258.
- Poupratensis*, composition of (WILSON), 1889, A., 1078.
- Podophyllic acid**, podophylloquercetin and podophyllotoxin (KURSTEN), 1891, A., 1133.
- Pogonopus febrifugus*, constituents of the bark of (ARATA and CANZONERI), 1890, A., 404.

- Poisons**, distribution of, in the human organism in cases of poisoning (BISCHOFF), 1883, A., 1020.  
 gaseous, action of (BELKY), 1887, A., 392.  
 influence of temperature on the action of (HESS and LUCHSINGER), 1885, A., 578.  
 action of, on nerve fibres and peripheral nerve cells (LANGLEY and DICKINSON), 1891, A., 435.  
 vegetable, influence of, on the germination of seeds (CORNEVIN), 1892, A., 228.  
 organic and inorganic, detection and estimation of, in corpses (SEYDA), 1891, A., 117.
- Poisons** of batrachians (GAUTIER and ETARD), 1884, A., 764.  
 cobra (WOLFENDEN), 1886, A., 1057; (WARDEN), 1887, A., 170; (KANTHACK), 1892, A., 1118.  
 of *Mytilus Edulis* (SALKOWSKI), 1886, A., 568.  
 crystalline arrow, from the wood of ouabaio (ARNAUD), 1888, A., 848.  
 proteid (MARTIN), 1889, A., 1026.  
 quinine as a protoplasmic (BINZ), 1891, A., 1531.  
 rattlesnake, antidote for (CROFT), 1883, A., 104.  
   preventive inoculation with (SEWALL), 1888, A., 1326.  
 septic, origin of (ZWEIFEL), 1883, A., 937.  
   hemoglobin crystals in (BOND), 1883, A., 181.  
 snake (WOLFENDEN), 1886, A., 1057.  
 of the tetrodon (EIJKMAN), 1886, A., 1049.  
 of "Timbo" (PFAFF), 1891, A., 938.  
 volatile, in urushi (YOSHIDA), 1883, T., 475.  
 of Indian viper (WOLFENDEN), 1886, A., 1053.
- Poisoning cases**, destruction of organic matter in (MARINO-ZUCO), 1889, A., 653.  
 colchicine-like decomposition-product in suspected (BAUMERT), 1888, A., 636.  
 detection of conine in (ANDREWS), 1891, A., 871.  
 methods of detecting lead, silver and mercury in the body in (LEHMANN), 1883, A., 687.  
 detection of mercuric cyanide in (VITALI), 1890, A., 198.  
 detection of morphine in (SCHEIBE), 1883, A., 1036; 1884, A., 373.
- Poisoning cases**, detection of strychnine and other alkaloids in (CHANDELON), 1885, A., 605.  
 localisation of arsenic in (GUARESCHI), 1884, A., 199.  
 estimation of arsenic in (BECKURTS), 1885, A., 439.  
 estimation of arsenic and copper in (GUCCI), 1888, A., 630.
- Poisoning** by antimony, distribution of antimony in the organs and tissues in (CHITTENDEN and BLAKE), 1888, A., 81.  
 with a barium salt, localisation of barium in the organism after (LINOSSIER), 1888, A., 183.  
 by canned goods (JOHNSON), 1885, A., 1016.  
 by carbonic oxide (BELKY), 1887, A., 392; (GRÉHANT), 1888, A., 622.  
   partial, elimination of carbonic oxide after (GRÉHANT), 1886, A., 641.  
   new test for the blood in (KATAYAMA), 1889, A., 88, 650; (RUBNER), 1891, A., 496; (BERTIN-SANS and MOITESSIER), 1891, A., 1522.  
 by caustic alkalis, detection of (VITALI), 1888, A., 1224.  
 by hydrocyanic acid (BISCHOFF), 1883, A., 1022; (BELKY), 1887, A., 392; (GRÉHANT), 1889, A., 1232.  
   applied to the surface of the eye (GRÉHANT), 1891, A., 99.  
   dextrose and lactic acid in (ZILLESSEN), 1891, A., 1126.  
   antidote for (KROHL), 1892, A., 1019.
- by lead (LEHMANN), 1883, A., 1163; (ELLENBERGER and HOFMEISTER), 1885, A., 74.  
   distribution of lead in the brain in cases of (BLYTH), 1887, P., 71.  
 by mercuric chloride (FALKENBERG), 1891, A., 853.  
 by sausages (EIRENBERG), 1887, A., 392.  
 by tolylenediamine, formation and elimination of a ferruginous pigment in (ENGEL and KIENER), 1888, A., 81.  
 See also Physiological action and Toxicological investigations.
- Polarisation**. See Electrochemistry and Photochemistry.
- Polei**, oil of (BECKMANN; PLEISSNER), 1891, A., 936.
- Pollen** of *Coryllus Avellana* (SCHULZE and v. PLANTA), 1886, A., 736.  
 hazel, chemical composition of (v. PLANTA), 1885, A., 182.

- Pollen of *Pinus sylvestris* (V. PLANTA)**, 1886, A., 91; (SCHULZE and V. PLANTA), 1886, A., 736; (KRESLING), 1892, A., 232.  
ash of (FAMINTZIN and PRZYBYTEK), 1886, A., 172.
- Pollucite from Elebron, Maine (WELLS)**, 1891, A., 993.
- Polyacetylene-compounds (V. BAEYER)**, 1885, A., 759, 1198.
- Polyarsenite**. See Sarcinite.
- Polyazo-compounds (WILLGERODT)**, 1890, A., 1118.
- Polycarboxylic fatty acids, synthesis of (AUWERS)**, 1891, A., 546.
- Polychrome varnish for white metal (PUSCHER)**, 1882, A., 896.
- Polycoumarins (HANTZSCH and ZURCHER)**, 1887, A., 830.
- Polycrase from California (HIDDEN and MACKINTOSH)**, 1890, A., 854.  
of North and South Carolina (HIDDEN and MACKINTOSH), 1891, A., 1329.
- Polydymite (LASPEYRES)**, 1892, A., 124.
- Polygalic acid (FUNARO)**, 1890, A., 262.
- Polygonic acid (RADEMAKER)**, 1886, A., 949.
- Polyhydrite from St. Christoph mine, in Saxony (STARKL)**, 1883, A., 444.
- Polyiodides (GEUTHER)**, 1887, A., 910.  
crystallographic examination of (LUBNECKE), 1887, A., 910.
- Polyketones, passivity of certain, to hydroxylamine and phenylhydrazine (HEZIG and ZEINEL)**, 1889, A., 254.
- Polyolithionite from Greenland (LORENZEN)**, 1886, A., 677.
- Polymeric compounds, determination of the molecular weights of, by Raoult's method (MELDOLAI and SPREAFELDO)**, 1889, A., 1105.
- Polymerism in mineral chemistry (HUNI)**, 1891, A., 258.  
and isomerism, use of Raoult's method, to distinguish between (ANSCHUTZ), 1889, A., 754.
- Polymethylenes and naphthones (MARKOWNIKOFF)**, 1892, A., 1310.
- Polymnestum (PRINGLE)**, 1887, A., 107.
- Polyoxides, constitution of (GEUTHER)**, 1884, A., 1260.
- Polyporus officinalis*, constituents of (JAHNS)**, 1884, A., 353.
- Polypus of the nose, analyses of (PATEIN)**, 1891, A., 852.
- Polysulphides, constitution of (BOTTEGER; GEUTHER)**, 1884, A., 1260.
- Polythionates (SPRING)**, 1892, P., 91.  
formulae of (DEBUS), 1888, T., 351.
- Polythionates, action of sulphurous acid on (DEBUS)**, 1888, T., 331; P., 18.  
general reactions of (DEBUS), 1888, T., 298.
- Polythymoquinone, and its derivatives (LIEBERMANN and V. LINSKI)**, 1886, A., 239.
- Pomegranate, medicinal properties of the root bark of (KAMNITZER)**, 1885, A., 850.
- Poplar wood, yellow colouring matter from (ANON.)**, 1886, A., 558.
- Poppy cake, estimation of fat in (BAESLER)**, 1890, A., 306.
- Poppy oil, acid, from (HAZURA and FRÜSSNER)**, 1888, A., 817.
- Porcelain (WAGENER)**, 1883, A., 397.  
Chinese, rocks used in the manufacture of (VOGT), 1890, A., 461.  
constitution of (WERNADSKI), 1890, A., 1074.  
moulding of (LAURH), 1885, A., 307.
- Porcelain enamels (WAGENER)**, 1883, A., 397; (LAURH and DUTAILLY), 1889, A., 214.
- Porous bodies, density of (WLEURY)**, 1885, A., 334.
- Porpezite (native palladium-gold) from Tagauril, Brazil (SEAMON)**, 1883, A., 160.
- Porphyrite, micaceous, of Morvan (MICHEL-LÉVY)**, 1883, A., 447.  
Tuedian, from Stiehl, analysis of (TEALL), 1884, A., 413.
- Porphyrite-bosses in New Jersey (KEMP)**, 1890, A., 345.
- Porphyrites, Cheviot (TEALL)**, 1884, A., 413.  
of Gabian (DE ROUVILLE and DELAGE), 1889, A., 110.
- Porphyritic obsidian, analysis of (BEAM)**, 1884, A., 28.
- Porphyry from Horka, Prussia (STEGGER)**, 1887, A., 223.  
from the Lago district (HARADA), 1883, A., 17.  
tuff near Tryberg in the Black Forest (WILLIAMS), 1883, A., 725.
- Porpoise, composition of the milk of the (PURNIP)**, 1885, A., 1253.
- Portland cement, effect of magnesia in (LECHARTIER)**, 1886, A., 770.  
testing of (ANON.), 1883, A., 753.  
adulteration (MICHAELIS), 1883, A., 530; (K. and W. FRESSENIUS), 1885, A., 616.  
detection of adulteration in (FRESSENIUS), 1884, A., 876.
- Potable waters**. See under Water.
- Potash**. See Potassium hydroxide.
- Potash alum**. See Potassium alum.

- Potash apparatus.** See Analysis, organic.
- Potash felspar.** See Orthoclase.
- Potash liquors,** Stassfurt, working up of (FISCHER), 1887, A., 1079.
- Potash-soda-felspar,** triclinic (*anorthoclase*; *microcline*) (WILK), 1884, A., 970.
- Potash-soda-felspars** of Silesia (BEUTELL), 1885, A., 31.
- Potassammonium** (JOANNIS), 1890, A., 210, 560; (ROOZEBOOM), 1890, A., 450; (MOUTIER), 1890, A., 679.  
heat of formation of (JOANNIS), 1890, A., 319.  
reaction of, on metals (JOANNIS), 1892, A., 275.
- Potassiovanadyl fluorides** (PETERSEN), 1889, A., 1123.
- Potassium,** production of (CASTNER), 1887, A., 107.  
condition of, in soils, plants and moulds (BERTHELOT and ANDRÉ), 1888, A., 190.  
rôle of, in plants (LUPKE), 1890, A., 917.  
molecular weight of (RAMSAY), 1889, T., 530, 533.  
spectrum of (KAYSER and RUNGE), 1891, A., 137.  
wave length of the two red lines in the spectrum of (DESLANDRES), 1888, A., 637.  
phosphorescence of (CROOKES), 1887, A., 1068.  
boiling point of (PERMAN), 1889, T., 326; P., 78.  
lowering of the freezing point of, by the addition of other metals (HEYCOCK and NEVILLE), 1889, T., 676.  
influence of, on the freezing point of sodium (HEYCOCK and NEVILLE), 1889, T., 674.  
action of carbonic oxide on (NIETZKI and BENCKISER), 1885, A., 1127.  
action of chlorine on (COWPER), 1883, T., 155.
- Potassium alloy** with lead (JOANNIS), 1892, A., 773.  
with mercury (JOANNIS), 1892, A., 275.  
with sodium (JOANNIS), 1888, A., 1238.
- Potassium salts,** magnetic rotation of (PERKIN), 1890, P., 142.  
molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 595.  
containing sulphur, heats of formation of (BERTHELOT), 1883, A., 706.
- Potassium salts,** organic, electrolysis of solutions of (LASSAR-COHN), 1889, A., 1056.  
action of ammonia on solutions of (GIRAUD), 1885, A., 1038.  
physiological action of (RICHTER), 1886, A., 88; (BLAKE), 1886, A., 385.
- Potassium alum** (*potash alum*) from felspar (PEMBERTON), 1883, A., 424.  
combination of, with water (MAUMENÉ), 1886, A., 981.
- Potassium anhydrosulphite** (BERTHELOT), 1883, A., 705.  
antimonate (v. KNORRE and OLSCHESKY), 1888, A., 231.  
electrolysis of, with carbon electrodes (BARTOLI and PAPANOGLI), 1883, A., 590; 1889, A., 559.  
arsenate, action of, on sesquioxides (LEFFEVRE), 1890, A., 1377.  
behaviour of, with indicators (THOMSON), 1884, A., 869.  
aluminium, chromium, and iron arsenates (LEFFEVRE), 1890, A., 1378.  
cadmium, cobalt, magnesium, manganese, nickel and zinc arsenates (LEFFEVRE), 1890, A., 562.  
arsenite, behaviour of, with indicators (THOMSON), 1884, A., 870.  
beryllate (KRÜSS and MORANT), 1890, A., 698.  
bismuthate (ANDRÉ), 1892, A., 414.  
bromate, testing of (VULPIUS), 1884, A., 218.  
bromide, chlorine in (WEIGLE), 1885, A., 723.  
action of sulphuric acid on (ADDYMAN), 1891, P., 168; 1892, T., 91.  
influence of, on nutrition (SCHULZE), 1884, A., 850.  
as indicator in chlorimetry (DENIGES), 1891, A., 615.  
and chloride, solubility of mixed (ETARN), 1890, A., 443.  
and iodide, solubility of mixed (ETARN), 1890, A., 443.  
and iodide, compounds of arsenious anhydride with (SCHIFF and SESTINI), 1885, A., 723.
- gold bromide** (*aurobromate*) (SCHOTTLÄNDER), 1883, A., 854; 1887, A., 1079.  
preparation of pure (THORPE and LAURIE), 1887, T., 868.
- lead bromide** (HERTY), 1892, A., 780.
- magnesium bromide** (LÉRCH), 1884, A., 262; (FRIT), 1889, A., 827.

**Potassium** antimony chlorobromide (ATKINSON), 1883, T., 289.  
 crystallography of (SOLLA), 1883, T., 293.  
 carbonate (FLUCKIGER), 1883, A., 902.  
 reduction of, by magnesium (WINKLER), 1890, A., 332.  
 pure, action of silver nitrate on (BOHLIG), 1885, A., 1111.  
 testing (BOHLIG), 1888, A., 1224.  
 copper carbonate solution, estimation of sugars with (OST), 1890, A., 1031; 1891, A., 125, 1298; (SCHMÖGGER), 1892, A., 387.  
 hydrogen carbonate, conversion of potassium chloride into (MULLER), 1885, A., 1038.  
 sensitive test for, in presence of carbonate (BOHLIG), 1885, A., 1111.  
 estimation of, in presence of normal carbonate (THOMSON), 1884, A., 869.  
 silver carbonate (DE SCHULTEN), 1888, A., 110.  
 sodium carbonate (HUGOUNENQ and MORRE), 1888, A., 786.  
 sesquicarbonate (RAMMELSBERG), 1883, A., 646.  
 chlorate (BECKURTS), 1886, A., 664.  
 preparation of (MUSPRATT and ESCHSELLMANN), 1885, A., 17.  
 electrolysis of (TOMMASI), 1886, A., 408.  
 crystals, crystalline reflection in (STOKES), 1885, A., 1175.  
 solubility of, influence of potassium salts on the (BLAREZ), 1891, A., 1319.  
 and thallium chlorate, solubility of mixed crystals of (ROOZEBOOM), 1892, A., 266.  
 and iodine, interaction of (THORPE and PERRY), 1892, T., 925, P., 161.  
 iodine and water, interaction of (BASSETT), 1890, T., 760; P., 113.  
 decomposition of, by heat (TEEN), 1885, P., 105; 1886, P., 141; 1887, T., 285; P., 23; (MAUMENE), 1886, A., 594; (FRANKLAND and DINGWALL), 1887, T., 274; P., 14; (MILLS), 1887, A., 767.  
 decomposition of, by heat in presence of manganese peroxide (McLEOD), 1889, T., 184; P., 26.  
 decomposition of, in contact with metallic oxides (HODGKINSON and LOWNDES), 1889, A., 343.

**Potassium** chlorate, influence of different oxides on the decomposition of (FOWLER and GRANT), 1890, T., 272; P., 20.  
 physiological action of (v. MERING), 1885, A., 1002.  
 poisoning with (BISCHOFF), 1883, A., 1021.  
 arsenic in (GARNIER), 1886, A., 99.  
 estimation of, in organic mixtures (SCHACHT; SCHWARZ), 1886, A., 179.  
 perchlorate, action of heat on (MILLS), 1887, A., 767.  
 decomposition of, by heat (FRANKLAND and DINGWALL), 1887, T., 274; P., 14.  
 chloride, doubly refracting crystals of (BEN SAUDE), 1886, A., 206.  
 electrical conductivity of solutions of (BOURY), 1886, A., 653.  
 expansion, compressibility and specific heat of solutions of (DRECKEN), 1888, A., 1010.  
 compressibility of aqueous solutions of (RÖNTGEN and SCHNEIDER), 1888, A., 1019.  
 action of carbonic anhydride on, in presence of various amines (MULLER), 1886, A., 1038.  
 action of crude methylamine carbonate on, influence of pressure and temperature on the (MULLER), 1887, A., 771.  
 as a plant poison (MUNRO), 1886, A., 389.  
 use of, in agriculture (ZOLLA), 1885, A., 588.  
 crude, estimation of small quantities of sodium chloride in (RÖTTGER and PRECHT), 1885, A., 1263.  
 and bromide, solubility of mixed (ETARD), 1890, A., 113.  
 and iodide, solubility of mixed (ETARD), 1890, A., 413.  
 and copper dichloride, saturated solutions of compounds of (MEYERHOFER), 1890, A., 584.  
 and sodium chloride, solubility of mixed (ETARD), 1890, A., 103, 412.  
 and sodium chlorides, polaristropic analysis of a mixture of (SCHUTT), 1888, A., 1341.  
 See also Sylvite.  
 aluminium chloride (NEUMANN), 1888, A., 655.  
 bismuth chloride (BRIGHAM), 1892, A., 788.  
 chromium chloride (GODEFROY), 1884, A., 660.

- Potassium** copper chloride, reversible transformation of (MEYER-HOFFER), 1889, A., 819.  
 and its solutions, vapour pressure of (VRIËNS), 1891, A., 783.  
 gold chloride, anhydrous (LAINER), 1890, A., 1217.  
 iridium chloride (JULY), 1890, A., 1068.  
 manganese chloride (SAUNDERS), 1892, A., 781.  
 osmium chloride (SEUBERT), 1888, A., 922.  
 rhodium chloride (LEIDIE), 1890, A., 1382; (SEUBERT and KOBBE), 1890, A., 1383.  
 thallium chloride (RAMMELSBURG), 1883, A., 424.  
 chromates (JÄGER and KRÜSS), 1889, A., 1119.  
 chromate, absorption spectra of (SABATIER), 1886, A., 839.  
 artificial formation of twin crystals of, by increase of temperature (BAUMHAUER), 1886, A., 17.  
 dichromate (LUTTON), 1888, P., 82.  
 manufacture of (WACHTEL), 1885, A., 846.  
 influence of, on the decomposition of potassium chlorate (FOWLER and GRANT), 1890, T., 280.  
 reduction of, by oxalic acid (BOTHAMLEY), 1887, P., 141; 1888, T., 159; (VERNER), 1887, P., 142; 1888, T., 405, 602; P., 33, 53.  
 as an antiseptic (LATJORROIS), 1885, A., 704.  
 lead chromates (LACHAUD and LEPIERRE), 1890, A., 1065.  
 manganese chromate (HENSSEN), 1886, A., 426.  
 thallium chromate (LACHAUD and LEPIERRE), 1892, A., 568.  
 chlorochromate, decomposition of, by heat (OUDEMANS), 1886, A., 854.  
 fluochromate, effect of heat on (GORE), 1885, A., 1114; (OUDEMANS), 1886, A., 855.  
 ferrate, preparation of, as a lecture experiment (MERMET), 1887, A., 769.  
 ferrite, crystallised hydrated (ROUSSEAU and BERNHEIM), 1888, A., 1252.  
 fluorides, heat of formation of (GUNTZ), 1884, A., 5.  
 fluoride, compounds of, with fluorides of heavy metals (WAGNER), 1886, A., 670.
- Potassium** fluoride, hydrofluorides of (MOISSAN), 1888, A., 553.  
 aluminium fluoride (DUBOIS), 1892, A., 1162.  
 chromium and iron fluorides (CHRISTENSEN), 1887, A., 448.  
 cobalt and nickel fluorides (POULENC), 1892, A., 781.  
 germaniofluoride (KRÜSS and NILSON), 1887, A., 704; (WINKLER), 1887, A., 1083.  
 hydrogen fluoride, preparation of (THORPE and HAMBLY), 1889, T., 166.  
 in solution (GUNTZ), 1884, A., 704.  
 manganese fluorides (CHRISTENSEN), 1887, A., 336.  
 niobium fluoride, reduction of, with sodium (KRÜSS and NILSON), 1887, A., 706.  
 titanium fluoride (PICCINI), 1886, A., 670.  
 fluoroxyhypomolybdates (MATRO), 1890, A., 703.  
 fluoroxy-hypovanadate and -vanadate (PICCINI and GIORGIS), 1892, A., 786.  
 fluoroxyuranate (SMITHELLS), 1883, T., 130.  
 halogen salts, molecular refraction of (WEGNER), 1890, A., 549.  
 action of air, silica and kaolin on (GORGEU), 1886, A., 664.  
 hydroxide (*caustic potash*), preparation of (LÖWIG), 1884, A., 15.  
 heat of formation of (MÜLLER), 1889, A., 811.  
 electrical conductivity of solutions of (CROMPTON), 1888, T., 123.  
 electrolysis of solutions of (BERSON and DESTREM), 1888, A., 1007.  
 vapour pressures of solutions of (ERRERA), 1889, A., 205.  
 coefficient of diffusion of (STEFAN), 1889, A., 1047.  
 absorptive power of sea sludge for (MÜLLER), 1889, A., 1241.  
 reduction of, by magnesium (WINKLER), 1890, A., 342.  
 alcoholate of (KNGEL), 1886, A., 979; (MAUMENÉ), 1886, A., 980.  
 hydrates of (MAUMENÉ), 1886, A., 421; (GÖRTTIG), 1887, A., 636.  
 apparatus for fusion with (LIEBERMANN), 1888, A., 1155.  
 arsenic in (MARSHALL and POTTS), 1889, A., 342.  
 vanadium in (SMITH), 1890, A., 706.

**Potassium hydroxide** (*caustic potash*), examination of (HAGER), 1884, A., 928.  
 estimation, volumetric, of (MAR-  
 CHAND), 1884, A., 695.  
 estimation of, in manures (IINDO),  
 1888, A., 89.  
 estimation of, soluble, in soils  
 (QUANTIN), 1885, A., 1262.  
 estimation of alkaline chlorides in  
 crude (FOCKE), 1887, A., 1138.  
 separation, quantitative, of, from  
 ferric oxide, alumina, lime, and  
 magnesia in silicates (KNOR),  
 1884, A., 110.  
 imidosulphonates (DIVERS and  
 HAGA), 1892, T., 952.  
 barium and mercury imidosulphonates  
 (DIVERS and HAGA), 1892, T.,  
 967.  
 iodate as original standard for iodo-  
 metry, acidimetry and alkalimetry  
 (GRÖGER), 1891, A., 614.  
 periodates (KIMMINS), 1887, T., 357;  
 P., 22; 1889, T., 151; P., 3.  
 chromiodate (BERG), 1887, A., 776;  
 (BLOMSTRAND), 1890, A., 107.  
 molybdoiodate, sulphatiodate and  
 tungstiodate (BLOMSTRAND), 1890,  
 A., 107.  
 iodide, vapour density of (MENSCHING  
 and MEYER), 1887, A., 550.  
 solubility of (ETARD), 1890, A.,  
 443.  
 reaction between ferric chloride and  
 (CARNEGIE), 1889, A., 1113.  
 action of sulphuric acid on (JACK-  
 SON), 1883, T., 339.  
 solutions, decomposition of, by  
 oxygen and light (BERTHELOT),  
 1890, A., 7.  
 removal of iodate from (MORSE  
 and BURTON), 1888, A., 1216.  
 and bromide, solubility of mixed  
 (ETARD), 1890, A., 443.  
 and bromide, compounds of  
 arsenious anhydride with (SCHIFF  
 and SESTINI), 1885, A., 723.  
 and starch solution, permanent  
 (REINHARDT), 1886, A., 486.  
 commercial, assay of (LENZ), 1884,  
 A., 366.  
 titration of (CARLES; FALIERES),  
 1885, A., 1011.  
 estimation of iodates in (GIGLI),  
 1892, A., 657.  
 bismuth iodides (ASTRE), 1890, A.,  
 708, 1067.  
 lead iodide (HEERTY), 1892, A., 779.  
 heat of formation of (BERTHE-  
 LOT), 1883, A., 275.

**Potassium lead iodide**, equilibrium  
 of, with its aqueous solution  
 (SCHREINEMAKERS), 1892, A., 560.  
 magnesium iodide (LERICHE), 1884, A.,  
 262.  
 hypiodite (VAN DEVENTER and  
 VAN'T HOFF), 1888, A., 911.  
 manganate, preparation of (JOLLES),  
 1888, A., 556.  
 decomposition of, by ammonium  
 salts (REITGERS), 1891, A., 1159.  
 use of, in analysis (JOLLES), 1889,  
 A., 798.  
 permanganate, decomposition of, by  
 heat (ROUSSEAU), 1887, A., 552.  
 action of some acids on (SALZER),  
 1888, A., 996.  
 action of hydrogen arsenide on  
 (TIVOLI), 1890, A., 1210.  
 action of, on a manganous salt  
 (ANON.), 1885, A., 1265.  
 influence of, on the decomposition  
 of potassium chlorate (FOWLER  
 and GRANT), 1890, T., 280.  
 action of, on sodium thiosulphate  
 (GLÄSER), 1885, A., 957; 1887,  
 A., 336; (HONIG), 1885, A.,  
 1111.  
 action of sulphuric acid on  
 (FRANKE), 1887, A., 893.  
 action of, on certain sulphur-  
 compounds (NANINI), 1884, A.,  
 151.  
 solution, stability of (FRÜTZNER),  
 1892, A., 1524.  
 standardising solutions of (KRÜSS),  
 1885, A., 1013; (JAHODA), 1890,  
 A., 196.  
 solutions, titrations with (LENZ),  
 1885, A., 598.  
 estimation of, by means of hydrogen  
 peroxide (LUNGE), 1885, A.,  
 1162; 1890, A., 1468.  
 manganites (ROUSSEAU), 1887, A.,  
 892.  
 hydrated (ROUSSEAU), 1892, A., 569.  
 manganite (JOLLES), 1888, A., 229.  
 heptamanganite (ROUSSEAU), 1887,  
 A., 552.  
 perniolybdate (PÉCHARN), 1891, A.,  
 988.  
**Potassium nitrate** (*nitro; salt-petre*)  
 (BECKURTS), 1886, A., 664.  
 deposits (SACC), 1884, A., 1271;  
 1885, A., 359.  
 and sodium nitrate, conductivity of  
 a fused mixture of (BUTTY and  
 POINCARÉ), 1888, A., 1231.  
 influence of, on the decomposition  
 of potassium chlorate (FOWLER  
 and GRANT), 1890, T., 282.

- Potassium nitrate** (*nitre*; *saltpetre*),  
 action of chlorosulphonic acid  
 on (WILLIAMS), 1886, T., 225.  
 action of sulphuryl dichloride on  
 (WILLIAMS), 1886, T., 226.  
 effect of, on the growth of potatoes  
 (DEHÉRAIN), 1884, A., 361.  
 absorption of, by plants (BERTHELOT  
 and ANDRÉ), 1888, A., 740.  
 manuring with (FLEISCHER), 1888,  
 A., 1223.  
 compared with ammonium sulphate  
 as a manure (MUCKER), 1886,  
 A., 954.  
 nitrogen estimation in, by potassium  
 xanthate (GRETE), 1883, A., 1031.  
 earth from Turkestan, investigation  
 of (LJUBAVIN), 1885, A., 128.  
 silver nitrate (DITTE), 1886, A., 122.  
 sodium hydrogen imidosulphonate  
 nitrate (DIVERS and HAG), 1892,  
 T., 964.  
 nitrite, preparation of (WARREN),  
 1891, A., 1321.  
 action of, on blood (HÉNOUCQUE),  
 1885, A., 682.  
 lead copper nitrite (VAN LESSEN),  
 1891, A., 1157.  
 rhodium nitrite (LEINÉ), 1890, A.,  
 1882; 1891, A., 808.  
 ruthenium nitrites (JOLY and VEZES),  
 1890, A., 17.  
 hyponitrite solution, preparation of  
 (DIVERS and HAG), 1884, T., 85.  
 platino- and platoso-bromo-, -chloro-  
 and -iodo-nitrites (VEZES), 1891, A.,  
 808; 1892, A., 281, 1284.  
 palladiochloronitrite (VEZES), 1892,  
 A., 1284.  
 nitrosoplatinochloride (VEZES), 1890,  
 A., 709.  
 nitrosoplatinoidide (VEZES), 1892, A.,  
 281.  
 osmium, preparation of (JOLY),  
 1891, A., 1433.  
 oxide (BEKTOFF), 1888, A., 1241.  
 peroxide (BOLTON), 1886, A., 768.  
 phosphate, method for the valuation  
 of (THOMSON), 1883, A., 827.  
 barium phosphate (DE SCHULTEN),  
 1883, A., 711; (OUVRARD), 1888,  
 A., 1033.  
 cadmium, calcium, cobalt, magnesium,  
 manganese, nickel, strontium and  
 zinc phosphates (OUVRARD), 1888,  
 A., 1033, 1055.  
 thorium and zirconium phosphates  
 (TROOST and OUVRARD), 1886, A.,  
 853.  
 manganese pyrophosphate (SCHUTERN-  
 ING), 1892, A., 1052.
- Potassium phosphite** (AMAT), 1888, A.,  
 915.  
 plumbate (CARNEGIE), 1890, A., 109.  
 polysulphides, constitution of (SPRING  
 and DEMARTEAU), 1889, A., 1110.  
 polythionates, behaviour of, in aqueous  
 solution (DEBUS), 1888, T., 319.  
 behaviour of, with acids (DEBUS),  
 1888, T., 316.  
 pyrosulphite, and hydrates of (BER-  
 THELOT), 1883, A., 705.  
 pyroxyhexathiovanadate (KRÜSS and  
 OHNMAIS), 1890, A., 1381.  
 rutheniate and *per*-rutheniate (DE-  
 BRAY and JOLY), 1888, A., 920.  
 selenate, solubility of (ETARD), 1888,  
 A., 645.  
 selenides (FABRE), 1886, A., 505, 589.  
 aluminium silicates (GONGER), 1886,  
 A., 667; 1890, A., 13.  
 silicofluoride (PREIS), 1890, A., 694.  
 silicozirconate (OUVRARD), 1891, A.,  
 1431.  
 stannichloride, hydrate of (MOREL),  
 1891, A., 1160.  
 stannite, action of nitric oxide on  
 (DIVERS and HAG), 1885, T., 362.  
 stannochlorides (RICHARDSON), 1892,  
 A., 785.  
 platinoselenostannate (SCHNEIDER),  
 1892, A., 281.  
 sulphur compounds, conductivity of,  
 in solution (BOCK), 1887, A., 758.  
 sulphate, artificial formation of twin  
 crystals of, by increase of temper-  
 ature (BAUMHAUER), 1886, A., 17.  
 preparation of (MÜLLER), 1885, A.,  
 1268.  
 heat of solution of (PICKERING),  
 1885, T., 98; 1886, T., 306.  
 supposed isomorphism of sodium  
 sulphate and (REUTERS), 1891,  
 A., 147.  
 influence of potassium halides on  
 the solubility of (BLAREZ), 1891,  
 A., 974.  
 reduction of, by hydrogen and by  
 carbon (BERTHELOT), 1890, A.,  
 1053.  
 absorption of, by plants (BERTHELOT  
 and ANDRÉ), 1888, A., 740.  
 estimation, volumetric, of (DUBER-  
 NARD), 1886, A., 1262.  
 See also Glaserite.  
 chromosulphate (RECOURA), 1892, A.,  
 781.  
 copper cobalt and copper magnesium  
 sulphates (ROY), 1887, P., 53.  
 copper sulphate, modifications and  
 heat of solution of (PICKERING),  
 1886, T., 1.

- Potassium** copper sulphate, anhydrous, heat of solution of (PICKERING), 1886, T., 300.  
 hexahydrated, heat of solution of (PICKERING), 1886, T., 301.  
 anhydrous, specific heats of three modifications of (PICKERING), 1886, T., 14.  
 hydrogen sulphate, dimorphism of (WYRUBOFF), 1886, A., 665.  
 hydrate of (SENDERENS), 1890, A., 450.  
 iridium sulphate (LECOQ DE BOISBAUDRAN), 1883, A., 905.  
 magnesium sulphate, preparation of (ANON.), 1885, A., 98.  
 modifications and heat of solution of (PICKERING), 1886, T., 7.  
 anhydrous, heat of solution of (PICKERING), 1886, T., 297.  
 hexahydrated, heat of solution of (PICKERING), 1886, T., 298.  
 instability of (DITTMAR), 1888, A., 554.  
 mercuric sulphates (FOCK and KLÜSS), 1891, A., 879.  
 nickel cobalt sulphate (ROY), 1887, P., 53.  
 persulphate (MARSHALL), 1891, T., 772; A., 982.  
 sulphide, action of cupric sulphide and of mercuric sulphide on (DITTE), 1884, A., 963, 964.  
 aluminium sulphide (GRATAMA), 1885, A., 350.  
 antimony sulphide (DITTE), 1886, A., 429.  
 copper and mercury sulphides (DITTE), 1884, A., 963, 964.  
 iron sulphide, action of cuprous chloride on (SCHNEIDER), 1889, A., 354.  
 thallium sulphide, action of hydrogen on (SCHNEIDER), 1891, A., 16.  
 sulphites (HARTOG), 1889, A., 1106.  
 ammonium sulphite (HARTOG), 1889, A., 1106.  
 manganese sulphite (GORGHEU), 1883, A., 718.  
 sodium sulphite (SCHWICKER), 1889, A., 942; (HARTOG), 1889, A., 1106.  
 hydrogen tartrate. See Argol and Tartaric acid.  
 hexatellurite (KLEIN), 1886, A., 767.  
 thiocarbonate, analysis of (GUYOT-DANNECY), 1883, A., 241.  
 trithionate, decomposition of an aqueous solution of (DEBUS), 1888, T., 313.  
 tetrathionate (FOCK and KLÜSS), 1890, A., 1210.
- Potassium tetrathionate**, decomposition of an aqueous solution of (DEBUS), 1888, T., 311.  
 pentathionate (DEBUS), 1888, T., 291; (FOCK and KLÜSS), 1890, A., 1210.  
 decomposition of an aqueous solution of (DEBUS), 1888, T., 311.  
 hexathionate (DEBUS), 1888, T., 303.  
 thioplatinosate (SCHNEIDER), 1892, A., 944.  
 platinum thioannate, reduction of (SCHNEIDER), 1892, A., 944.  
 thiosulphates (BERTHELOT), 1883, A., 707.  
 thiosulphate, reaction of, with sulphurous acid (DEBUS), 1888, T., 313.  
 ammonium and magnesium thiosulphates (FOCK and KLÜSS), 1890, A., 564.  
 cadmium thiosulphates (FOCK and KLÜSS), 1890, A., 1057.  
 calcium and strontium thiosulphates (FOCK and KLÜSS), 1892, A., 12.  
 copper and silver thiosulphates (COHEN), 1887, T., 38.  
 sodium thiosulphate (SCHWICKER), 1889, A., 943.  
 thiotungstates (CORLEIS), 1886, A., 510.  
 tungstates (FERI), 1888, A., 344.  
 phosphotungstates (KEHRMANN and FREINKEI), 1892, A., 1160.  
 tungstovanadates (ROTHENBACH), 1891, A., 18.  
 vanadates (DITTE), 1887, A., 639.
- Potassium organic compounds:**—  
**Potassium alcoholate.** See Ethoxide, potassium.  
 carbonylthiocyanoplatinite (MYLIUS and FOERSTER), 1891, A., 1165.  
 cyanate, action of ethylic chlorocarbonate on (WURTZ and HENNINGER), 1885, A., 968.  
 seleniocyanate, action of chlorine on (VERNEUIL), 1886, A., 1002.  
 action of iodine on (VERNEUIL), 1884, A., 1109.  
 cyanide, decomposition of (WILKES), 1885, A., 495; (MANNING), 1888, A., 930.  
 oxidation of, with potassium permanganate (VOLHARD), 1891, A., 160.  
 action of acids on (V. DER PFORDTEN), 1885, A., 1120.  
 chromo- and chromi-cyanides (CHRISTENSEN), 1885, A., 737; (MOISSAN), 1885, A., 738.  
 iron cyanogen compound (MAHLA), 1889, A., 359.  
 ferri-cyanide, preparation of (KASSENBERG), 1890, A., 352.

- Potassium ferri-cyanide**, action of light on (EDER), 1885, A., 1173.  
 action of bromine on (REYNOLDS), 1888, T., 767; P., 87.  
 reactions of (PRUD'HOMME), 1891, A., 410.  
 reduction of, by potassium cyanide (BLOXAM), 1884, A., 35.  
 preparation of oxygen by aid of (KASNER), 1890, A., 352.  
 use of, in gasometry (QUINCKE), 1892, A., 526.  
 estimation of (QUINCKE), 1892, A., 526.  
 estimation, volumetric, of (KASNER), 1890, A., 834.  
 volumetric analyses by means of (LUCKOW), 1892, A., 1129, 1527.  
**ferrocyanide**, production of (ZULKOWSKI), 1884, A., 501.  
 physiological action of (COMBE-MALE and DUBIQUET), 1891, A., 99.  
 non-poisonous nature of (CARLES), 1890, A., 281.  
 estimation of (ZULKOWSKI), 1884, A., 501.  
 volumetric analyses by means of (LUCKOW), 1892, A., 1129, 1527.  
**ferrous ferri-cyanide** (*Prussian blue, soluble*) (GUIGNET), 1889, A., 475.  
**manganese cyanides** (CHRISTENSEN), 1885, A., 737.  
**platinocyanides** (WILM), 1886, A., 604, 605; 1888, A., 931; 1889, A., 951.  
 thiocyanate, nitrification of, by soil (MUNRO), 1886, T., 637.  
 iron thiocyanates (KRÜSS and MORANT), 1889, A., 1129.  
 platinothiocyante (GUARENCHI), 1892, A., 286.  
**Potassium**, detection, estimation and separation:—  
 detection of (PAULY), 1887, A., 1138.  
 detection, spectroscopic, of (GOOCH and HART), 1892, A., 913.  
 estimation of (KRETSCHMAR), 1886, A., 440; (GOOCH and HART), 1892, A., 913.  
 estimation, volumetric, of (WHITE), 1888, A., 1130.  
 estimation of, by reduction of the platinochloride (WOUSSEN), 1888, A., 89.  
 estimation of, in ashes and minerals (KRETSCHMAR), 1887, A., 864.  
 estimation of, in presence of lithium (KRAUT), 1888, A., 195.  
**Potassium**, estimation and separation:—  
 estimation of, in silicates (CHATARD), 1885, A., 296.  
 estimation of, in silicates by Lawrence Smith's method (HOLLAND), 1887, A., 181.  
 estimation of, in soils (RAULIN), 1890, A., 663; (VAN BEMMELEN), 1890, A., 833.  
 estimation of, in urine as hydrogen potassium tartrate (ROBIN), 1890, A., 187.  
 estimation of, in water (MUCK), 1890, A., 299.  
 separation of, from lithium, magnesium and calcium (GOOCH), 1887, A., 528.  
 See also Agricultural Chemistry.  
**Potassium-nepheline**, artificial formation of (DUBOIS), 1892, A., 1286.  
**Potato**. See Agricultural Chemistry.  
**Potatoes**, cooked, composition of (WILLIAMS), 1892, T., 227.  
**Potato spirit**, frothy fermentation in the manufacture of (MÄRCKER), 1885, A., 1168.  
 poisonous action of (BROCKHAUS), 1883, A., 362.  
**Potato starch**, preparation of (ANON.), 1884, A., 134.  
 acidity of (SAARIC), 1891, A., 358.  
 estimation of (SALOMON), 1883, A., 124.  
 three processes for obtaining the albuminoid matter from (KETTE), 1884, A., 948.  
**Potato starch sugar**. See Carbohydrates.  
**Potential**. See Electrochemistry.  
**Potilizin's law** of mutual displacement of chlorine and bromine (THORPE and RODGER), 1888, P., 20.  
**"Poudrette."** See Agricultural Chemistry.  
**"Pouzzo-Portland"** (LANDRIN), 1883, A., 830.  
**Powders**, development of heat in, when moistened (MEISSNER), 1887, A., 9.  
**Powellite** (MELVILLE), 1891, A., 886.  
**Pozzuolanas** from Tevere (VERRI and TROTTARELLI), 1888, A., 120.  
 production of (DEMARCHI and FODERA), 1883, A., 529.  
 analysis of, and estimation of their comparative values (LANDRIN), 1883, A., 628.  
**Præcacite** from Christiania (JANNASCH), 1887, A., 563.  
**Praseodymium** (AUER v. WELSCHACH), 1885, A., 1113.  
 emission spectrum of (HATTINGER), 1892, A., 2.  
 fluorescence spectra of (LECOQ DE BOISBAUDRAN), 1888, A., 97.

- Precipitates**, apparatus for washing (FORBES), 1892, A., 1513.  
 washing and drying, without exposure to the carbonic acid of the atmosphere (JOLLES), 1886, A., 1070.  
 change of, from the amorphous to the crystalline form (WATSON), 1891, A., 875.  
 metallic, crystalline (WARREN), 1890, A., 851.
- Precipitation** (WATSON), 1890, A., 817; 1891, A., 875.  
 theory of fractional (HOOD), 1887, A., 325.
- Prehnidine** and its derivatives (TÖHL), 1888, A., 581.
- Prehnite** (SCHUBERT), 1883, A., 35.  
 from Cornwall, Lebanon Co., Pa. (GENTH), 1884, A., 266.  
 from Monte Catini (BRECHT), 1883, A., 442.  
 from Silesia (BEUTELL), 1887, A., 223.  
 from Tuscany, etc. (GORSI; BRECHT), 1883, A., 441.
- Prehnitene** (1:2:3:4-*durene*; 1:2:3:4-*tetramethylbenzene*), and its derivatives (JACOBSEN), 1886, A., 694; (KELBE and PATHE), 1886, A., 805; (TÖHL), 1888, A., 584.  
 synthesis of (JACOBSEN), 1889, A., 39.  
 bromo-, action of sulphuric acid on (TÖHL), 1892, A., 968.  
*mono-* and *di-chloro-* (TÖHL), 1892, A., 967.
- Prehnitenedicarboxylic acid** (JACOBSEN), 1889, A., 874.
- Prehnitenesulphonic acid** (JACOBSEN), 1886, A., 694.
- Prehnitic acid** (1:2:3:4-*benzenetetra-carboxylic acid*) (JACOBSEN), 1885, A., 166; (TÖHL), 1888, A., 585.
- Prehnitol** (1:2:3:4-*tetramethylphenol*) (LIMPACH), 1888, A., 461; (TÖHL), 1888, A., 585.
- Prehnitylenediamine** (TÖHL), 1888, A., 585.
- Prehnitylene-ethenylamidine hydrochloride** (TÖHL), 1888, A., 585.
- Prehnitylic acid** (JACOBSEN), 1886, A., 695.
- Press-cake**, new process for preparing, from maize, etc. (BUROW), 1883, A., 695.
- Pressure**, chemical decomposition produced by (SPRING and VAN'T HOFF), 1888, A., 341.  
 effect of, on chemical action (JUDIN), 1890, T., 408.  
 influence of, on the condition of carbon in iron (HEMPPEL), 1888, A., 557.
- Pressure**, effect of, on the decomposition of dissolved chlorides (FOUSSEREAU), 1887, A., 697.  
 influence of, on dissociation (PAWLEWSKI), 1891, A., 381.  
 influence of, on the electrical conductivity of liquids (BARUS), 1891, A., 250.  
 influence of, on the resistance of electrolytes (FINK), 1886, A., 586.  
 influence of, on the expansion of water by heat (PUSCHL), 1892, A., 1382.  
 influence of, on the reaction between sodium sulphate and barium carbonate (SPRING), 1887, A., 332.  
 influence of, on the temperature of volatilisation of solids (RAMSAY and YOUNG), 1884, A., 252.  
 and boiling point, relations between (SCHUMANN), 1885, A., 1176; (KAHLBAUM), 1886, A., 590.  
 volume and temperature, relation of, in the case of liquids (BARUS), 1890, A., 321.  
 constant, apparatus for maintaining, when distilling under reduced pressure (PERKIN), 1888, T., 689; P., 74.  
 critical. See Critical pressure.  
 produced during the combustion of gaseous mixtures (MALLARD and LE CHATILLIER), 1883, A., 512.  
 estimation of (VIEILLE), 1883, A., 542.  
 osmotic. See Osmotic pressure under Diffusion.  
 unequal, equilibrium of chemical systems under (SPRING), 1892, A., 1148.  
 estimation of, in closed tubes (REYCHLER), 188, A., 1014.
- Pressure-curves** of fluids at their critical points (v. WROBLEWSKI), 1886, A., 961.
- Pressure variations** of certain high temperature boiling points (BARUS), 1891, A., 9.
- Pressure-tubes** (WARREN), 1888, A., 646.
- Priceite** (*pandermite*) (WHITFIELD), 1888, A., 347.  
 colemanite, and pandermite, identity of (KENGGOIT), 1885, A., 1117.
- Primuline**, history of (GATTERMANN and JACOBSON), 1889, A., 868.  
 constitution of (GREEN), 1889, T., 227; P., 16; (PFITZINGER and GATTERMANN), 1889, A., 867.  
 nature of (GATTERMANN), 1889, A., 602.  
 photographic printing of (GREEN, CROSS and BEVAN), 1891, A., 139.

- Primuline base** and its constitution (GREEN), 1889, T., 233.  
 action of potash on (PFITZINGER and GARTERMANN), 1889, A., 868.
- Primuline-group**, dyes of the (TRAUTMANN), 1891, A., 195.
- Printing**, use of antimony oxalate in (JAQUET), 1885, A., 1276.  
 new blue for (ULLRICH), 1886, A., 187.  
 fixing perthiocyanogen in (SCHMID), 1884, A., 796.
- Printing ink**, process for preparing (ANON.), 1883, A., 896.
- Prismatine** (SAUER), 1888, A., 34.
- Prisms**, use of carbon disulphide in (DRAPER), 1885, A., 853.
- Proc:lorite**. See Ripidolite.
- Propaldehyde**, polymeric modifications of (SPRING and TART; ORNDORFF), 1890, A., 955.  
 action of ammonia on (WAAGE), 1883, A., 39; 1884, A., 172.  
 action of, on alcohols (NEWBURY and BARNUM), 1891, A., 284.  
 condensation of, with aniline (v. MILLER and PLÖCHL), 1892, A., 1191.  
 action of glycol on (LOCKERT), 1888, A., 671.  
 condensation of, with succinic acid (FITTIG and DELISLE), 1890, A., 587.  
 action of zinc and ethylic chloracetate on (REFORMATSKY), 1892, A., 1300.  
 action of aniline on a mixture of acetaldehyde and (ROHDE), 1887, A., 974.  
 action of aniline on a mixture of methylal and (v. MILLER and KINKELIN), 1887, A., 975.  
 and propaldehyde-aminonia, pyridine derivatives from (DÜRKOPF and GÜTTSCHE), 1890, A., 794, 1002.
- Propaldehyde**.  $\beta$ -bromo- (LEDERER), 1891, A., 37.  
 2:2-*di*bromo- (ETARD), 1892, A., 809.  
 2:2:3-*tri*bromo- (NIEMIŁOWICZ), 1890, A., 861.  
 2:2-*di*chloro- (SPRING and TART), 1890, A., 955.
- Metapropaldehyde** (ORNDORFF), 1890, A., 955.
- Parapropaldehydes** (ORNDORFF), 1890, A., 955; (REFORMATSKY), 1892, A., 1300.
- Propaldehydeaniline** (v. MILLER and PLÖCHL), 1892, A., 1191.
- Propane**, preparation of (FRANKLAND), 1885, T., 238.
- Propane**, illuminating power of (FRANKLAND), 1885, T., 235; P., 31.  
 and oxygen, explosion of, under diminished pressure (MEYER and SEUBERT), 1884, T., 584, 592.  
 derivatives (WINSSINGER), 1888, A., 243.  
 hydrate (VILLARD), 1890, A., 1386.
- Propane**, bromo-. See Propylic bromide.
- di*bromo-. See Propylenic bromide.
- 1:2:3-*tri*bromo-. See Tribromhydrin.
- 1:2:2:3-*tetra*bromo- (*isocallylene tetra-bromide*) (GUSTAVSON and DEMJANOFF), 1889, A., 30.
- tri*bromonitro- (ASKENASY and MEYER), 1892, A., 1064.
- tetra*bromo-1:3-*di*nitro- (KEPPLER and MEYER), 1892, A., 1062.
- tri*- and *tetra*-chloro- (SPRING and WINSSINGER), 1883, A., 659.
- 1:2:3-*tri*chloro-. See Trichlorhydrin.
- s-hexachloro*- (LEVY and CURCHOD), 1889, A., 1136.
- 1-nitro-, magnetic rotatory power of (PERKIN), 1889, T., 668, 727.  
 action of alcoholic potash on (SOKOLOFF), 1889, A., 365.  
 action of alkalis on (DUNSTAN and DYMOND), 1891, T., 431.  
 action of zinc ethyl on (BEWAD), 1889, A., 1127.
- is*onitro-, action of alkalis on (SOKOLOFF), 1889, A., 365.  
 action of methylic iodide and chloroform on (KISSEL), 1892, A., 1290.  
 action of zinc ethyl on (BEWAD), 1889, A., 1127.
- 1:3-*di*nitro-, and its sodium derivative (KEPPLER and MEYER), 1892, A., 1061, 1415.
- 2:2-*di*nitro- (BREPT), 1883, A., 176.
- tri*nitroso- (v. PECHMANN and WEISSARG), 1889, A., 34.
- Propanebisazo**-. See Azo-.
- 1:2-Propanedisulphonic acid and its salts (MONARI), 1885, A., 970.
- 1:3-Propanedisulphonic acid (*trimethyl-enedisulphonic acid*) and its salts (MONARI), 1885, A., 970.
- Propanesulphonic acid** (*propylsulphonic acid*) (WINSSINGER), 1888, A., 213.  
 action of chlorine on (SPRING and WINSSINGER), 1883, A., 659.  
 $\gamma$ -amido- (LAUER), 1890, A., 1090.  
 chloro- (SPRING and WINSSINGER), 1883, A., 659.
- $\beta$ -Propanesulphonic acid, potassium salt of (STUFFER), 1891, A., 180.
- Propanetetracarboxylic acid** (EMERY), 1891, A., 424.

- Propanetetracarboxylic acid** (*isoallyltetracarboxylic acid*) and its salts (BISCHOFF), 1883, A., 46.  
(*dicarboxyglutaric acid*; *methylenedimalonic acid*) (PERKIN), 1886, A., 691; (KLEBER), 1888, A., 1057.
- Propanetricarboxylic acid** (*propenyltricarboxylic acid*) and its ethereal salts (BISCHOFF), 1883, A., 15.  
(*carboxyglutaric acid*) (EMERY), 1891, A., 547.  
See also Tricarballic acid.
- Propargylamine** and its derivatives (PAAL and HERMANN), 1890, A., 229; (PAAL and HEUPER), 1892, A., 30.
- "Propargylenetetracarboxylic acid"** and its ethylic salt, synthesis of (SCHACHERL), 1885, A., 1125.
- Propargylic acid.** See Propiolic acid.
- Propargylic iodide**, and *triiodide* (HENRY), 1884, A., 979.
- "Propargylphenol"** (HENRY), 1883, A., 803.
- Propargyl-phenylcarbamide** and *-thiocarbamic acid* (PAAL and HEUPER), 1892, A., 30.
- Propenylamidine** (*propionamidine*) hydrochloride (PINNER), 1883, A., 1090; 1884, A., 723.  
nitrate (FRANCHIMONT), 1892, A., 951.  
nitrite (LOSSEN), 1892, A., 53.  
platinochloride (PINNER), 1884, A., 723.
- Propenylamidoxime** (NORDMANN), 1885, A., 240.
- Propenylbenzene.** See Allylbenzene.
- p-Propenylbenzoic acid** and its salts (WIDMAN), 1883, A., 330.  
2-amido- (WIDMAN), 1886, A., 166.  
3-amido-, and its derivatives (WIDMAN), 1884, A., 317.  
action of nitrous acid on (WIDMAN), 1884, A., 1022.  
2:5-dibromo- (FILIET and BONICONTRO), 1892, A., 605.  
*m*-nitro-, salts of (WIDMAN), 1884, A., 317.
- isoPropenylcarbinol.** See  $\beta$ -Allylcarbinol.
- Propenyldimethylapionol** (BARTOLOTTI), 1892, A., 1315.
- Propenyldiphenyldicarbamide** (PINNER), 1891, A., 60.
- Propenylglycollic acid** (LOBRY DE BRUYN), 1885, A., 242.
- Propenylquinoline**, *ac-trichloro-* (EINHORN and LEHNKERING), 1888, A., 1208.
- p-Propenylsalicylic acid** (*hydroxypropenylbenzoic acid*) (HEYMANN and KOENIGS), 1887, A., 241.
- Propeptone.** See under Peptone.
- Propimine**, thiocyno- (*mesoamido-methylthiazole*) (HANTZSCH and WEBER), 1888, A., 257; (TRAUMANN), 1889, A., 414.  
and its derivatives (TCHERNIAK and NORTON), 1883, A., 568.
- "Propimine thiocyanate,"** and its derivatives (TCHERNIAK and NORTON), 1884, A., 664.  
thiocyno- (TCHERNIAK and HELLON), 1883, A., 654.
- Propinedipthalyl.** See Diphtalylpropane.
- Propiolic acid** (*propargylic acid*) (v. BANDROWSKI), 1883, A., 314.  
polymerization of (v. BAeyer), 1886, A., 1009.  
*diiodide* (HOMOLKA and STOLZ), 1885, A., 1198; (BRUCK), 1892, A., 431.  
bromo-, action of aromatic amines on (MABERY and KRAUSE), 1890, A., 371.  
iodo- and its salts (HOMOLKA and STOLZ), 1885, A., 1198; (v. BAeyer), 1885, A., 1199; (STOLZ), 1886, A., 530.
- Propiolic acids**, substituted (MABERY and SMITH), 1890, A., 27.
- o-Propiolophenoxyacetic acid** (ROSSING), 1886, A., 66.
- Propionamide** (MEYER), 1889, A., 381.  
preparation of (SCHULZE), 1883, A., 1088.  
thermochemistry of (BERGHELOT and FOGH), 1890, A., 1360.
- 3-iodo-** (HENRY), 1885, A., 372.
- $\alpha$ -diiodo-** (CURTIUS and LANG), 1892, A., 452.
- thio-** (HUBACHER), 1891, A., 220.
- Propion-o-amidobenzoic acid** (PIETER and DUPARC), 1888, A., 370.
- Propionanilide**, *o*-nitro- (SMITH), 1885, A., 521.
- Propionates**, acid (MIXTER), 1887, A., 231.  
metallic (REYARD), 1887, A., 651; (GAZE), 1892, A., 140.
- Propione.** See Diethyl ketone.
- Propionic acid** and its derivatives (LOBRY DE BRUYN), 1885, A., 963; (REYARD), 1886, A., 1007.  
hydrated, magnetic rotation of (PERKIN), 1886, T., 780.  
thermochemistry of (MASSOL), 1891, A., 1313.  
electrochemistry of (JAHN), 1890, A., 100.

- Propionic acid**, electrolysis of (BUNGE), 1890, A., 1236.  
 vapour pressures of (RICHARDSON), 1886, T., 766, 774, 776.  
 ammonium salt of, magnetic rotatory power of solutions of (PERKIN), 1891, T., 985.  
 barium and calcium salts of, solubility of (V. KRASNICKI), 1888, A., 359.  
 potassium salt of, thermochemistry of (MASSOL), 1891, A., 1313.  
 electrolysis of (BUNGE), 1890, A., 1236.  
 sodium salt of, thermochemistry of (MASSOL), 1891, A., 1313.  
 magnetic rotatory power of solutions of (PERKIN), 1891, T., 987.  
 zinc salt of, formation of, by the action of carbonic anhydride on zinc ethyl (SCHMITT), 1891, A., 288.  
 the halogen-derivatives of, action of heat and water on (BECKURTS and OTTO), 1885, A., 506.  
 haloid substitution derivatives of (HENRY), 1885, A., 372.
- Propionic acid**, amido-. See Alanine.
- $\alpha$ -bromo-** (VOLHARD), 1888, A., 129.  
 electrolysis of (COHN), 1889, A., 1056.
- $\beta$ -bromo-** (LEDERER), 1891, A., 37.
- $\alpha\beta$ -dibromo-**, action of, on ethylic malonate (CONRAD and GUTHZEIT), 1884, A., 991.
- tribromo-** (NIEMIOWICZ), 1890, A., 861.
- tetrabromo-**, and its salts (MABERY and ROBINSON), 1884, A., 664.
- $\beta\beta$ -dichloro-**, and its derivatives (FROMME and OTTO), 1887, A., 912.
- tetrachloro-** (MABERY and SMITH), 1890, A., 27.
- chlorotribromo-**, decomposition of, by alkaline hydroxides (MABERY), 1884, A., 663.
- dichlorobromo-** (MABERY and SMITH), 1890, A., 27.
- $\alpha\beta$ -dichloro- $\beta\beta$ -dibromo-** (MABERY and NICHOLSON), 1885, A., 507.
- trichlorobromo-** (MABERY), 1887, A., 570.
- tetrachloro- $\beta$ -bromo-** (MABERY), 1885, A., 508.
- $\beta$ -iodo-**, preparation of (MEYER), 1887, A., 232; 1888, A., 360.  
 action of, on ethylic thiocarbamate (LANGLET), 1892, A., 440.
- $\beta$ -nitroso-** (V. PRICHMANN), 1891, A., 1453; (HANTZSCH), 1892, A., 1069.
- $\beta$ -sulpho-** (CIAMICIAN and MAGNAGHI), 1886, A., 226; (ROSENTHAL), 1886, A., 866.
- Propionic acids**, substituted (MABERY and ROBINSON), 1884, A., 663; (MABERY), 1887, A., 570.  
 constitution of (HILL), 1883, A., 310.  
 tetrasubstituted, and their salts (HILL and MABERY), 1883, A., 309.
- Propionic anhydride**,  $\alpha$ -dichloro- (OTTO and HOLST), 1890, A., 1327.
- Propionitrile** (*ethylic cyanide*), magnetic rotatory power of (PERKIN), 1889, T., 701.  
 molecular refraction and dispersion of (GLADSTONE), 1891, T., 296.  
 heats of combustion and formation of (BERTHELOT and PETIT), 1889, A., 812.  
 action of, on chlorides of fatty acids (OTTO and TRÖGER), 1890, A., 726.  
 synthesis of ketonic acids by the action of acid chlorides on (OTTO and TRÖGER), 1889, A., 957.  
 action of, on organic acids (COLBY and DODGE), 1891, A., 409.  
 action of sodium on (V. MEYER), 1892, A., 576.  
 hydrogenation of (PISANELLO), 1887, A., 457.  
 products of the polymerisation of (HANRIOT and BOUVEAULT), 1889, A., 841.  
 transformation of, in the organism (GLACOSA), 1884, A., 1061.  
 dimolecular (BURNS), 1891, A., 888.  
 homologues of, action of sodium on (V. MEYER), 1888, A., 800.  
 hydrochloride, constitution of (MICHAELIS and WING), 1885, A., 963.  
 polymeride of (V. MEYER), 1889, A., 114.  
 $\alpha$ -dichloro- (OTTO and VOIGT), 1887, A., 1024.  
 molecular weight of (OTTO), 1890, A., 726.
- Propiono-diphenyl- and -di-o- and -p-tolyl-hydrazides** (GATTERMANN, JOHNSON and HÜLZLE), 1892, A., 843.
- Propionoguanimine** (HAAF), 1891, A., 416.
- Propionophenylcarbizin** (FREUND and GOLDSMITH), 1888, A., 1187.
- Propionophenylhydrazide** (FREUND and GOLDSMITH), 1888, A., 1187; (OTTO and HOLST), 1890, A., 1328.
- Propiono-o-toluidide** (PICTET and DUPARC), 1888, A., 370.
- Propiono-o- and -p-tolylhydrazides** (GATTERMANN, JOHNSON and HÜLZLE), 1892, A., 843.

- Propionylacetophenone** (*phenyl ethyl methylene diketone*) (BEYER and CLAISEN), 1887, A., 943.
- Propionylacetylphenylhydrazine** (JAPP and KLINGEMANN), 1888, T., 510.
- $\alpha$ -Propionylacrylic acid** (HANTZSCH and WOHLBRUCK), 1887, A., 717.
- p*-Propionylanisole** (GATTERMANN, EHRLHARDT and MAISCH), 1890, A., 963.
- Propionylbenzoic acid, *o*-pentachloro-** (ZINCKE and COOKSEY), 1890, A., 785.
- Propionylbenzoyl** (MÜLLER and v. PECHMANN), 1889, A., 1171.
- Propionyl-*i*-bromonitrophenol and -chloro-*i*-bromophenol** (GARZINO), 1890, A., 1107.
- Propionylcodeine, and its derivatives** (JESSE), 1881, A., 614.
- Propionyl-*m*-diethoxybenzene** (GATTERMANN, EHRLHARDT and MAISCH), 1890, A., 964.
- $\alpha$ -Propionylethylcyanide.** See Methylpropionylacetonitrile.
- 1:3:4-Propionylhomoferrulic acid** (TIEMANN and KRAAZ), 1883, A., 200.
- Propionylhydroxamic acid** (MIOLATI), 1892, A., 699.
- Propionylmesitylene, action of hydroxylamine hydrochloride on** (FRITH and DAVIES), 1892, A., 314.
- Propionyl- $\alpha$ -naphthol and - $\alpha$ -naphtholazobenzene** (GOLDZWEIG and KAISER), 1891, A., 447.
- Propionyl-naphtholphenylhydrazine** (GOLDZWEIG and KAISER), 1891, A., 447.
- Propionyl- $\alpha$ -naphthyl methyl oxide** (GATTERMANN, EHRLHARDT and MAISCH), 1890, A., 964.
- Propionyl-*i*-nitrophenol** (GOLDZWEIG and KAISER), 1891, A., 417.
- Propionylpicnic acid** (LIEBERMANN and KLEEMANN), 1887, A., 47.
- p*-Propionylphenetol** (GATTERMANN, EHRLHARDT and MAISCH), 1890, A., 964.
- p*-Propionylphenol** (*hydroxyphenyl ethyl ketone*) (PERKIN), 1889, T., 547; (GOLDZWEIG and KAISER), 1891, A., 447.
- derivatives (GUARESCHI and DACOMO), 1885, A., 891.
- phenylhydrazones of (GOLDZWEIG and KAISER), 1891, A., 447.
- Propionylpropaldehyde** (CLAISEN and MEYEROWITZ), 1890, A., 357.
- $\alpha$ -Propionylpropionamide** (OTTO and TROGER), 1889, A., 957.
- $\beta$ -Propionylpropionic acid** (*homolactic acid*) and its dioximes (ZANETTI), 1892, A., 351; (FITTIG and HILLERT), 1892, A., 961.
- Propionylpropionitrile** (v. MEYER), 1889, A., 111; (BOUYEAULT), 1891, A., 51.
- 1-Propionylpyrroline** (DENNENFELD and ZIMMERMANN), 1887, A., 844.
- Propionylquinol and its hydrazine** (GOLDZWEIG and KAISER), 1891, A., 417.
- Propionylresorcinol and its hydrazine** (GOLDZWEIG and KAISER), 1891, A., 417.
- Propionylsodacetaldehyde** (CLAISEN and SYLOS), 1888, A., 671.
- Propiophenone** (*phenyl ethyl ketone*) and its derivatives (PAMPPEL and SCHMIDT), 1887, A., 252.
- amido-, hydrochloride (SCHMIDT), 1890, A., 372.
- nitroso- (v. PECHMANN and MÜLLER), 1888, A., 1088; (CLAISEN and MANASSE), 1889, A., 585; (GUDEMAN), 1889, A., 613.
- Propiophenone-*o*-carboxylamide** (GABRIEL), 1886, A., 620.
- Propiophenone-*o*-carboxylic acid, pentachloro-** (ZINCKE and COOKSEY), 1890, A., 785.
- Propiothienone and its derivatives** (KRECKELER), 1886, A., 539.
- Propoxybenzamide** (FILETI and ANDONA), 1892, A., 595.
- Propoxybenzene** (*phenyl propyl ether*), heat equivalent of (STOHMANN, RODATZ and HERZBERG), 1887, A., 428.
- $\gamma$ -bromo- (LOHMANN), 1891, A., 1467.
- $\gamma$ -chloro- (GABRIEL), 1892, A., 717.
- p*-Propoxybenzoic acid** (REMSEN and GRAHAM), 1889, A., 975.
- Propoxybenzonitrile** (FILETI and ANDONA), 1892, A., 595.
- Propoxybromosalicylic acid** (PERATONER), 1887, A., 487.
- 4-Propoxy- $\beta$ -naphthaquinone, 3-chloro-** (ZINCKE), 1888, A., 710.
- Propoxypropylanthracene** (HALLGARTEN), 1889, A., 895.
- Propyl, change of, into isopropyl in the cumenes** (WIDMAN), 1891, A., 45.
- compounds, specific volumes of (ZANDER), 1883, A., 13.
- Propyl hexyl ketone** (WAGNER), 1892, A., 35.
- Propyl- and isopropyl-acetanilide** (POTTER), 1890, A., 758.
- iso*Propylacetic acid.** See *iso*Valeric acid.
- iso*Propylacetone, oxime of** (WESTENBERGER), 1884, A., 581.
- iso*Propylacetylphosphinic acid, and its salts** (MICHAELIS), 1884, A., 901; 1885, A., 747.

- Propylacetothienone.** See Propylthienyl methyl ketone.
- isoPropylacetylene.** See Pentinene.
- Propyl- and isopropyl-acetylenecarboxylic acids** (FAWORSKY), 1888, A., 1169.
- Propylacridine** (VOLPI), 1892, A., 343.
- Propylaldoxime** (PETRACZEK), 1888, A., 569.
- Propylallylamine** and its platinochloride (LIEBERMANN and PAAL), 1888, A., 909.
- Propylallylthiocarbamide** (HECHT), 1890, A., 476; (AVENARIUS), 1891, A., 549.
- Propylamidoacetic acid** (CHANCEL), 1892, A., 804.
- Propylamine** (VINCENT), 1886, A., 1004. preparation of (MALBOT), 1887, A., 652. magnetic rotatory power of (PERKIN), 1889, T., 692, 730. molecular refraction and dispersion of (GLADSTONE), 1891, T., 296. derivatives of (GABRIEL and WEINER), 1888, A., 1292; (GABRIEL and LAUER), 1890, A., 472; (LAUER), 1890, A., 1089; (CHANCEL), 1892, A., 804.  $\beta$ -bromo-, derivatives of (HIRSCH), 1890, A., 859.  $\gamma$ -bromo-, derivatives of (GABRIEL and WEINER), 1888, A., 1293. hydrobromide (LAUER), 1890, A., 1090. 2:3-dibromo-, hydrobromide (PAAL and HERMANN), 1890, A., 228. tribromo- (PAAL), 1889, A., 117. hydrobromide (PAAL and HERMANN), 1890, A., 229. thio-derivatives of (COBLENTZ), 1891, A., 1216.
- Propylamines** and their derivatives (CHANCEL), 1892, A., 804.
- isoPropylamine**,  $\alpha\beta$ -dithiocyano-, and its derivatives (TCHERNIAU and NORTON), 1884, A., 664.
- isoPropylamines** (H. and A. MALBOT), 1891, A., 166.
- Propylaminenitrobenzamide**,  $\gamma$ -bromo- (ELFELDT), 1892, A., 214.
- Propylammonium propyldithiocarbamate** (HECHT), 1890, A., 476.
- Propylisocamylamine**, dibromo-, and its hydrobromide (PAAL), 1889, A., 118.
- Propylisocamylglyoxalines**, *n*- and *iso*- (*oxal*isocamyl-*n*- and *iso*-butylines) (RIEGER), 1889, A., 119.
- p*-isoPropyl-*o*-isocamyltoluene** (CLAUS), 1892, A., 985.
- Propylaniline** (DOEBNER and v. MILLER), 1884, A., 1376; (PICTET), 1890, A., 753. *p*-nitroso- (WACKER), 1888, A., 466.
- isoPropylaniline** (PICTET and CRÉPIEU), 1888, A., 689; (PICTET), 1890, A., 758.
- Propylanilinenitrosamine**, *p*-nitroso- (WACKER), 1888, A., 466.
- Propylazauric acid** (MEYER and CONSTAM), 1888, A., 41.
- Propylbenzamide** (FILETI), 1887, A., 43.  $\beta$ -bromo- (HIRSCH), 1890, A., 860.  $\gamma$ -bromo- (GABRIEL and ELFELDT), 1892, A., 212.  $\beta$ -chloro- (GABRIEL and HEYMANN), 1890, A., 1268.  $\gamma$ -chloro- (GABRIEL and ELFELDT), 1892, A., 213.
- Propylbenzene.** See *n*-Cumene.
- isoPropylbenzene.** See Cumene.
- Propylbenzoic acid.** See *n*-Cuminic acid.
- isoPropylbenzoic acid.** See *iso*Cuminic acid.
- Propylbenzonitrile.** See Propyldiphenylic cyanide.
- p*-Propylbenzophenone** and its oximes (SMITH), 1892, A., 488.
- p*-isoPropylbenzophenone** and its oximes (SMITH), 1892, A., 489.
- Propylbenzoylethylidene cyanide** (*propylbenzoylpropionitrile*), imido- (BURNS), 1891, A., 889.
- isoPropylbenzoylformic acid** (*isopropylphenylglyoxylic acid*) (FILETI and AMORETTI), 1891, A., 1060.
- Propylbenzylamine** (ZAUNSCHIRM), 1888, A., 1077.
- isoPropylbenzylamine.** See Cuminyllamine.
- Propylisobutanetricarboxylic acid** (BISCHOFF and TIGERSTEDT), 1890, A., 1103.
- Propylbutylamine**, dibromo- (PAAL), 1889, A., 117.
- Propylisobutylamine** (PAAL and HEUPPEL), 1892, A., 32. dibromo- (PAAL), 1889, A., 117.
- isoPropylisobutylethylene glycol** (FOSSEK), 1884, A., 833; (SWOBODA and FOSSEK), 1891, A., 31.
- Propyl-*n*- and -iso-butylglyoxalines** (*oxal*-*n*- and *iso*-butylbutylines) (RIEGER), 1889, A., 119.
- Propylisobutylglyoxaline** (*oxal*propylisocamyline) (RADZISZEWSKI), 1884, A., 986.
- α*-isoPropyl- $\beta$ -isobutylhydraerylic acid** (WOHLBRÜCK), 1887, A., 1100.

- Propylisobutylquinol** (FIALA), 1886, A., 451.
- 3'-Propyl-2'-butylquinoline**, and its salts (DOERNER and V. MILLER), 1881, A., 1376.
- 3'-isoPropyl-2'-isobutylquinoline** (SPADY), 1886, A., 263.  
reactions occurring in the synthesis of (V. MILLER), 1891, A., 1102.
- p-isoPropyl-n- and -iso-o-butyltoluenes** (CLAUS), 1892, A., 985.
- Propylcarbamide** (CHANCEL), 1892, A., 1421.  
2:3-dibromo-, and its derivatives (ANDREASCH), 1884, A., 732; (PAAL and HEUPEL), 1892, A., 30; (PAAL), 1892, A., 578.
- $\alpha$ -Propyl- $\beta$ -chlorocinnamic acid** (PERKIN and CALMAN), 1886, T., 163.
- $\alpha$ -isoPropylcinnchonic acid** (DOEBNER), 1887, A., 504.
- isoPropylcinnamaldehyde**. See  $\alpha$ -Cumylacetaldehyde.
- isoPropylcinnamic acid**. See Cumylacrylic acid.
- Propylcinnamoylamides**,  $\beta$ - and  $\gamma$ -bromo- (ELFELDT), 1892, A., 215.
- $\alpha$ -isoPropylcoumarin**, derivatives of (ALDRINGEN), 1892, A., 330.  
thio- (ALDRINGEN), 1890, A., 624.
- $\alpha$ -isoPropyl-coumaroxime and -coumarphenylhydrazide** (ALDRINGEN), 1890, A., 624.
- isoPropyl-m-cresol** and its derivatives (MAZZARA), 1883, A., 463.
- Propyleyanocamphor** (HALLER), 1891, A., 1499.
- Propyl- and isopropyl-deoxybenzoin** (DISCHOFF), 1889, A., 512.
- Propyldiallylcarbinol**. See Decinylic alcohol.
- 3'-isoPropyldihydroindole** (TRENKLER), 1889, A., 260.
- Propyldiphenylic trioyanide** (KRAFFT and V. HANSEN), 1889, A., 697.
- Propylene**, formation of, from glycerol (CLAUS), 1886, A., 136.  
liquefaction of (MOLTSCHANOWSKI), 1889, A., 1126.  
and oxygen, explosion of, under diminished pressure (MEYER and SEUBERT), 1884, T., 585, 595.
- Propylene**, 1-amido- (HIRSCH), 1890, A., 860.  
3-amido-. See Allylamine.  
1-bromo-. See Allylic bromide.  
3-bromo- and iso-3-bromo- (WISLIGENUS, TEISLER and LANGBEIN), 1889, A., 236.  
1:3-dibromo- (LESPIEAU), 1892, A., 420.
- Propylene**, bromonitro- (ASKENASY and MEYER), 1892, A., 1064.  
 $\alpha$ -chloro- and iso- $\alpha$ -chloro- (WISLIGENUS), 1887, A., 656; (WISLIGENUS, TEISLER and LANGBEIN), 1889, A., 236.  
 $\alpha$ - and  $\beta$ -dichloro-, action of triethylamine on (REBOUL), 1863, A., 307.  
1:2:3-triiodo- (HENRY), 1881, A., 979.  
pentachloro- (LEVY and CURCHOD), 1889, A., 1136.  
nitro- (MEYER), 1892, A., 575; (ASKENASY and MEYER), 1892, A., 1062.  
sodium derivative of (ASKENASY and MEYER), 1892, A., 1062.
- Propylene chlorhydrin**, constitution and oxidation of (MORLEY and GREEN), 1885, T., 132; P., 3.  
action of zinc ethyl on the benzoate of (MORLEY and GREEN), 1885, T., 134.
- Propylene ethylphenylketate**, preparation and oxidation of (MORLEY and GREEN), 1885, T., 135.  
action of hydriodic and sulphuric acids on (MORLEY and GREEN), 1885, T., 137.
- 1:2-Propylene glycol** (*trimethyl glycol*), formation of, from acetylcarbinol (PERKIN), 1891, T., 796.  
preparation of (MORLEY and GREEN), 1885, T., 132.  
action of aldehyde on (DE GRAMONT), 1884, A., 35.  
diacetin of (BÉHAL and DESGREZ), 1892, A., 1163.
- 1:3-Propylene glycol** (*trimethylene glycol*) (NIEDERIST), 1883, A., 150.  
acetyl of (LOCHERT), 1888, A., 935.
- Propylene mercaptan** (HAGELBERG), 1890, A., 950.
- Propylene oxide**, heat of combustion of (BRÜHL), 1891, A., 633.  
oxidation of, by silver oxide (LINNEMANN), 1885, A., 1011.  
chloro-. See Epichlorhydrin.
- Propyleneacetal** (DE GRAMONT), 1884, A., 35.
- Propyleneallyl- $\psi$ -thiocarbamide** (HIRSCH), 1890, A., 861.
- Propyleneazo-**. See Azo-.
- 4-isoPropylenebis-1- and 3-phenylmethylpyrazolone** (KNORR), 1887, A., 602.
- Propylenecarbamide** (GABRIEL), 1890, A., 128.  
bromo-, and its derivatives (ANDREASCH), 1884, A., 732; (PAAL), 1892, A., 578.

- Propylene- $\psi$ -carbamide** (HIRSCH), 1890, A., 859.
- Propylenediamine**, derivatives of (STRACHE), 1888, A., 1172.
- Propylenediisomethylamine acetate and benzoate** (LOUINE), 1889, A., 118.
- Propylenedicarboxylic acid**. See Glutaric acid.
- Propylenediphenyldisulphone** (STUFFER), 1890, A., 988; 1891, A., 181.
- Propylenedisulphonic acid**. See 1,2-Propanedisulphonic acid.
- Propylene-ethenyldiamine** (*ethenyl-propylenediamine*) (V. HOFMANN), 1888, A., 1051.
- Propyleneglycolcarboxylic acid**. See  $\alpha$ , $\beta$ -Dihydroxybutyric acid.
- Propylene-oxamic acid and -oxamide** (STRACHE), 1888, A., 1173.
- Propyleneoxy-carboxylic acid**. See  $\beta$ -Methylglycidic acid.
- Propylene- $\psi$ -selenocarbamide hydrobromide** (FITIG and DUBOIS), 1890, A., 880.
- Propylenesuccinimide** (STRACHE), 1888, A., 1173.
- Propylenethiocarbamide methiodide** (GABRIEL), 1890, A., 128.
- Propylene- $\psi$ -thiocarbamide** (GABRIEL), 1890, A., 127; (HIRSCH), 1890, A., 859.
- Propylenic bromide**, conversion of trimethylenic bromide into (GUSTAVSON), 1888, A., 240.
- action of ammonia on (GALEWSKY), 1890, A., 952.
- action of, on the sodium derivatives of ethylic acetoacetate and ethylic benzoylacetate (PERKIN and STENHOUSE), 1891, P., 190; 1892, T., 67.
- diethylic and diphenylic disulphides (STUFFER), 1891, A., 181.
- iodide from allylic iodide and hydrogen iodide (MALBOT), 1888, A., 1262.
- dinitrite (BERTONI), 1887, A., 458.
- selenocyanate and thiocyanate (HAGELBERG), 1890, A., 950.
- Propylethenyltricarboxylic acid**. See *n*-Pentametricarboxylic acid.
- Propylethyl-**. See Ethylpropyl-.
- isoPropylethylene**. See *a*-isoAmylene.
- Propylethylic cyanide**, oxime of. See Methylthylisooxazole, amido-.
- $\alpha$ -imido- (*imidohexonitrile*) (V. MEYER), 1889, A., 114.
- isoPropylformamide** (SPICA), 1887, A., 1028.
- Propylformanilide** (PICTET and CRÉPIEUX), 1888, A., 689; (PICTET), 1890, A., 758.
- Propylisoformanilide** (COMSTOCK and CLAPP), 1892, A., 708.
- isoPropylformanilide** (PICTET and CRÉPIEUX), 1888, A., 689; (PICTET), 1890, A., 758.
- Propylformimide hydrochloride** (PINNER), 1883, A., 1089.
- isoPropylformonsaphthylamide** (SPICA), 1887, A., 1028.
- Propylglyoxaline** (*glyoxalbutylene*) (RIEGER), 1889, A., 119.
- p*-Propylglyoxaline** (WALLACH), 1888, A., 911.
- isoPropylglyoxaline** (*glyoxalisoobutylene*) (RADZISZEWSKI), 1883, A., 1086; (RIEGER), 1889, A., 120.
- Propyl-group** in cymene, nature of the (WIDMAN), 1891, A., 686.
- intramolecular changes in the (WIDMAN), 1886, A., 464; 1889, A., 1185; 1892, A., 43.
- conversion of, into the isopropyl group (GUSTAVSON), 1883, A., 565.
- Propylhexamethylene** (BAMBERGER and LENGELD), 1890, A., 1320.
- Propylhexylglyoxaline** (*oxalpropyl-ananthylene*) (KARCY), 1887, A., 911.
- $\alpha$ -Propylhomopiperidinic acid** (ASCHAN), 1891, A., 467.
- Propylhydrocarbostyryl** (WIDMAN), 1887, A., 132.
- p*-Propylhydrocinnamic acid** (*propylphenylpropionic acid*) (WIDMAN), 1887, A., 133.
- Propylic alcohol**, vapour pressures of (RICHARDSON), 1886, T., 763, 771, 773; (SCHMIDT), 1892, A., 297.
- vapour pressures of a mixture of water and (RAMSAY and YOUNG), 1888, P., 101.
- action of *Bacterium aceti* on (BROWN), 1886, T., 177.
- action of bromine on (ETARD), 1892, A., 809.
- compound of calcium chloride with (GOTTIG), 1890, A., 465.
- isoPropylic alcohol**, action of bromine on (ETARD), 1892, A., 809.
- compound from benzil and (JAPP and RASCHEN), 1886, T., 832; P., 203.
- hydrate of (RUEHMANN and CARNEGIE), 1888, T., 127.
- sodium derivative of (DE FORCRAND), 1892, A., 691.
- thermochemistry of (DE FORCRAND), 1892, A., 674.
- amido-. See Hydroxypropylamine.
- Propylic salts** of normal fatty acids, boiling points and specific volumes of (GARFENMEISLER), 1886, A., 966.

- Propylic acetate, dibromo-** (ASCHAN), 1890, A., 1084.  
**anisylimidoanisylthiocarbamate** (FOERSTER), 1888, A., 915.  
**benzenesulphonate** (KRAFFT and ROOS), 1892, A., 1220.  
**benzoate,  $\beta$ -amido-, hydrobromide** (GABRIEL and HEYMAN), 1890, A., 1268.  
 **$\gamma$ -amido-** (GABRIEL and ELFELDER), 1892, A., 213.  
**bromide, transformation of, into iso-propylic bromide under the influence of heat** (ARONSTEIN), 1883, A., 172.  
 **$\beta$ -isobutoxyquartenylate** (ENKE), 1890, A., 866.  
**trichloroacetate** (CLERMONT), 1883, A., 729.  
**chlorides, chlorination of** (MEYER and MULLER), 1892, A., 1414.  
**trichloroacetate** (ANSCHUTZ and HANLAN), 1890, A., 27.  
 **$\beta$ -chloroquartenylate** (ENKE), 1890, A., 865.  
**chloroxalate** (ANSCHUTZ), 1890, A., 236.  
**cocoylbenzoylhydroxyacetate** (EINHORN), 1889, A., 420.  
**cyanide (*butyronitrile*), dimolecular** (WACHE), 1889, A., 684.  
**dioxythiocarbonate** (SCALA), 1887, A., 800.  
 **$\beta$ -ethoxyquartenylate** (ENKE), 1890, A., 865.  
**fluoride** (MEHLANS), 1889, A., 575.  
**formate, magnetism of** (HENRICHSEN), 1892, A., 672.  
**glycol.** See Propylene glycol.  
**hydrogen oxalate** (ANSCHUTZ and SCHONFELD), 1886, A., 785.  
**hydrogen sulphate,  $\gamma$ -amido-** (GABRIEL and LAUER), 1890, A., 473.  
**iodoacetate** (HENRY), 1885, A., 372.  
 **$\beta$ -methoxyquartenylate** (ENKE), 1890, A., 865.  
 **$\alpha$ - and  $\beta$ -naphthylimidonaphthylthiocarbamates** (EYERS), 1888, A., 601.  
**nitrate, magnetic rotatory power of** (PERKIN), 1889, T., 683.  
**nitrite, preparation of, by double decomposition** (BERTONI and TRUFFI), 1884, A., 1110.  
**oxalate** (ANSCHUTZ), 1890, A., 236.  
**oxysulphide** (WINSSINGER), 1888, A., 243.  
**action of chlorine on** (SPRING and WINSSINGER), 1883, A., 659.  
**phenylacetylurate** (HORTER), 1888, A., 1299.
- Propylic phenyloxamate** (ANSCHUTZ), 1890, A., 235.  
**phosphite** (JAEHNE), 1890, A., 859.  
 **$\beta$ -propoxyquartenylate** (ENKE), 1890, A., 866.  
**succinate, magnetic rotatory power of** (PERKIN), 1888, T., 562, 587.  
 **$\alpha$ -sulphaminebenzoate** (REMSEN and DOHME), 1889, A., 992.  
**sulphide in Ohio petroleum** (MABERY and SMITH), 1891, A., 1172.  
**action of chlorine on** (SPRING and LECRENTER), 1888, A., 661.  
**platinum compounds of** (RUDELIUS), 1889, A., 367.  
**disulphide** (SPRING and LEGROS), 1883, A., 48.  
**vanadate** (HALL), 1887, T., 753.  
**isoPropylic acetate, dibromo-** (ASCHAN), 1890, A., 1084.  
**benzoate, chloro-, preparation of** (MORLEY and GREEN), 1885, T., 135.  
**bromide, transformation of propylic bromide into, under the influence of heat** (ARONSTEIN), 1883, A., 172.  
**chloride, action of aqueous ammonia on** (H. and A. MALBOR), 1891, A., 413.  
**chlorocarbonate** (SPICA), 1887, A., 1028.  
**cyanide (*isobutyronitrile*), action of sodium on** (V. MEYER), 1888, A., 801.  
**fluoride** (MEHLANS), 1889, A., 575.  
**hydrogen oxalate** (ANSCHUTZ and SCHONFELD), 1886, A., 786.  
**iodide, action of aqueous ammonia on** (H. and A. MALBOR), 1891, A., 413.  
**phenylcarbamate** (GUMPERT), 1885, A., 656; 1886, A., 312.  
**phenyloxamate** (ANSCHUTZ), 1890, A., 236.  
**sodium thiosulphate** (PURGORIN), 1892, A., 1118.  
**sulphide, platinum compounds of** (RUDELIUS), 1889, A., 367.  
**disulphide** (SPRING and LEGROS), 1883, A., 48.
- Propylidene diethyl and dimethyl ethers** (NEWBURY and BARNUM), 1891, A., 284.  
**Propylidene ethylene disulphide and disulphone** (FASBENDER), 1888, A., 804.  
**Propylideneacetic acid (*pentonic acid*)** (KOMNENOS), 1884, A., 423; (OFF), 1891, A., 1453.

- Propylideneacetic acid** (*pentenoic acid*) from malonic acid and from *o*-amido-phenol (ZINCKE and KUSTER), 1891, A., 821.  
 preparation and derivatives of (ZINCKE and KUSTER), 1889, A., 599.
- isoPropylideneacetone.** See Methyl isobutenyl ketone.
- isoPropylidene-*p*-amidophenol** (HAEGELE), 1892, A., 1451.
- Propylideneaniline** (v. MILLER and FLOCHL), 1892, A., 1191.
- Propylenediadicetic acid** (KOMNENOS), 1884, A., 423.
- Propylenedithyldisulphone** (BAUMANN and KAST), 1889, A., 1232; (FROMM), 1890, A., 56.
- isoPropylenedithyldisulphone.** See Diethylsulphonedimethylmethane and Sulphonal.
- Propylenedimethyldisulphone** (BAUMANN and KAST), 1889, A., 1232.
- isoPropylenediphenol** (DIANIN), 1889, A., 1187.
- Propylenepropaldehyde** (LIEBEN and ZEISEL), 1883, A., 570.
- isoPropylindene, amido-** (v. MILLER and ROHDE), 1889, A., 984.
- 3'-isoPropylindole** (TRENKLER), 1889, A., 259.
- Propylitaconic acid** (FITTIG and SCHMIDT), 1890, A., 589.
- Propylitamic acid, salts of** (FITTIG and SCHMIDT), 1890, A., 588.
- isoPropylitamic acid, salts of** (FITTIG and ZANNER), 1890, A., 590.
- Propyllupetidine** (2:6-dimethyl-4-propylhexahydropyridine) (JAECKLE), 1888, A., 1104.
- Propyllutidine** (2:6-dimethyl-4-propylpyridine) (JAECKLE), 1888, A., 1104.
- Propyllutidinedicarboxylic acid** (2:6-dimethyl-4-propylpyridinedicarboxylic acid) (JAECKLE), 1888, A., 1104.
- isoPropylmalic acid** (SCHLEICHER), 1892, A., 428.
- Propylmalonic acids, *n*- and *iso*,** thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097.
- Propylmercaptomethylthiazoline.** See Propylsulphydiomethylthiazoline.
- Propylmercaptophthalimide.** See Sulphydiopropylphthalimide.
- Propylmethyl.** See Methylpropyl.
- $\beta$ -Propylnaphthalene** (ROUX), 1884, A., 1357; 1888, A., 1305.
- Propyl- $\alpha$ - and - $\beta$ -naphthylamines** (MINIZ), 1892, A., 1838.
- Propyl- and isopropyl-nitramines and their derivatives** (SIMON-THOMAS), 1891, A., 167.
- Propyl-*m*-nitrobenzamide,  $\beta$ -bromo** (ELFELDT), 1892, A., 213.
- p*-isoPropyl-*o*-nitrophenyl- $\beta$ -bromopropionic acid** (EINHORN and HESS), 1884, A., 1352.
- isoPropylnitrophenyllactamide** (EINHORN and HESS), 1884, A., 1353.
- isoPropylnitrophenyllactic acid,  $\beta$ -lactone of** (EINHORN and HESS), 1884, A., 1351.
- p*-isoPropyl-*o*-nitrophenyllactic acid and its salts** (EINHORN and HESS), 1884, A., 1353.
- p*-isoPropyl-*o*-nitrostyrene** (EINHORN and HESS), 1884, A., 1353.
- Propylnitrous acid, potassium salt of** (CHANCEL), 1883, A., 915.
- Propyloxamic acid** (CHANCEL), 1892, A., 804.
- Propyloxanthranol** (HALLGARTEN), 1889, A., 895.
- Propylparaconic acid** (FITTIG), 1888, A., 251; (FITTIG and SCHMIDT), 1890, A., 588.
- isoPropylparaconic acid** (FITTIG and ZANNER), 1890, A., 589.
- Propylpentenethiocarbamide, symmetrical** (HEHR), 1892, A., 702.
- Propylphenol.** See Cumenol.
- Propylphenylamine** (*p*-amido- $\beta$ -phenylpropane) and its derivatives (FRANCKSEN), 1884, A., 1007.
- isoPropylphenylanilidoacetic acid.** See Anilidocumylacetic acid.
- p*-Propylphenylcarbamide** (FRANCKSEN), 1884, A., 1008.
- p*-Propylphenyldimethylamine** (CLAUS and HOWITZ), 1884, A., 1006.
- isoPropylphenylformamide** (DE VARDA), 1887, A., 1028.
- Propylphenylic cyanide** (FRANCKSEN), 1884, A., 1009.
- p*-Propylphenylthiocarbamides** [m.ps. 159° and 63°] (FRANCKSEN), 1884, A., 1008; (HECHT), 1890, A., 477.
- p*-Propylphenylthiocarbimide** (FRANCKSEN), 1884, A., 1008.
- Propylphenyl.** See also Phenylpropyl.
- isoPropylphenyl.** See also Cumyl.
- isoPropylphosphinecarboxylic acid** (MICHAELIS), 1885, A., 748.
- Propylphosphoric acid** (WINSSINGER), 1888, A., 243.
- isoPropylisophthalic acid** (DOEBNER), 1890, A., 1283; 1891, A., 1064.
- isoPropylphthalide** (ROSER), 1885, A., 268.
- Propylphthalimide** (GABRIEL), 1892, A., 157.
- $\beta$ -bromo-** (SEITZ), 1891, A., 1472.

- Propylphthalimide**,  $\gamma$ -bromo- (GABRIEL and WEINER), 1888, A., 1292.  
 $\gamma$ -cyano- (GABRIEL), 1890, A., 360.  
 $\beta$ -thiocyano- (SEITZ), 1891, A., 1473.  
 $\gamma$ -thiocyano- (GABRIEL and LAUER), 1890, A., 472; (LAUER), 1890, A., 1090.  
*iso*Propylphthalimide (GABRIEL), 1892, A., 158.  
 "Propylphycite" (FAUCONNIER), 1889, A., 31.  
 $\alpha$ -*iso*Propylpiperidine (LADENBURG), 1887, A., 740.  
 $\alpha$ -Propylpiperidine ( *$\alpha$ -propylhexahydropyridine*) (LADENBURG), 1887, A., 161.  
 $\alpha$ -*iso*Propylpiperidine (LADENBURG), 1884, A., 1386; 1887, A., 65.  
 $\gamma$ -*iso*Propylpiperidine (LADENBURG), 1887, A., 65.  
 $d$ - $\alpha$ -Propylpiperidine. See Coniine under Alkaloids.  
 Propylpiperidines (LADENBURG), 1884, A., 1196.  
 $\beta$ -Propylpiperidone (ASCHAN), 1891, A., 468, 1246.  
 Propylpropargylamine (PAAL and HERMANN), 1890, A., 230.  
 $\beta$ -*iso*Propylpropiethienone (THIELE), 1892, A., 443.  
 Propylisopropylbenzenes, synthesis of (HEISE), 1891, A., 686.  
 $p$ -Propylisopropylbenzene and its derivatives (FILET), 1891, A., 1023.  
 $p$ -Propylisopropylbenzenesulphonic acids,  $\alpha$ - and  $\beta$ - (HEISE), 1891, A., 686; (FILET), 1891, A., 1024.  
 Propylisopropylglyoxaline (*oxalpropylisobutyl*) (RIEGER), 1889, A., 120.  
 Propylisopropylnitramine (SIMON-THOMAS), 1891, A., 168.  
 $o$ -Propyl- $p$ -isopropyltoluene (CLAUS), 1892, A., 985.  
 Propylpyridines (LADENBURG), 1884, A., 759, 1196.  
 $\alpha$ -*n*-Propylpyridine (*conyrine*) (v. HOFMANN), 1884, A., 1200; (LELLMANN and MULLER), 1890, A., 802.  
 oxidation of (TAFEL), 1892, A., 1104.  
 platinumchloride (LADENBURG), 1887, A., 161; (LEIYER), 1887, A., 383.  
*iso*Propylpyridines (LADENBURG and SCHRADER), 1884, A., 1048.  
 $\alpha$ -*iso*Propylpyridine and its derivatives (LADENBURG), 1885, A., 992; 1887, A., 60.  
 $\gamma$ -*iso*Propylpyridine (LADENBURG), 1887, A., 60.  
 Propylpyridylalkine. See Hydroxybutylpyridine.
- 1-Propylpyrroline (ZANETTI), 1890, A., 66, 908.  
*iso*Propylpyrroline (DENNSTEDT and ZIMMERMANN), 1887, A., 598.  
 base formed by the action of hydrochloric acid on (DENNSTEDT and ZIMMERMANN), 1888, A., 849.  
 2-*iso*Propylquinoline (*cumoquinoline*), and its derivatives (WIDMAN), 1886, A., 465.  
 2'-chloro- (WIDMAN), 1886, A., 465.  
 2'-*iso*Propylquinoline (DUEBNER), 1887, A., 504.  
 3'-*iso*Propylquinoline (SPADY), 1886, A., 264.  
 3'-*iso*Propylquinoline-2'-carboxylic acid (SPADY), 1886, A., 263.  
 Propyl- $\gamma$ -selenidophthalamic acid (COBLENTZ), 1891, A., 1216.  
 Propylsuccinic acid (*hydroxyheric acid*) (WALTZ), 1883, A., 46; (GORBOFF), 1888, A., 1179.  
*iso*Propylsuccinic acid. See Pimelic acid.  
 Propyl-succinimide and -*isosuccinimide* (CUMSTOCK and WHEELER), 1892, A., 701.  
 Propylsulphonic acid. See Propane-sulphonic acid.  
 Propylsulphydromethylthiazoline (HIRSCH), 1890, A., 860.  
 Propylsulphuric acid,  $\gamma$  amido- (LAUER), 1890, A., 1090.  
*iso*Propyltartaric acid (*hydroxyisohexic acid*) (GORBOFF), 1888, A., 1179.  
*iso*Propylthienyl ethyl ketone ( $\beta$ -*isopropylpropiethienone*) (THIELE), 1892, A., 443.  
 Propylthienyl methyl ketone (*propylacetothienone*) (RUFF), 1887, A., 804.  
*iso*Propylthienyl methyl ketone (THIELE), 1892, A., 442.  
 Propylthienylglyoxylic acid (RUFF), 1887, A., 804.  
 $\alpha$ -Propyl- $\beta$ -thiobiuret (HECHT), 1892, A., 704.  
 Propylthiocarbamide (HECHT), 1890, A., 476.  
 homo- (LAUER), 1890, A., 1090.  
 Propylthiocarbamide-benzyl-, -ethyl-, -methyl and -propyl cyanides (HECHT), 1890, A., 1104.  
 Propylthiocarbamilide (BILLETER and STROHL), 1888, A., 366.  
 Propylthiocarbimide (HECHT), 1890, A., 476.  
*iso*Propylthiocoumarin (ALDRINGEN), 1892, A., 330.  
 Propylthiophen, derivatives of (RUFF), 1887, A., 804.  
 bromo-, iodo-, and dinitro- (RUFF), 1887, A., 804.

- iso*Propylthiophen [b. p. 154°] (SCHLEICHER), 1886, A., 534.
- β-iso*Propylthiophen [b. p. 158°] (THIELE), 1892, A., 442.
- mercuric chloride (VOLHARD), 1892, A., 829.
- Propylthiophenic acid (*propylthiophen-carboxylic acid*) (RUFF), 1887, A., 804.
- Propyl-*ψ*-thiosinamine (HECHT), 1890, A., 476; (AVENARIUS), 1891, A., 549.
- Propyltoluenes, *n*- and *iso*-. See Cymenes.
- p*-Propyl-*o*-toluic acid. See 1-Methyl-3-propyl-2-benzoic acid.
- Propyl-*p*-toluidines, *n*- and *iso*- (HORI and MORLEY), 1890, P., 145; 1891, T., 33.
- Propyltricarballic acids, *n*- and *iso*- (AUWERS), 1891, A., 546; (AUWERS, KÜBNER and v. MEYENBURG), 1892, A., 42.
- Propyltrimethyl-. See Trimethylpropyl-.
- Propylxanthic acid (SCALA), 1887, A., 800.
- Propyl-*o*-xylene and its trithromo-derivative (UHLHORN), 1890, A., 1249.
- Propyl-*m*- and -*p*-xylenes (UHLHORN), 1890, A., 1249.
- iso*Propyl-*m*-xylene (UHLHORN), 1890, A., 1249.
- Propyl-*o*-, *m*-, and -*p*-xylenesulphanilides (UHLHORN), 1890, A., 1249.
- iso*Propylxylenesulphanilide (UHLHORN), 1890, A., 1249.
- Propyl-*o*-, *m*- and -*p*-xylenesulphonic acids, and their amides (UHLHORN), 1890, A., 1249.
- iso*Propyl-*m*-xylenesulphonic acid and its amide (UHLHORN), 1890, A., 1249.
- Proscopite (CROSS and HILLEBRAND), 1884, A., 22; (GROTH), 1884, A., 266.
- chemical composition of (BRANDL), 1883, A., 30.
- Protagon. See Lecithin.
- Proteic acid (SCHÜTZENBERGER), 1886, A., 270.
- Proteid, from human blood serum (CHABRIÉ), 1892, A., 224.
- Proteid absorption (NEUMEISTER), 1891, A., 233.
- Proteid ammonia, dynamical theory of (WARDER), 1890, A., 87.
- Proteid digestion (STUTZER), 1886, A., 377.
- Proteid-hydrolyst (ARMSTRONG), 1890, T., 531.
- Proteid metabolism. See Metabolism.
- Proteid poisons (MARTIN), 1889, A., 1026.
- Proteid requirement of healthy men (STUDEMUND), 1891, A., 1272.
- Proteid substances in urine (MÜLLER), 1886, A., 87.
- gelatinous state of (MICHAÏLOFF), 1889, A., 171.
- application of dialysis to the study of the gelatinous state of (SOLOWIEFF), 1888, A., 856.
- Proteids (*albuminoids*) (DANILEWSKY), 1884, A., 1388; (GRIMAUZ), 1885, A., 1146; (SCHÜTZENBERGER), 1886, A., 270.
- of the blood, production of (TORUP), 1889, A., 532.
- relation of dextrose to the (SCHENCK), 1891, A., 350.
- of lower Vertebrata (HALLIBURTON), 1886, A., 1050.
- of cerebrospinal fluid (HALLIBURTON), 1887, A., 614.
- of liver and kidney cells (HALLIBURTON), 1890, A., 1014.
- of human milk and cows' milk (BIEDERT), 1885, A., 922; 1887, A., 388; (DOGIEL), 1885, A., 1149.
- of muscle plasma (HALLIBURTON), 1887, A., 984.
- of serum (HALLIBURTON), 1885, A., 571.
- action of salts on the (LEWIS), 1889, A., 424.
- of the vitreous humour of the human eye (GIACOSA), 1884, A., 198.
- in urine (NOËL-PATON), 1890, A., 1174.
- in normal urine (WINTERNITZ), 1891, A., 1130.
- of white of egg (CORIN and BÉRARD), 1889, A., 1075.
- synthesis of (SCHÜTZENBERGER), 1891, A., 588.
- synthetical studies on (SCHÜTZENBERGER), 1888, A., 971.
- composition of (CHICHKOFF), 1885, A., 405.
- constitution of (GAUTIER), 1885, A., 1082.
- absorption spectra of, in the ultra violet (SOIRET), 1884, A., 242.
- heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.
- caloric values of (SROEMANN and LANGBEIN), 1892, A., 4.
- gelatin and peptones, capillarimetric distinction between (BODLÄNDER and TRAUPE), 1886, A., 1087.
- relation of, to digestive ferments (STUTZER), 1887, A., 1129.
- action of alcohols and aldehydes on (BRUNTON and MARTIN), 1891, A., 947.

**Proteids** (*albuminoids*), action of hydrochloric acid on (HOUBACZEWSKI), 1886, A., 85.  
 amido-acids resulting from the action of hydrochloric acid, and of barium hydroxide solutions on (SCHULZE), 1885, A., 916.  
 action of salts on (HOFMEISTER), 1889, A., 425.  
 action of hot water on (GABRIEL), 1890, A., 535.  
 decomposition of, by fermentation, and formation of non-hydroxylated aromatic acids (SALKOWSKI), 1885, A., 998.  
 decomposition products of (SIEGFRIED), 1891, A., 590.  
 changes which they undergo by the action of pancreatic ferment (OTTO), 1884, A., 1056.  
 bacterial fermentation of (GATTIER and ETARD), 1884, A., 89, 188.  
 putrefaction of, influence of carbohydrates and other substances on (HIRSCHLER), 1886, A., 729.  
 a product of the putrefaction of (GABRIEL and ASCHAN), 1891, A., 948.  
 heat coagulation of (HAYCRAFT and DUGGAN), 1890, A., 272; (CORIN and ANSIAUX), 1891, A., 1521.  
 action of salts on the coagulation of, by heat (RINGER and SAINSBURY), 1891, A., 954.  
 animal and vegetable, relative nutritive value of (RUTGER), 1888, A., 515.  
 influence of, on the digestion of foods free from nitrogen (ROSENHEIM), 1891, A., 344.  
 pathology of (MARTIN), 1891, A., 761.  
 the sulphur of (KRUGER), 1889, A., 528.  
 compounds of silver with (LOEW), 1884, A., 343.  
 ethereal derivatives of (SCHROETER), 1889, A., 1224.  
 test for (MACWILLIAM), 1891, A., 872.  
 new reaction for (MICHAÏLOFF), 1885, A., 198; (REICHL), 1889, A., 1092; 1890, A., 1350.  
 colour reactions of (SALKOWSKI), 1888, A., 508; (WINTERNITZ), 1892, A., 1036.  
 cyanogen reaction of (GNEZDA), 1890, A., 1032.  
 microchemical test for (KRASSER), 1887, A., 407.  
 detection of, in urine (MARTIN), 1888, A., 763.

**Proteids** (*albuminoids*), solution and precipitation of, by salts (LIMBOURG), 1889, A., 787.  
 estimation of (DEVOTO), 1891, A., 1304.  
 estimation of, in the liquid from cysts, etc. (GARNIER), 1887, A., 872.  
 estimation of, in urine (ORT), 1885, A., 451; (BOYMOND), 1890, A., 273.  
 estimation of sulphur in (HAMMARSTEN), 1885, A., 914, 931; (KUCHS), 1887, A., 396.  
 estimation, densimetric, of (HUPPERT and ZÁHOŘ), 1888, A., 1226.  
 See also Albumin, Albumoses, Casein, Fibrinogen, Globulins, Haemocyanin, Myosin, Peptones, Serum, Syntonin and Agricultural Chemistry.  
**Protein**, estimation of the digestibility of (JORDAN, BARILETT and MERRILL), 1889, A., 913.  
 compounds, vegetable, solubility of, in water containing hydrochloric acid (RITTHEAUSEN), 1884, A., 1390.  
**Protein-chrome** and **-chromogen** (STADELMANN), 1890, A., 804.  
**Proteolytic action**, influence of bile, bile salts, and bile acids on (CHITTENDEN and CUMMINS), 1885, A., 999.  
**Proteolytic ferments** and other ferments in oats (ELLENBERGER and HOFMEISTER), 1888, A., 867.  
**Proteoses**, conversion of, into peptones (CHITTENDEN and HARTWELL), 1891, A., 953.  
 See also Albumose and Propeptone.  
**Protoalbumose** (KÜHNE and CHITTENDEN), 1884, A., 1389; (NEUMEISTER), 1887, A., 285.  
**Protocaseose** (CHITTENDEN and PAINTER), 1888, A., 76.  
**Protocatechuic acid** (3:4-dihydroxybenzoic acid), heat of solution of (BERTHELOT), 1885, A., 1177.  
 action of sulphuric acid on (NOLTING and BOURCARR), 1883, A., 65.  
**Protocatechutannic acid**, and its derivatives (SCHIFF), 1883, A., 335.  
**Protochlorophyllin** (TIMIRIAZEFF), 1886, A., 626.  
*Protococcus pluviialis*, constant production of oxygen by the action of sunlight on (PHIPSON), 1884, A., 201.  
**Protocotoin** and its derivatives (CIAMICIAN and SILBER), 1892, A., 62, 873.  
 action of potash and methylic alcohol on (CIAMICIAN and SILBER), 1892, A., 873.  
**Protoelastose** (CHITTENDEN and HART), 1889, A., 423.

- Protogelatos** (CHITTENDEN and SOLLEY), 1891, A., 930.
- Protoglobulose** (KÜHNE and CHITTENDEN), 1886, A., 819.
- Protoglucose** (KLUG), 1891, A., 232.
- Protolithionite** (v. SANDBERGER), 1888, A., 237.
- Protomyosinose** (KÜHNE and CHITTENDEN), 1889, A., 423; (CHITTENDEN and GOODWIN), 1891, A., 950.
- Protonontronite** (KNOP), 1891, A., 650.
- Protophyllin** in etiolated plants (TIRMIAZEFF), 1889, A., 1236.
- Protopine** (*macfeyine*) (EIJKMAN), 1885, A., 404; (SELLE), 1891, A., 229; (KÖNIG), 1891, A., 844.
- Protoplasm**, aldehydic nature of (GRIFFITHS), 1884, A., 202.
- living vegetable (BOKORNY), 1890, A., 283.
- living, chemical character of (LOEW), 1883, A., 319.
- morphological and chemical composition of (SCHWARTZ), 1888, A., 983.
- albumin from (DEMME), 1892, A., 86.
- different degrees of resistance in (LOEW), 1885, A., 827.
- living, reduction of silver salts by (BOKORNY), 1887, A., 987.
- from recently killed animals, fermentation by (FOKKER), 1887, A., 984.
- reciprocal action between hæmoglobin and (SCHWARTZ), 1889, A., 629.
- toxic action of quinine on (BINZ), 1891, A., 1531.
- Protopterus annectens**, the cyst of (WALTER), 1889, A., 793.
- Proto-veratridine and -veratrine** (SALZBERGER), 1891, A., 230.
- Protovitellose** (NEUMEISTER), 1887, A., 286; (CHITTENDEN and HARTWELL), 1891, A., 343.
- Protozoa**, cellulose in (HALLIBURTON), 1886, A., 640.
- glycogen in (BÜTSCHLI), 1886, A., 87.
- Proustite** (*red silver ore*) and pyrrargyrite (MIERS), 1891, A., 273.
- containing antimony (MIERS and PRIOR), 1888, A., 657.
- decomposition of, by air containing bromine (JANNASCH), 1889, A., 1243.
- Prout's hypothesis** of the atomic weights (GERBER), 1884, A., 550; (MEYER and SEUBERT), 1885, T., 434.
- in reference to the atomic weights of carbon and oxygen (GROSHANS), 1889, A., 463.
- Prune** (NIERZKI and OTTO), 1888, A., 949.
- Prussian blue** (*ferric ferrocyanide*) (REYNOLDS), 1887, T., 644; P., 86.
- soluble (*potassium ferrous ferricyanide*) (GUIGNET), 1889, A., 475.
- Prussic acid**. See Hydrocyanic acid under Cyanogen.
- Prussides**, nitro-. See Nitroprussides.
- Pseudobiotite** (KNOP), 1887, A., 646.
- Pseudobreccia** (DANA), 1885, A., 360.
- Pseudobrookite** (SCHMIDT), 1883, A., 435; (LATTERMANN), 1889, A., 680.
- from Havredal, Norway (CEDERSTRÖM), 1890, A., 219.
- from Vesuvius (KRENNER), 1890, A., 712.
- Pseudochrosia glomerata**, alkaloid from (GRESHOFF), 1891, A., 336.
- Pseudomorphs** (DÖLL), 1885, A., 221; 1886, A., 21.
- in the lead mines of the Puy de Dôme (GONNARD), 1888, A., 348.
- after antimonite (v. FOULLON), 1886, A., 22.
- after rutile (v. LASAULX), 1885, A., 28.
- of turquoise after orthoclase (TETZKE), 1886, A., 25.
- Pseudophite** from South Africa (COHEN), 1887, A., 561.
- Psilomelane** (LANGHAUS), 1889, A., 216; (GORGET), 1890, A., 570.
- electric resistance of (MEYER), 1883, A., 701.
- lithium in (v. SANDBERGER), 1887, A., 222.
- See also Manganese dioxide, hydrated.
- Psittacinite** from the Argentine Republic (DÖRING), 1885, A., 641.
- Psoromic acid**, extracted from *Psoroma crassum* (SPICA), 1883, A., 80.
- Psoromic anhydride** (SPICA), 1883, A., 81.
- Pteris aquilina**, analysis of, and of its ash (PETERMANN), 1884, A., 207.
- Pterocarpin** from sandal wood (CAZENEUVE and HUGONENQ), 1887, A., 971; 1889, A., 160.
- Pterolite** from LÖVÖ (LAGROIX), 1887, A., 350.
- Ptilolite** (CROSS and EAKINS), 1886, A., 990.
- Ptomaines** (*leucomaines*; *putrefaction alkaloids*) (GATTIER and ETARD), 1883, A., 100, 224; (COPPOLA), 1883, A., 522, 624; 1885, A., 278, 913; (BRIEGER), 1883, A., 924, 1159; 1884, A., 1056, 1202; (E. and H. SALKOWSKI), 1883, A., 925, 1159; (GUARESCHI and MOSNO), 1883, A., 1156; 1884, A., 618; (v. POEHL), 1883, A., 1157; (MARINO-ZUCO), 1884, A., 342,

- 343, 1056; (SOLDANI), 1884, A., 342; (HUSEMANN), 1884, A., 469; (POUCHET), 1884, A., 617; (GAUTIER), 1885, A., 676; 1886, A., 634; 1888, A., 303; (BECKURTN), 1887, A., 385; (GRAM), 1887, A., 387; (OECHSNER DE CONINCK), 1888, A., 730, 1118; 1889, A., 733; 1890, A., 1170; 1891, A., 845; (GUARDSCHI), 1888, A., 731; (DELLIZINIER), 1889, A., 1074; (GRIFFITHS), 1892, A., 1367.
- Ptomaines** from poisonous cheese (VAUGHAN), 1886, A., 373.
- in cystinuria (v. UDRÁNSZKY and BAUMANN), 1889, A., 1024; 1891, A., 350.
- from the cuttle fish (OECHSNER DE CONINCK), 1889, A., 421.
- from fish (BOCKLISCH), 1885, A., 566, 1146.
- of glanders (GRIFFITHS), 1892, A., 1258.
- from human corpses (BRIEGER), 1885, A., 278.
- of infectious diseases (GRIFFITHS), 1892, A., 1258.
- in boiled meat (MAIS, BUCHMANN and WÄRMUND), 1885, A., 676.
- in milk (FIRTH), 1887, A., 389.
- producing tetanus (BRILGER), 1887, A., 234.
- from pure cultivations of *Vibrio proteus* (BOCKLISCH), 1887, A., 742.
- genesis of, in relation to Panum's sepsin (WYBORN), 1889, A., 421.
- formation of, in cholera (VILLIERS), 1885, A., 404; (v. POEHL), 1886, A., 731; (OLIVERI), 1886, A., 1049.
- formed in the decomposition of conglutin (SIEGFRIED), 1891, A., 590.
- formed in the cultivation of the bacillus of swine fever (v. SCHWEINITZ), 1891, A., 476.
- influence of oxygen on the formation of (HUNTER), 1891, A., 1207.
- relation of, to infectious fevers (LUFF), 1889, A., 1026.
- physiological action of (v. ANREP), 1885, A., 632.
- See also Alkaloids and Betaines.
- Ptomopeptone** (v. POEHL), 1883, A., 926.
- Pulegonamine** and its derivatives (BECKMANN; PLEISSNER), 1891, A., 936.
- Pulegone** (BECKMANN; PLEISSNER), 1891, A., 936.
- action of hydrogen bromide on (BECKMANN; PLEISSNER), 1891, A., 937.
- Pulegoneoxime** (BECKMANN; PLEISSNER), 1891, A., 936.
- Puleone** and its oxime (BARBIER), 1892, A., 627.
- Pulvic acid**, constitutional formula of (SPIEGEL), 1884, A., 841.
- products of the reduction and of the oxidation of (SPIEGEL), 1884, A., 841.
- Pumice**, solubility of, in sea water (THOULET), 1889, A., 682.
- Pump, Sprengel**, automatic (WELLS), 1891, A., 875.
- automatic replacement of mercury in (VERNEUIL), 1892, A., 8.
- modification of (GTGLIELMO), 1891, A., 524.
- Pumpkin sprouts**, nitrogenous constituents of (SCHULZE), 1886, A., 173.
- Pupin** (GRIFFITHS), 1892, A., 1501.
- Purple of Cassius** (*gold-purple*) (DEBRAY), 1885, A., 875.
- preparation of (MÜLLER), 1885, A., 352.
- Purpura lapillus**, colouring matter of (LETELLIER), 1889, A., 1207; 1890, A., 1452.
- Purpureo-**. See under word to which purpureo- is prefixed.
- Purpurin** (1:2:4-trihydroxyanthraquinone), commercial (WÜRTZ), 1883, A., 598.
- synthesis of (NOAH), 1886, A., 475.
- oxidation of (DRALLE), 1884, A., 1040.
- amido-, and nitro- (BRASCH), 1891, A., 1078.
- $\psi$ -nitro- (BRASCH), 1891, A., 1078.
- $\psi$ -**Purpurin** (*purpurincarboxylic acid*) (WÜRTZ), 1883, A., 598.
- Purpurogallin** (*pyrogalloquinone*) (RONDONI), 1884, A., 175; (DE CLERMONT and CHATTAUD), 1886, A., 696; (NITZKI and STEINMANN), 1887, A., 733; (HOOKER), 1888, A., 292.
- Purree** (*Indian yellow; piuri*) (SPIEGEL), 1883, A., 219; (ANON.), 1885, A., 620; (KULZ), 1887, A., 498; (GRAEBE), 1890, A., 504.
- Purric acid**. See Euxanthic acid.
- Pus**, blenorrhagic, toxalbumin secreted by the microbe of (HUGOUNENQ and ERAUD), 1891, A., 1521.
- Vital's test for (v. BRUCKE), 1889, A., 1040.
- Putrefaction**, influence of high pressures on (CERTES), 1884, A., 1399.
- liberation of free nitrogen during (EHRENBURG), 1887, A., 172, 746; (KELLNER and YOSHII; EHRENBURG), 1888, A., 185; (TACKF), 1889, A., 738; (REISET), 1889, A., 739.

- Putrefaction**, loss of nitrogen by organic matter during (MORGEN), 1884, A., 1214, 1417.  
the alkaloids produced by. See Ptomaines.  
aromatic products of, in human sweat (KAST), 1887, A., 1132.  
chemical products of, in their relation to disinfection (BURDON SANDERSON), 1886, A., 112.
- Putrescible substances**, dialysis of (V. STREUVE), 1883, A., 1177.
- Putrescine**. See Tetramethylene-diamine.
- Pycnophyllite** from Aspang (STARKL), 1886, A., 33.
- Pygeum parviflorum* and *P. latifolium*, amygdalin in (GRESHOFF), 1891, A., 338.
- Pyocyanin** (KUNZ), 1888, A., 1123; (BADES), 1890, A., 189.
- Pyoanthose** (KUNZ), 1888, A., 1123.
- Pyranilpyroic acid** (REISSERT and TIEMANN), 1886, A., 551; (REISSERT), 1888, A., 695; 1889, A., 142, 1174; (ANSCHUTZ), 1888, A., 1092; 1889, A., 142.  
constitution of (REISSERT), 1888, A., 954.
- Pyranilpyroinlactone** (REISSERT and TIEMANN), 1886, A., 551; (ANSCHUTZ), 1888, A., 1092; (REISSERT), 1890, A., 1102.  
constitution of (REISSERT), 1888, A., 695, 954.  
and citraconanil, identity of (ANSCHUTZ), 1890, A., 774; 1891, A., 73.  
See also Citraconic acid, phenyl-imide of.
- Pyrarygryte** (*red silver ore*) and proustite (MIERS), 1891, A., 273.  
from Kájénel, Transylvania (TRAUBE), 1890, A., 1070.  
decomposition of, by air containing bromine (JANNASCH), 1889, A., 1243.
- Pyrazine** (*p-diazine*; *piatine*) derivatives (MASON), 1888, P., 107; 1889, T., 97; (ADENIUS), 1890, A., 263, 525.  
hexahydride. See Piperazine.
- Pyrazines**, hydrogenated, of the aromatic series (BISCHOFF), 1889, A., 1010.
- Pyrazole** (KNORR and LAUBMANN), 1889, A., 409.  
synthesis of (BALBIANO), 1890, A., 1009.  
bases, compounds of alloxan with (PELLIZZARI), 1889, A., 517; 1890, A., 645.
- Pyrazole derivatives** (KNORR), 1887, A., 678; (BALBIANO), 1887, A., 1054; (CLAISEN and ROUSEN), 1891, A., 1106; (KNORR and DUDEN), 1892, A., 731.  
formation of, from the dichlorohydrins and tribromohydrin (ALVIST), 1892, A., 884.  
monosubstituted derivatives of, and hydrogenated compounds derived therefrom (BALBIANO), 1889, A., 1215.
- Pyrazolebenzoic acids**, *o*- and *p*- (BALBIANO), 1890, A., 799.
- $\beta$ -Pyrazole-4:5-dicarboxylic acid** (MAQUENNE), 1890, A., 1439.
- $\beta$ -Pyrazoledicarboxylic acids** (MAQUENNE), 1891, A., 330.
- meta*-Pyrazoles (PINNER and LIFSCHUTZ), 1887, A., 1055.
- Pyrazolines** (KNORR and LAUBMANN), 1888, A., 725.  
See also Hydantoins.
- Pyrazolone derivatives** from ethylic benzoylacetate (KNORR and KLOTZ), 1887, A., 1121.  
synthesis of (LEDERER), 1892, A., 634.  
constitution of (NEF), 1892, A., 145.
- Pyrazolones** (KNORR), 1887, A., 601.  
nomenclature of (LEDERER), 1892, A., 1004.
- m*-Pyrazolones (PINNER and LIFSCHUTZ), 1887, A., 1055; (GRIMAU), 1889, A., 56.
- Pyrene** (BAMBERGER and PHILIP), 1886, A., 718, 948; 1887, A., 271.  
constitution of (BAMBERGER and PHILIP), 1887, A., 496.  
formula of (ARMSTRONG), 1890, P., 103.  
action of chlorine on (GOLDSCHMIEDT and WEGSCHEIDER), 1883, A., 1001.  
ketone (BAMBERGER and PHILIP), 1886, A., 948; 1887, A., 272.  
derivatives (GOLDSCHMIEDT and WEGSCHEIDER), 1883, A., 1001.  
*diamido*- (JAHODA), 1888, A., 161.  
cyano-, and *dicyano*- (GOLDSCHMIEDT and WEGSCHEIDER), 1883, A., 1003.
- Pyrenecarboxylic acid** and its salts (GOLDSCHMIEDT and WEGSCHEIDER), 1883, A., 1004.
- Pyrenedisulphonic acid** and its salts (GOLDSCHMIEDT and WEGSCHEIDER), 1883, A., 1001.
- Pyrenepicric acid**, chloro- and cyano- (GOLDSCHMIEDT and WEGSCHEIDER), 1883, A., 1001, 1004.

**Pyrenequinol** and its diacetyl-derivative (GOLDSCHMIEDT), 1883, A., 870.

**Pyrenequinone**, and its derivatives (GOLDSCHMIEDT), 1883, A., 869.

**Pyrenic acid** and its anhydride and imide (BAMBERGER and PHILIP), 1886, A., 718.  
constitution of (BAMBERGER and PHILIP), 1886, A., 949.

**Pyrenin** (SCHWARTZ), 1888, A., 984.

**Pyrenoline** (JAHODA), 1888, A., 164.

**Pyrethrosin** (THOMAS), 1892, A., 849.

**Pyridanthrillic acid** (WEIDEL and STRACHE), 1886, A., 950; (WEIDEL and WILHELM), 1887, A., 979.

**Pyridine** (HANTZSCH), 1883, A., 85; (WEIDEL and RUSSO), 1883, A., 483; (OECHSNER DE CONINCK), 1883, A., 739.  
formation of, from amidoazonaphthalene (v. BUCHKA and SPRAGUE), 1889, A., 728.  
Hantzsch's synthesis of (BEYER), 1891, A., 1090.  
preparation of, from piperidine (v. HOFMANN), 1883, A., 813.  
conversion of anhydroecgonine into (EINHORN), 1889, A., 909.  
constitution of (HANTZSCH), 1884, A., 1193; (RUHEVANN), 1887, T., 409; (LADENBURG), 1890, A., 1432; (v. PECHMANN and BALTZER), 1892, A., 210.  
spectrum of (HARTLEY), 1885, T., 711.  
magnetic rotatory power of (PERKIN), 1889, T., 700, 734.  
thermochemistry of (COLSON), 1890, A., 101, 1368; (BERTHELOT), 1890, A., 1363.  
equilibrium between other bases and (BERTHELOT), 1890, A., 1364.  
action of acetic chloride on (DENNSTEDT and ZIMMERMANN), 1886, A., 368.  
action of chlorine on (KEISER), 1887, A., 277; (BALLY), 1888, A., 964.  
action of chloromethyl alcohol on (v. HEMMELMAYR), 1892, A., 504.  
action of phthalic anhydride on (JACOBSEN and REIMER), 1884, A., 335.  
behaviour of, with metallic salts (OECHSNER DE CONINCK), 1885, A., 671.  
relation between benzene and (BUTTINGER), 1884, A., 758.  
physiological action of (HEINZ), 1891, A., 602.  
fate of, in the organism (OECHSNER DE CONINCK), 1888, A., 514.

**Pyridine alkaloids** (OECHSNER DE CONINCK), 1886, A., 476.

**Pyridine bases** (OECHSNER DE CONINCK), 1883, A., 738.  
from acetone and aldehyde-ammonia (DURKOPF), 1888, A., 1313.  
from cinchonine, hydrates of (OECHSNER DE CONINCK), 1883, A., 220.  
from coal-tar (GOLDSCHMIEDT and CONSTAM), 1884, A., 611; (MOHLER), 1888, A., 727.  
preparation of (DURKOPF), 1887, A., 499.  
synthesis of (LADENBURG), 1884, A., 1195.  
action of alcoholic iodides on (OECHSNER DE CONINCK), 1884, A., 612; (LADENBURG), 1884, A., 759.  
action of, on sulphites (DENIGES), 1892, A., 1108.  
Anderson's reaction for (OECHSNER DE CONINCK), 1884, A., 612.  
hydrated, oxidation of (SCHOTTEN), 1891, A., 722.  
phenylated (BALLY), 1888, A., 65.  
of the  $\beta$ -series (SROEHR), 1891, A., 579; 1892, A., 628.  
betaines of (KRUGER), 1890, A., 1431; 1891, A., 941, 1388.  
carboxylic acids from synthetically prepared (MICHAEL), 1885, A., 60.  
compounds of, with acids of the acetic series (GARDNER), 1890, A., 1156.  
halogen derivatives of, preparation of, from pyridinecarboxylic acids (PFEIFFER), 1887, A., 844.  
platinoclides of, action of boiling water on (OECHSNER DE CONINCK), 1884, A., 612.  
reaction for (v. HOFMANN), 1884, A., 1438.  
detection of (WEPPEL and LUDERS), 1888, A., 1136.  
titration of (SCHULZE), 1888, A., 539.  
estimation of, in gas-liquor (KINZEL), 1890, A., 1349.  
process for preparing dye-stuffs from (JACOBSEN), 1884, A., 798.

**Pyridine compounds** (ANON.), 1884, A., 944.  
with copper oxalate (SEIBERT and RAUTER), 1892, A., 1431.  
with mercury salts (GROOS), 1890, A., 643.  
with metallic salts (LANG), 1888, A., 850; (VARER), 1891, A., 732, 838.

**Pyridine derivatives** (BÖTTINGER), 1884, A., 758; (FISCHER and RENOUF), 1884, A., 1048; (KOENIGS and GEIGY), 1884, A., 1195, 1368; (WEIDEL and BLAT), 1886, A., 76. and their relations to quinoline, *iso*-quinoline and the alkaloids (EDINGER), 1890, A., 794.  
 from anilidopyrotartaric acid (REISERT), 1890, A., 642.  
 from brucine, constitution of (OECHSNER DE CONINCK), 1885, A., 273.  
 from coumalinic acid, constitution of (v. PECHMANN), 1885, A., 558.  
 formation of, from malic acid (v. PECHMANN and WELSH), 1885, T., 145; P., 5.  
 from *m*-nitrobenzaldehyde (LEPETIT), 1887, A., 1053.  
 from propaldehyde and propaldehyde-ammonia (DÜRKOPF and GÖTTSCHE), 1890, A., 794, 1002.  
 conversion of pentamethylene derivatives into (HANTZSCH, 1890, A., 129.  
 conversion of pyrroline into (CIAMICIAN), 1887, A., 678.  
 formation of (v. PECHMANN and WELSH), 1885, A., 174.  
 synthesis of (v. PECHMANN), 1885, A., 175; (STOKES and v. PECHMANN), 1887, A., 155; (PAAL and STRASSER), 1888, A., 62.  
 synthesis of, from ethylic acetate, aldehydes and ammonia (HANTZSCH), 1883, A., 82; (MICHAEL), 1885, A., 1244.  
 synthesis of, from derivatives of  $\alpha$ -pyrone (GUTHZEIT and DRENNEL), 1891, A., 939.  
 preparation of, from citric acid (RUHEMANN), 1887, T., 403; P., 44.  
 preparation of, from the lactone of triacetic acid (COLLIE and MYERS), 1892, T., 721; P., 131.  
 synthetical (JAECKLE), 1888, A., 1103.  
 synthetical, constitution of (HANTZSCH), 1885, A., 1078.  
 hydrogenised, physiological action of (HOFFMANN and KOENIGS), 1883, A., 1145.  
 condensation of (BÖTTINGER), 1884, A., 758.  
 hydroxylation of (MESSINGER), 1886, A., 368.  
 decomposition-products of (HANTZSCH), 1885, A., 397.  
**Pyridine, benzyl derivatives of** (LELLMANN and PEKRUN), 1891, A., 88.

**Pyridine carbonylbromoplatinite** (FÖRSTER), 1892, A., 352.  
 carbonylbromoplatinite hydrobromide (MYLIUS and FÖRSTER), 1891, A., 1164.  
 carbonylchloroplatinite (FÖRSTER), 1892, A., 352.  
 chlorhydrin (KRÜGER), 1891, A., 1388.  
 chloridide (PICTET and KRAFFT), 1892, A., 1356.  
 ethiodide (OECHSNER DE CONINCK), 1885, A., 272; 1886, A., 897.  
 ferrocyanide (MOHLER), 1888, A., 727.  
 hydrate (MOHLER), 1888, A., 727.  
 hydrides, synthesis of (OECHSNER DE CONINCK), 1884, A., 1047.  
 hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1001.  
 periodides (DAFERT), 1883, A., 980.  
 $\beta$ -ketone derivatives of (ENGLER), 1891, A., 1505.  
 methiodide (OECHSNER DE CONINCK), 1886, A., 897.  
 decomposition of, by the action of alkalis (OECHSNER DE CONINCK), 1885, A., 272.  
 methochlorides of (OSTERMAYER), 1885, A., 813.  
 methochloride iodotrichloride (BALLY), 1888, A., 964.  
 methyl derivatives of, condensation products of (JACOBSEN and REIMER), 1884, A., 335.  
 platinothiocyanate (GUARESCHI), 1892, A., 287.  
 propiodide, action of heat on (LADENBURG), 1884, A., 1195.  
 silicon chloride (HARDEN), 1887, T., 47.  
**Pyridine, 3-bromo-** (v. HOFMANN), 1883, A., 813; (CIAMICIAN and SILBER), 1885, A., 811.  
 dibromo- $[\beta]$ - (FISCHER and RIEMERSCHMID), 1883, A., 923; (KOENIGS and GEIGY), 1884, A., 1195; (BLAT), 1889, A., 1212.  
 2-chloro- (v. PECHMANN and BALTZER), 1892, A., 209.  
 3-chloro- (HAITINGER and LIEBEN), 1885, A., 966.  
 derivatives of (HANTZSCH), 1890, A., 130.  
 dichloro- (KOENIGS and GEIGY), 1884, A., 1195, 1369.  
 rhodium salts of (JORGENSEN), 1883, A., 1060.  
 trichloro- [m.p. 50°] (KOENIGS and GEIGY), 1884, A., 1195.  
 [m.p. 65°] (SEYFFERTH), 1887, A., 158.

- Pyridine**, *dichloramido-* (STOKES and V. PECHMANN), 1887, A., 157.  
 2:5:6-*trichlor-4-amido-* (STOKES and V. PECHMANN), 1887, A., 156.  
 2:3 5:6-tetrachlor-4-amido- (STOKES and V. PECHMANN), 1887, A., 157.  
 4-iodo- (HAITINGER and LIEBEN), 1885, A., 966.
- Pyridinebetaine** (KRÜGER), 1890, A., 1431.  
 preparation of (DELISLE), 1892, A., 1483.  
 salts (KRÜGER), 1891, A., 941, 1388.
- Pyridinecarboxylic acid** (BERNHEIMER), 1884, A., 337.
- 2-Pyridinecarboxylic acid**. See *Picolinic acid*.
- 3-Pyridinecarboxylic acid**. See *Nicotinic acid*.
- 4-Pyridinecarboxylic acid**. See *iso-Nicotinic acid*.
- Pyridinecarboxylic acids** from berberine (MAYER), 1892, A., 1357.  
 distillation of salts of (BLAT), 1888, A., 728.  
 non-nitrogenous acids derived from (WEIDEL), 1891, A., 733.
- Pyridinecholine** and its derivatives (COPPOLA), 1886, A., 78.
- Pyridine-2:3-dicarboxylic acid**. See *Quinolinic acid*.
- Pyridine-2:4-dicarboxylic acid** and its salts (*lutidinic acid*) (WAAGE), 1884, A., 173; (BOTTINGER), 1884, A., 758; 1886, A., 368; (WEIDEL and PICK), 1885, A., 557; (VOIGT), 1885, A., 813; (LADENBURG and ROTH), 1885, A., 816; (VOGEN), 1886, A., 257; (LIPPMANN and FLEISCHNER), 1887, A., 63; (HEUSER and STOEHR), 1892, A., 75.
- Pyridine-2:5-dicarboxylic acid**. See *isoCinchomeric acid*.
- Pyridine-2:6-dicarboxylic acid** (*dipicolinic acid*) (ROTH and LANGE), 1886, A., 559.
- Pyridine-3:4-dicarboxylic acid**. See *Cinchomeric acid*.
- Pyridine-3:5-dicarboxylic acid** (*dinitrocinic acid*) (HANTZSCH and WEISS), 1886, A., 478.  
 2:6-dichloro- (GUTHRIE and DRESSER), 1891, A., 940.
- Pyridinedicarboxylic acids** (HANTZSCH), 1886, A., 477.
- Pyridinedisulphonic acid** and its salts (KOENIGS and GEIGY), 1884, A., 1195.  
 formation of, from piperidine (KOENIGS and GEIGY), 1884, A., 945.
- Pyridine-group**, introduction of hydrocarbon radicles into (SCHIFF and PULIT), 1883, A., 1151.
- Pyridine-like bases** in petroleum (ZALOZIECKI), 1892, A., 1357.
- Pyridine-muscarine** and -*neurine* and their derivatives (COPPOLA), 1886, A., 78.
- Pyridinepentacarboxylic acid**, and its salts (HANTZSCH), 1883, A., 85.
- Pyridinephenacyl bromide** (BAMBERGER), 1888, A., 301.
- Pyridinepolycarboxylic acids** (WEBER), 1887, A., 1117.
- Pyridinenephylenesketonesulphonic acid** (IMMERHEIMER), 1889, A., 527.
- Pyridine-series**, syntheses in (LADENBURG), 1883, A., 1151.  
 isomerism in (OECHSNERDE CONINCK), 1883, A., 740.  
 method for determining positions in (LADENBURG), 1886, A., 158.  
 synthesis of alcohol acids of the (EINHORN), 1890, A., 520.  
 carboxylic acids of the, colour reactions for determining the constitution of (SKRAUP), 1886, A., 898.
- Pyridinesulphonic acid** and its salts (FISCHER and RIEMERSCHMIDT), 1883, A., 923; (WAGNER), 1886, A., 708.
- Pyridine-2:4:5:6-tetracarboxylic acid** (MICHAEL), 1885, A., 63; (FISCHER and TAUBER), 1885, A., 400.
- Pyridine-2:3:5:6-tetracarboxylic acid** (*dicarbolinitic acid*) (HANTZSCH and WEISS), 1886, A., 477.
- Pyridine-2:3:5-tricarboxylic acid** (*carboxylinitic acid*) (RIEDEL), 1883, A., 1152; (WEBER), 1887, A., 1118; (DURKOPF and SCHLAUGK), 1888, A., 608.
- Pyridine-2:3:6-tricarboxylic acid** (*acarbozysocinchomeric acid*) (WEISS), 1886, A., 720; (V. MILLER), 1891, A., 1097.
- Pyridine-2:4:5-tricarboxylic acid** (*berberonic acid*) (WEBER), 1887, A., 1118; (MAYER), 1892, A., 1357.
- Pyridine-2:4:6-tricarboxylic acid** (*acarbolutidinic acid*; *trimesitinic acid*) and its salts (BOTTINGER), 1884, A., 753; 1885, A., 1144; (VOIGT), 1885, A., 812.  
 3 5-*di*bromo- (PFEIFFER), 1887, A., 844.
- Pyridine-3:4:5-tricarboxylic acid** (*scarbozycinchomeric acid*) (WEBER), 1887, A., 1118.
- Pyridophthalone** (*pyrophthalone*) and its derivatives (JACOBSEN and REIMER), 1884, A., 335.

**Pyridone.** See Hydroxypyridine  
**Pyridyl ketones** (ENGLER), 1891, A., 1503.  
 **$\alpha$ -Pyridyl ethyl ketone** and its derivatives (ENGLER and BAUER), 1891, A., 1504.  
 conversion of, into  $\psi$ -conhydrine (ENGLER and BAUER), 1891, A., 1504.  
 pinacone of (ENGLER and BAUER), 1891, A., 1504.  
 **$\beta$ -Pyridyl ethyl ketone** and its derivatives (ENGLER), 1891, A., 1505.  
 **$\alpha$ -Pyridyl methyl ketone** and its derivatives (ENGLER and ROZUMOFF), 1891, A., 1503.  
 **$\beta$ -Pyridyl methyl ketone** (ENGLER and KIBY), 1889, A., 623.  
 **$\alpha$ -Pyridyl propyl ketone** and its derivatives (ENGLER and MAJMON), 1891, A., 1505.  
 **$\beta$ -Pyridyl propyl ketone** and its derivatives (ENGLER), 1891, A., 1506.  
**Pyridylacrylic acid** (EINHORN), 1890, A., 520; 1892, A., 77.  
**Pyridylalkylammonium salts**, reduction of (KRUGER), 1891, A., 1383.  
**Pyridyl $\beta$ -bromopropionic acid** (EINHORN), 1892, A., 77.  
**Pyridylbromopropionic acid hydrobromide** (EINHORN), 1892, A., 77.  
**Pyridyl- $\omega$ -trichloro- $\alpha$ -hydroxypropane** (EINHORN), 1892, A., 75.  
**Pyridyl- $\alpha$ -trichloropropylene** (EINHORN), 1890, A., 520; 1892, A., 76.  
**Pyridylethylene** (2-vinylpyridine) (LADENBURG), 1887, A., 737; 1890, A., 67; (EINHORN), 1892, A., 77.  
**Pyridylglyceric acid** (EINHORN), 1890, A., 521.  
**Pyridyl- $\alpha$ - and - $\beta$ -lactic acids** (EINHORN), 1890, A., 520; 1892, A., 76.  
 **$\beta$ -Pyridyl- $\alpha$ -lactic acid** (HARDY and CALMELS), 1886, A., 900.  
**Pyridyl-quinoline and -quinolinecarboxylic acid** (FISCHER and VAN LOO), 1887, A., 64.  
 **$\beta$ -Pyridyltartronic acid** (HARDY and CALMELS), 1886, A., 901.  
**Pyrimidine.** See *m*-Diazine.  
**Pyrites (iron pyrites)** (McCAY), 1884, A., 1093.  
 artificial (DOELTER), 1886, A., 207; (GLATZEL), 1890, A., 338.  
 concretions from New South Wales (LIVERSIDGE), 1886, A., 774.  
 from Pennsylvania (GENTH), 1891, A., 154.  
 Spanish, and Massachusetts, composition of (ANON.), 1884, A., 230.

**Pyrites (iron pyrites)** containing nickel and cobalt (NEUBERT and KOLLBECK), 1891, A., 1435.  
 pseudomorphs of, after magnetic pyrites (GENGH), 1888, A., 564.  
 decomposition of, in a stream of oxygen (JANNASCH), 1889, A., 1244.  
 method of analysing (JANNASCH), 1889, A., 1243, 1244.  
 assay of, for sulphur available for sulphuric acid manufacture (WELCH), 1887, A., 180.  
 estimation of arsenic in (CLARK), 1858, A., 194; (FRECHETUS), 1888, A., 322.  
 estimation of sulphur in (LUNGE), 1884, A., 492; 1886, A., 280; 1888, A., 85; 1890, A., 413; 1891, A., 496; (BODEWIG), 1884, A., 492; (CLARK), 1886, A., 279; (WELCH), 1887, A., 180; (WESTMORELAND), 1888, A., 85.  
 burnt, estimation of small quantities of silver in (THILO), 1887, A., 79.  
 estimation of sulphur in (WATSON), 1889, A., 306; (LUNGE), 1890, A., 193.  
 utilisation of, in the preparation of iron salts (A. and P. BUISINE), 1892, A., 1281.  
 zinciferous, utilization of (CREUTZ), 1884, A., 788; (ANON.), 1885, A., 98.  
 explosive, so-called, cause of the decrepitations in samples of (BLOUNT), 1885, T., 593; P., 90.  
 See also Ferric sulphide under Iron.  
 magnetic. See Pyrrhotite.  
**Pyrites burners**, composition of the gas from (SCHEURER-KESNER), 1885, A., 199, 706; (LUNGE), 1891, A., 496.  
**Pyrobenzyl-phosphinic and -thiophosphinic acids** (BLAKE), 1890, A., 767.  
**Pyrocatechol (catrchol; 1:2-dihydroxybenzene)** in raw beet sugar (v. LIPPMAHN), 1888, A., 262.  
 in the urine of hydrophobic rabbits (MUSCATELLI), 1892, A., 1115.  
 mode of formation of (MEUNIER), 1885, A., 1059.  
 preparation of (PERKIN), 1890, T., 587; P., 90.  
 absorption spectra of (HARTLEY), 1888, T., 650.  
 thermochemistry of (STOHMAN and LANGBEIN), 1892, A., 764.  
 action of alkylenediamines on (MERZ and RISE), 1887, A., 722; (RI-), 1888, A., 468.

- Pyrocatechol** (*catechol*; 1:2-dihydroxybenzene), action of chlorine on (ZINCKE and KUSTER), 1888, A., 1277; 1889, A., 599; 1890, A., 754, 1255.  
behaviour of, with Fehling's solution (WOHL), 1888, A., 994.  
fusion of, with soda (BARTH and SCHREDER), 1883, A., 60.  
physiological action of (GIBBS and HARE), 1890, A., 1019.  
diethyl ether (1:2-dietheoxybenzene) (HERZIG and ZEISEL), 1889, A., 967.  
phenylcarbamate (SNAPE), 1885, T., 772.  
sodium derivatives of (DE FORCRAND), 1892, A., 1184.
- Pyrocatechol**, tetrachloro- (ZINCKE), 1887, A., 808; (ZINCKE and KUSTER), 1888, A., 1278.  
3-nitro-, behaviour of, with moidants (V. KOSTANÉK), 1889, A., 868.  
thio-. See Hydroxyphenyl mercaptan.
- Pyrocatechol-mono- and di-carboxylic acids** (SCHMITZ and HAHLE), 1891, A., 1366.
- Pyrocatechololphthalein** (v. BAEYER and KOCHENDOERFER), 1889, A., 1153.
- Pyrocatechoquinone** (DE CLERMONT and CHAUTARD), 1886, A., 696.
- Pyrochlore** in a rock from Colorado (LACROIX), 1889, A., 1054.
- Pyrochroite**, artificial (DE SCHULLEN), 1888, A., 345.
- Pyrocinchonic acid**. See s-Dimethylmaleic acid.
- Pyroelectric acids**, heats of combustion of (LUGNIN), 1888, A., 893.
- Pyroclaseite**, stalactites of (SHEPARD), 1883, A., 1063.
- Pyrocoll** and its derivatives (CIAMICIAN and SILBER), 1884, A., 176, 292.  
synthesis of (CIAMICIAN and SILBER), 1884, A., 585, 725.  
and its derivatives, molecular weights of (MAGNANINI), 1890, A., 67.  
tetrabromo- (CIAMICIAN and SILBER), 1884, A., 292.  
perchloro-, action of phosphorus pentachloride on (CIAMICIAN and SILBER), 1884, A., 176.  
octochloride or perchloride of (CIAMICIAN and SILBER), 1884, A., 292.
- Pyrocomane** (ONT), 1885, A., 49; (HAITINGER and LIEBEN), 1885, A., 965.
- Pyrocomenamic acid** (ONT), 1883, A., 792.
- Pyrocresole**, so-called (SCHWARZ), 1883, A., 204; 1884, A., 79.
- $\alpha$ -Pyrocresole** (SCHWARZ), 1883, A., 204.  
derivatives and new colouring matters from (BUTT), 1889, T., 51.
- $\beta$ - and  $\gamma$ -Pyrocresoles** (SCHWARZ), 1883, A., 204.
- Pyrocresoles**, bromo-derivatives of (SCHWARZ), 1883, A., 207.  
oxides, and their nitro-derivatives (SCHWARZ), 1883, A., 206.
- Pyrocresolesulphonic compounds** (SCHWARZ), 1883, A., 208.
- Pyroelectricity**. See Electrochemistry.
- Pyrogallaurin** (CARO), 1892, A., 1470.
- Pyrogallol** (1:2:3-trihydroxybenzene), conversion of gallic acid into (CAZENÈVE), 1892, A., 1314.  
constitution of (DE FORCRAND), 1892, A., 1446.  
luminescence of (LENARD and WOLF), 1888, A., 1000.  
electrolysis of (ROMONDI), 1884, A., 175.  
heat of combustion of (BERTHELOT and LUGNIN), 1887, A., 762.  
thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.  
action of aldehyde on (CAUSSE), 1891, A., 48.  
action of chlorine and bromine on (HANTZSCH and SCHNITZER), 1887, A., 925.  
action of, on copper and iron salts (CAZENÈVE and LISSIER), 1885, A., 1059.  
physiological action of (GIBBS and HARE), 1890, A., 1019.  
reaction for (NASSE), 1884, A., 1078.  
detection of (KLIEBHAN), 1888, A., 198.  
derivatives of (WILL and ALBRECHT), 1884, A., 1335; (SCHIFFER), 1892, A., 715.  
relation of, to daphnetin and asculetin (WILL and ALBRECHT), 1884, A., 1335.  
benzenesulphonate of (GEORGESCU), 1891, A., 569.  
phenylcarbamate (SNAPE), 1885, T., 774.  
sodium derivatives of (DE FORCRAND), 1892, A., 1313.
- Pyrogallol**, tribromo- (WEBER), 1884, T., 207.  
trichloro- (WILSTER), 1884, T., 205; (HANTZSCH), 1887, A., 925.
- Pyrogallolbenzein** (DOEBNER and FOERSTER), 1890, A., 899.
- Pyrogallolcarbothionyllic acid** (LIPPMANN), 1890, A., 163.

- Pyrogallolcarboxylic acid.** See Gallic acid.
- Pyrogalloquinone** (*purpurogallin*) (RONDONI), 1884, A., 175; (DE CHERMONT and CHAUTARD), 1886, A., 696; (NIEZKI and STEINMANN), 1887, A., 733; (HOOKER), 1888, A., 292.
- Pyrogallovanillin** (ETTI), 1883, A., 61.
- Pyrogenic reactions** (FERKO), 1887, A., 572.
- Pyroglutamic acid** (ANDERLINI), 1890, A., 642.
- Pyrographitic oxides** (BERGHELOT and PETIT), 1890, A., 448.
- Pyrolein** (ARBOS Y TOR), 1883, A., 519.
- Pyroligneous acid** of the German Pharmacopœia (VULPIUS), 1894, A., 371.  
valerolactone in (GRODZKI), 1884, A., 1118.  
removal of furfuraldehyde from (GUYARD), 1884, A., 1304.  
See also Acetic acid.
- Pyrolusite**, from Augusta Co., Virginia (JARMAN), 1889, A., 470.  
of Bolet, Sweden (NORDSTRÖM), 1883, A., 31.  
artificial formation of (GORGUEU), 1888, A., 792.  
See also Manganese dioxide.
- Pyromecazone**, and its nitro-derivative (OST), 1883, A., 791.
- Pyromecazonic acid** and its derivatives (OST), 1883, A., 791.
- Pyromecenic acid**, chloro- (HILSEBEIN), 1885, A., 1203.
- Pyromeconic acid**, action of hydroxylamine on (ODERNHEIMER), 1884, A., 1802.
- Pyromellitic acid** (BARTOLI and PAPA-SOGLI), 1883, A., 593.
- Pyromellitic acid**, thermochemistry of (STOHMANN, KLEBER and LANGHEIN), 1889, A., 1096.  
2:5-dinitro- and its ethylic salt (NEF), 1886, A., 64; 1888, T., 439.
- Pyrometer.** See Thermochemistry.
- Pyrometric use** of the principle of viscosity (BARTN), 1888, A., 1014.
- Pyromorphite** from Leadhills (COLLIE), 1889, T., 93.  
from Zähringen in Baden, analysis of (BAERWALD), 1883, A., 1063.  
preparation of (MICHAEL), 1889, A., 21.  
See also Lead phosphate.
- Pyromorphites** and mimetites, relation between the chemical composition and optical characters in the group of (JANNEITZ and MICHEL), 1883, A., 433.
- Pyromucamide**, trichloro- (HILL and JACKSON), 1890, A., 601.  
 $\delta$ -sulpho- (HILL and PALMER), 1889, A., 37.  
thio- (DOUGLAS), 1892, A., 831.
- Pyromucic acid** (*purfuran- $\alpha$ -carboxylic acid*) (OLIVERI and PERATONER), 1890, A., 1242; (ZENONI), 1891, A., 295.  
preparation of (SCHIFF), 1891, A., 676.  
preparation of, from furfuraldehyde (VOLHARD), 1891, A., 896.  
supposed isomerides of (OLIVERI and PERATONER), 1890, A., 1242.  
substitution-derivatives of (HILL and SANGER), 1884, A., 1305.
- Pyromucic acid**, mono- and di-bromo- (HILL and SANGER), 1884, A., 1305; 1886, A., 446; (CANZONERI and OLIVERI), 1885, A., 244, 1125; (HILL), 1885, A., 1125.  
 $\delta$ -bromo- $\beta$ -sulpho- (HILL and PALMER), 1889, A., 386.  
 $\beta$ - and  $\delta$ -chloro- (HILL and JACKSON), 1890, A., 482, 600.  
 $\beta\gamma$ -dichloro-, and its derivatives (DENARO), 1887, A., 34; (HILL and JACKSON), 1887, A., 470; 1890, A., 600.  
 $\beta\delta$ -dichloro- (HILL and JACKSON), 1890, A., 482, 600.  
trichloro- (HILL and JACKSON), 1890, A., 601.  
dichlorobromo-, dichloronitro- and dichlorosulpho- (HILL and JACKSON), 1890, A., 601.  
nitro- (PRIEBIS), 1885, A., 971.  
 $\beta$ -sulpho- (HILL and PALMER), 1885, A., 1204; 1889, A., 386.  
 $\delta$ -sulpho-, and its derivatives (HILL and PALMER), 1885, A., 1204; 1889, A., 37.
- $\beta$ -Pyromucic and isopyromucic acids**, identity of, with ordinary pyromucic acid (OLIVERI and PERATONER), 1890, A., 1242.
- Pyromucic acids**, substituted (HILL), 1883, A., 912; (HILL and PALMER), 1889, A., 37, 386.
- Pyromucic aldehyde.** See Furfuraldehyde.
- Pyromycuric acid** and carbamide of (JAFFÉ and COHN), 1887, A., 1032.
- Pyrone** and its constitution (BRUHL), 1891, A., 1195.  
synthesis of (PERATONER and STRAZZERI), 1891, A., 1333.
- $\alpha$ -Pyrone**, derivatives of, synthesis of pyridine derivatives from (GUTHZEIT and DRESEL), 1891, A., 939.

- Pyropapaverinic acid** (GOLDSCHMIEDT), 1885, A., 1081; (GOLDSCHMIEDT and STRACHE), 1890, A., 180.
- Pyropentylene** (ETARD and LAMBERT), 1891, A., 1085.
- Pyrrhophanite** from Harstigen mine, Sweden (HAMBERG), 1892, A., 1412.
- Pyrophosphamic acid.** See Diphosphoric acid, imido-, under Phosphorus.
- Pyro-phosphates and -phosphites.** See under Phosphorus.
- Pyrophosphotriamic acid.** See Diphosphoromonamic acid, diimido-, under Phosphorus.
- Pyrophthalone** (*pyridophthalone*) and its derivatives (JACOBSEN and REIMER), 1884, A., 335.
- Pyrophyllite** in anthracite (GENTH), 1884, A., 273.  
of Ouro Preto, Brazil (GORCEIX), 1885, A., 31.
- Pyroracemic acid.** See Pyruvic acid.
- Pyrostilpnite** from St. Andreasberg (LURDECKE), 1884, A., 403.
- Pyrosulphuric acid.** See under Sulphur.
- Pyrotartaric acid.** See Methylsuccinic acid.
- n*-Pyrotartaric acid.** See Glutaric acid.
- iso*Pyrotartaric acid.** See Dimethyl malonic acid.
- Pyrotartaric acids**, brominated (BISCHOFF), 1890, A., 1097.
- Pyrotartrylfluorescein** (HJELF), 1884, A., 1019.
- ψ*-Pyroterebic acid.** See Hexenoic acid.
- Pyrodithiomolybdates** (KRUSS), 1884, A., 1268.
- Pyrotritaric acid** (*pyrotritaric acid*; *vic acid*; *dimethylfurfurincarboxylic acid*) (PAAL), 1885, A., 249.  
preparation of (FITZIG and PARKER), 1892, A., 814.  
constitution of (PAAL), 1887, A., 657.  
action of bromine on (BOETINGER), 1884, A., 993.  
barium salt of (FEISER), 1889, A., 593.  
barium and calcium salts of, water of crystallisation of (BOETINGER), 1888, A., 1274.  
ketone obtained from (PAAL), 1885, A., 249.  
bromo- and chloro-derivatives of (DIETRICH and PAAL), 1887, A., 658.
- Pyroxene.** See Augite.
- Pyroxenite** from S. Vicente, analysis of (DOELTER), 1883, A., 722.
- Pyroxenites** of Morbihan (BARROIS), 1889, A., 109.
- Pyroxylin**, rotatory power of (BÉCHAMP), 1885, A., 237.
- Pyroxylin.** See also Guncotton and Cellulose under Carbohydrates.
- Pyrrhoarsenite** (HOGBOM), 1889, A., 217; (IGELSTROM), 1888, A., 565; 1889, A., 218.
- Pyrrhotite** (*magnetic pyrites*), synthesis of (DOELTER), 1888, A., 430.  
analyses of (BODEWIG), 1883, A., 1061.  
See also Ferroso ferric sulphide under Iron.
- Pyrrhodiazole and pyrrhodiazolecarboxylic acid** (ANDREUCCI), 1892, A., 636.  
See also Triazole.
- Pyrrrole** (*pyrrhol*). See Pyrroline.
- Pyrrolidine** (*tetrahydropyrrolone*) (CIAMICIAN and MAGNAGHI), 1885, A., 1243; (LADENBURG), 1887, A., 499; (PETERSEN), 1888, A., 498.  
synthesis of (GABRIEL), 1892, A., 131.
- α*-Pyrrolidone** (GABRIEL), 1890, A., 360.  
derivatives of (KUHLING), 1889, A., 1211.  
preparation and properties of (KUHLING), 1890, A., 793.
- Pyrroline** (*pyrrole*; *pyrrhol*), extraction of, from animal oil (CIAMICIAN and DENNSTEDT), 1887, A., 59.  
from coal-gas (WILLIAMS), 1885, A., 369.  
conversion of furfuran into (CANZONERI and OLIVIERI), 1887, A., 470.  
synthesis of, from succinimide (CIAMICIAN and SILBER), 1887, A., 273.  
constitution of (CIAMICIAN), 1886, A., 626; 1887, A., 273; (BAMBERGER), 1891, A., 1090.  
action of paracetaldehyde on (DENNSTEDT and ZIMMERMANN), 1886, A., 1043.  
action of acetone on (DENNSTEDT and ZIMMERMANN), 1887, A., 598, 1052; (DENNSTEDT), 1890, A., 999.  
condensation of, with acetone (v. BÄRNER), 1886, A., 1043.  
action of alkaline hypochlorites and hypobromites on (CIAMICIAN and SILBER), 1884, A., 1367.  
action of alloxan on (CIAMICIAN and MAGNAGHI), 1886, A., 367; (CIAMICIAN and SILBER), 1886, A., 897.  
action of halogens on, in presence of caustic alkalis (CIAMICIAN and SILBER), 1885, A., 1077.

**Pyrroline** (*pyrrole*; *pyrrhol*), action of hydroxylamine on (CIAMICIAN and DENNSTEDT), 1885, A., 246; (CIAMICIAN and ZANETTI), 1889, A., 1208.

action of methylic alcohol on (DENNSTEDT), 1891, A., 1501.

action of nascent hydrogen on (CIAMICIAN and DENNSTEDT), 1883, A., 82, 1142.

action of organic anhydrides on (CIAMICIAN and DENNSTEDT), 1884, A., 289, 1044; 1885, A., 378.

boiling, action of potash on (CIAMICIAN and DENNSTEDT), 1886, A., 367.

action of propionic anhydride on (DENNSTEDT and ZIMMERMANN), 1887, A., 844.

and carbazole, similar reactions of (HOOKER), 1889, A., 260.

and its derivatives, behaviour of, as regards Raoult's law (MAGNANINI), 1889, A., 901.

conversion of, into its homologues (DENNSTEDT), 1890, A., 1428.

conversion of, into pyridine (DENNSTEDT and ZIMMERMANN), 1886, A., 367; (CIAMICIAN), 1886, A., 810.

conversion of, into pyridine derivatives (CIAMICIAN), 1887, A., 678.

conversion of, into tetramethylenediamine (CIAMICIAN and ZANETTI), 1889, A., 1208; (CIAMICIAN), 1890, A., 1242.

furfuryl and thiophen groupings, reciprocal transformation of (CANZONERI and OLIVERI), 1885, A., 1144.

bases derived from (CIAMICIAN and MAGNAGHI), 1885, A., 1242.

bases formed by the action of hydrochloric acid on (DENNSTEDT and ZIMMERMANN), 1888, A., 849.

bases, synthesis of (DENNSTEDT and ZIMMERMANN), 1887, A., 598.

colouring matters (CIAMICIAN and SILBER), 1884, A., 740; (MEYER and STADLER), 1884, A., 1045.

**Pyrroline derivatives** (PAAL and BRAIKOFF), 1890, A., 263.

from anilidopyrotartaric acid (REISERT), 1890, A., 642.

method of formation of (HANTZSCH), 1890, A., 1155.

formation of, from acetophenone-acetone (ERLENMEYER), 1885, A., 753.

**Pyrroline derivatives**, synthesis of (KNORR), 1884, A., 1368; (PAAL), 1883, A., 516, 1205; (LEDERER and PAAL), 1886, A., 75; (PAAL and SCHNEIDER), 1887, A., 273.

constitution of (CIAMICIAN and SILBER), 1888, A., 61.

molecular weight of (MAGNANINI), 1890, A., 906.

action of hydroxylamine on (CIAMICIAN and ZANETTI), 1890, A., 264, 1155; 1891, A., 1502.

action of methylic iodide on (CIAMICIAN and ANDERLINI), 1889, A., 58.

conversion of, into indole derivatives (DENNSTEDT), 1889, A., 400.

conversion of, into pyridine derivatives (CIAMICIAN and SILBER), 1887, A., 378.

potassium-derivative of (CIAMICIAN and DENNSTEDT), 1886, A., 367.

action of carbonyl chloride on (CIAMICIAN and MAGNAGHI), 1885, A., 809.

action of cyanogen chloride on (CIAMICIAN and DENNSTEDT), 1883, A., 599.

action of ethylic and propylic iodides on (ZANETTI), 1890, A., 907.

tertiary (DE VARDA), 1890, A., 389; (ZANETTI), 1890, A., 1430.

**Pyrroline**, homologues of, direct synthesis of (CIAMICIAN and ZANETTI), 1889, A., 727.

determination of the constitution of (ZANETTI), 1892, A., 74.

**Pyrroline**, *tetrachloro*-, and its synthesis (CIAMICIAN and SILBER), 1884, A., 292, 293.

*tetradio*- (*iodole*) (CIAMICIAN and DENNSTEDT), 1883, A., 350; (CIAMICIAN), 1887, A., 597.

molecular weight of (MAGNANINI), 1890, A., 906.

*dinitro*- (CIAMICIAN and SILBER), 1885, A., 993; 1886, A., 718.

**Pyrrolineazo-**. See *Azo*.

**Pyrrolinecarbamide** (*tetrolcarbamide*) (CIAMICIAN and DENNSTEDT), 1883, A., 350; (CIAMICIAN and MAGNAGHI), 1885, A., 809.

**Pyrroline- $\alpha$ -carboxylic acid** ( *$\alpha$ -carboxypyrrolic acid*) and its derivatives (CIAMICIAN and SILBER), 1884, A., 1044; 1885, A., 246.

method for the formation of, from pyrroline (CIAMICIAN and SILBER), 1884, A., 1193.

- Pyrraline- $\alpha$ -carboxylic acid** ( *$\alpha$ -carboxypyrrolic acid*), molecular weight of (MAGNANINI), 1890, A., 906.  
 dehydration of (CIAMICIAN and SILBER), 1884, A., 585.  
 $\alpha$ - and  $\beta$ -nitro- (ANDERLINI), 1890, A., 66.
- Pyrralinedicarboxylic acid** (CIAMICIAN and SILBER), 1886, A., 719.
- Pyrraline-group** (MEYER), 1884, A., 586.
- Pyrralinehydrophthalide** (DENNSTEDT and ZIMMERMANN), 1888, A., 849.
- Pyrralinehydroxylamine**, preparation of (CIAMICIAN and DENNSTEDT), 1885, A., 246; (CIAMICIAN and ZANETTI), 1889, A., 1208.
- Pyrralineketonedicarboxylic acid** (*carbopyrrylglyoxylic acid*) (CIAMICIAN and SILBER), 1886, A., 719, 938.
- Pyrralinephthalide** (CIAMICIAN and DENNSTEDT), 1885, A., 379.  
*di*bromo- and nitro- (ANDERLINI), 1889, A., 58.
- Pyrraline-series**, determination of position in the (CIAMICIAN and SILBER), 1884, A., 597.  
 compounds of the (CIAMICIAN and DENNSTEDT), 1883, A., 350.  
 decomposition-products of the (HANTZSCH), 1884, A., 1045.
- Pyrralineurethane** (*tetrolurethane*) (CIAMICIAN and DENNSTEDT), 1883, A., 350.
- Pyrrylene**. See Butinene.
- Pyrrone** (*dipyrrol ketone*) (CIAMICIAN and MAGNAGHI), 1885, A., 809.
- Pyrrylpyrroline** (CIAMICIAN and MAGNAGHI), 1885, A., 1143.
- Pyrrylpyruvic anhydride** (ANGELI), 1890, A., 1156.  
 action of *o*-phenylenediamine on (ANGELI), 1890, A., 1243.
- Pyrryl methyl ketone** ( *$\psi$ -acetylpyrroline*) (CIAMICIAN and DENNSTEDT), 1884, A., 289, 1044; 1885, A., 378.  
 action of bromine on (CIAMICIAN and DENNSTEDT), 1884, A., 291.  
 action of ethylic oxalate on (ANGELI), 1890, A., 1156, 1243.  
 action of nitric acid on (CIAMICIAN and SILBER), 1885, A., 810, 992.
- Pyrryl methyl pinacone** (DENNSTEDT and ZIMMERMANN), 1886, A., 1042.
- Pyrryl phenyl ketone**. See Phenyl pyrryl ketone.
- Pyrrylalloxan** (CIAMICIAN and MAGNAGHI), 1886, A., 367; (CIAMICIAN and SILBER), 1886, A., 897.
- Pyrrylene dimethyl diketone** (*di- $\psi$ -acetylpyrroline*) (CIAMICIAN and DENNSTEDT), 1885, A., 378; (CIAMICIAN and SILBER), 1885, A., 808, 993; 1886, A., 74.  
 nitro- (CIAMICIAN and SILBER), 1885, A., 993; 1886, A., 718.
- Pyrrylmethylketonesulphonic acid** (CIAMICIAN and SILBER), 1885, A., 810.
- Pyruvactic acid**, mono- and *di*-thio- (BONGARTZ), 1886, A., 938.
- Pyruvaldehydephenylhydrazone** (*benzenecarboxetone; pyruvaldehydehydrazone*) (V. RICHTER and MÜNZER), 1884, A., 1342.  
 introduction of monad radicles into (JAPP and KLINGEMANN), 1888, T., 525.  
 action of phenylhydrazine on (JAPP and KLINGEMANN), 1888, T., 531.  
*o*-nitro- (BAMBERGER), 1885, A., 157.
- Pyruvic acid** (*pyruvic acid*), magnetic rotation of (PERKIN), 1892, T., 807, 836.  
 condensation of, with ethylic acetate (DIETZEL), 1889, A., 593.  
 condensation of, with sodium succinate (FIRRIE and PARKER), 1889, A., 1146; 1890, A., 1102; 1892, A., 814.  
 chlorination of (SEISSL), 1889, A., 489.  
 pyrogenic decomposition of (HANNIOT), 1886, A., 224.  
 compound of, with hippuric acid (HOFFMANN), 1887, A., 44.  
 condensation-products of (BOTTINGER), 1885, A., 758.  
 derivatives of (BAUMANN), 1885, A., 513; (GERSON), 1887, A., 260.  
 hydrazines of (FISCHER and JOURDAN), 1884, A., 52.  
 indogenide of (V. BÄYER), 1884, A., 76.  
 formation of uvitonic acid from (BOTTINGER), 1884, A., 759.  
 phenylhydrazone of (FISCHER and JOURDAN), 1884, A., 52; (FISCHER), 1884, A., 1161.  
 action of heat on (JAPP and KLINGEMANN), 1888, T., 541.  
 ethyl derivative of (FISCHER and JOURDAN), 1884, A., 52.  
 phenylmethylhydrazone of (FISCHER and JOURDAN), 1884, A., 53.  
 quinolyldiazone of (DUFFTON), 1892, T., 786.
- Pyruvic acid**, *di*bromo-, action of hydroxylamine on (SODERBAUM), 1892, A., 815.  
 compounds of, with hydrazines (NASTVOGEL), 1889, A., 237.

- Pyruvic acid**, chloro-, phenylhydrazone of (PERATONER and STRAZZERI), 1891, A., 1333.  
*o*-chloro-, phenylhydrazone (HEWITT), 1891, T., 210.  
 dichloro-, and dichlorobromo- (HANTZSCH), 1890, A., 132.  
*p*-nitro-, phenylhydrazone (FISCHER and ACH), 1890, A., 41.  
 thio-, phenylhydrazone (RUHL), 1892, A., 1826.  
**Pyruvic anilide** and its hydrazone and imidochloride (NEF), 1892, A., 1440.  
 toluidide (NEF), 1892, A., 1441.  
**Pyruvin** (ERHART), 1885, A., 1201; (DE CLERMONT and CHATFARD), 1888, A., 45.  
**Pyruvinsureide**, dibromo- (FISCHER), 1887, A., 918.  
**Pyruvyl benzoate**, and the action of benzoic anhydride on (VAN ROMBURGH), 1883, A., 63.  
**Pyruvylglyoxylic acid** (*diacetylglorylic acid*), trichloro- (HANTZSCH), 1888, A., 1192.  
 tetrachloro- (HANTZSCH), 1890, A., 132.  
**Pyvramide**, dibromo- (FISCHER), 1887, A., 918.  
**Pyvurin**, tribromo- (FISCHER), 1887, A., 918.

## Q.

- Qualitative and quantitative analysis.**  
 See Analysis.  
**Quartz** (KUNZ), 1892, A., 1055.  
 from Arizona (KUNZ), 1888, A., 346.  
 from Burke, N. Carolina (VOM RATH), 1886, A., 27.  
 fibrous, from the Cape (RENARD and KLEMENT), 1886, A., 603.  
 blue, from Nelson Co., Virginia (ROBERTSON), 1885, A., 129.  
 artificial production of (V. CHRIST-SCHOFF), 1887, A., 559.  
 synthesis of (BRUHNS), 1890, A., 112.  
 velocity of light in (EXNER), 1886, A., 653.  
 circular polarisation of (SURET and SARASIN), 1883, A., 140.  
 variation of the indices of refraction of water and, with the temperature (DUFET), 1883, A., 762.  
 pyroelectricity of (HANKEL), 1883, A., 412, 950; 1885, A., 1187; (FRIEDEL and CURIE), 1883, A., 897.  
 expansion of (LE CHATELIER), 1890, A., 1872.  
 alteration of, into talc (WEINSCHENK), 1888, A., 1259.

- Quartz**, crystals with basal plane (HIDDEN and DES CLOIZEAUX), 1887, A., 119.  
 Babel, association of, with fluorspar (GONNARD), 1888, A., 561.  
 pseudomorphs after spodumene (KUNZ), 1889, A., 24.  
 pseudomorphous, after stibnite (GENTH), 1891, A., 155.  
 estimation of, in siliceous rocks and soils (HAZARD), 1884, A., 872.  
**Quartz conglomerate** from Witwatersland, Transvaal (HOLLAND), 1888, A., 568.  
**Quartz-felsites** from the Cheviot district (TEALL), 1886, A., 520.  
**Quartz-mica-diorite**, analysis of (TELLER and JOHN), 1883, A., 1069.  
**Quartz-porphry** near Tryberg in the Black Forest (WILLIAMS), 1883, A., 724.  
**Quartz-rock** (SCHUBERT), 1883, A., 36.  
**Quartz-trachyte** covered with a deposit from the Echinus Geyser, pebble of (BEAM), 1884, A., 28.  
**Quartzine** (MICHEL-LEVY and MUNIER-CHALMAS), 1890, A., 712.  
**Quartzite** (HOLLAND), 1887, A., 451.  
 Dumont's (RENARD), 1883, A., 958.  
 sand and kaolin from (DANA), 1885, A., 360.  
*Quassia amara*, constituents of (MAS-SUTE), 1890, A., 791.  
**Quassic acid** (OLIVERI and DENARO), 1884, A., 1193; (OLIVERI), 1888, A., 1312.  
 dioxime of (OLIVERI), 1888, A., 1312.  
**Quasside** (OLIVERI and DENARO), 1884, A., 1192; 1885, A., 907.  
**Quassin** (OLIVERI and DENARO), 1884, A., 1192; 1885, A., 907; (MASSUTE), 1890, A., 792.  
 constitution of (OLIVERI and DENARO), 1884, A., 1192; (OLIVERI), 1888, A., 1311; 1889, A., 278.  
 preparation of (ADRIAN and MOREAUX), 1884, A., 908.  
 derivatives of (OLIVERI and DENARO), 1885, A., 907.  
**Quebrachisulphuric acid** (TANRET), 1890, A., 226.  
**Quebrachite** (TANRET), 1890, A., 226.  
**Quebracho**, sugar from (TANRET), 1890, A., 226.  
 wood, red, and its analysis (CORNCLER), 1885, A., 948.  
**Quercetin** and its derivatives (HERZIG), 1884, A., 846; 1886, A., 251; 1888, A., 1309; 1890, A., 64; 1891, A., 1886; (LIEBERMANN), 1884, A., 1365; 1886, A., 366.

**Quercetin**, molecular weight of (HERZIG), 1888, A., 1309.  
**Quercetyl phenylcarbamate** (TESMER), 1886, A., 50.  
**Quercin**, a new carbohydrate from acorns (VINCENT and DELACHANAL), 1887, A., 909.  
 crystalline form of (FRIEDEL), 1887, A., 1026.  
**Quercitannic acid** (ETTI), 1883, A., 995.  
 See also Tannic acid.  
**Quercitol** (KILIAN and SCHEIBLER), 1889, A., 581.  
 constitution of (KANONNIKOFF), 1886, A., 335.  
 heats of combustion and formation of (BERTHELOT and RECOURA), 1887, A., 1011.  
 thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.  
**Quercitrin**, in Virginia creeper (*Cissus quinquefolia*) (PHIPSON), 1885, A., 1255.  
 and rutin, supposed identity of (SCHUNK), 1888, T., 262; P., 12.  
*Quercus rubra*, analyses of white and green leaves of (CHURCH), 1886, T., 839; P., 236.  
**Quereyl pentaphenylcarbamate** (TESMER), 1886, A., 49.  
**Querlactone** (BOTTINGER), 1891, A., 1062.  
**Quicksilver**. See Mercury.  
**Quillajic acid** (KOBERT), 1889, A., 55.  
*Quina morada*, constituents of the bark of (ARATA and CANZONERI), 1890, A., 404.  
**Quinaldine**. See 2'-Methylquinoline.  
**Quinaldinic acid**. See Quinoline-2'-carboxylic acid.  
**Quinalizarin**. See 1:2:1':4'-Tetrahydroxyanthraquinone.  
**Quinamyline** (GRIMAUD and ARNATT), 1892, A., 1253.  
**Quinanisol**. See Methoxyquinoline.  
**Quinazole**. See Methylindazinium.  
**Quinazoline**, derivatives of, synthesis of (PAAL and BUSCH), 1890, A., 71.  
 $\beta$ -dichloro- (ABT), 1889, A., 610.  
**Quinazolines** (WEDDIGE; KÜRNER), 1887, A., 1044; (GABRIEL and JANSEN), 1890, A., 1442; 1892, A., 217; (PAAL and BODEWIG), 1891, A., 943.  
 thio-, new synthesis of (BUSCH), 1892, A., 1495.  
**Quince-juice**, a sugar from (BAUER), 1892, A., 128.  
**Quince mucus** (GANS and TOLLENS), 1889, A., 541.  
**Quinenine** (*rhinine*). See Alkaloids.

**apoQuinenine** (COMSTOCK and KOENIGS), 1885, A., 911.  
**Quinethyline** and its derivatives (GRIMAUD and ARNAUD), 1891, A., 1518.  
**Quinic acid**, constitution of (EIJKMAN), 1891, A., 921.  
 specific rotatory and refractive powers of (KANONNIKOFF), 1889, A., 453.  
 heats of combustion and formation of (BERTHELOT and RECOURA), 1887, A., 1011.  
 heat of solution of (BERTHELOT), 1885, A., 1178.  
 decomposition of, by dilute hydrochloric acid (CHODONSKÝ), 1888, A., 1298.  
 acetyl-derivatives of (ERWIG and KOENIGS), 1889, A., 991.  
**Quinicine**, oxidation of (SKRAUP and WURST), 1889, A., 1074.  
**Quinidine** (*conquinine*). See Alkaloids.  
**isoQuinidine** (*isconquinine*) (HESSE), 1888, A., 380.  
**isoQuinidinesulphonic acid** (*isconquininesulphonic acid*) (HESSE), 1892, A., 514.  
**1-Quinindole- $\alpha$ -carboxylic acid** (DUFTON), 1891, T., 758.  
**4-Quinindole- $\alpha$ -carboxylic acid** (DUFTON), 1892, T., 787.  
**Quinine**. See Alkaloids.  
**isoQuinine** (HESSE), 1888, A., 379; (LIPPMANN and FLEISSNER), 1892, A., 82.  
**isoapoQuinine** (LIPPMANN and FLEISSNER), 1892, A., 82.  
**Quinine- and isoquinine-sulphonic acids** (HESSE), 1892, A., 514.  
**Quininic acid** (3-methoxyquinoline-4'-carboxylic acid) (SKRAUP), 1884, A., 86.  
**Quinisatic acid** (*o-amidobenzoylethylglyoxylic acid*) and its salts (v. BAAYER and HOMOLKA), 1884, A., 79.  
**Quinisatin** (v. BAAYER and HOMOLKA), 1884, A., 78, 1029.  
 $\psi$ -**Quinisatin** (FRIEDLANDER and MULLER), 1887, A., 978.  
**Quinisatoxime**. See 3'-Nitroso-4'-hydroxycarbostyryl.  
**Quinitol** (v. BAAYER), 1892, A., 833.  
**Quinizarin** (1:4-dihydroxyanthraquinone) (LIEBRMANN), 1888, A., 716.  
 diethyl ether. See 1:4-Diethoxyanthraquinone.  
 ethyl ether. See Hydroxyethoxyanthraquinone.  
**Quinizine**. See Phenylpyrazolone.  
**Quinoidine**, oxidation of (STRACHE), 1890, A., 179.

**Quinol** (*benzoquinol*; 1:4-*dihydroxybenzene*; *hydroquinone*) (BAESSLER), 1887, A., 364.  
 formation of (CIAMICIAN), 1886, A., 695.  
 preparation of (NIETZKI), 1883, A., 465; 1886, A., 790; (SEYDA), 1883, A., 1115.  
 absorption spectra of (HARTLEY), 1888, T., 654.  
 thermochemistry of (STOHMANN and LANGBEIN), 1892, A., 764.  
 heat of combustion of (BERTHELOT and LUGNIN), 1887, A., 762.  
 action of aniline on (CALM), 1884, A., 591.  
 action of phosphorus pentachloride on (SCHEID), 1884, A., 429.  
 action of *o*-toluidine on (PHILIP), 1886, A., 941.  
 fusion of, with soda (BARTH and SCHREDER), 1883, A., 60; 1885, A., 520.  
 physiological action of (GIBBS and HARE), 1890, A., 1019.  
 benzenesulphonate of (GEORGESCU), 1891, A., 569.  
 compounds of, with amines (HEBE-  
 BRAND), 1883, A., 60.  
 compound of, with phenylhydrazine (SEYEWITZ), 1892, A., 49.  
 derivatives (BAESSLER), 1887, A., 364.  
 derivatives of the benzene series (DE CLERMONT and CHAUTARD), 1886, A., 696.  
 mixed ethers of (FIALA), 1884, A., 1138.  
 phenylcarbamate (SNAPE), 1885, T., 772.  
 sodium compounds of (DE FORCAND), 1892, A., 1184, 1185.  
**Quinol**, amido-, dimethyl ether (BAESSLER), 1884, A., 1329; 1887, A., 364.  
 2:3-*diamido*-, hydrochloride, and its derivatives (NIETZKI and PREUSSER), 1886, A., 1024.  
 2:5-*diamido*- (NIETZKI and SCHMIDT), 1889, A., 968.  
   diethyl ether of. See Diethoxy-  
   phenylenediamine.  
 triamido-, sulphate (NIETZKI and SCHMIDT), 1889, A., 968.  
 bromo-, dimethyl ether (NÖLTING and WERNER), 1891, A., 209.  
 2:6-*di*bromo- (LING), 1892, T., 562.  
 chloro- (SCHEID), 1884, A., 429.  
 2:5-*dichloro*- (KEHRMANN and TIESLER), 1890, A., 242.

**Quinol**, 2:3:5-*trichloro*-, and *tetra*-  
*chloro*-, compounds of, with aniline (NIEMEYER), 1885, A., 1065.  
*tetrachloro*- (SUTKOWSKI), 1887, A., 42.  
 2:3:6-*chlordiamido*-, hydrochloride of (KEHRMANN and TIESLER), 1890, A., 243.  
 2:6-*chlorobromo*- (LING), 1892, T., 562.  
*chlorotribromo*- (LING), 1887, T., 784; (LING and BAKER), 1892, T., 592.  
 2:5- and 2:6-*dichlorobromo*- (LING), 1892, T., 565, 578.  
 2:5-*dichloro*-3:6-*di*bromo-, and its diacetyl derivative (LEVY), 1885, A., 1210; (LING), 1892, T., 578.  
   crystalline form of (LEIVEH), 1886, A., 543.  
*trichlorobromo*- (LING and BAKER), 1892, T., 593.  
*chlordiamido*- (KEHRMANN and TIESLER), 1890, A., 242.  
 2:6-*di*iodo- (METZELER), 1888, A., 1278.  
 2:5-*dinitro*- (NIETZKI), 1883, A., 465.  
   constitution of (NIETZKI and PREUSSER), 1887, A., 574.  
*trinitro*-, derivatives of (NIETZKI and KAUFMANN), 1892, A., 314.  
 3:2:5-*nitrodiamido*- (NIETZKI and SCHMIDT), 1889, A., 968.  
 thio-, and ethylxanthate of (LEUCK-  
 ART), 1890, A., 603.  
**Quinol-*p*-azodiphenylsulphonic acid**, sodium salt of (CARNELLEY and SCHLESSELMANN), 1886, T., 382.  
**Quinoldiammonium** (CURTIUS and THUN), 1891, A., 1360.  
**Quinoldicarboxylic acid**. See 3:6-*Di*-  
*hydroxyterephthalic acid*.  
**Quinoldisulphonic acid** and its salts (SEYDA), 1883, A., 1115.  
*di*bromo- (GRAEBE and WELTNER), 1891, A., 1029.  
**Quinoic acid** (*pyridine-2:3-dicarbonylic acid*). See Quinolinic acid.  
**Quinolepidine**, synthesis of (BEYER), 1885, A., 1246.  
**Quinolformic acid** and *anhydride* (MYLIUS), 1886, A., 706.  
**Quinoglycuronic acid** (KÜLZ), 1890, A., 1286.  
**Quinolhydrocyanic acid** (MYLIUS), 1886, A., 706.  
**Quinolic acid** (HOFFMANN and KÖRNIGS), 1883, A., 1145.  
**Quinoline** (*leucoline*) (OECHSNER DE COXINCK), 1883, A., 739; (ANON.), 1884, A., 756; (ABT), 1889, A., 1214.

**Quinoline** (*leucoleine*) from cinchonine (OECHSNER DE CONINCK), 1883, A., 88.  
 ring formation (MARCKWALD), 1890, A., 1004.  
 synthesis of (BORNEMANN), 1886, A., 1045.  
 constitution of (KNORR and ANTRICK), 1885, A., 273.  
 spectrum of (HARTLEY), 1885, T., 722.  
 vapour-pressures of (YOUNG), 1889, T., 483; P., 104.  
 action of chloroform and iodoform on (RHOUSSOPOULOS), 1883, A., 600.  
 action of, on copper sulphate (BORSBACH), 1890, A., 796.  
 action of ethylic chloracetate on (RHOUSSOPOULOS), 1883, A., 96.  
 action of ethylic chlorocarbonate on (v. MEYER), 1885, A., 140.  
 action of haloid ethereal salts on (CLAUS and STEGELITZ), 1884, A., 1050.  
 action of halogens on the halogen-alkyl-derivatives of (CLAUS), 1885, A., 908.  
 action of hypochlorous acid on (EINHORN and LAUCH), 1888, A., 501.  
 and substituted quinolines, products of the action of hypochlorous acid on (ERLENMEYER and ROSENHEK), 1886, A., 559.  
 action of iodine chloride and of phosgene gas on (OSTERMAYER), 1885, A., 672.  
 action of phthalic anhydride on (TRAUB), 1883, A., 667; (JACOBSEN and REIMER), 1883, A., 812, 922.  
 reactions of (WEIDEL), 1887, A., 847.  
 oxidation of (v. MILLER), 1891, A., 1095.  
 reduction of (BAMBERGER), 1890, A., 1302.  
 reduction products of (BAMBERGER and LENGELD), 1890, A., 1318.  
 nitration of (DUFTON), 1892, T., 782.  
 sulphonation of (v. GEORGIEVICS), 1888, A., 296; (FULDA), 1891, A., 391.  
 coal-tar, method of recognising (TRAUB and SCHÄRGEN), 1885, A., 173.  
 and from the cinchona alkaloids and its oxidation by potassium permanganate (HOOGWERFF and VAN DORP), 1883, A., 89.  
 dyes obtained by the action of phthalic anhydride on (JACOBSEN and REIMER), 1883, A., 922.  
 physiological action of (HEINZ), 1891, A., 602.

**Quinoline-bases**, formation of (LELLMANN and LIPPERT), 1891, A., 1509.  
 colouring matters derived from (SPALTEHOLZ), 1883, A., 1150; 1885, A., 400; (OECHSNER DE CONINCK), 1886, A., 82.  
 process for preparing dye-stuffs from (JACOBSEN), 1884, A., 798, 944.  
 methochlorides of (OSTERMAYER), 1885, A., 813.  
**Quinoline-derivatives** (SKRAUP), 1883, A., 92; (RHOUSSOPOULOS), 1883, A., 96; (OECHSNER DE CONINCK), 1883, A., 738; (ANON.), 1884, A., 756, 944; (FISCHER and RENOUF), 1884, A., 1048; (v. MILLER and KINKELIN), 1886, A., 560; (RUGHEIMER and SCHRAMM), 1887, A., 738; (WEIDEL and BAMBERGER), 1888, A., 966.  
 formation of, from meta-substituted amines (MEYER), 1886, A., 161.  
 from meta-substituted amines, constitution of (GATTERMANN and KAISER), 1886, A., 79.  
 from  $\beta$ -diketones (BEYER), 1887, A., 849.  
 from ethylic *o*-nitrobenzoylmalonate (BISCHOFF), 1889, A., 519.  
 from isatinic acid (PRITZINGER), 1886, A., 370; 1889, A., 412.  
 formation of, by the action of phosphoric chloride on the malonates of primary aromatic bases (RUGHEIMER), 1886, A., 161.  
 synthesis of (RUGHEIMER), 1884, A., 1050; (KNORR), 1884, A., 1193; 1887, A., 847.  
 synthesis of, by means of alkylic acetoacetates (CONRAD and LIMPACH), 1887, A., 679; 1892, A., 78.  
 constitution of (SKRAUP and BRUNNER), 1886, A., 810; (FREYDL), 1888, A., 296.  
 appearance of colour in (ARMSTRONG), 1892, T., 789; P., 143.  
 action of hypochlorous acid on (EINHORN and LAUCH), 1886, A., 370; 1888, A., 501.  
 oxidation of (v. MILLER), 1891, A., 1094; (v. GEORGIEVICS), 1891, A., 1389.  
 regularities in the oxidation of (v. MILLER), 1890, A., 1324.  
 reduction of (BAMBERGER), 1889, A., 518.  
 methiodides of (DECKER), 1891, A., 1247.  
**Quinoline**, additive-products of (CLAUS and TOSSE), 1883, A., 1008.

**Quinoline**, alkyl haloids, action of alkalis on (DECKER), 1891, A., 736; 1892, A., 879.  
 alkyl hydroxides (DECKER), 1892, A., 880.  
 alkylammonium hydroxides, oxidation of (DECKER), 1891, A., 736.  
 ammonium bases derived from (BERNTSEN), 1884, A., 1357; 1885, A., 814; (BERNTSEN and HESS), 1885, A., 558.  
 amylic bromide (CLAUS and TOSSE), 1883, A., 1009.  
 arsenious bromide (LANDAU), 1889, A., 211.  
 benzylic chloride, and its oxidation (CLAUS and GLYCKHERR), 1883, A., 1009.  
 carbonylchloroplatinite hydrochloride (MYLIUS and FOERSTER), 1891, A., 1163.  
 cerium nitrate (WILLIAMS), 1889, A., 281.  
 chloriodide (DITTMAR), 1886, A., 158; (PICTET and KRAFFT), 1892, A., 1357.  
 ethiodide, oxidation of (DECKER), 1892, A., 730.  
 ethobromide (CLAUS and TOSSE), 1883, A., 1008.  
     action of nascent hydrogen on (CLAUS and STEGELITZ), 1884, A., 1051.  
 ethochloride (CLAUS and TOSSE), 1883, A., 1009.  
 ethonitrate (CLAUS and TOSSE), 1883, A., 1009.  
 homologue of (BREYER), 1885, A., 672.  
     transformation of homologues of indole into (MAGNANINI), 1887, A., 1113.  
 hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1001.  
 iodides (LA COSTE), 1885, A., 814.  
 second peroxide of (DAFERT), 1883, A., 980.  
 methylated derivatives of, condensation-products of (JACOBSEN and REIMER), 1884, A., 335.  
 methyl hydroxide, oxidation of (DECKER), 1892, A., 729.  
 methylpicrate (OSTERMAYER), 1885, A., 672.  
 propiobromide and its dibromide, diiodide, dichloride, and tetriodide (CLAUS and COLLISCHONN), 1887, A., 60.  
 propiochloride and its dibromide, dichloride and diiodide (CLAUS and COLLISCHONN), 1887, A., 61.

**Quinoline**, propioidide and its dibromide, dichloride, diiodide, tetrabromide, tetrachloride and tetriodide (CLAUS and COLLISCHONN), 1887, A., 61.  
 double salts of (BORSBACH), 1890, A., 643.  
 silicon chloride (HARDEN), 1887, T., 47.  
 substitution derivatives of (FRIEDLÄNDER and WEINBERG), 1883, A., 351.  
 substitution derivatives of, preparation of (FRIEDLÄNDER and GÜHRING), 1883, A., 1148.  
 substitution derivatives of, synthesis of (BRUNDEBERG), 1890, A., 1142.  
 substitution derivatives of, reduction of (BAMBERGER), 1890, A., 1302.  
 existence of two series of 4-substituted derivatives of (LELLMANN), 1887, A., 973.  
**Quinoline**, 2-amido- (FREYDL), 1888, A., 296.  
 4-amido- (DUFTON), 1892, T., 785.  
 2'-amido-, preparation of (EPHRAIM), 1891, A., 1509.  
 3'-amido- (RIEMERSCHMIED), 1883, A., 1148.  
 4'-amido- (HOOGWERFF and VAN DORP), 1892, A., 725.  
 $\alpha$ - and  $\beta$ -diamido- (CLAUS and KRAMER), 1885, A., 908.  
 bromo-, action of hypochlorous acid on (WELTER), 1891, A., 1248.  
 1-bromo-, and its derivatives (CLAUS and TORNIER), 1888, A., 163.  
 2-bromo-, and its derivatives (CLAUS and TORNIER), 1888, A., 164; (CLAUS and VIS), 1889, A., 280; 1890, A., 173.  
 3-bromo-, and its derivatives (CLAUS and TORNIER), 1888, A., 163.  
 4-bromo-, and its derivatives (CLAUS and TORNIER), 1888, A., 164; (CLAUS and VIS), 1890, A., 173.  
 2'-bromo- (CLAUS and POLLITZ), 1890, A., 521.  
 4'-bromo-, and its derivatives (CLAUS and COLLISCHONN), 1887, A., 158; (CLAUS and TORNIER), 1888, A., 163; (CLAUS and DECKER), 1889, A., 728; (DECKER), 1892, A., 630; (CLAUS), 1892, A., 875.  
 La Coste's, constitution of (CLAUS and WELTER), 1890, A., 173.  
 dibromo- [m.p. 166° and 125°-126°] (CLAUS and TORNIER), 1888, A., 163.  
 1:2-dibromo-, and its derivatives (CLAUS and VIS), 1890, A., 173.  
 1:3-dibromo-, and its derivatives (CLAUS and GEISLER), 1890, A., 172.

**Quinoline**, 1:4-*di*bromo-, and its derivatives (METZGER), 1884, A., 757; (CLAUS and GEISLER), 1890, A., 172.  
 2:3- and 2:4-*di*bromo-, and their derivatives (CLAUS and GEISLER), 1890, A., 172.  
 3:4-*di*bromo-, and its derivatives (CLAUS and GEISLER), 1890, A., 173.  
 1:4'-*di*bromo-, and its derivatives (CLAUS and WELTER), 1890, A., 1820.  
 2:2', 3:2- and 4:2'-*di*bromo- (WELTER), 1891, A., 1248.  
 2:4'-*di*bromo- (CLAUS and WELTER), 1890, A., 174.  
 3:4'-*di*bromo-, and its derivatives (CLAUS and WELTER), 1890, A., 173.  
 4:4'-*di*bromo-, and its derivatives (CLAUS and DECKER), 1889, A., 729; (CLAUS and WELTER), 1890, A., 173.  
*tribromo-* [m.p. 169°] (CLAUS and WELTER), 1890, A., 173.  
 [m.ps. 170° and 198°] (CLAUS and KUTTNER), 1887, A., 278.  
 [m.p. 205°] (CLAUS), 1888, A., 729.  
 [m.p. 247°] (CLAUS and POLLITZ), 1890, A., 522.  
 1:3:4'- and 3:4:4'-*tri*bromo- (CLAUS and HEERMANN), 1891, A., 82.  
 1:4:4'-*tri*bromo- (CLAUS and WELTER), 1890, A., 1821; (CLAUS and HEERMANN), 1891, A., 83.  
 1:3:4:4'-*tetra*bromo- (CLAUS and WELTER), 1890, A., 1821; (CLAUS and HEERMANN), 1891, A., 83.  
 2:2'-bromamido- [m.p. 62°] (CLAUS and VIS), 1889, A., 281.  
 3:4-bromamido- [m.p. 164°] (LA COSTE), 1883, A., 90; (CLAUS and ZUSCHLAG), 1890, A., 267.  
 2-bromonitro- [m.ps. 244°, 146° and 111°] (CLAUS and POLLITZ), 1890, A., 521.  
 2:2'- and 2:3'-bromonitro- (CLAUS and VIS), 1889, A., 281.  
 3:4-bromonitro- (LA COSTE), 1883, A., 90; (CLAUS and ZUSCHLAG), 1890, A., 267.  
 3':4-bromonitro-, methylhydroxide of (DECKER), 1892, A., 881.  
 1:4'-*di*bromonitro- and 1:4:4'-*tri*bromonitro- [m.ps. 215° and 195°] (CLAUS and WELTER), 1890, A., 1820.  
 1-chloro-, action of acetamide on (MUEHLERT), 1887, A., 848.  
 2-chloro- and its derivatives (LA COSTE and BODEWIG), 1884, A., 1196; (LA COSTE), 1886, A., 159.

**Quinoline**, 2-chloro-, methylic chloride, methylformyl-*o*-chloramidobenzoic acid and methyl- $\psi$ -chlorisatin from (LA COSTE and BODEWIG), 1885, A., 792.  
 1:4-*dichloro-* (OSTERMAYER), 1885, A., 672.  
 2':3'-*dichloro-* (v. BAeyer and BLOEM), 1883, A., 197.  
*trichloro-* [m.p. 68°] (CLAUS and POSSELT), 1890, A., 523.  
 [m.p. 108°], synthesis of (RUGHEIMER), 1884, A., 1050.  
 1-cyano- (FISCHER), 1883, A., 92; (LELLMANN and REUSCH), 1889, A., 905.  
 2-cyano- (FISCHER), 1883, A., 92.  
 3-cyano- (FISCHER and WITTMACK), 1884, A., 1051.  
*dicyano-* (LA COSTE and VALEUR), 1887, A., 379.  
 2'-iodo- and its derivatives (FRIEDLÄNDER and WEINBERG), 1885, A., 989.  
 1-nitro- (LA COSTE), 1883, A., 811; (CLAUS and KRAMER), 1885, A., 908.  
 2-nitro- (CLAUS and KRAMER), 1885, A., 908; (CLAUS and STIEBEL), 1888, A., 295.  
 3-nitro- (LA COSTE), 1883, A., 811.  
 $\alpha$ - and  $\beta$ -*dinitro-* (CLAUS and KRAMER), 1885, A., 908.  
 $\alpha$ -thio- (ROOS), 1888, A., 500.  
*isoQuinoline* and its derivatives (HOOGWERFF and VAN DORP), 1886, A., 78; 1887, A., 505; (GABRIEL), 1886, A., 265; 1887, A., 61; (LE BLANC), 1888, A., 1114; (GOLDSCHMIEDT), 1889, A., 165.  
 preparation of, from naphthalene (BAMBERGER and KITSCHULT), 1892, A., 382.  
 synthesis of (GABRIEL), 1886, A., 812.  
 pyrogenic synthesis of (PICTET and POPOVICI), 1892, A., 730.  
 oxidation of (HOOGWERFF and VAN DORP), 1886, A., 478.  
 sulphonation of (CLAUS, HOWITZ, MASSAN and RAPS), 1892, A., 876.  
 substitution products of (EDINGER and BOSSUNG), 1891, A., 580.  
 salts of (HOOGWERFF and VAN DORP), 1886, A., 78.  
 benzylic chloride (GOLDSCHMIEDT), 1889, A., 165.  
 homologues of (GABRIEL), 1887, A., 739, 1112.

- iso*Quinoline methiodide (GABRIEL), 1887, A., 62; (CLAUS and EDINGER), 1889, A., 415.  
oxidation of (DECKER), 1892, A., 730.
- iso*Quinoline, bromo-, derivatives of (EDINGER and BOSSUNG), 1891, A., 580.  
*di*bromo- (EDINGER and BOSSUNG), 1891, A., 581.  
bromamido- (EDINGER and BOSSUNG), 1891, A., 581.  
bromonitro-, and its derivatives (EDINGER and BOSSUNG), 1891, A., 580.  
*mono*- and *di*-chloro- (GABRIEL), 1886, A., 812; 1887, A., 61.
- Quinolinebenzocarboxylic acids, oxidation of (V. GEORGIEVICS), 1891, A., 1389.
- Quinolinebenzylbetaine (CLAUS and M'CHALL), 1885, A., 561.
- Quinoline-betaine (RHODSOPOLLOS), 1883, A., 96.
- Quinoline-blue. See Cyanine.
- Quinoline-2-carboxylic acid and its salts (FISCHER and VAN LOO), 1884, A., 1372; (SKRAUP and BRUNNER), 1886, A., 811; 1887, A., 160.  
synthesis of (TORTELLI), 1887, A., 503.  
some derivatives of (FISCHER and KÖRNER), 1884, A., 1197.
- Quinoline-3-carboxylic acid (FISCHER and WITTMACK), 1884, A., 1052.
- Quinoline-4-carboxylic acid, 1-bromo- (LELLMANN and ALT), 1887, A., 502.
- Quinoline-2'-carboxylic acid (*quin-aldinic acid*) and its salts (DOEBNER and V. MILLER), 1884, A., 185; (WEIDEL and STRACHE), 1886, A., 950.  
preparation and oxidation of (V. MILLER), 1891, A., 1096.  
nitro- (DOEBNER and V. MILLER), 1883, A., 602.
- Quinoline-3'-carboxylic acid and its salts (RIEDEL), 1883, A., 1152; (DOEBNER and V. MILLER), 1885, A., 1079.  
2'-chloro- (FRIEDLÄNDER and GÜHRING), 1884, A., 1020.
- Quinoline-4'-carboxylic acid. See Cinchonic acid.
- $\psi$ -Quinoline-4-carboxylonitrile (LELLMANN and REUSCH), 1888, A., 499.
- Quinoline- $\alpha$ -dicarboxylic acid (LA COSTE and VALEUR), 1887, A., 379.
- Quinoline-1:4-dicarboxylic acid (SKRAUP and BRUNNER), 1886, A., 811.
- Quinoline-2':4'-dicarboxylic acid (DOEBNER and PETERS), 1890, A., 176.
- "Quinoline-dioximeanhydride" and "dioximes" (V. KOSTANECKI and REICHER), 1891, A., 580.
- Quinoline- $\alpha$ -disulphonic acid and its derivatives (LA COSTE and VALEUR), 1886, A., 628; 1887, A., 379, 973.
- Quinoline- $\beta$ -disulphonic acid (LA COSTE and VALEUR), 1886, A., 629; 1888, A., 297.
- Quinoline-disulphonic acids, preparation of (ANON.), 1885, A., 945.
- Quinoline-group, attempted synthesis of a nitramine of the (SIMON-THOMAS), 1892, A., 725.
- Quinolinephenacylic bromide (BAMBERGER), 1888, A., 301.
- iso*Quinolinephenacylic bromide (GOLDSCHMIEDT), 1889, A., 165.
- Quinolinequinol (FISCHER and RENOUF), 1884, A., 1371.
- Quinolinequinones and their derivatives (FISCHER and RENOUF), 1884, A., 1370; (MATHEUS), 1888, A., 965.
- Quinoline-red and *iso*quinoline-red (V. HOFMANN), 1887, A., 380.
- Quinoline-series, syntheses in the (JUNT), 1886, A., 161, 811, 812.  
syntheses in the, by means of acetylacetone (COMBES), 1888, A., 504.  
molecular migrations in the (ZIEGLER), 1888, A., 609.  
transition from the coumaric series to the (V. MILLER and KINKELIN), 1889, A., 990.  
quaternary ammonium bases of the (CLAUS), 1892, A., 1358.  
carboxylic acids of the, colour reactions for determining the constitution of (SKRAUP), 1886, A., 898.  
ketones of the (BEREND and THOMAS), 1892, A., 1488.  
 $\beta$ -lactone of the (EINHORN and LEHNKING), 1888, A., 1208.  
methochlorides of the (OSTERMAYER), 1885, A., 672.
- Quinoline-3-sulphobenzylbetaine (CLAUS and STEGELITZ), 1886, A., 628.
- Quinoline-1-sulphonamide and -sulphobromamide (HOOGWERFF and VAN DORP), 1889, A., 981.
- Quinoline-4-sulphonamide, 1-chloro- (CLAUS and POSSELT), 1890, A., 522.
- Quinoline-sulphonic acid, 2'-bromo- (CLAUS and POLLITZ), 1890, A., 521.

- Quinoline-1-sulphonic acid**, oxidation of (FISCHER and RENOUF), 1884, A., 1049; (ZURCHER), 1888, A., 378.  
 derivatives of (CLAUS and SIEGELITZ), 1886, A., 628.  
**3-bromo-** (CLAUS and ZUSCHLAG), 1890, A., 267.  
**4-bromo-** (CLAUS and WURTZ), 1890, A., 267.  
**Quinoline-2-sulphonic acid**, 4'-bromo- (CLAUS and SCHMEISSNER), 1890, A., 266.  
**Quinoline-3-sulphonic acid** and its derivatives (HAPP), 1884, A., 757; (FISCHER and WITTMACK), 1884, A., 1051; (CLAUS and MUCHALL), 1885, A., 561; (CLAUS and STEGELITZ), 1886, A., 628.  
 homologues of (FISCHER and WITTMACK), 1884, A., 1051.  
**4-bromo-** (CLAUS and WURTZ), 1890, A., 267.  
**Quinoline-4-sulphonic acid** (LELLMANN and LANGE), 1887, A., 737.  
**1-bromo-** (LELLMANN and LANGE), 1888, A., 296.  
**4'-bromo-** (CLAUS and SCHMEISSNER), 1890, A., 266.  
**1-chloro-** (CLAUS and POSSELT), 1890, A., 523.  
**Quinolinesulphonic acids** (CLAUS and KÜTTNER), 1887, A., 278; (FISCHER), 1887, A., 601; (v. GEORGIEVICS), 1888, A., 501; (CLAUS), 1888, A., 728.  
 bromo-, and their salts (LA COSTE), 1883, A., 96; (CLAUS), 1890, A., 265.  
**Quinoline-4-sulphonic bromide**, bromo- (CLAUS and POSSELT), 1890, A., 522.  
**Quinoline-1-sulphonic chloride**, 1-chloro- (CLAUS and POSSELT), 1890, A., 522.  
**Quinolinic acid** (*quinoleic acid*; *pyridine-2:3-dicarboxylic acid*) and its salts (HOOGEWERFF and VAN DORP), 1883, A., 89; (NOLTING and COLLIN), 1884, A., 1048.  
**5-bromo-** (CLAUS and COLLISCHONN), 1887, A., 159; (SRPEK), 1890, A., 177.  
**Quinolinic anhydride** (BERNTHSEN and METTEGANG), 1887, A., 737.  
**Quinolinsulphonic acid** and its salts (SEYDA), 1883, A., 1115.  
**Quinoltetracarboxylic acid** (*dihydroxy-pyromellitic acid*) (NEF), 1888, T., 453.  
 pyrazolone derivative of (NEF), 1890, A., 984.  
**Quinoltetracarboxylic anhydride** (NEF), 1890, A., 984.  
**2'-Quinolyl disulphide**, mercaptan and ethylic sulphide (ROOS), 1888, A., 500.  
**2'-Quinolylacetaldehyde** (EINHORN), 1886, A., 264, 721; (v. MILLER and SPADY), 1886, A., 265, 370; (CARLIER and EINHORN), 1891, A., 83.  
**2'-Quinolyl-acetic acid** and -acetylene (CARLIER and EINHORN), 1891, A., 84.  
**2'-Quinolylacrylic acid** (v. MILLER and SPADY), 1886, A., 264; (EINHORN and LEHNKERING), 1888, A., 1208.  
**2'-Quinolyl-β-bromopropionic acid** (EINHORN and LEHNKERING), 1888, A., 1208.  
**2'-Quinolyl-α-bromomethylene, α-bromopropionic acid** and -dihydroxypropionic acid (CARLIER and EINHORN), 1891, A., 84.  
**2:2'-Quinolylidiacrylic acid** (ECKHARDT), 1889, A., 523.  
**2'-Quinolylidiphenylcarbamide** (GOLDSCHMIDT and MEISLER), 1890, A., 501.  
**2'-Quinolylethylene** (EINHORN and LEHNKERING), 1888, A., 1209.  
**Quinolyl-ethylene-quinoline** (CH=2- and 3-) (BULACH), 1889, A., 528.  
**1-Quinolylhydrazine** (DUFTON), 1891, T., 756.  
**4-Quinolylhydrazine** (DUFTON), 1892, T., 784.  
**Quinolylhydrazines** (BÜTTIGER), 1892, A., 212.  
**2'-Quinolylhydroxypropionic acid** (EINHORN), 1886, A., 721.  
**2'-Quinolyl-β-hydroxypropionic acid**, lactone of (EINHORN and LEHNKERING), 1888, A., 1208.  
**Quinolyl-lactamide** and -β-lactic acid (EINHORN and LEHNKERING), 1888, A., 1209.  
**Quinolyl-p-methenylamidoxime** and its derivatives (BIEDERMANN), 1890, A., 175.  
**Quinolyl-p-methenylbenzenylazoxime-p-carboxylic acid** (BIEDERMANN), 1890, A., 176.  
**Quinolyl-p-methenyl-carbonylamidoxime, -ethenylazoxime** and -uramidoxime (BIEDERMANN), 1890, A., 176.  
**1:3-Quinolylmethylpyrazolone** (DUFTON), 1892, T., 788.  
**Quinolylphenyldimethylthiocarbamide** (MARCKWALD), 1890, A., 1005.  
**2'-Quinolylpropionic acid** (CARLIER and EINHORN), 1891, A., 84.

1-Quinolylsemicarbazide (DUFON), 1891, T., 758.  
 4-Quinolylsemicarbazide (DUFON), 1892, T., 786.  
 o-Quinone, derivatives of (ZINCKE), 1887, A., 808.  
*tetrabromo- and tetrachloro-* (ZINCKE), 1887, A., 808.  
 Quinone ( $C_{10}H_6O_2$ ) obtained in the destructive distillation of teak (ROMANIS), 1887, T., 870.  
 Quinone (*benzoquinone*) (MELDOLA), 1883, T., 433.  
 preparation of (NIETZKI), 1886, A., 790.  
 constitution of (NEF), 1890, A., 1270; 1891, A., 1348; (KEHRMANN), 1891, A., 432.  
 heat of combustion of (BERTHELOT and RECOURA; BERTHELOT and LUGININ), 1887, A., 762.  
 action of acetic chloride on (HESS), 1884, A., 430.  
 action of ethylic acetoacetate on (v. PECHMANN), 1889, A., 42; (IKUTA), 1892, A., 608.  
 action of hydroxylamine hydrochloride on (GOLDSCHMIDT), 1884, A., 735.  
 action of various substances on (SCHEID), 1884, A., 429.  
 behaviour of, towards sulphuric acid (LIEBERMANN), 1885, A., 802.  
 physiological action of (SCHULZ), 1892, A., 1115.  
 compounds of, with nitranilines (HEBERBRAND), 1883, A., 60.  
 compounds of, with phenols (NIETZKI), 1883, A., 465.  
 derivatives (NIETZKI), 1884, A., 58.  
 constitution of (HANTZSCH), 1887, A., 719.  
 influence of the presence of halogens and alkyl-groups on the replacement of oxygen by the *isomnitroso-group* in (KEHRMANN), 1889, A., 243.  
 physiological action of (SCHULZ), 1892, A., 1115.  
 carboxyl-derivatives of (NEF), 1888, T., 428; P., 38.  
*di- and tetra-bromides* (NEF), 1890, A., 1272.  
*di- and tetra-chlorides and dichloride-dibromide* (NEF), 1891, A., 1348.  
 halogen derivatives of (LING), 1887, T., 782; 1890, P., 32; 1892, T., 558; P., 105; (LING and BAKER), 1892, T., 589; P., 106.  
 Quinone, bromo-derivatives of (LEVY), 1883, A., 1117.

Quinone, 2:6-dibromo- (HEINICHEN), 1890, A., 165; (LING), 1892, T., 561.  
*tetrabromo- (bromanil)* (LING), 1887, T., 148; (GRAEBE and WELTNER), 1891, A., 1023.  
 2:6-3-dibromonitro- (GUARESCHI and DACCOMO), 1885, A., 891.  
*chloro-* (KOLLREPP), 1886, A., 1018.  
*chloro-derivatives of* (LEVY), 1883, A., 1117.  
 2:5-dichloro- (LEVY), 1883, A., 1117; (LING), 1892, T., 558.  
 oxime of (KEHRMANN), 1889, A., 244.  
 2:6-dichloro- (LING), 1892, T., 559.  
 bromination of (LING), 1892, T., 576, 580.  
 derivatives of (KEHRMANN and TIESLER), 1890, A., 241.  
*trichloro-* (ANDRESEN), 1884, A., 431.  
*tetrachloro- (chloranil)* (ANDRESEN), 1884, A., 431; (ISTRATI), 1890, A., 882; (GRAEBE), 1891, A., 1027.  
 action of phosphorus chlorides on (GRAEBE), 1891, A., 1023.  
 action of sodium thiosulphate on (PURGOTTI), 1890, A., 1419.  
 2:6- and 2:5-chlorobromo- (NEF), 1891, A., 1348; (LING), 1892, T., 562.  
*chlorotribromo-* (LING), 1887, T., 783; (LING and BAKER), 1892, T., 590.  
 2:5:3- and 2:6:3-dichlorobromo- (LING), 1892, T., 563, 566.  
 2:5-dichlorodibromo- (LEVY), 1883, A., 1117; 1885, A., 1210; (LING), 1892, T., 572.  
 crystalline form of (LEIVERH), 1886, A., 543.  
 2:6-dichlorodibromo- (LING), 1892, T., 578.  
*trichlorobromo-* (LING and BAKER), 1892, T., 592.  
 2:6:3-chlorobromonitro- (GARZINO), 1890, A., 1108.  
 2:6:3-dichloronitro- (GUARESCHI and DACCOMO), 1885, A., 891.  
 2:5-diiodo- (METZLER), 1888, A., 1278.  
 2:6-diiodo- (SEIFERT), 1884, A., 431; (KEHRMANN), 1888, A., 841.  
 nitro-derivatives of (NIETZKI), 1883, A., 465.  
 Etard's nitro-, probable non-existence of (HENDERSON and CAMPBELL), 1890, T., 255.  
 3:6:2:5-dinitrodiamido- (NIETZKI), 1887, A., 930.

**Quinones** (NIETZKI), 1883, A., 465.

formation of, from *p*-methylanilines (NÜLTING and BAUMANN), 1885, A., 892.

preparation of (NÜLTING and BAUMANN), 1885, A., 390; (SCHNITZER), 1887, A., 1036.

constitution of (SCHEID), 1884, A., 429.

action of, on amidophenols (ZINCKE and HEBBRAND), 1885, A., 257.

action of amines on (ZINCKE and BRAUNS), 1883, A., 209; (ZINCKE), 1883, A., 1117; 1885, A., 787.

action of yellow ammonium sulphide on (WILGERODT), 1887, A., 1045.

action of bleaching powder and of hypochlorous acid on (ZINCKE), 1892, A., 720, 859, 970.

action of, on *o*-diamines, *o*-nitraniline and nitro-*p*-toluidine (LEICESTER), 1890, A., 1445.

orientation by conversion of *p*-dinitro-derivatives into (CLAUS, RAPS, HERFELDT and BERKEFELD), 1891, A., 1199.

secondary and tertiary (NIETZKI and KEHRMANN), 1887, A., 473.

halogen-derivatives of, action of alkali nitrites on (KEHRMANN), 1888, A., 940.

halogen-derivatives of, action of alkalis and ammonia on (KEHRMANN), 1889, A., 707; 1890, A., 136; 1891, A., 903.

phenylhydrazine-derivatives of (ZINCKE), 1883, A., 1135.

**Quinones, amido-** (KEHRMANN), 1890, A., 756, 1265.

chlorinated, aniline- and nitraniline-derivatives of (NIEMEYER), 1885, A., 1065.

iodo- (KEHRMANN), 1889, A., 993, 1184.

**Quinonecarboxylic acids** (NEF), 1887, A., 255; (SIEGELTZ), 1891, A., 455.**Quinonechlorimide** (FOGH), 1888, A., 593.

2:6-dibromo-, preparation of (MÜHLAU), 1884, A., 594.

2-chloro- (KOLLREPP), 1886, A., 1019.

trichloro- (ANDRESEN), 1884, A., 431.

diiodo- (SEIFERT), 1884, A., 431.

**Quinonedichlorimide, dichloro-** (MÖHLAU), 1886, A., 941.**Quinonedianilides, mono- and di-chloro-** (ANDRESEN), 1884, A., 431.**Quinonedihydrodicarboxylic acid.** See 3:6-Dihydroxyterephthalic acid.**Quinonedimethylanilide, diiodo-** (SEIFERT), 1884, A., 431.**Quinonedimethylanilineimide.** See Dimethylamidophenylquinoneimide (*phenol-blue*).**Quinonedurylic acid** (NEF), 1888, T., 434; P., 39.**Quinonehæmatin** (SCHULZ), 1892, A., 1115.**Quinonehomofluorindine** (LEICESTER), 1890, A., 1445.**Quinonehydrodicarboxylic acid.** See 3:6-Dihydroxyterephthalic acid.**Quinoneimide, amido-** (MELDOLA), 1884, T., 161.

trichloro-, hydrochloride (ANDRESEN), 1884, A., 431.

**Quinoneimides** (KEHRMANN), 1890, A., 756, 1265.

formation of, from amidoazo-compounds (FISCHER and HEPP), 1892, A., 1476.

**Quinonemethylphenazine** (LEICESTER), 1890, A., 1446.**Quinone-*o*-dinitranilide** (LEICESTER), 1890, A., 1445.**Quinone/dinitranilides** (HEBBRAND), 1883, A., 61.**Quinone-mono- and -di-*o*-nitrotoluidides** (LEICESTER), 1890, A., 1446.**Quinoneoxime (*p*-nitrosophenol)** (GOLDSCHMIDT), 1884, A., 735.

action of hydroxylamine on (KEHRMANN and MESINGER), 1890, A., 1403.

ethereal salts of (WALKER), 1884, A., 1003.

acetate, benzoate, benzoxide, ethoxide and methoxide (BRIDGE), 1892, A., 1456.

hypochlorite (MÖHLAU), 1886, A., 453.

sodium salt of, preparation of (WALKER), 1884, A., 1003.

2:6-dibromo- (FISCHER and HEPP), 1888, A., 456.

**Quinone/loxime** (NIETZKI and KEHRMANN), 1887, A., 575; (NIETZKI and GUIERMANN), 1888, A., 471.**Quinoneoximes** (SUKKOWSKI), 1887, A., 41.

action of chlorine on (ZINCKE and SCHMUCK), 1890, A., 1146.

derivatives of (KEHRMANN), 1889, A., 244.

**Quinonephenolimide** (MÖHLAU), 1886, A., 147.

dibromo- (MÖHLAU), 1884, A., 594.

**Quinonephenylimide, action of aniline on** (V. BANDROWSKI), 1888, A., 1081.**Quinone-phenotolazine and -tolazine** (LEICESTER), 1890, A., 1446.

- Quinonetetracarboxylic acid** (NEF), 1886, A., 550.
- Quinophthalone** (TRAUB), 1883, A., 668; (JACOBSEN and REIMER), 1884, A., 385.
- Quino-propylene and -isopropylene** (GRIMAU and ARNAUD), 1892, A., 1253.
- Quinoterpene** (LIEBERMANN), 1884, A., 1191.
- Quinovic acid**, and its derivatives (LIEBERMANN), 1884, A., 1191.
- Quinovin group** (LIEBERMANN), 1884, A., 1191.
- Quinovite** (LIEBERMANN), 1884, A., 1191.
- Quinoxaline** from tetramidotoluene sulphate (NIETZKI and RÖSEL), 1891, A., 192.
- p*-amido-**, and its salts (HINSBERG), 1886, A., 722.
- Quinoxalines** (HINSBERG), 1884, A., 1052; 1885, A., 909; 1886, A., 82, 561, 722; (PLOCHEL), 1886, A., 722.
- preparation of (SCHEIDEL), 1886, A., 1046.
- from tolylenediamine and bromacetophenone, constitution of (LELLMANN and DONNER), 1890, A., 524.
- Quinoxaline series**, nomenclature of (HINSBERG), 1887, A., 382.
- new class of fluorescent dyes of the (FISCHER), 1891, A., 747; (FISCHER and BUSCH), 1891, A., 1109, 1514.
- Quinoxazines** and **quinoxazones** (MÖHLAU), 1892, A., 887.
- R.**
- Rabbits**, aged, composition of the bones of (GRAFFENBERGER), 1891, A., 1275.
- hydrophobic, catechol in the urine of (MOSCATELLI), 1892, A., 1115.
- Rabel water**, estimation of ethylic hydrogen sulphate in (GATTRAND), 1886, A., 1079.
- Racemic acid** (*paratartaric acid*) (PERKIN), 1887, T., 362; P., 29.
- from fumaric acid (ANSCHUTZ), 1885, A., 243.
- formation of, by the oxidation of unsaturated acids (DOEBNER), 1890, A., 1274.
- cryoscopic studies on (RAOULT), 1888, A., 361.
- specific gravity of solutions of (MARCHELEWSKI), 1892, A., 964.
- action of phosphorus pentachloride on (PERKIN), 1888, T., 695.
- sodium ammonium salt of (JOUBERT; WYRUBOFF), 1886, A., 533.
- Racemic acid** (*p-tartaric acid*), sodium potassium salts of (WYRUBOFF), 1886, A., 445, 533.
- Racemates**, resolution of (RICHT), 1886, A., 446.
- Racemo-inositol** (MAQUENNE and TANNER), 1890, A., 471.
- Radiation**. See Photochemistry and Thermochemistry.
- Radicle**, metallic, containing platinum and tin (SCHÜTZENBERGER), 1884, A., 822.
- Radicles**, negative, influence of, on the functions of certain groups (HALLER), 1888, A., 937; (FRANCHIMONT), 1888, A., 1052.
- nitrogenous, method for introducing, into ethylic malonate and acetoacetate (JUST), 1885, A., 513.
- organic, negative nature of (MEYER), 1888, A., 147, 702; (MEYER and OELKERS), 1888, A., 703; (RATTNER; SCHNEIDWIND), 1888, A., 704; (KNOEVENAGEL), 1888, A., 705.
- substituted alcohol, directly united with carbon or with nitrogen, characteristic difference between (MATIGNON), 1892, A., 106.
- Radish**, quantity of starch in the tubercles of the (LESAGE), 1892, A., 92.
- cooked, composition of (WILLIAMS), 1892, T., 227.
- Raffinose**. See Carbohydrates.
- Raffinosazone** (BEYTHIEN and TOLLENS), 1890, A., 581.
- Rails**, rusting of (SPRING), 1889, A., 214.
- testing of (KUPPELWIESER), 1884, A., 520.
- Rain-water**. See Agricultural Chemistry; also Water.
- Ralstonite** (GROTH), 1884, A., 265; (LENFIELD and HARPER), 1887, A., 345.
- chemical composition of (BRANDL), 1883, A., 29.
- Ramie plant**, composition of (JAFFA), 1892, A., 1511.
- Raoult's law of freezing**. See Cryoscopy, Freezing, and Weights, molecular.
- Rape-cake**, adulteration of (KLIEN), 1885, A., 425.
- Rape-oil**, examination of (KINGZETT), 1885, A., 446.
- Rape seed oil**, constituents of (REIMER and WILL), 1887, A., 1030.
- Rapic acid** (REIMER and WILL), 1887, A., 1030.
- Rare earths**. See Earths.

- Raspberries**, wine and brandy from (KOMMIER), 1887, A., 292.
- Raspberry juice** (PABST), 1886, A., 387.
- Rate of chemical change**. See Affinity, Chemical.
- Rattlesnake poison**, antidote for (CROFT), 1883, A., 104.  
preventive inoculation with (SEWALL), 1888, A., 1326.
- Rauwolfia**, alkaloids from (GREHOF), 1891, A., 336.
- Rays of high and low refrangibility**, separation of (VAN ASSCHE), 1884, A., 241.
- Rays**, actinic, reflection of (DE CHAR-DONNET), 1883, A., 138.  
solar, influence of, on the temperature of trees (IHNE), 1884, A., 917.  
telluric (JANSSEN), 1883, A., 261.
- "Reaction aptitudes"** of the halogens in mixed haloid ethers (HENRY), 1883, A., 787.
- Reaction** at high temperatures and pressures (HEMPEL), 1891, A., 258.  
velocity of. See Affinity.
- Reactions dependent on position** (LIEBERMANN and V. KOSTANECKI), 1885, A., 1209.  
microchemical (TSCHIRCH), 1883, A., 376; (STRENG), 1886, A., 487; 1889, A., 78; (V. HAUSHOFER), 1887, A., 301.
- Reagents**, concentration of (BLOCH-MANN), 1890, A., 412.
- Realgar** from Bosnia (KRENNER), 1885, A., 730.  
from the Yellowstone National Park (WEED and PIRSSON), 1892, A., 283.  
chemical nature of (GEUTHEN), 1887, A., 888.  
analysis of (JANNASCH and WASO-WICZ), 1892, A., 657.  
See also Arsenic sulphide.
- Recalescence** (OMOND), 1887, A., 14.
- Rectorite** (BRACKETT and WILLIAMS), 1892, A., 22.
- Red clover**. See Clover under Agri-cultural Chemistry.
- Red lead**. See Triplumbic tetroxide under Lead, and Minium.
- Red liquors**, examination of (KALMANN and SPÜLLER), 1887, A., 1063.
- Red-nickel** (SIPÖCZ), 1886, A., 313.
- Red-silver ore**. See Pyrargyrite and Proustite.
- "Red spots"** in light rose dye (LAUBER), 1885, A., 103.
- Reddingite** from Branchville (BRUSH and DANA), 1890, A., 1072.
- "Redonda"** phosphate, treatment of (WILLIAMS), 1885, A., 1018.
- Reducine and p-reducine** (THUDICHUM), 1888, A., 1120.
- Reduction processes** (ELBS), 1891, A., 431.  
under the influence of microscopic organisms in the soil (MUNTZ), 1885, A., 1151.  
and oxidation (LEDEBUR), 1885, A., 631; (OSFELD), 1888, A., 1024.  
and oxidation, simultaneous, by means of hydrocyanic acid (MICHAEL and PALMER), 1886, A., 155.
- Reductions with zinc and ammonia** (MIXTER), 1884, A., 301, 665.
- Reflectometer**, total (BRUHL), 1891, A., 513.
- Refraction and refractive index**, etc. See Photochemistry.
- Refractometer**, difference (ELLINGER), 1891, A., 1305.
- Refuse**, nitrogenous, manurial value of (PETERMANN), 1884, A., 211.
- Regianin**. See 4'-Hydroxy-1:4-naphtha-quinone.
- Reichenbach's oxidising principle** (PASTROVICH), 1883, A., 1005.
- Reichert's distillation process** (ALLEN), 1887, A., 1145.
- Relative density**. See Density and Specific gravity.
- Remijia Purdieana**, alkaloids from the bark of (HESSE), 1885, A., 64.
- Remission**, specific, so-called (RAMSAY and YOUNG), 1886, A., 5.  
Kahlbaum's so-called, as an expres-sion of the dependence of the boiling point on atmospheric pressure (NAUMANN), 1885, A., 717.
- Rennet** in human urine (HELWES), 1889, A., 536.  
See also Agricultural Chemistry.
- Rennin** (*rennet ferment*), action of (LEA and DICKINSON), 1890, A., 1175.
- Resacetic acid** (ISBERT), 1886, A., 1010.
- Resacetophenone**. See 2:4-Dihydroxy-acetophenone.
- Resazurin** (*resazoin*; *diazoresorcinol*, *azoresorcinol*) (BRUNNER and KRAEMER), 1884, A., 1333; (BRUNNER), 1885, A., 776; (EHLICH), 1888, A., 145; (NIETZKI, DIETZE and MAEUKLER), 1890, A., 156.  
formula of (NIETZKI), 1892, A., 164.  
reduction of (WESELSKY and BENE-DIKT), 1885, A., 526.
- Resins**, natural (BAMBERGER), 1892, A., 204.  
in plants, function of (DE VRIES), 1883, A., 365.

**RESINS**, distillation of, in a vacuum (BISCHOFF and NASTVOGEL), 1890, A., 1154.  
 products of the action of sulphur on (MORRIS), 1889, P., 102.  
**Amber** from Southern Mexico (KUNZ), 1890, A., 337.  
 of Cedar Lake, Canada (HARRINGTON), 1892, A., 573.  
**Colocynthein**, detection of (JOHANN-SON), 1885, A., 606.  
**Colophony**, destructive distillation of (RENARD), 1883, A., 599; 1884, A., 83, 843.  
 methylic alcohol in the products of the dry distillation of (KELBE and LWOFF), 1883, A., 738.  
**Convolvulin**, physiological action of (DRAGENDORFF), 1887, A., 291.  
**Dammara** (GRAF), 1889, A., 621.  
 from *Doona zeylanica* (VALENTA), 1891, A., 1885.  
**Dragon's blood resin** (DOBBIE and HENDERSON), 1884, A., 462; 1885, A., 803.  
 from *Eucalyptus Globulus* (VOIRY), 1888, A., 961.  
 of *Ficus rubiginosa* and *F. macrophylla* (RENNIE and GOYDER), 1892, T., 916; P., 146.  
**Fossil resin** from the coal measures (MACADAM), 1889, A., 353.  
 analysis of (BOUSSINGAULT), 1883, A., 941.  
**Frankincense**, oilbene from (WALLACH), 1889, A., 1072.  
**Guaiacum resin** (HAGER), 1887, A., 752.  
 action of ozone on (KOWALEWSKY), 1889, A., 900.  
**Hop resin** (HAYDUCK), 1888, A., 187.  
**Jalapin** (POLECK and SAMELSON), 1885, A., 669.  
 physiological action of (DRAGENDORFF), 1887, A., 291.  
**Morreole resin** (ARATA and GELZER), 1891, A., 1089.  
 of *Myoporum platycarpum* (MAIDEN), 1889, T., 665; P., 127.  
 from myrrh (KOEHLER), 1890, A., 1317.  
**Pine-wood resin**, a delicate reaction for (MORAWSKI), 1889, A., 660.  
 of *Pinus Abies*, terpenes from (KUBILOFF), 1892, A., 625.  
 from *Pinus Laricio* and *Picea vulgaris* (BAMBERGER), 1892, A., 204.  
 Russian white, from *Pinus sylvestris* (SCHKATELOFF), 1889, A., 406.

## RESINS—

**Shellac** (BENEDIKT and EHRLICH), 1888, A., 846; (BENEDIKT and ULZER), 1888, A., 1303.  
 refining of (ANDERSON), 1884, A., 380.  
**Storax**, American (FLUCKIGER; V. MILLER), 1883, A., 407.  
**Teak resin** (ROMANIS), 1887, T., 868.  
**Thapsia resin** (CANZONERI), 1884, A., 460.  
**Resins**, detection, estimation and separation:—  
 analysis of (BAMBERGER), 1890, A., 1032.  
 detection of, in bees-wax (ROIFGER), 1892, A., 923.  
 examination of (WILLIAMS), 1889, A., 322.  
 estimation, quantitative, of fats and (GLADDING), 1885, A., 603.  
 estimation of, in mixtures with fatty acids (TWITCHELL), 1892, A., 389; (WILSON), 1892, A., 546.  
 estimation of, in soap (HEINER), 1885, A., 933; (WRIGHT and THOMPSON), 1886, P., 175; (GRITNER and SZILASI), 1886, A., 747; (WILLIAMS), 1891, A., 131.  
 separation of (v. SCHMIDT and ERBAN), 1887, A., 406; (KLEEBAN), 1888, A., 761.  
 See also Balsams.  
**Resin oil** (RENARD), 1884, A., 843.  
 fatty acids occurring in (LWOFF), 1887, A., 653.  
 hydrocarbons in (RENARD), 1888, A., 846.  
 retene from (KELBE), 1888, A., 605.  
 detection of, in fatty and mineral oils (GRITNER), 1892, A., 548.  
 detection of, in oil of turpentine (BAUDIN), 1891, A., 870.  
 detection of, in terebenthene (ZTNE), 1892, A., 923.  
 testing for, in fat oils, oleins, and fullers' fats (FOCKE), 1886, A., 581.  
 test for, in mineral lubricating oil (STORCH), 1883, A., 536.  
 test for, in mineral and vegetable oils (HOLDE), 1889, A., 86.  
**Resin spirit**, two butyloluenes occurring in (KELBE and BAUER), 1884, A., 300.  
 presence of cymene and an aromatic hydrocarbon ( $C_9H_{12}$ ) in (KELBE), 1886, A., 939.  
**Resistance**. See Electrical resistance under Electrochemistry.  
**Resocyanin**, constitution of (MICHAEL), 1884, A., 736.

- Resorcin** (ZULKOWSKI and PETERS), 1890, A., 1407.
- β*-Resorcenyamidoxime** (2:4-dihydroxy-benzoylamidoxime) (MARCUS), 1892, A., 317.
- Resorcinol** (1:3-dihydroxybenzene), manufacture of (MÜHLHAUSEN), 1887, A., 574.
- absorption spectra of (HARTLEY), 1888, T., 652.
- thermochemistry of (STOHMAN and LANGBEIN), 1892, A., 764.
- action of acetaldehyde on (MICHAEL and COMEY), 1884, A., 598.
- action of aniline on (CALM), 1884, A., 591.
- action of benzaldehyde on (MICHAEL), 1884, A., 597.
- action of chloral on (CAUSSE), 1886, A., 1020; 1891, A., 48.
- action of chloral hydrate on (MICHAEL and COMEY), 1884, A., 598.
- action of chlorine on (ZINCKE and RABINOWITSCH), 1891, A., 689.
- action of diazobenzene hydrochloride on (LIEBERMANN and v. KOSTANECKI), 1884, A., 1146.
- action of diazo-*p*-nitrobenzene on (MELDOLA), 1885, T., 660.
- action of, on egg albumin (ANDEER), 1890, A., 804.
- action of ethylic sodiomalonate on (MICHAEL), 1888, A., 956.
- action of iodine on, in alkaline solution (MESSINGER and VORTMANN), 1889, A., 1151.
- condensation of *m*-nitrobenzaldehyde with (DE VARDA and ZENONI), 1891, A., 1346.
- action of phenylhydrazine on (v. BAeyer and KÖHNEDORFER), 1889, A., 1162.
- action of *o*-toluidine on (PHILIP), 1886, A., 941.
- behaviour of ethylic oxalate with (MICHAEL), 1887, A., 949.
- physiological action of (GIBBS and HARE), 1890, A., 1019.
- detection of (BODDÉ), 1889, A., 1090; (BORNTRÄGER), 1891, A., 370.
- Resorcinol derivatives** (BENEDIKT), 1883, A., 984; (ERRERA), 1886, A., 50; (WILL and PUKALL), 1887, A., 660; (PUKALL), 1887, A., 661.
- brownish red dye from (SEYEWITZ), 1890, A., 370.
- aluminium chloride (CLAUS and MERCKLIN), 1886, A., 143.
- mono*- and *di*-camphorides (LÜGER), 1890, A., 1427.
- Resorcinol**, furfuran-derivatives from (HANTZSCH), 1887, A., 262.
- homologue of (PFAFF), 1883, A., 918.
- homologues of, preparation of (ANON.), 1883, A., 253.
- oxide (HAZURA and JULIUS), 1884, A., 1139.
- phenylcarbamate (SNAPP), 1885, T., 771.
- sodium compounds of (DEFORCRAND), 1892, A., 1184, 1185.
- Resorcinol**, amido- (FEVRE), 1883, A., 733.
- 4:6-*di*amido-, hydrochloride (TYPEKE), 1883, A., 917.
- bromo-derivatives of (BENEDIKT), 1883, A., 934.
- mono*- and *di*-bromo- (ZEHESTER), 1887, A., 924.
- bromodinitro- [m.p. 192° and 193°], (FEVRE), 1883, A., 733; (TYPEKE), 1883, A., 917.
- di*bromonitroso- (FEVRE), 1883, A., 733.
- chloro-derivatives of (BENEDIKT), 1883, A., 984.
- tri*-, *penta*- and *hepta*-chloro- (ZINCKE and RABINOWITSCH), 1891, A., 689.
- tetrachloro*- (ZINCKE and FUCHS), 1892, A., 1462.
- heptachloro*-, compounds derived from the so-called (ZINCKE), 1892, A., 1186.
- 2:4:6-chloro*di*amido-, stannochloride of (KEHRMANN), 1890, A., 241.
- 2:4:6-chlorodinitro- (KEHRMANN), 1890, A., 241.
- di*amido- (TYPEKE), 1883, A., 918.
- iodo-derivatives of (MESSINGER and VORTMANN), 1889, A., 1150.
- 4-*di*nitro-, oxide of (HAZURA and JULIUS), 1884, A., 1139.
- 2:1-*di*nitro- (FEVRE), 1883, A., 733; (LIPPMANN and FLEISSNER), 1886, A., 235, 791.
- 4:6-*di*nitro- (BENEDIKT), 1883, A., 803; (TYPEKE), 1883, A., 917; (SCHIAPARELLI and ABELLI), 1884, A., 174.
- derivatives of (KEHRMANN), 1890, A., 241.
- 2:4:6-*tri*nitro- (*stymie acid*), constitution of (HENRIQUES), 1883, A., 329; (v. KOSTANECKI and FEINSTEIN), 1889, A., 130.
- derivatives of (NOLLING and COLLIN), 1884, A., 1004.
- 2:4:6-nitrodiamido- (NIETZKI and SCHMIDT), 1889, A., 969.
- 2:4-nitronitroso- (DE LA HARPE and REVERDIN), 1888, A., 679; 1889, A., 41.

- Resorcinol**, 4-nitroso-, and its salts (FÈVRE), 1883, A., 733.  
 ethereal salts of (WALKER), 1884, A., 1003.  
*d*-nitroso- (GOLDSCHMIDT and STRAUSS), 1887, A., 808.  
 thio- (LANGE), 1888, A., 375.
- Resorcinols**, pentahalogen-, comparison of the behaviour of the four known, when heated (BENEDIKT), 1883, A., 985.
- Resorcinol colouring matters**. See Colouring matters.
- Resorcinolazo-compounds**. See Azo-.
- Resorcinol-blue**. See Colouring matters.
- Resorcinolcarbodithionic acid** (LIPPMANN and FLEISSNER), 1888, A., 1092.
- Resorcinolcarbothionylic acid** (LIPPMANN), 1890, A., 163.
- Resorcinoldisulphonic acids**, amido-, nitro-, and nitroso- (ULZER), 1889, A., 510.
- Resorcinolglycuronic acid** (KÜLZ), 1890, A., 1286.
- Resorcinolphthalimidesulphonic acid** (OSTERSETZER), 1891, A., 65.
- Resorcinolsulphonic acid**, amido- (BRUNNER and KRAEMER), 1884, A., 1354.  
 nitro-, and its derivatives (HAZURA), 1883, A., 1114.
- Resorcylic o-acetate** (HEIBER), 1892, A., 309.  
 allophanate (TRAUBE), 1889, A., 394, 965.  
 benzenesulphonate (GEORGESCU), 1891, A., 569.  
 mixed ethers of (SPITZ), 1885, A., 381.  
 diethyl ether. See 1:3-Diethoxybenzene.  
 dimethyl ether (1:3-*dimethoxybenzene*) 4-amido-, and its derivatives (BECHHOLD), 1889, A., 1155.  
 dimethyl ether, 2:4-*d*-nitro- (JACKSON and WARREN), 1891, A., 1025.
- Resorcyldialdehydephenylhydrazone** (RUDOLPH), 1889, A., 252.
- $\beta$ -Resorcylic mono- and -di-aldoximes** (2:4-*dihydroxybenzaloxime*) (MARCUS), 1892, A., 317.
- Resorcyldialdehydephenylhydrazone** (RUDOLPH), 1889, A., 252.
- $\alpha$ -Resorcylic acid** (3:5-*dihydroxybenzoic acid*), action of chlorine on (ZINCKE and FUCHS), 1892, A., 1461.
- $\beta$ -Resorcylic acid** (2:4-*dihydroxybenzoic acid*), thermochemistry of (STORMANN, KLEBER and LANGBEIN), 1889, A., 1096.
- $\beta$ -Resorcylnitrile** (MARCUS), 1892, A., 317.
- Resorufamine** (NIETZKI and MAECKLER), 1890, A., 764.
- Resorufin** (*diazoresorufin*) (FÈVRE), 1883, A., 733; (BRUNNER and KRAEMER), 1884, A., 1333; (EHR- LICH), 1888, A., 145; (NIETZKI, DIETZE and MAECKLER), 1890, A., 156.
- Respiration**, chemical effect of, and muscular activity, relation between (HANRIOT and RICHET), 1887, A., 1053.  
 air vitiated by (HALDANE and SMITH), 1892, A., 1502.  
 effects of alkalis and acids on (LEHMANN), 1885, A., 279.  
 influence of, on elimination (PEN- ZOLDT and FLEISCHER), 1884, A., 91.  
 influence of sleep on (DE SAINT- MARTIN), 1888, A., 305.  
 estimation of the carbonic anhydride expired and oxygen absorbed in (HANRIOT and RICHET), 1887, A., 507.  
 in compressed air (SUCHOWSKY), 1885, A., 677.  
 in a superoxygenated atmosphere (DE SAINT-MARTIN), 1884, A., 911.  
 experiments on the horse (ZUNTZ, LEHMANN and HAGEMANN), 1889, A., 911; (SMITH), 1890, A., 392; (ZUNTZ and LEHMANN), 1890, A., 1170.  
 human (MARCET), 1890, A., 914.  
 air being re-breathed (MARCET), 1891, A., 1270.  
 of entozoic worms (BUNGE), 1890, A., 274.  
 See also Agricultural Chemistry and Metabolism, gaseous.
- Respiration apparatus** (HALDANE), 1892, A., 1257.
- Respiratory changes**, effect of acetic acid on (MALLÈVRE), 1891, A., 344.  
 influence of diet on (HANRIOT and RICHET), 1888, A., 615.  
 influence of variations in the per- centage composition of air on the intensity of (FREDERICQ), 1885, A., 407.  
 exchange in animals (CHAPMAN and BRUBAKER), 1891, A., 592.  
 of gases (MARCET), 1891, A., 1270.  
 value of hæmocyanin (CUGNOT), 1892, A., 1370.
- Retene** (*retistene*, *methylpropylphenan- threne*) and its derivatives (BAM- BERGER), 1884, A., 1040; 1885, A., 549; (BAMBERGER and HOOKER), 1885, A., 905.

- Retene** (*retistene*, *methylpropylphenanthrene*), from resin oil (KELBE), 1888, A., 605.  
 constitution of (BAMBERGER and HOOKER), 1885, A., 1070.  
 boiling point of (SCHWEITZER), 1891, A., 1240.  
 ketone (BAMBERGER), 1884, A., 1040.  
 distillation of, with zinc-dust (BAMBERGER and HOOKER), 1885, A., 905.  
 dodecahydride (*dehydrofichtelite*) (LIEBERMANN and SPIEGEL), 1889, A., 720; (BAMBERGER and STRASSER), 1890, A., 385.
- Retenediphenic acid** (BAMBERGER), 1885, A., 550.
- Retenefluorene** (BAMBERGER and HOOKER), 1885, A., 905.  
 alcohol (BAMBERGER), 1884, A., 1040.
- Reteneglycollic acid** (BAMBERGER), 1884, A., 1040.
- Retene-quinhydrone and -quinol** (BAMBERGER), 1885, A., 549.
- Retenequinone** (BAMBERGER), 1884, A., 1040; (BAMBERGER and HOOKER), 1885, A., 905.  
 oxidation of (BAMBERGER and HOOKER), 1885, A., 1070.  
 bromine derivatives of (BAMBERGER and HOOKER), 1885, A., 905.
- Retene-quinoxaline and -quinoxime** (BAMBERGER), 1885, A., 549.
- Retinal rods**, chemistry of (DREYER), 1886, A., 375.
- Retinellite** (HARRINGTON), 1892, A., 573.
- Retinole** (*rosolene*) (SERRANT), 1886, A., 185.
- Retort**, safety, for preparing gases (v. KLOBUKOFF), 1888, A., 1244.
- Retort-furnaces** with gaseous fuel (FISCHER), 1884, A., 509.
- Rezbanyite** (*cosulite*) (FRENZEL), 1884, A., 266; (KÖNIG), 1886, A., 515.  
 from Colorado (HILLEBRAND), 1884, A., 826.
- Rhabdite**, in the Cranbourne meteorite (FLIGHT), 1884, A., 417.
- Rhabdophane** (*scovillite*) (HARTLEY), 1884, T., 167; (BRUSH and PENFIELD), 1884, A., 26, 827.
- Rhamnetin** (HERZIG), 1886, A., 252; 1888, A., 1309; (LIEBERMANN), 1886, A., 366.  
 glucoside of (HERZIG), 1890, A., 64.
- Rhamnitol** (FISCHER and PILOTY), 1891, A., 31.
- Rhamnoctonic acid and lactone** (FISCHER and PILOTY), 1891, A., 32.
- Rhamnoctose**, **rhamnoheptose** and **rhamnohexitol** (FISCHER and PILOTY), 1891, A., 32.
- Rhamnodiazine** (RAYMAN and CHOĐOŇSKÝ), 1889, A., 485; (RAYMAN and POHL), 1890, A., 355.
- Rhamnoheptonic acid and hydrazide** (FISCHER and PILOTY), 1891, A., 32.
- Rhamnohexonic acid** (FISCHER and TAFEL), 1888, A., 806; (FISCHER and PILOTY), 1891, A., 31.  
 reduction of (FISCHER), 1889, A., 1149.  
 phenylhydrazide (FISCHER and PASSMORE), 1890, A., 154.
- Rhamnohexose** (FISCHER and PILOTY), 1891, A., 31.  
 from frangulin (THORPE and MILLER), 1892, T., 7.
- Rhamnolactone**, polarisation phenomena of (SCHNELLE and TOLLENS), 1892, A., 1431.
- Rhammonic acid**, rotatory power of (WELD, LINDSEY, SCHNELLE and TOLLENS), 1891, A., 44.  
 polarisation phenomena of (SCHNELLE and TOLLENS), 1892, A., 1431.
- Rhamnose**. See *iso*Dulcitol under Carbohydrates.
- Rhamnosecarboxylic acid**. See Rhamnohexonic acid.
- Rhamnosedi-phenylhydrazone** (STAHEL), 1890, A., 1260.
- Rhamnoseoxime** (JACOBI), 1891, A., 664.
- Rhamnosone** (FISCHER), 1889, A., 484.
- Rhamnus Frangula*, constituents of the bark of (SCHWABE), 1889, A., 68.  
 frangulin from (THORPE and ROBINSON), 1890, T., 38.
- Rhamnus Purshiana*, constituents of the bark of (SCHWABE), 1889, A., 68.  
 cascarn from (LEPRINCE), 1892, A., 1483.
- Rhinanthin** (PHIPSON), 1888, A., 1310.
- Rhinoliths** (BERLIOZ), 1891, A., 1279.
- Rhizoma podophylli*, constituents of (KÜRSTEN), 1891, A., 1133.
- Rhizopods**, digestion in (GREENWOOD), 1886, A., 1053; 1888, A., 79.
- Rhodanic acid** (NENCKI and BOURQUIN), 1885, A., 40; (GINSBURG and BONDZYŃSKI), 1886, A., 325; (ANDREASCH), 1889, A., 960.  
 synthesis of (FREYDL), 1889, A., 961.  
 constitution of (MIOLATI), 1891, A., 943.  
 derivatives of (NENCKI and BOURQUIN), 1885, A., 40.

- Rhodanic acid**, homologue of (BERLINERBLAU), 1886, A., 326.
- Rhodinaldehyde and rhodinolic acid** (ECKART), 1892, A., 203.
- Rhodinol** (ECKART), 1892, A., 203, 625.
- Rhodium**, atomic weight of (JÖRGENSEN), 1883, A., 1060; (SEUBERT and KOBÉ), 1891, A., 646; (SEUBERT), 1891, A., 865.
- colour reaction of (DEBRAY), 1886, A., 125.
- alloy of, with tin (DEBRAY), 1887, A., 779.
- compounds (DEBRAY), 1884, A., 400; (VINCENT), 1885, A., 1116; 1886, A., 310.
- Rhodium compounds** (JÖRGENSEN), 1883, A., 1058; 1887, A., 114; 1890, A., 1213; 1891, A., 1825; 1892, A., 783.
- Rhodium salts** (WILM), 1884, A., 660; 1885, A., 355; (LEIDIE), 1888, A., 1256.
- some reactions of (LECOQ DE BOISBAUDRAN), 1883, A., 715.
- double salts of (SEUBERT and KOBÉ), 1890, A., 1383.
- Rhodium sesquichloride** (LEIDIE), 1888, A., 790.
- electrolytic conductivity of (HAMPE), 1888, A., 890.
- potassium chloride (LEIDIE), 1890, A., 1382; (SEUBERT and KOBÉ), 1890, A., 1383.
- sodium chloride, decomposition of, in solution (FOUSSREAR), 1886, A., 975.
- nitrites (LEIDIE), 1890, A., 1382.
- ammonium, barium, potassium and sodium nitrites (LEIDIE), 1890, A., 1382; 1891, A., 808.
- sulphate (LEIDIE), 1888, A., 1257.
- sesquisulphide (LEIDIE), 1888, A., 919.
- sodium sulphite (SEUBERT and KOBÉ), 1890, A., 1383.
- Luteorhodium salts** (JÖRGENSEN), 1891, A., 1325, 1327.
- Nitratopurpleorhodium salts** (JÖRGENSEN), 1887, A., 114.
- Purpleorhodium compounds**, chloro-, bromo-, and iodo- (JÖRGENSEN), 1883, A., 1058.
- Roseorhodium salts** (JÖRGENSEN), 1887, A., 113; 1891, A., 1327.
- Xanthorhodium salts** (JÖRGENSEN), 1887, A., 114.
- Rhodium**, estimation, electrolytic, of (JOLY and LEIDIE), 1891, A., 141.
- Rhodium-black**, action of, on hydrogen peroxide (HOPPE-SEYLER), 1883, A., 849.
- Rhodizite** (DAMOUR), 1883, A., 956.
- Rhodizonic acid** (*dihydroxydiquinoyl*) and its salts (NIEZKI and BENCKINER), 1885, A., 781.
- constitution of (NIEZKI), 1891, A., 189.
- formula of (NIEZKI and KEHRMANN), 1888, A., 263.
- hexahydroxybenzene derivatives and their relation to (NIEZKI and BENCKINER), 1885, A., 779.
- Rhodochrosite** from Colorado (KUNZ), 1888, A., 346.
- from Franklin Furnace, New Jersey (BROWNING), 1891, A., 527.
- See also Manganese carbonate.
- Rhodogen**, from sugar-beet, and its oxidation-product (REINKE), 1883, A., 881.
- Rhodonite**, artificial production of (GORGU), 1884, A., 164; (BOURGEON), 1884, A., 565; 1886, A., 214.
- fowlerite variety of, from New Jersey (PIRSON), 1891, A., 530.
- from Långban and Pajsberg (FLINK), 1886, A., 778.
- from Vih (FINO), 1884, A., 164.
- products of the alteration of (CHESTER), 1888, A., 795.
- See also Manganese silicate.
- Rhodope**, trachyte region of (PELZ and HUSSAK), 1884, A., 414.
- Rhodopsin** (DRESER), 1886, A., 375.
- Rhodosochromium salts**. See Chromammonium salts.
- Rhodotflite**. See Inesite.
- Rhubarb**, English (ELBORNE), 1885, A., 582.
- Rhus vernicifera*, and the milky secretion of (YOSHIDA), 1883, T., 473.
- Rhyncolium* (*Cercocoma*) *macrantha*, alkaloid from (GRECHOFF), 1891, A., 337.
- Rhyolites** from Sweden (HOLST), 1891, A., 1437.
- minerals in hollow spherulites of (IDDINGS and PENFIELD), 1892, A., 23.
- Ribonic acid** (*tetrahydroxyglutaric acid*) (FISCHER and PILOTY), 1892, A., 438.
- Ribose** and its derivatives (FISCHER and PILOTY), 1892, A., 439.
- Rice**, system on which, may be used in brewing (MARL), 1884, A., 235.
- See also Agricultural Chemistry.
- Rice-starch** (SOSTEGNI), 1886, A., 221; 1888, A., 126.
- estimation of (SALOMON), 1883, A., 124.
- Richellite** (CESARO and DESPRET), 1884, A., 1102; (CESARO), 1886, A., 127.

- Bicin** (STILLMARK), 1890, A., 535.
- Bicinelaidic acid** (KRAFFT), 1888, A., 1271.  
oxidation of (MANGOLD), 1892, A., 1304.
- Bicinic acid** (KRAFFT), 1888, A., 1271.
- "Bicinisolic acid" and "ricinolic acid."**  
See Trihydroxystearic acid.
- Ricinoleic acid** (KRAFFT), 1888, A., 1270.  
oxidation of (DIEFF and REFORMATSKY), 1887, A., 716; (DIEFF), 1889, A., 1147; (MANGOLD), 1892, A., 1304.  
polymerides of (SCHETTER-KESNER), 1891, A., 1454.
- Ricotta** from sheep's milk (SANTORI), 1891, A., 952.
- Riebeckite** (SAUER), 1889, A., 109.  
from Michigan (LANE, KELLER, and SHARPLES), 1892, A., 793.
- Ring formation** with elimination of hydrogen bromide or nitrous acid (LELLMANN and SCHMIDT), 1888, A., 289.
- Rings closed**, nomenclature of (ARMSTRONG), 1892, P., 127.  
hydrogenation of (STOHMANN and KLEBER), 1891, A., 376, 1146; 1892, A., 1040.  
containing five atoms, constitution of (BAMBERGER), 1891, A., 1090.  
six membered, theory of (BAMBERGER), 1890, A., 1299.
- Rinkite** from Kangerluarsak, Greenland (LORENZEN), 1886, A., 676.
- Ripidolite** (*prochlorite*) from Columbia (CLARKE and CHATARD), 1885, A., 492; (MERRILL), 1886, A., 520.  
from Mt. Blanc, analysis of (BRUN), 1884, A., 403.  
See also Chlorite.
- River-waters.** See Water.
- Robinia Pseudacacia**, assimilation of nitrogen from the air by (FRANK), 1891, A., 764.  
nitrogen assimilation of (NOBBE, SCHMID, HILTNER and HOTIER), 1891, A., 1533.
- Rock crystal**, thermo- and actino-electricity of (HANKEL), 1883, A., 412, 950; 1885, A., 1187; (FRIEDEL and CURIE), 1883, A., 897.  
electrolytic conductivity of (WARBURG and TELLMER), 1889, A., 91.
- Rock salt** from Torda and from Vizakna (LOCZKA), 1892, A., 1654.  
radiation of, at various temperatures (BAUR), 1883, A., 702.  
dispersion in (KETTLER), 1887, A., 754.
- Rock salt**, electric properties of (BRAUN), 1888, A., 9.  
compressibility of (BRAUN), 1887, A., 436; 1888, A., 214, 404; (RONTGEN and SCHNEIDER), 1888, A., 22, 1019.  
blue (WITTEN and PRECHT), 1883, A., 1051; (OCHSENIUS), 1886, A., 515.  
Roumanian (ISTRATI), 1890, A., 217.  
See also Sodium chloride.
- Rocks** from Colorado, containing sodium amphibole, astrophyllite, pyrochlore and zircon (LACROIX), 1889, A., 1054.  
from the Congo (KLEMENT), 1888, A., 34.  
from Corsica (RUPPRECHT), 1891, A., 1440.  
Italian (COSSA), 1883, A., 446.  
Japanese (KORÔ), 1887, A., 564.  
of the Jiwaara, in Finland (RAMSAY and BERGHELL), 1892, A., 1058.  
from the shore at Nice (MONTE-MARINI), 1889, A., 223.  
Norwegian (JANNASCH), 1887, A., 562.  
of Noyang (HOWITT), 1884, A., 972.  
of Pigeon Point, Minnesota (BAYLEY), 1889, A., 473.  
from the Volcano Yate (ZIEGEN-PECK), 1884, A., 973.  
from Vulture and Melfi, composition of (RICCIARDI), 1887, A., 1087.  
of the Vulsinian volcanoes (RICCIARDI), 1889, A., 224.  
of the Yellowstone Park (BEAM), 1884, A., 28.  
artificial formation of (FOUQUÉ and MICHEL-LÉVY), 1883, A., 448; (KAZIOROWSKI), 1890, A., 718.  
formation of, and the compression of the moist powder of solid substances (SPRING), 1888, A., 1243.  
decay of, geologically considered (HUNT), 1881, A., 567.  
disintegration of (MUNTZ), 1890, A., 1183.  
function of the nitric ferment in the disintegration of (MUNTZ), 1887, A., 1135.  
used in the manufacture of Chinese porcelain (VOGT), 1890, A., 461.  
acid, reproduction of (LE CHATELIER), 1892, A., 23.  
acidic, volcanic, and solfataras, relation between (DE LAPPARENT), 1889, A., 474.  
calcareous from Tevere (VERRI and TROTTARELLI), 1888, A., 120.  
soft calcareous, hardening of, by means of fluosilicates of insoluble bases (KESSLER), 1883, A., 940.

**Rocks**, massive crystalline, metamorphism of (DANA), 1883, A., 562.  
 metamorphic and plutonic, at Omeo (HOWITT), 1889, A., 222.  
 supposed Pre-Cambrian, of St. David's (GEIKIE), 1884, A., 411.  
 Silurian, of Christiana (BRÜGGER), 1883, A., 723.  
 spherulitic, from Co. Down (HYLAND), 1891, A., 1169.  
 trachytic, from the island of San Pietro (EIGEL), 1887, A., 904.  
 volcanic (DOELTER), 1883, A., 723.  
   of Assab (RICCIARDI), 1886, A., 993.  
   from the lake of Bracciano (STRÜVER), 1887, A., 21.  
   from the Cabo de Gata (O'SANN), 1891, A., 26.  
   of the Cape Verde Islands (DOELTER), 1883, A., 720.  
   of Elba, the more recent (NE-SIG), 1884, A., 567.  
   of Jablonica (JOHN), 1891, A., 652.  
   from Krzeszowice, Cracow (ZUBER), 1887, A., 563.  
   basic, of Mâconnais and Beaujolais (MICHEL-LÉVY), 1884, A., 414.  
   of Monte Somma (MIERISCH), 1883, A., 434.  
   Persian (DRASCHE), 1887, A., 223.  
   of the Rhone (LENK), 1890, A., 115.  
   near Tryberg in the Black Forest (WILLIAMS), 1883, A., 723.  
   composition of (RICCIARDI), 1887, A., 1023.  
 analysis of, separation of titanium, chromium, aluminium, iron, barium and phosphoric acid in (CHATARD), 1891, A., 768.  
**Rodents**, hæmoglobin and methæmoglobin crystals of (HALLIBURTON), 1886, A., 637.  
**Rodna**, bluish-grey mineral crusts from (MEDGYESSY), 1886, A., 515.  
**Römerite** (BLAAS), 1884, A., 269; (MACKINTOSH), 1890, A., 454.  
**Rössler's method** for the separation of gold, silver, lead, and copper from sulphides by air-blast (ANON.), 1883, A., 400.  
**Roots**. See Agricultural Chemistry.  
*Rosa canina*, vanillin from (SCHNEEGANS), 1890, A., 1270.  
*Rosa centifolia*, flowers of, analyses of (NIEDERSTADT), 1884, A., 97.  
**Rosaginin** (PIENCZEK), 1890, A., 1316.  
**Rosamines** (HEUMANN and REY), 1890, A., 157.

**Rosaniline** (*tri- $\alpha$ -nitrodiphenyltolylcarbinol*), formation of (GOLDBERG), 1892, A., 340.  
 formation of, by the nitrobenzene process (LANGE), 1885, A., 1130.  
 manufacture of, by the arsenic acid process (MÜHLHAUSER), 1888, A., 472.  
 and its congeners, constitution of (ARMSTRONG), 1888, P., 30.  
 spectrum of (HARTLEY), 1887, T., 169.  
 decomposition of, by water (LIEBERMANN), 1883, A., 1097.  
 colouring matters (MELDOLA), 1883, A., 807.  
 blue colouring matters from (NÖLTING and COLLIN), 1884, A., 1048.  
 yellow colouring matter, preparation of (MACHENHAUER), 1885, A., 310.  
 derivatives (NÖLTING), 1883, A., 54.  
 salts, constitution of (v. RICHTER), 1888, A., 1185.  
 salts and sulphonated rosaniline, detection of (LIEBMANN and STÜDER), 1887, A., 405.  
 aurinate (DALE and SCHORLEMMER), 1883, T., 186; (DYSON), 1883, T., 472.  
 hydrochloride, detection of, in wine by means of stearin (WOLFF), 1883, A., 384.  
 phenate (DALE and SCHORLEMMER), 1883, T., 186; (DYSON), 1883, T., 470.  
 sulphate, physiological action of (CAZENÈVE and LÉPINE), 1886, A., 272.  
**Pararosaniline** (*tri- $\alpha$ -nitrotriphenylcarbinol*), synthesis of (ZIMMERMANN and MÜLLER), 1885, A., 386.  
 condensation of, with aldehyde (v. MILLER and PLÜCHL), 1891, A., 1071.  
*di-o-chloro-* (HEUMANN and HEIDLER), 1886, A., 942.  
**Rosanilines**, possible number of homologous and isomeric (ROSENSTIEHL and GERBER), 1884, A., 739.  
*p*-Rosatoluidine (KLINGER and PITTSCHKE), 1885, A., 151; (BARSILOVSKY), 1888, A., 140.  
**Rose oil**. See Oil.  
**Rosemary**, camphor and borneol of (HALLER), 1889, A., 1002.  
**Rosenbuschite** (BRÜGGER), 1890, A., 1079.  
**Roseo-**. See under word to which roseo is prefixed.

- Roseo-salts**, basic (JØRGENSEN), 1883, A., 557.  
 relation between luteo-salts and (JØRGENSEN), 1884, A., 1093.
- Rose-trees**, experiments with ferrous sulphate on (GRIFFITH), 1886, T., 122.
- Rosewood**, essence of (MORIN), 1888, A., 1308.
- Roshydrazine** (ZIEGLER), 1887, A., 822.
- Rosin**. See Resin.
- Rosindole** (FISCHER and WAGNER), 1887, A., 588.
- Rosindone** ("rosindulone") (FISCHER and HEPP), 1890, A., 909; (KEHRMANN and MESSINGER), 1891, A., 746.  
 bromo- (FISCHER and HEPP), 1891, A., 1045.
- Rosindonic acid** (FISCHER and HEPP), 1891, A., 1045.
- Rosinduline**. See Phenylrosinduline.
- Rosindulines** (FISCHER and HEPP), 1890, A., 908; 1891, A., 1044.
- Rosolene** (*retinale*) (SERRANT), 1886, A., 185.
- Rosolic acid** (*aurin*), formation of (STAUB and SMITH), 1884, T., 302.  
 synthesis of (ELBS), 1883, A., 1000.  
 spectrum of (HARTLEY), 1887, T., 167.  
 as an indicator (THOMSON), 1883, A., 827; 1884, A., 691, 869.  
 a bye-product of the manufacture of (CLAPHAM and SMITH), 1883, T., 358; (STAUB and SMITH), 1884, T., 301.  
 salts and ethers of (ACKERMANN), 1884, A., 1339.  
 acetyl-derivatives of (HERZIG), 1892, A., 1319.  
*tetranitro-*, and its salts (ACKERMANN), 1884, A., 1339.
- Rotation**, magnetic. See Photochemistry.
- Rotation experiments**. See Agricultural Chemistry.
- Bottlerin** (A. G. and W. H. PERKIN), 1887, A., 272; (JAWEIN), 1887, A., 498.
- Rubazonic acid** (KNORR), 1887, A., 602.
- Rubbadin**, and the action of nitric acid and of sulphuric acid on (SCHALL and UHL), 1892, A., 1076.
- Rubeanic acid**. See *di*Thioxamide.
- Rubellane** (HOLLUNG), 1884, A., 1105; 1886, A., 213.
- Ruberine** in *Agaricus ruber* (PHIPSON), 1883, A., 100.
- Ruberythric acid** (LIEBERMANN and BERGAMI), 1887, A., 1051.
- Rubidium**, spectrum of (KAYSER and RUNGE), 1891, A., 137.  
 heat of combustion of (BEKETOFF), 1890, A., 679.  
 combining energy of (BEKETOFF), 1890, A., 108.  
 carbonate, reduction of, by magnesium (WINKLER), 1890, A., 332.  
 antimony chlorides (SAUNDERS), 1892, A., 788.  
 bismuth chlorides (BRIGHAM), 1892, A., 789.  
 manganesechloride (SAUNDERS), 1892, A., 781.  
 silver nitrate (DITTE), 1886, A., 122.  
 cobalt nitrite (ROSENBLADT), 1887, A., 13.  
 sulphate, solubility of (ETARD), 1888, A., 645.  
 barium dithionate (BODLÄNDER), 1891, A., 802.  
 salts, physiological action of (RICHTER), 1886, A., 88; (BLAKE), 1886, A., 385.
- Rubidium-carnallite** (FEIG and KUBIENCHUK), 1892, A., 1395.
- Rubies** from Burma (KUNZ), 1892, A., 1055.  
 artificial (FREMY), 1887, A., 556; (MEUNIER), 1887, A., 707; (FREMY and VERNEUIL), 1888, A., 561; 1891, A., 156.  
 inclusions in (PRINZ), 1883, A., 1062.
- Rubrite** (DARAPSKY), 1890, A., 456.
- Rufiococcin** (FURIH), 1884, A., 84.
- Rufigalanthranol** (LIEBERMANN), 1886, A., 493.
- Rufigallol** (1.2:3 2':3':4'-hexahydroxy-anthraquinone) (WEBSTER and HUNT), 1889, A., 405.  
 ethyl ether (LIEBERMANN and JELLINEK), 1888, A., 717.  
*dichloro-* (WEBSTER and HUNT), 1889, A., 405.
- Rufiapine** (*tetrahydroxyanthraquinone*) (NOLTING), 1883, A., 63.
- Rum**, formic acid in (LIST), 1884, A., 378.  
 analyses of (FRESSENIUS), 1890, A., 1195.
- Ruminants**. See Agricultural Chemistry.
- Rumpfite**, from Upper Styria (FIRTSCH), 1892, A., 417.
- Rupert's drops** (TAYLOR), 1883, A., 422.
- Russian petroleum**. See Petroleum.

- Ruthenium**, atomic weight of (JOLY), 1889, A., 352, 835; (SEUBERT), 1891, A., 885.  
 alloy of. with tin (DEBRAY), 1887, A., 779.  
 ammoniacal derivatives of (JOLY), 1889, A., 948.  
 chloride (JOLY), 1892, A., 688.  
   ammoniacal derivatives of (JOLY), 1889, A., 948.  
 chlorides, conductivity of (HAUPE), 1888, A., 890.  
 hydroxychloride (JOLY), 1892, A., 688.  
 nitroschloride (JOLY), 1889, A., 352, 678.  
   ammoniacal derivatives of (JOLY), 1891, A., 401.  
 potassium nitrites (JOLY and VEZES), 1890, A., 17.  
 oxides (DEBRAY and JOLY), 1888, A., 426.  
   saline compounds of the lower with the higher (JOLY), 1892, A., 282.  
*peroxide* (DEBRAY and JOLY), 1888, A., 559.  
   action of light on (JOLY), 1892, A., 282.  
**Ruthenates** (DEBRAY and JOLY), 1888, A., 920.  
**Per-ruthenic acid** in histology (RANVIER), 1887, A., 1060.  
**Per-ruthenates** (DEBRAY and JOLY), 1888, A., 920.  
   action of heat on (JOLY), 1892, A., 282.
- Rutile** from the itacolumite of Edge Hill, Pa. (GENTH), 1884, A., 270.  
 in the Greifenstein granite (v. MICHUCHO-MACLAY), 1885, A., 1185.  
 from Imfeld, measurements of crystals of (RINNE), 1885, A., 1186.  
 from N. Carolina (HIDDEN), 1885, A., 878.  
 from Sobeslau, Bohemia (KATZER), 1888, A., 922.  
 in phlogopite (v. SANDBERGER), 1888, A., 34.  
 as a product of the decomposition of titanite (MANN), 1883, A., 33.  
 conversion of, into ilmenite (v. LAZARUS), 1884, A., 1104; 1885, A., 28.
- Rutin** and quercitrin. supposed identity of (SCHUNCK), 1888, T., 262; P., 12.
- Rye**. See Agricultural Chemistry.
- S.**
- Sabadilla seeds**, alkaloids of (MERCK), 1891, A., 844.
- Sabadilla seeds**, fat and ethereal oil of (OPITZ), 1891, A., 1284.
- Sabadine** and **sabadinine** (MERCK), 1891, A., 844.
- Sabella**, ash of the blood of (GRIFFITHS), 1892, A., 1256.
- Saccharic acid**, and some of its salts (KILIANI), 1883, A., 565; (SOHST and TOLLENS), 1888, A., 820.  
   formation of, as a test for raffinose and other carbohydrates (GANS, STONE and TOLLENS), 1888, A., 1059.  
   constitution of (KILIANI), 1883, A., 963.  
   optical isomerides of (FISCHER), 1890, A., 1389.  
   action of dilute mineral acids on (SCHROFFER), 1888, A., 1060.  
   reduction of (FISCHER and PILOTY), 1891, A., 667.  
   derivatives of (MAQUENNE), 1888, A., 676.  
   antimony derivatives of (KLEIN), 1884, A., 424.  
   calcium salt of, tribasic, power of certain salts to decompose (DEGENER), 1886, A., 185.  
   calcium salt of, influence of chlorides of the alkalis and alkaline earths on the precipitation of, from warm solutions (DEGENER), 1883, A., 692.  
   strontium salt of, table of the solubility of, in water at different temperatures (SCHEIBLER), 1884, A., 134.
- isoSaccharic acid** and its derivatives and salts (TIEMANN), 1884, A., 725; (TIEMANN and HAARMANN), 1886, A., 689.  
   constitution of (KILIANI), 1886, A., 48.
- metaSaccharic acid**. See *l*-Manno-saccharic acid.
- Saccharic acids**, *d*- and *l*-, configuration of (FISCHER), 1891, A., 1176, 1445.  
   *i*- and *l*- (FISCHER), 1890, A., 1392.
- Saccharic lactone**, acid from (FISCHER), 1890, A., 599.
- Saccharification** in vegetable tissues (BONDONNEAT and FORET), 1888, A., 41.
- Saccharimeters** (STROHMER), 1884, A., 1219; (ALLARY), 1884, A., 1236; (TRANNN), 1885, A., 694.
- Saccharin**. See Carbohydrates.
- "Saccharin"** (*sulphobenzoic acid, imide of; benzoic sulphinide*) (MAUMENE), 1887, A., 836.  
   digestion of (SPUTZER), 1886, A., 379.

- "Saccharin"** (*sulphobenzoic acid, imide of; benzoic sulphinide*), influence of, on digestion (STIFF), 1889, A., 1022.  
 effect of, on the digestion of albuminoids (SPUTZER), 1890, A., 1450.  
 physiological action of (ADUCCO and MOSSO), 1888, A., 310.  
 analysis of (REMSEN and BURTON), 1890, A., 94.  
 detection of (BORNSTEIN), 1888, A., 760; 1889, A., 449; (SCHMITT), 1888, A., 996; (LINDO), 1888, A., 1850; 1889, A., 86; (HOOKER), 1889, A., 448.  
 detection of, in beer (ALLEN), 1889, A., 322.  
 See also Benzoic sulphinide.
- Saccharine liquors**, purification of (NAUDIN), 1884, A., 645; (ANON.), 1884, A., 791.
- Saccharinic acid phenylhydrazide** (FISCHER and PASSMORE), 1890, A., 154.
- metaSaccharinic acid**, salts of (KILIANI), 1884, A., 284.
- isoSaccharinic anilide** (SOROKIN), 1888, A., 819.
- Saccharogen** (THIERFELDER), 1884, A., 914.
- Saccharomyces**, secondary forms of (BROWN and MORRIS), 1885, T., 566.  
 See also Ferments, Fermentation and Yeast.
- Saccharomyces apiculatus** (AMTHOR), 1888, A., 1218.
- Saccharomyces ellipsoideus** and its use in preparing wine from barley (JACQUEMIN), 1888, A., 738.  
 preparation of (ROMMIER), 1890, A., 1179.
- Saccharomyces exiguus** (GAYON and DUBOURG), 1890, A., 951.
- Saccharomyces Hansenii** (KOHLE), 1891, A., 857.
- Saccharone and saccharonic acid** and their salts (KILIANI), 1883, A., 962.
- Saccharose**. See Sucrose under Carbohydrates.
- Saccharovanillic acid** (TIEMANN), 1885, A., 980.
- Saccharylic phenylcarbamates** (TESMER), 1886, A., 49.
- Sacculmic acid and sacculmin** (FRUH), 1884, A., 923.
- Sacculmic compounds** (CROSS and BEVAN), 1888, T., 21.
- Safflorite** (*eisenkoballickis, spathopyrite*) (V. SANDBERGER), 1884, A., 405.  
 from Schneeberg and Bieber (McCAY), 1884, A., 1098; 1886, A., 209.
- Saffranine**, constitution of (BERNTHSEN), 1887, A., 139, 480; (NIETZKI), 1887, A., 249, 250; (WITT), 1887, A., 250.  
 benzylated (MELDOLA and COSIE), 1889, T., 595.  
 physiological action of (CAZENEUVE and LÉPINE), 1886, A., 272; (WEYL), 1888, A., 1122.
- Saffranines** (NIETZKI), 1888, A., 731; 1887, A., 249; (ANDRESEN), 1886, A., 1026; (WITT), 1888, A., 1186.  
 formation of (BARBIER and VIGNON), 1888, A., 141.  
 and eurrhodines (WITT), 1888, A., 491.  
 eurrhodines and indulines, relations between (KEHRMANN and MESSINGER), 1891, A., 1213.  
 and related dyes (NIETZKI and OTTO), 1888, A., 831.  
 substituted (BARBIER and VIGNON), 1888, A., 54.  
 See also Phenosafranine.
- Saffranol** and its derivatives (NIETZKI and OTTO), 1888, A., 831.
- Saffron**, substances contained in (KAYSER), 1885, A., 59.  
 adulterations of (MAISCH), 1886, A., 584.  
 substitutes (WEYL), 1888, A., 184.
- Saffron-bitter** (KAYSER), 1885, A., 60.
- Saffron-sugar**. See Crocose under Carbohydrates.
- Safrole** (*shikimole*) (SCHIFF), 1884, A., 1338; (FLUCKIGER), 1887, A., 990; (BRUHL), 1888, A., 495; (CIAMICIAN and SILBER), 1890, A., 965.  
 constitution of (SCHIFF), 1884, A., 1338; (POLECK), 1884, A., 1339; 1886, A., 697; (EIJKMAN), 1886, A., 95.  
 molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
 oxidation of (POLECK), 1890, A., 136.  
 oxidation products of (TIEMANN), 1892, A., 46; (WAGNER), 1892, A., 310.  
 bromine derivatives of (WOY), 1890, A., 638.
- isoSafrole**, constitution and reactions of (CIAMICIAN and SILBER), 1890, A., 966.  
 the oxymethylene-group in (CIAMICIAN and SILBER), 1892, A., 972.  
 action of potash and methylic alcohol on (CIAMICIAN and SILBER), 1892, A., 972.  
 action of nitrous acid on (ANGELI), 1892, A., 1198.

*isoSafrole*, oxidation of (WAGNER), 1892, A., 310; (GARELLI), 1892, A., 328.  
 nitrosite (ANGELI), 1892, A., 447.  
*isoSafroledioxime peroxide* (ANGELI), 1892, A., 1198.  
*Sage*, oil of (WALLACH), 1889, A., 1072.  
*Sagvandite* (ROSENBUSCH), 1884, A., 564.  
*Sails*, methods used by fishermen for "barking" and in other ways preserving (STORER), 1884, A., 800.  
*Sainfoin*, experiments with, at Grignon, 1883 (DEHÉRAIN), 1884, A., 1070.  
*Salap mucus* (GANS and TOLLINS), 1889, A., 541.  
*Salicenyloxime*, and its derivatives (MILLER), 1889, A., 255; (SPILKER), 1890, A., 142.  
*Salicenyloxime-benzenyl-and-ethenyl* (SPILKER), 1890, A., 143.  
*Salicenyloximepropenyl- $\alpha$ -carb-oxylic acid* (MILLER), 1889, A., 255; 1890, A., 146.  
*Saliceny-ethylamidoxime and -nramidoxime* (SPILKER), 1890, A., 144.  
*Salicin*, synthesis of (MICHAEL), 1883, A., 76; 1884, A., 439.  
 solubility of (DOTT), 1886, A., 366.  
*Saliconitrile*. See *Salicylonitrile*.  
 "Salicyl orcinol ether" (*phenylene-hydroxytolyleneketone oxide*) and its derivatives (MICHAEL), 1884, A., 312.  
*Salicylaldehyde* (*o-hydroxybenzaldehyde*), heat of solution of (BERTHELOT), 1885, A., 1177.  
 reaction of, with albumin (REICHL), 1890, A., 1850.  
 condensation of, with aniline (RENOUF), 1883, A., 982.  
 action of ammonia and, on benzil (JAPP and HOOKER), 1884, T., 673.  
 action of ammonia and, on diacetyl (WADSWORTH), 1890, T., 10.  
 condensation of, with hippuric acid (PLOCHEL and WOLFRUM), 1885, A., 898.  
 action of, on malonic acid (STUART), 1886, T., 365.  
 action of methylamine and ethylamine on (DENNSTEDT and ZIMMERMANN), 1888, A., 836.  
 action of phosphorus pentachloride on (STUART), 1888, T., 402; P., 24.  
 condensation of, with pyrotartaric acid (FITTIG and BROWN), 1890, A., 777.  
 action of, on sodium succinate in presence of acetic anhydride (DYSON), 1887, T., 61.

*Salicylaldehyde* (*o-hydroxybenzaldehyde*), action of zinc chloride on (BOURQUIN), 1884, A., 1164.  
 ethylation of (LOW), 1892, A., 57.  
 reduction of, by zinc dust and acetic acid (HARRIEN), 1892, A., 168.  
 derivatives of (VOSWINCKEL), 1883, A., 189.  
 derivatives of, condensation products of the (ROSSING), 1885, A., 388.  
 cyanhydrin (VOSWINCKEL), 1883, A., 190.  
 diphenylhydrazone (STAHEL), 1890, A., 1260.  
 toxic action of (LABORDE and MAGNAN), 1888, A., 737.  
*Salicylaldehyde, dibromo-, phenylhydrazone* (ROSSING), 1885, A., 389.  
 bromo-, chloro-, and nitro-derivatives of, action of acetic chloride on (BRADLEY and DAINS), 1892, A., 1458.  
 $\alpha$ - and  $\beta$ -nitro- (v. MILLER), 1887, A., 938; (TAEGER), 1887, A., 939.  
*Salicylaldehyde-*m*- and -*p*-azobenzene-sulphonic acids* (TUMMELEY), 1889, A., 779.  
*Salicylaldoxime* (LACH), 1883, A., 1104; (MILLER), 1889, A., 255.  
 isomeric modification of (BECKMANN), 1891, A., 193.  
*Salicylamide*, reduction of (HUTCHINSON), 1890, T., 957.  
 dibromo- (SPILKER), 1890, A., 141.  
*Salicylamide-*p*-azobenzene-sulphonic acid* (TUMMELEY), 1889, A., 780.  
*Salicylamidobenzoic acid* (PELLIZZARI), 1886, A., 548.  
*Salicyldiamidodiphenyl (salicylbenzidine)* (SCHIFF and VANNI), 1890, A., 1298.  
*Salicylamine* (*o-hydroxybenzylamine*) (GOLDSCHEIMDT and ERNST), 1890, A., 1411; (TIEMANN), 1891, A., 50.  
*Salicylcampbor* (LÉGER), 1890, A., 1428.  
*Salicyllichlorhydrin* (FRITSCH), 1891, A., 708.  
 "Salicyldiureide" (*salicylidenedicarbamide*), action of ethylic acetoacetate on (BIGINELLI), 1892, A., 56.  
*Salicylethylene nitrophenol ether*. See *o-Nitrophenylethyl salicylate*.  
 "Salicylglycidic acid" (*o-hydroxy-phenylglycidic acid*) (PLOCHEL and WOLFRUM), 1885, A., 899.  
*Salicylglycollic acid*. See *o-Hydroxymandelic acid*.  
 "Salicylhomophthalopropylimide" (LE BLANC), 1889, A., 256.

"**Salicyl-m-hydrazobenzoic acid**" (*salicylidene-m-hydrazobenzoic acid*) (TIE-MANN), 1891, A., 50.

**Salicylhydroxamic acid** (JEANRENAUD), 1889, A., 870.

**Salicylic acid** (*o-hydroxybenzoic acid*) in certain genera of the Liliaceæ (GRIFFITHS), 1889, P., 122.

in the cultivated pansy (GRIFFITHS and CONRAD), 1885, A., 75.

preparation of (ANON.), 1885, A., 162; (SCHMITT), 1885, A., 709.

impurities in artificial (EWEEL and PRESCOTT), 1889, A., 447; (DUNSTAN and BLOCH), 1891, A., 454.

impurities in commercial (FISCHER), 1890, A., 88.

synthesis of (SCHMITT), 1885, A., 982.

conversion of phenyl ethers of carbonic acid into (HENTSCHEL), 1883, A., 588.

proof of the identity of artificial and natural (HARTLEY), 1888, T., 664; P., 65.

absorption spectra of (HARTLEY), 1888, T., 656.

heat of combustion of (BERTHELOT and RECOURA), 1887, A., 762.

action of heat on (GRAEBE and EICHENGRUN), 1892, A., 1208.

action of diazo-*p*-nitrobenzene on (MELDOLA), 1885, T., 666.

influence of, on alcoholic fermentation (HEINZELMANN), 1884, A., 764.

action of, on ferments (GRIFFITHS), 1886, A., 386.

condensation of nitrobenzaldehydes with (DE VARDY), 1892, A., 621.

action of nitrogen iodide on (LEPETIT), 1890, A., 1402.

action of phosphorus trichloride on (ANSCHÜTZ and EMERY), 1887, A., 946; 1890, A., 53.

action of phosphoric chloride on (ANSCHÜTZ), 1885, A., 1061; (CHASANOWITSCH), 1887, A., 723; (ANSCHUTZ and MOORE), 1887, A., 947.

action of, on starch (ANON.), 1884, A., 233.

nitration of, with nitrous acid (DENINGER), 1891, A., 307.

use of, for preserving standard solutions (BOHNTRÄGER), 1889, A., 73.

antiseptic action of (ROBINET and PELLET), 1883, A., 123.

derivatives of (LELLMANN and GROHMANN), 1885, A., 265.

azo-compounds of (GEBEK), 1889, A., 780.

**Salicylic acid** (*o-hydroxybenzoic acid*), azo-dyes from (V. KOSRANECKI and ZIBELL), 1891, A., 1038.

nitrogen derivatives of (SPILKER), 1890, A., 141.

compound of, with phenylhydrazone (SEYEWITZ), 1892, A., 49.

sulphonic derivatives of (PISANELLO), 1889, A., 1062.

ethereal salts of, boiling points of the (FÖLSING), 1884, A., 897.

salts of (MILONE), 1885, A., 1139.

bismuth salt of (WOLFF), 1884, A., 905; (CAUSSE), 1891, A., 1366; 1892, A., 122.

mercury salt of, absorption of (BÖHM), 1891, A., 351.

mercury salts of (LAJOUX and GRANDVAL), 1889, A., 1062.

neutral potassium salt of, action of phosphorus oxychloride on (RICHTER), 1884, A., 325.

sodium salt of, action of phenylic phosphate on (RICHTER), 1884, A., 326.

disodium salt of, action of aceto-chlorhydroses on (MICHAEL), 1883, A., 76.

**Salicylic acid**, 5-amido-, action of aniline on (LIMPRICHT and V. REICHENBERG), 1890, A., 153.

action of benzoic chloride on (DABNEY), 1884, A., 308.

5-bromo-, and its derivatives (PERATONER), 1887, A., 486.

3:5-dibromo-, constitution of (PERATONER), 1887, A., 487.

3-, 4-, and 5-chloro- (VARNHOLT), 1887, A., 945.

5-chloro- (SMITH and KNERR), 1886, A., 704.

3 5-dichloro- (SMITH and KNERR), 1886, A., 704; (HECHT), 1890, A., 1418; (ZINCKE and WALBAUM), 1891, A., 711.

chloriodo- (SMITH and KNERR), 1886, A., 704.

3- and 5-nitro- (SMITH and KNERR), 1886, A., 704.

sulpho- (HEDRICK), 1888, A., 280; (PISANELLO), 1889, A., 1063.

disulpho- (PISANELLO), 1889, A., 1062.

**Salicylic acid**, detection, estimation and separation:—

detection of (CURTMAN), 1887, A., 185.

detection of, in beer (RÜSE), 1886, A., 924; (ELION and SNIJERS), 1889, A., 195; (HOORN), 1889, A., 446.

detection of, in dietetic substances (ANON.), 1884, A., 372.

- Salicylic acid**, detection, estimation and separation:—  
 detection of, in wine (ROUE), 1886, A., 924; (MEDICU), 1890, A., 1475.  
 estimation of (WEIGERT), 1889, A., 446.  
 estimation of, in beer (BARRAL), 1884, A., 778; (ELION; SNIJDER), 1889, A., 195.  
 estimation of, in milk and butter (RÉMONT), 1883, A., 522.  
 estimation of, in wine (RÉMONT), 1883, A., 245; (BARRAL), 1884, A., 778.  
 separation of, from benzoic acid (SCHAAPE), 1892, A., 1532.
- Salicylic alcohol**. See Saligenin.
- Salicylic anhydrides**, products of the distillation of (GOLDSCHEIDT), 1883, A., 664.
- Salicylic compounds**, melting points of (PERKIN), 1889, T., 549; P., 105.
- Salicylic phenylcarbamate**, methyl-derivative of (SHAPE), 1885, T., 775.
- Salicylidenebenzenylamidoxime** (ZIMMER), 1890, A., 254.
- Salicylidene-*m*-phenylenediamine and -*m*-tolylenediamine** (SCHIFF and VANNI), 1890, A., 139.
- "Salicyllactic acid"** (*o*-hydroxyphenyllactic acid) (PLOCHEL and WOLFRUM), 1885, A., 899.
- Salicylonitrile** (AHRENS; MEYER), 1888, A., 266; (TIEMANN), 1888, A., 276; (HERZIG and ZEISEL), 1889, A., 255.  
 preparation of (SPILKER), 1890, A., 141; (MILLER), 1890, A., 146.  
 polymeride of (MILLER), 1890, A., 146.
- "Salicyloxyacetic acid"** (*o*-carboxyphenylglycolic acid) and its salts (ROSSING), 1885, A., 358; 1886, A., 66.
- Salicylphenol (2:4'-dihydroxybenzophenone)** and its derivatives (MICHAEL), 1884, A., 811.
- Salicylphosphorous chloride** (ANSCHUTZ and EMERY), 1887, A., 946; 1890, A., 53.
- Salicylpiperidine** (SCHOTTEN), 1883, A., 1106.
- Salicylresorcinol**. See Trihydroxybenzophenone.
- Salicylthiamide and dibromo-** (SPILKER), 1890, A., 141.
- Salicyltropeine** (LADENBURG), 1883, A., 671.
- Saligenin** (*saligenol*; *o*-hydroxybenzyl alcohol; *salicylic alcohol*), synthesis of (GREENL), 1885, A., 53.  
 heat of solution of (BERTHELOT), 1885, A., 1177.
- Saligeninoxyacetic acid** (BIGINELLI), 1891, A., 309.
- Saline hydrates**, formation of, at high temperatures (ROUSSEAU), 1892, A., 119.  
 dissociation of (LECOEUR), 1889, A., 815.  
 powders, origin of (MARGUERITE-DELACHARLONNY), 1889, A., 945.  
 solutions. See Solutions.  
 sublimates at Vesuvius (FREDA), 1890, A., 571.
- Saliva**, alkalinity of (CHITTENDEN and ELY), 1883, A., 488.  
 influence of temperature on (BIEKNACKI), 1891, A., 1272.  
 action of, on starch (BOURQUELOT), 1887, A., 354.  
 diastatic action of (CHITTENDEN and ELY), 1883, A., 488; (CHITTENDEN and SMITH), 1886, A., 638; (SCHLESINGER), 1891, A., 1522.  
 ferments in (GOLDSCHEIDT), 1886, A., 726; (KRAWKOFF), 1888, A., 862.  
 parotid, gases of (KÜTZ), 1887, A., 287.  
 hydrogen peroxide in (WURSTER), 1887, A., 298.  
 nitrites in (MUSGRAVE), 1883, A., 227.  
 formation of nitrous and nitric acids in, from formaldehyde and ammonia (WURSTER), 1889, A., 1228.  
 detection of nitrous acid in (ILOSVAY), 1890, A., 278.  
 secretion of (LANGLEY and FLETCHER), 1889, A., 534.
- Salivary secretion**, influence of atropine and nicotine on (LANGLEY), 1888, A., 1216; 1890, A., 397.
- Salol**. See Phenyl salicylate.
- Salsify**, cooked, composition of (WILLIAMS), 1892, T., 227.
- Salt**, a, displacement of, from its solution by another salt (lecture experiment) (RUDORFF), 1885, A., 869.  
 common. See Sodium chloride.  
 Glauber's. See Mirabilite and Sodium sulphate.
- Salt-cake**. See Sodium sulphate.
- Saltpetre**. See Potassium nitrate.  
 Chili. See Sodium nitrate.
- Salts**, formation of (ARMSTRONG), 1891, P., 118.

**Salts**, containing chromium and urea, series of (SELL), 1883, A., 178; 1889, A., 695.  
 containing water of crystallisation, dissociation and constitution of (MULLER-ENZBAUGH), 1884, A., 952; 1886, A., 10; 1887, A., 207; 1890, A., 206.  
 water of crystallisation of (SILZER), 1884, A., 806; 1892, A., 581.  
 crystallisation of, during the electrolysis of their solutions (PAGLIANI), 1888, A., 892.  
 magnetic rotation of dissolved (OSTWALD), 1892, P., 12.  
 temperature of decomposition of, apparatus for the determination of (BAILEY), 1886, P., 205.  
 heat of solution of, in different liquids (PICKERING), 1888, T., 871, 875.  
 heat of solution of, in water (SCHOLZ), 1892, A., 676.  
 influence of temperature on the heat of solution of (TILDEN), 1886, A., 499; (PICKERING), 1887, T., 290; P., 66.  
 heat of formation of, in alcoholic solution (VAN DEVENTER and REICHER), 1890, A., 553; 1892, A., 262.  
 relation between the heat of formation of, and the initial rate of their formation (POTILIZIN), 1886, A., 116.  
 heat of hydration of (PICKERING), 1884, A., 803; 1886, T., 417; P., 257; 1887, T., 75.  
 thermal relationships between water and (ILLINGWORTH and HOWARD), 1885, A., 339.  
 constancy of the heat produced by the reaction of certain, on each other (PICKERING), 1888, A., 333.  
 electrolysis of (REKARD), 1886, A., 115, 407.  
 conduction of electricity by the vapours of heated (ARRHENIUS), 1891, A., 515.  
 electrical conductivity of (KOHLE-RAUSCH), 1886, A., 114; (OSTWALD), 1888, A., 331; (JÄGER), 1888, A., 397.  
 electrical conductivity of, in the Bunsen flame (ARRHENIUS), 1891, A., 5.  
 electrical conductivity of fused (POINCARÉ), 1889, A., 457; (GRAETZ), 1890, A., 1037.  
 electrical conductivity of solid (GRAETZ), 1890, A., 1037.

**Salts**, electrical conductivity of mixtures of (BOUTY), 1886, A., 839.  
 determination of the electrolytic dissociation of, by means of solubility experiments (NOYES), 1891, A., 142; 1892, A., 1148.  
 coloured, electrolytic dissociation of, and absorption of light by (MAGNANINI), 1892, A., 757.  
 electrical resistance of, in the Bunsen flame (ARRHENIUS), 1891, A., 5.  
 electrical transport of dissolved (CHASSY), 1889, A., 665.  
 voltaic energy of, dissolved (GORE), 1890, A., 317.  
 molecules of, determination of the size of, from the electrical conductivity of their aqueous solutions (JÄGER), 1888, A., 217; (WALDEN), 1888, A., 891, 1008.  
 osmose of (ENKLAAR), 1883, A., 420.  
 melting points of (MAUMENÉ), 1884, A., 3.  
 capillary constants of, at their melting points (TRAUBE), 1892, A., 7.  
 cryohydrates of mixtures of (MAZOTRO), 1891, A., 388.  
 dissociation of, in very dilute solutions (WIEDEMANN), 1888, A., 1021; (PLANCK), 1888, A., 1144; (MENDELEEFF), 1890, A., 325.  
 chemical neutrality of, and the use of different indicators in acidimetry (BERTHELOT), 1885, A., 472.  
 deliquescence and efflorescence of, in relation to the maximum vapour tensions of their saturated solutions (LESCOEUR), 1887, A., 208.  
 variation of density with the concentration of weak aqueous solutions of (McGREGOR), 1891, A., 254.  
 specific gravity of aqueous solutions of certain (McGREGOR), 1887, A., 209.  
 specific gravity of soluble (REYGERS), 1889, A., 812, 1101.  
 solubility of (ETARD), 1884, A., 887; (LE CHATELIER), 1889, A., 671.  
 solubility of mixtures of (RUDORFF), 1885, A., 865; (ETARD), 1890, A., 442, 443.  
 mixed, solubility of, in water (BODLÄNDER), 1891, A., 795.  
 mutual solubility of, in water (NICOL), 1892, A., 8; (TREVOR), 1892, A., 264.  
 solubility of, in water at various temperatures (RAUPENSTEIN), 1885, A., 1181.

- Salts**, solubility of, in water at high temperatures (TILDEN and SHENSTONE), 1884, A., 254.  
 sudden changes in the solubility of, caused by the formation of two layers in the liquid (ROOZEBOOM), 1890, A., 4.  
 reciprocal influence on the solubility of (NERNST), 1890, A., 3.  
 relation between the solubility of salts and their melting points (ETARD), 1889, A., 460.  
 solubility curves of (ETARD), 1884, A., 807.  
 solubility curves of pairs of (ROOZEBOOM), 1892, A., 1384.  
 conditions of equilibrium between solid and liquid compounds of water with (ROOZEBOOM), 1889, A., 752.  
 general law of diminution of volume of, by solution in water (HERITSCH), 1889, A., 461.  
 change of volume on dissolving, in water (SCHMIDT), 1890, A., 844.  
 decompositions of, by fused substances (DITTE), 1883, A., 11.  
 decomposition of, by water (LE CHATELIER), 1884, A., 807; 1885, A., 630.  
 stability of, alone and in presence of water (BERTHELOT), 1890, A., 1361.  
 dehydrating action of (TOMMASI), 1884, A., 1251.  
 substitution of, in mixed solutions (ETARD), 1890, A., 443.  
 absorption of, by plants (BERTHELOT and ANDRÉ), 1888, A., 739.  
 comparative nitrifying effect of (PICHARD), 1884, A., 924, 1417.  
 influence of, on certain digestive processes (PFEIFFER), 1885, A., 827.  
 action of, on heat coagulation (RINGER and SAINSBURY), 1891, A., 954.  
 precipitation of colloid substances by (NASSE), 1889, A., 99.  
 estimation of water and carbonic acid in (CHATARD), 1890, A., 417.
- Salts**, alkali, freezing points of solutions of (RAOULT), 1884, A., 701.  
 alkali, influence of alkaline bases and of the hydroxides on the solubility of (ENGEL), 1891, A., 1318.  
 of the alkalis and alkaline earths, influence of, on clotting (RINGER and SAINSBURY), 1890, A., 1176.  
 of ammonium, the amines, the alkali metals and the alkaline earths, physiological action of (BRUNTON and CASE), 1884, A., 348.  
 basic, constitution of (PICKERING), 1888, A., 111.
- Salts**, basic, investigation of (HABERMANN), 1885, A., 351.  
 double, formed by fusion (BERTHELOT and LOSVAY), 1883, A., 11; 1884, A., 704.  
 heat of formation of (PICKERING), 1886, T., 287.  
 electrical conductivity of (KLEIN), 1886, A., 407; (KISTIAKOWSKI), 1891, A., 6.  
 action of water on (RAOULT), 1885, A., 122.  
 solubility of (MEYERHOFFER), 1892, A., 1145.  
 solutions of (TREVOR), 1891, A., 973.  
 basic (KLINGER), 1883, A., 904.  
 double and acid, existence of, in aqueous solutions (THOMSEN), 1886, A., 925.  
 double and simple, refractive power of (DORMER), 1890, A., 433.  
 double and complex (KISTIAKOWSKI), 1891, A., 6.  
 Epsom. See Magnesium sulphate.  
 ethereal. See Ethereal salts.  
 hydrated, constitution of (WIEDEMANN), 1883, A., 780.  
 melting points, and their relation to the solubility of (TILDEN), 1884, T., 266.  
 electrolysis of (GLADSTONE and TRIBE), 1884, A., 654.  
 dissociation of (FROEHLIN), 1888, A., 337.  
 rate of dissociation as a measure of the vapour tension of (SCHULZE), 1888, A., 104.  
 tension of aqueous vapour of (MULLER-ERZBACH), 1885, A., 213; (TAMMANN), 1885, A., 862.  
 crystalline, constant vapour pressure of (ANDREAE), 1891, A., 781.  
 double (ROOZEBOOM), 1888, A., 1164.  
 inorganic, residual affinity of (LACHOWICZ), 1890, A., 444.  
 inorganic, influence of, on the development of frogs' spawn (RINGER), 1890, A., 393.  
 metallic, electromotive force of (SPEYER), 1890, A., 843; 1892, A., 255.  
 action of sodium thiosulphate on (JOCHUM), 1886, A., 17.  
 action of sulphur on (VORTMANN and PADBERG), 1890, A., 9.  
 organic liquids as solvents for (ETARD), 1892, A., 558.  
 relative toxic power of (BLAKE), 1883, A., 745.

- Salts** of divalent metals, freezing points of solutions of (RAOULT), 1884, A., 808.
- mineral, estimation of, in wine (SCHNEIDER), 1891, A., 371.
- neutral, influence of, on chemical reactions (SPOHN), 1888, A., 1025.
- relative absorption of, in the human stomach (JAWORSKI), 1884, A., 193.
- bases of, mutual displacement of, in homogeneous systems (MENSHUTKIN), 1883, A., 550, 708.
- photo-. See Photo-salts under Photo-chemistry.
- See also Solution.
- Salt-works** of Giraud in France (LUNGE), 1884, A., 513.
- Samarium** (BRAUNER), 1883, T., 286; (CLEVE), 1883, T., 362.
- atomic weight of (CLEVE), 1883, T., 365; (BETENDORFF), 1891, A., 985.
- spectrum of (CLEVE), 1883, T., 366; (LECOQ DE BOISBAUDRAN), 1885, A., 621; 1892, A., 780; (DEMARÇAY), 1886, A., 837; 1887, A., 1008.
- and yttrium, mutual extinction of the spectra of (CROOKES), 1885, A., 1025.
- separation of (CLEVE), 1883, T., 363.
- compounds of (CLEVE), 1883, T., 362; 1885, A., 636.
- oxide (BETENDORFF), 1891, A., 985.
- oxides, new fluorescences of (LECOQ DE BOISBAUDRAN), 1890, A., 435.
- Samarskite** from Berthier Co., Quebec (DONALD), 1884, A., 894.
- from Colorado (HILLEBRAND), 1892, A., 416.
- elements in (CROOKES), 1887, A., 334.
- analysis of (SMITH), 1884, A., 111.
- Sand**, siliceous, of Monte Soratte (GIORGIS), 1892, A., 23.
- Sandal wood**, essence of (CHAPOTEAUT), 1883, A., 76.
- essence of, adulteration of (MÉNARD), 1892, A., 1379.
- red, homopterocarpin and pterocarpin from (CAZENÈVE and HUGOUBENQ), 1889, A., 160.
- Sandmeyer's reaction** (LELLMANN and REMY), 1886, A., 625; (AHRENS), 1888, A., 266.
- improvement in (TOBIAS), 1890, A., 1149.
- use of sodium hypophosphite in (ANGELI), 1892, A., 305.
- Sandstone**, barium sulphate as a cementing material in (CLOWES), 1886, A., 35.
- Sandstone**, weathering of (SROKLASA), 1886, A., 35.
- Lockport (WELD), 1888, A., 925.
- Sanguinaria canadensis*, alkaloids of the roots of (KONIG), 1891, A., 843.
- Sanguinarine** (HENSCHKE), 1887, A., 854; (KONIG), 1891, A., 844.
- detection of (v. KUGELGEN), 1885, A., 608.
- Sandinite** from San Miguel (OSANN), 1888, A., 566.
- Sandiphyres**, so-called, from the Siebengebirge (v. LASAULX), 1886, A., 603.
- Sanitation** of large towns and value of the refuse matter from them (MULLER), 1884, A., 642.
- See also Sewage.
- Santonin** and *isosantonin* acids (GUCCI and GRASSI-CRISTALDI), 1892, A., 871.
- Santonin acid**, oxidation of, and its oxime (FRANCESCONI), 1892, A., 1352.
- Santonin**, manufacture of (BUNCH), 1887, A., 677.
- manufacture of, in Turkestan (ČECH), 1885, A., 108.
- constitution of (CANNIZZARO), 1886, A., 73.
- distillation of, with zinc-powder (CANNIZZARO and CARNELUTTI), 1883, A., 80.
- action of phenylhydrazine on (GRASSI-CRISTALDI), 1888, A., 295.
- action of phosphorus pentachloride on (PAWLICKI), 1886, A., 157.
- oxidation of (WAGNER), 1887, A., 733.
- derivatives of (VILLAVECCHIA), 1886, A., 73; (GUCCI and GRASSI-CRISTALDI), 1892, A., 869.
- derivatives, physiological action of (COPPOLA), 1888, A., 310.
- detection of (KNAPP), 1888, A., 1137; (MANSEAU), 1892, A., 666.
- estimation of (FLUCKIGER and EHLINGER), 1886, A., 495; (MANSEAU), 1892, A., 666.
- Santoninamine** (GUCCI and GRASSI-CRISTALDI), 1892, A., 869.
- Santoninoxime** and its derivatives (GUCCI), 1890, A., 902.
- Santoninphenylhydrazone** (GRASSI-CRISTALDI), 1888, A., 295; 1890, A., 904.
- Santonous acid** and its derivatives (CANNIZZARO and CARNELUTTI), 1883, A., 77.
- products of the decomposition of (CANNIZZARO), 1884, A., 327.

- isoSantonous acid** and its derivatives (CANNIZZARO and CARNELUTTI), 1883, A., 77.
- Sap.** See Agricultural Chemistry.
- Sapogenol** (HESE), 1891, A., 938.
- Saponetin** (SCHIAPARELLI), 1884, A., 334.
- Saponification**, method for (KOSSEL and OBERMÜLLER), 1890, A., 1474.
- velocity of (REICHER), 1885, A., 1034; 1886, A., 416; 1887, A., 767.
- by sodium ethoxide (KOSSEL and KRÜGER), 1891, A., 1143; (OBERMÜLLER), 1892, A., 139.
- Saponin.** See Glucosides.
- Saponite.** See Steatite.
- Sapotin** and **sapotiretin** (MICHAUD), 1892, A., 724.
- Sapotoxin** from *Agrostemma Githago* (KRUSKAL; KOBERT), 1892, A., 350.
- Sapphire**, inclusions in (PRINZ), 1888, A., 1062.
- Sapphirine** from Greenland (LORENZEN), 1886, A., 519; (SCHLUTTIG), 1887, A., 784; (USSING), 1890, A., 19.
- See also Siderite.
- Saprine** (BECKURTS), 1887, A., 386.
- See also Pentamethylenediamine.
- Sarcine.** See Hypoxanthine.
- Sarcinite** (*polyarsenite*), a new mineral (IGELSTRÖM; SJÖGREN), 1887, A., 346.
- crystals of (FLINK and HAMBERG), 1890, A., 715.
- Sarcolactic acid.** See Paralactic acid under Lactic acid.
- Sarcolemma** of muscle fibres, action of digestive fluids on (EWALD), 1889, A., 913.
- Sarcoma**, melanotic, urine and blood in a case of (HOPPE-SEYLER), 1891, A., 484.
- pigments of (MÖRNER), 1887, A., 168; 1888, A., 518.
- Sarcosine** (*methylamidolactic acid; methylglycocine*) (MYLIUS), 1884, A., 394.
- formation of urea from (SALKOWSKI), 1884, A., 1394.
- anhydride, and its salts (TRAUBE), 1883, A., 192; (MYLIUS), 1884, A., 994.
- Sarcosine-mesouric acid** and bromo- (MYLIUS), 1884, A., 1128.
- Sarcosine-uric acid** (MYLIUS), 1884, A., 1128.
- Sassafras oil**, the phenol contained in (POMERANZ), 1890, A., 1111.
- Sativic acid** (*tetrahydroxystearic acid*) (BAUER and HAZURA), 1886, A., 868; (HAZURA), 1888, A., 817; (REFORMATSKY), 1890, A., 363.
- constitution of (HAZURA), 1887, A., 799.
- Saussurite** (CATHREIN), 1883, A., 1066.
- from California, analysis of (CLARKE and CHATARD), 1885, A., 491.
- Sawarri fat** (LEWKOWITSCH), 1889, P., 69.
- Sawdust** as litter (SAGNIER), 1885, A., 429.
- "**Scab**," in potatoes (HEIDEN), 1884, A., 1419.
- Scale**, crystalline, formed in the manufacture of sodium hydrogen carbonate (LEIGHTON), 1887, A., 108.
- Scandium**, phosphorescence of (CROOKES), 1887, A., 1068.
- spectra of (THALÉN), 1883, A., 954.
- Scapolite** (*uernerite*) from Chili (JANNETAZ), 1891, A., 1438.
- from Pennsylvania (GENTH), 1891, A., 155.
- artificial (DOELTER), 1888, A., 1045.
- conversion of a felspar into (JUDD), 1891, A., 277.
- after garnet, alteration-pseudomorphs of (CATHREIN), 1886, A., 129.
- and plagioclase minerals, chemical resemblance between (TSCHERMAK), 1884, A., 567.
- analysis of (SIRÓCZ), 1883, A., 440.
- Scapolite-group** (TSCHERMAK), 1884, A., 566; 1887, A., 560; (RAMMELSBERG), 1886, A., 318.
- chemical nature of the members of the (RAMMELSBERG), 1886, A., 30.
- proportion of chlorine in the (TSCHERMAK), 1885, A., 1187.
- Scarlet runners**, cooked composition of (WILLIAMS), 1892, T., 227.
- Scatole.** See 3'-Methylindole.
- Scheelite** from the Krimlerthal (v. ZEPHAROVICH), 1887, A., 902.
- from New South Wales (LIVERSIDGE), 1886, A., 774.
- proportion of molybdenum in (TRAUBE), 1891, A., 406.
- analysis of (SITLIK), 1890, A., 420.
- commercial, analysis of (RUSAG), 1889, A., 311.
- See also Calcium tungstate.
- Schefferite** from Långban and Pajsberg (FLINK), 1886, A., 778.
- Schiff's bases** (v. MILLER and PLÜCHL), 1892, A., 1189.
- Schists**, carbonaceous, proportion of carbon and hydrogen in (SPRING), 1888, A., 925.

- Schists**, crystalline, of Kaisersberg in Styria (V. FOULLON), 1884, A., 412.
- Schizomycetic fermentation** (MARPMANN), 1883, A., 363; (FIRZ), 1884, A., 1062.
- Schlackenkobalt**, analysis of (McCAY), 1886, A., 209.
- Schönite**. See Picromerite.
- Schoolrooms**, carbonic anhydride in the air of (FOSSEK), 1887, A., 888.
- Schorlomite**, a variety of melanite (KÖNIG), 1888, A., 434.
- Schreibersite**, in the Cranbourne meteorite (FLIGHT), 1884, A., 417.
- Schreiner's base**. See Spermin.
- Schuchardtite** (SPARKL), 1885, A., 32.
- Schützenberger's oxymetric solution**, photochemical reaction of (JODIN), 1886, A., 648.
- Schweizer's solution** (GRIMAU), 1884, A., 957; (BAUBIGNY), 1887, A., 773.
- Sclerocrystallin** (HALLBERG), 1883, A., 640.
- Scolecite** from Striegau (TRAUBE), 1887, A., 903.
- Scopolamine** (SCHMIDT), 1892, A., 1255; (LADENBURG), 1892, A., 1498.
- Scopolina** (EIJKMAN), 1885, A., 404.
- Scopoletin** (EIJKMAN), 1885, A., 404; (TAKAHASHI), 1889, A., 255.
- Scopolia atropoides**, constituents of (SIEBERT), 1890, A., 658.  
root constituents of (SCHMIDT), 1891, A., 228.
- Scopolia carniolica**, chemical constituents of (DUNSTAN and CHANTON), 1890, A., 402.
- Scopolia Hradnackiana** (*Hladnickiana*), alkaloids of (SCHMIDT), 1888, A., 856.
- Scopolia japonica**, alkaloids of (SCHMIDT and HENSCHKE), 1888, A., 856.  
poisonous constituents of (EIJKMAN), 1885, A., 404.
- Scopolia-root**, constituents of (HENSCHKE), 1888, A., 82.
- Scopolina** (*scopolina*) (EIJKMAN), 1885, A., 404; (HESSE), 1892, A., 1498.
- Scorodite** from Utah (CHAMBER), 1887, A., 783.  
deposited from the arsenical waters of the Yellowstone Park (HAGUE), 1888, A., 122.
- Scovillite**. See Rhabdophane.
- Seutellarin** (TAKAHASHI), 1890, A., 64.
- Sea-kale**, cooked, composition of (WILLIAMS), 1892, T., 227.
- Sea-mud**. See Mud, marine.
- Seas**, silica and siliceous remains of organisms in (MURRAY and IRVINE), 1891, A., 995.
- Sea-water**. See Water.
- Seaweed**, dye from (NETTLEFOLD), 1888, A., 1313.
- Sebamide** (PHOOKAN and KRAFFT), 1892, A., 1180.
- Sebacodinitranilide** (GEHRING), 1887, A., 935.
- Sebacic acid** (*ipomic acid*), boiling points of (KRAFFT and NOERDLINGER), 1889, A., 691.  
thermochemistry of (STOHMANN, KLERER and LANGBEIN), 1889, A., 1097.  
heat of combustion of (LUGININ), 1889, A., 5.  
oxidation of (CARETTE), 1886, A., 335.  
derivatives of (PHOOKAN and KRAFFT), 1892, A., 1180.  
*di*bromo-, and its derivatives (CLAUS and STEINKATLER), 1888, A., 183; (AUWERS and BERNHARDI), 1891, A., 1191.
- Sebacyldibenzamic acid** (PELLIZZARI), 1885, A., 531.
- Secondary batteries**. See Accumulators under Electrochemistry.
- Seeds**. See Agricultural Chemistry.
- Selenazole**, derivatives of (HANTZSCH), 1888, A., 574; (HOFMANN), 1889, A., 726.
- Selenazylamine** (HOFMANN), 1889, A., 727.
- Selenious anhydride**. See Selenium dioxide.
- Selenium** (KALISCHER), 1888, A., 99; (HINSBERG), 1891, A., 393.  
in meteoric iron (WARREN), 1888, A., 435.  
minerals, from Cacheuta (BERTRAND), 1884, A., 406.  
from Honduras (DANA and WELLS), 1891, A., 153.  
allotropic states of (PETERSEN), 1892, A., 405.  
sulphur and tellurium, isomorphism of (MUTHMANN), 1891, A., 1417.  
extraction of, from a waste product (KLENLEN), 1883, A., 16.  
preparation of, on a large scale (BORNTRÄGER), 1883, A., 852.  
electromotive force produced by the action of light on (KALISCHER), 1887, A., 693; 1888, A., 99; 1889, A., 3; 1890, A., 97; (V. ULJANIN), 1888, A., 883; 1889, A., 202; (RIGHI), 1889, A., 555.

- Selenium**, influence of light on the heat conductivity of (BELLATI and LUSSANA), 1888, A., 98.  
 heat of transformation of vitreous into metallic (FABRE), 1886, A., 840.  
 boiling point of (TROOST), 1883, A., 17.  
 action of the vapour of, on red-hot charcoal (GORE), 1885, A., 120.  
 action of, on aqueous silver nitrate (SENDERENS), 1887, A., 331.  
 alums (FABRE), 1887, A., 1014.  
**Selenium chlorides**, electrolytic conductivity of (HAMPE), 1888, A., 889.  
 thermochemical investigations on the (THOMSEN), 1883, A., 543.  
 vapour densities of (CHABRIÉ), 1890, A., 558.  
 dissociation of (RAMSAY), 1891, A., 11.  
*monochloride*, action of heat on (EVANS and RAMSAY), 1884, T., 62.  
*tetrachloride*, action of heat on, and vapour density of, at various temperatures (EVANS and RAMSAY), 1884, T., 65.  
 compound of auric chloride with (LINDER), 1886, A., 310.  
*bromotrichloride*, *chlorotribromide* and *dichlorodibromide* (EVANS and RAMSAY), 1884, T., 68.  
*selenochloride* (DIVERS and SHIMIDZU), 1884, T., 195, 198.  
 relation between sulphur trioxide and (DIVERS and SHIMOSÉ), 1884, T., 197.  
**Hydrogen selenide**. See Hydrogen selenide.  
**Selenides** from the Andes (HEUNLER and KLINGER), 1886, A., 22.  
 of the alkaline earths (FAVRE), 1886, A., 840.  
**Selenium dioxide** (*selenious anhydride*), solubility of (ETARD), 1888, A., 645.  
 compounds of ammonia with (CAMERON and MACALLAN), 1889, A., 103.  
**Selenious acid**, crystals of (HINSBERG), 1891, A., 393.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 593.  
 action of sulphurous acid on (SCHULZE), 1886, A., 302.  
 reactions of, with hydrogen sulphide (DIVERS and SHIMIDZU), 1885, T., 441; P., 52.  
 saturation of, by bases (BLAREZ), 1887, A., 106.  
**Selenious acid**, physiological action of (CHABRIÉ and LAPICQUE), 1890, A., 542.  
**Selenites** (BOUTZOURÉANU), 1883, A., 220; 1891, A., 262.  
 relation of, to sulphites (DIVERS and SHIMIDZU), 1886, T., 584.  
**Selenic acid**, preparation, properties and reactions of (CAMERON and MACALLAN), 1890, A., 688.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 593.  
**Selenates**, crystallised, formation of, in the dry way (MICHEL), 1888, A., 650.  
**Selenium sulphoxide** (DIVERS and SHIMOSÉ), 1883, T., 329; 1884, T., 194, 201; (DIVERS and SHIMIDZU), 1886, T., 583.  
 compound of (WEBER), 1887, A., 212.  
*sulphoxylchloride* (DIVERS and SHIMOSÉ), 1884, T., 196.  
*sulphide*, nature of (DIVERS and SHIMIDZU), 1885, T., 446; (RATIKKE), 1885, A., 954.  
**Selenosulphuric acid**, detection of nitrogen compounds in (LUNGE), 1887, A., 998.  
**Selenothiostannic acid**, salts of (DITTE), 1883, A., 156.  
**Selenium selenocyanate** (VERNEUIL), 1886, A., 1002.  
**Selenious cyanide** (HINSBERG), 1891, A., 393.  
**Selenium**, detection, estimation, and separation:—  
 microchemical test for (V. HAUSHOFER), 1887, A., 301.  
 estimation of (WARREN), 1888, A., 435; (BOUTZOURÉANU), 1891, A., 262.  
 simple method for the quantitative separation of tellurium from (DIVERS and SHIMOSÉ), 1885, T., 439; P., 53.  
*di*Selenobisethylamine hydrochloride (COBLENTZ), 1891, A., 1216.  
*di*Selenobispropylamine (COBLENTZ), 1891, A., 1216.  
**Selenocyanacetic acid** (HOFMANN), 1889, A., 726.  
**Selenocyan-acetone** and **-acetophenone** (HOFMANN), 1889, A., 726.  
 $\beta$ -**Selenocyanethylphthalimide** (COBLENTZ), 1891, A., 1216.  
**Selenocyanogenderivatives** (HOFMANN), 1889, A., 726; (HAGELBERG), 1890, A., 949.  
 $\gamma$ -**Selenocyanpropylphthalimide** (COBLENTZ), 1891, A., 1216.

- Seleno-diethylaniline** and **-dimethylaniline** (GODCHAUX), 1891, A., 696.
- Selenohydantoin** (HOFMANN), 1889, A., 727.
- Selenophenol** (CHABRIÉ), 1889, A., 1167.
- Seleno phthalide** and **-phthalimidine** (DEORY), 1891, A., 1460.
- Selenoxylan** (PAAL), 1885, A., 1207.
- "Selen tellurium"** (DANA and WELLS), 1891, A., 153.
- Sellaite** (SELLA), 1888, A., 657.
- Seminose** (FISCHER and HIRSCHBERGER), 1889, A., 687; (REISS), 1889, A., 687; 1891, A., 356.
- Semithiocarbazides** and the relations between their solubilities and melting points (DIXON), 1890, T., 257, 261; P., 25.
- disubstituted (DIXON), 1892, T., 1012; P., 153.
- Semseyite** (SIPOCZ), 1886, A., 313.
- Senarmontite** crystals, pseudomorphic (HINTZE), 1883, A., 430.
- See also Antimonous oxide.
- Senegin**. See Saponin under Glucosides.
- Seneginin** (FUNARO), 1890, A., 262.
- Senna leaves**, active principle of (STOCKMAN), 1885, A., 991.
- Sensitisers**, photographic. See Photochemistry.
- Separators** (cream), comparison of (FJORD), 1884, A., 1447.
- Danish, experiments with (SCHMOEGER), 1886, A., 290.
- Sepia officinalis**, blood of (GRIFFITHS), 1892, A., 618.
- Sepiolic acid** (NENCKI and SIEBER), 1888, A., 976.
- Sepine** (NIEMENTOWSKI), 1886, A., 933.
- Sepsin**, Panum's, ptomaines and their genesis in relation to (WYBORN), 1889, A., 121.
- Septadecyl**. See Heptadecyl.
- Sericite** from the quartz-phyllite of Wiltan, analysis of (SENHOFFER), 1885, A., 736.
- rocks in ore deposits (v. GRODDECK), 1883, A., 168; 1888, A., 795.
- Sericoin** (WEYL), 1888, A., 857.
- Serin**, absorption spectrum of (HARTLEY), 1887, T., 59.
- Serpentine** (SCHUBERT), 1883, A., 36.
- from the Alps (HUSSAK), 1883, A., 562.
- of Borzanasca (MONTEMARTINI), 1892, A., 1058.
- from Canada (HARRINGTON), 1891, A., 647.
- of Colle di Cassimoreno and Monte Ragolo (MONTEMARTINI), 1889, A., 111.
- Serpentine** from Finland (TSCHAJTSCHINSKY), 1890, A., 715.
- from Franklin, New Jersey (KONIG), 1887, A., 616; 1888, A., 565.
- from Montville, New Jersey (MERRILL), 1890, A., 716.
- of the Onondaga salt-group at Syracuse (WILLIAMS), 1888, A., 120.
- electrical conductivity of (WIECHERT), 1886, A., 113.
- See also Magnesium silicate.
- Serpentine-chlorite** group, minerals of (WARTHA), 1887, A., 783.
- Serpentines** from Porthalla Cove, Cornwall (COLLINS), 1887, A., 1022.
- Serum** and plasma (WRIGHT), 1892, A., 1113.
- colouring matter of (HALLIBURTON), 1886, A., 1050.
- proteids of (HALLIBURTON), 1885, A., 571.
- proteids of, action of salts on the (LEWITH), 1889, A., 424.
- toxicity of (CHARRIN), 1892, A., 228.
- albumin. See Albumin.
- blood-, new constituent of (WOOLDRIDGE), 1887, A., 983.
- blood-, new proteid from (CHABRIÉ), 1892, A., 224.
- fibrinogen (WOOLDRIDGE), 1887, A., 983.
- lutein (HALLIBURTON), 1886, A., 1050.
- milk-, analyses of (SÖLDNER), 1889, A., 635.
- Sesame cake**, albuminoids in (RITT-HAUSEN), 1883, A., 360.
- Sesame oil**. See Oil.
- Sesame seed**, properties of, and behaviour of, in the animal system (LANGLEBERT), 1884, A., 852.
- "Seshime-urushi"** (YOSHIDA), 1883, T., 473.
- Sesqui-magnesia alum** (DARAPSKY), 1887, A., 558.
- Sesquiterpene**. See Terpene.
- Sèvres blue**, manufacture of (LAUTH), 1884, A., 641.
- Sewage**, filtration of, through peat (MULLER), 1885, A., 1268.
- methods used for the disposal of (MULLER), 1884, A., 642.
- use of carbolic acid in the disinfection of (KELLNER), 1884, A., 697.
- utilisation of (ENGELER), 1884, A., 1418.
- estimation of ammonia in (HAZEN), 1890, A., 1024.
- estimation of nitrogen in (NICHOLS and ALLEN), 1886, A., 1072.
- estimation of, in water. See Water.

- Sewers**, air of (CARNELLEY and HALDANE), 1888, A., 532.
- Sewer gases** (FISCHER), 1883, A., 886.
- Shaking**, apparatus for (TAFEL), 1889, A., 934.
- "Shale spirit,"** composition of (MILLER and BAKER), 1887, P., 97.
- "Shale-tar,"** relation between petroleum and the hydrocarbons of (KRAEMER and BÜTCHER), 1887, A., 648.
- Sheep.** See Agricultural Chemistry.
- Shellac** (BENEDIKT and EHRLICH), 1888, A., 846; (BENEDIKT and ULZER), 1888, A., 1308.  
refining of (ANDÉS), 1884, A., 380.
- Shells**, organic basis of (ENGEL), 1891, A., 236.  
solubility of, in sea water (THOUTLET), 1889, A., 682.
- Sherry**, sulphuric acid in (BOGMANN), 1883, A., 829.  
pure, analyses of (BOGMANN and FRENENIUS), 1889, A., 476.
- Shikimene**, shikimin and shikimipierin (EIJKMAN), 1886, A., 95.
- Shikimic acid** (EIJKMAN), 1886, A., 95; 1887, A., 497; 1891, A., 919.  
*d*/bromide (EIJKMAN), 1891, A., 920.
- Shikimolactone**, bromo- (EIJKMAN), 1891, A., 920.
- Shikimole.** See Saffrole.
- Shot**, analysis of (HARDAWAY), 1887, A., 446.
- Siderite**, analysis of a variety of (CLAASSEN), 1883, A., 559.  
from Carinthia (BRUNLECHNER), 1888, A., 233.  
See also Sapphirine.
- Siderolithic horizon**, origin and formation of masses of calcium phosphate in sedimentary rocks and their relation to the iron ores and clays of (DIRULAFAIT), 1884, A., 1272; 1885, A., 127.
- Sideronatrite** from Chili (GENTH and PENFIELD), 1891, A., 274.
- Siegburgite** (KLINGER and PITTSCHKE), 1885, A., 220.
- Siemens' mercury unit**, reproduction of (STRECKER), 1885, A., 1027, 1099.
- Siemens' pyrometer**, modification of (SPOHR), 1886, A., 112.
- Siemens-Martin process** (JUNGCK), 1885, A., 98.
- Siennas** (HURST), 1889, A., 678.
- Sigterite**, a new felspar from Sigteri (RAMMELSBERG), 1891, A., 22; (TENNER), 1891, A., 1438.
- Silage.** See Agricultural Chemistry.
- Silent discharge.** See under Electrochemistry.
- Silfbergite** (WEIBULL), 1884, A., 409; 1886, A., 34.
- Silica.** See Silicon dioxide.
- Siliceous earth** from Morris Co., New Jersey (MCKELVEY), 1885, A., 361.
- Silicobromoform** (BESSON), 1891, A., 642.  
preparation of (GATTERMANN), 1889, A., 342.
- Silicocarbonate**, crystalline, from soda liquors (RAMMELSBERG), 1887, A., 12.
- Silicochloroform**, preparation of (GATTERMANN), 1889, A., 342.
- Silico-di- $\beta$ -naphthyl diamide**, diphenyl diamide, -2-dityl diamide and -dixyl diamide, *dichloro*- (HARDEN), 1886, P., 251; 1887, T., 40.
- Silicoformic acid**, preparation of (GATTERMANN), 1889, A., 343.
- Silicon** (SCHUTZENBERGER and COLSON), 1883, A., 15; (WARREN), 1891, A., 799.  
atomic weight of (THORPE and YOUNG), 1887, T., 576; P., 60.  
preparation of (WARREN), 1888, A., 415; 1889, A., 212; (RAWSON), 1889, A., 211; (GATTERMANN), 1889, A., 342; (HARRIS), 1890, A., 108.  
preparation of, by electrolysis (HAMPE), 1889, A., 103.  
spectrum of (HANTLEY), 1883, T., 397; 1884, A., 242.  
electro-deposition of (GORE), 1885, A., 110.  
electrolysis of fused compounds of (MINET), 1891, A., 1321.  
influence of, on the condition of carbon in cast-iron (GAUTIER), 1887, A., 220.  
apparent volatilisation of, at 440° (HAUTEFEUILLE and PERRY), 1885, A., 872.  
action of, on gold, silver, platinum and mercury (WARREN), 1889, A., 1125.  
influence of, on the properties of iron and steel (TURNER), 1885, T., 577, 902; P., 85, 100; 1886, T., 130; P., 133, 266; 1887, T., 129, 141; 1888, T., 844; (JORDAN and TURNER), 1886, T., 215; (OSMOND), 1890, A., 567; 1892, A., 19.  
action of magnesium on (WINKLER), 1890, A., 1373; 1891, A., 801.  
graphitoidal, reducing action of (WARREN), 1892, A., 115.  
alloy of, with titanium and aluminium (LÉVY), 1888, A., 423.
- Silicon tetrabromide**, preparation of (GATTERMANN), 1889, A., 342.

- Silicon tetrabromide**, molecular refraction and dispersion of (GLADSTONE), 1891, T., 299.  
 action of, on thiocarbamide (REYNOLDS), 1887, T., 202.  
 compounds of, with ammonia and hydrogen phosphide (BESSON), 1890, A., 559.  
 bromiodides (BESSON), 1891, A., 1419.  
 bromochlorides (BESSON), 1891, A., 981.  
 carbide (SCHÜTZENBERGER), 1892, A., 1050.  
*tetrachloride*, preparation of (GATTERMANN), 1889, A., 342; (WARREN), 1890, A., 108.  
 molecular refraction and dispersion of (GLADSTONE), 1891, T., 299.  
 action of hydrogen bromide on (BESSON), 1891, A., 981.  
 action of hydrogen iodide on (BESSON), 1891, A., 800.  
 action of, on substituted phenylamines (REYNOLDS), 1892, T., 453; P., 73.  
 reactions of (RAUTER), 1892, A., 1273.  
 combination of ammonia and hydrogen phosphide with (BESSON), 1890, A., 559.  
*sesquichloride*, combination of ammonia and hydrogen phosphide with (BESSON), 1890, A., 690.  
 thiochloride (BESSON), 1892, A., 404.  
 phosphoric chloride (STOKES), 1891, A., 815.  
 pyrophosphoryl chloride (STOKES), 1891, A., 1171.  
 chloriodides (BESSON), 1891, A., 801, 1418.  
 chlorobromide (REYNOLDS), 1887, T., 590; P., 72.  
*tetrafluoride*, spectra of (WESSENDONCK), 1884, A., 649.  
 heat of formation of (GUNTZ), 1884, A., 1246.  
 temperature of solidification of (OISZEWSKI), 1884, A., 817.  
 combination of hydrogen phosphide with (BESSON), 1890, A., 448.  
 compounds of, with organic bases (JACKSON and COMEY), 1887, A., 243; (COMEY and SMITH), 1888, A., 1283.  
 hydride, preparation of, as a lecture experiment (MERMET), 1887, A., 769.  
 spectra of (WESSENDONCK), 1884, A., 649.  
*tetridide*, preparation of (GATTERMANN), 1889, A., 342.
- Silicon iodochlorides** (BESSON), 1891, A., 800.  
 nitride (HARRIS), 1890, A., 108.  
*dioxide (silica)*, amorphous (LINDO), 1884, A., 1258.  
 colloidal (VAN BEMMELEN), 1888, A., 1158.  
 crystallised (MICHEL-LÉVY and MUNIER-CHALMAN), 1890, A., 712.  
 crystallised, artificial production of (v. CHRUSTSCHOFF), 1887, A., 559.  
 fibrous, from serpentines (TERRELL), 1885, A., 490.  
 hydraulic, and its functions in hydraulic cements (LANDRIN), 1883, A., 754; (LE CHATELIER), 1883, A., 756.  
 vitreous (LINDO), 1884, A., 1258.  
 preparation of soluble (GRIMAU), 1884, A., 958.  
 and the siliceous remains of organisms in seas (MURRAY and IRVINE), 1884, A., 995.  
 expansion of (LE CHATELIER), 1890, A., 1371.  
 artificial pseudomorphism of (GORGÉ), 1884, A., 895.  
 action of, on haloid salts of the alkalis (GORGÉ), 1886, A., 664.  
 action of hydrofluoric acid on (MACKINTOSH), 1886, A., 979.  
 action of different varieties of, on lime-water (LANDRIN), 1883, A., 712.  
 action of magnesium on (WINKLER), 1890, A., 1374; 1891, A., 801.  
 action of, on potassium chlorate (FOWLER and GRANT), 1890, T., 276.  
 behaviour of, in fused microcosmic salt (HIRSCHWALD), 1890, A., 825.  
 combination of phosphoric acid with (HAUTEFEUILLE and MARGOTTE), 1883, A., 782.  
 See also Lussatite, Quartz, and Tridymite.
- Silicic acid**, molecular weight of (SABANÉEFF), 1890, A., 1216.  
 as a culture medium for organisms (KÜHN), 1890, A., 1338.  
 heat of coagulation of (WIEDEMANN and LUTHEKING), 1885, A., 1031.  
 dehydration of, by heat (CARNELLEY and WALKER), 1883, T., 66, 80.  
 decomposition of, by leaves (DENARO), 1887, A., 70.  
 colloidal solutions of (PUOTON and LINDER), 1892, T., 154.  
 crystalline (HAGER), 1888, A., 915.  
 nitro-, existence of (ROUSSEAU and TITE), 1892, A., 684.

- Silicic acids** in minerals (BECKER), 1890, A., 342.
- Silicate**, a crystallised hydrated, artificial production of (DE SCHULTEN), 1883, A., 33.  
containing copper and silver (JACQUEMIN), 1891, A., 275.  
fibrous, from Nelson Co., Virginia (PATTERSON), 1886, A., 131.
- Silicates**, amorphous, from Budapest (KOCH), 1891, A., 1438.  
isomorphous (RAMMELSBERG), 1886, A., 30.  
undetermined, from the Kaiserstuhl (KNOP), 1891, A., 650.  
formation of (LEMBERG), 1885, A., 1187; 1890, A., 113; (GORGEU), 1890, A., 13.  
artificial production of (BOURGEOIS), 1884, A., 564.  
formulae of (GOLDSCHMIDT), 1890, A., 219.  
natural, chemical structure of (CLARKE), 1888, A., 659; (SCHNEIDER), 1889, A., 23.  
natural, constitution of (CLARKE and SCHNEIDER), 1891, A., 529.  
action of ammonium chloride at its dissociation temperature on (SCHNEIDER and CLARKE), 1892, A., 772.  
action of hydrofluoric acid on (MACKINTOSH), 1886, A., 979.  
behaviour of, in fused microcosmic salt (HIRSCHWALD), 1890, A., 825.  
behaviour of, when fused with phosphates (v. HAUSHOFER), 1890, A., 84.  
method for decomposing (JANNASCH), 1891, A., 619.  
decomposition of, for analysis (JOHNSTONE), 1889, A., 440.  
in soil, decomposition of, by lime and gypsum (DE MARNEFFE), 1891, A., 1135.  
ethereal, action of phosphorus oxychloride on (STOKES), 1891, A., 814.  
alteration of (LEMBERG), 1885, A., 1187.  
analysis of (KNOP), 1883, A., 379; (HUTCHINGS), 1887, A., 181; (BURGHARDT), 1890, A., 1027; (CLARKE), 1892, A., 945.  
analysis of, containing tin and titanium (HILGER and HAAS), 1890, A., 666.  
estimation of alkalis in (CHATARD), 1885, A., 296; (HOLLAND), 1887, A., 181.
- Silicates**, estimation of ferrous oxide in insoluble (CHESTER and CAIRNS), 1888, A., 196.  
estimation of titanium in natural (HOLLAND), 1889, A., 443.  
estimation of water in (JANNASCH), 1889, A., 546.  
separation, quantitative, of potash and soda from alumina, ferric oxide, lime and magnesia in (KNOP), 1884, A., 110.
- Hydrofluosilicic acid**. See under Fluorine.
- Silicon phosphate** (HAUTEFEUILLE and MARGOTTE), 1885, A., 120; 1887, A., 329.  
selenide (SABATIER), 1891, A., 1419.  
calcium stannate (BOURGEOIS), 1887, A., 333.  
sulphides (SABATIER), 1883, A., 15.  
calcium zirconate (OUVRARD), 1891, A., 1432.
- Silicon, estimation** :—  
estimation of (CRAIG), 1890, A., 194.  
estimation of, in aluminium (HUNT, CLAPP, and HANDY), 1892, A., 1130.  
estimation of, in fluorides (HAMPE), 1892, A., 1127; (REGLBERGER), 1892, A., 1128.  
estimation of, in iron and steel (ANON.), 1883, A., 883; (TURNER), 1884, T., 260; 1887, A., 1140; 1888, A., 195; (BLUM), 1886, A., 835; (STRICK), 1887, A., 527; (MORGAN), 1887, A., 1140; 1888, A., 195; (LECLERE), 1891, A., 1397.  
estimation of, in ores (AUSTEN and WILBER), 1884, A., 493.  
estimation of, in organic compounds (POLIS), 1886, A., 649.  
estimation of, in silicates (GILBERT), 1890, A., 1026.  
estimation of, in soils (VAN BEMMELEN), 1890, A., 833.
- Silicon-bronze**, Woeller's (MULLER), 1885, A., 308.
- Silico-tetrabenzyl, -tetraphenyl and tetratolyl and their derivatives** (POLIS), 1885, A., 973; 1886, A., 618.
- Silicotetra- $\alpha$ - and - $\beta$ -naphthylamides and - $o$ - and - $p$ -tolylamides** (REYNOLDS), 1889, T., 478.
- Silicotetraphenylamide** (REYNOLDS), 1889, T., 475; A., 504.
- Silk** (WEYL), 1888, A., 857.  
rotatory power of (VIGNON), 1892, A., 254, 645.  
thermochemical properties of (VIGNON), 1890, A., 553.

- Silk**, specific gravity of (VIGNON), 1892, A., 1036.  
 chemical process which takes place in dyeing, with basic coal-tar dyes (KNECHT), 1888, A., 832.  
 absorption of different acids by, from different mixtures of acids and of weak reagents by (MILLS and TAKAMINE), 1883, T., 142, 149.  
 action of boiling dilute sulphuric acid on (WEYL), 1888, A., 857.  
 behaviour of different ferric oxide mordants with (LIECHT and SUIDA), 1885, A., 315.  
 process for finishing, with amber (THÜMMEL), 1884, A., 799.  
 nitrated (VIGNON and SISLEY), 1892, A., 1111.  
 yellow, the colouring matter of, and its relation to carotene (DUBOIS), 1891, A., 98.  
 estimation of, in tissues (RÉMONT), 1885, A., 96.
- Silk-tissue**, detection of vegetable fibre in (FUBINO), 1892, A., 667.
- Silkworms**. See Agricultural Chemistry.
- Sillimanite**, production of (WERNADSKI), 1890, A., 1074.  
 synthesis of (MEUNIER), 1891, A., 22.
- Silver**, atomic weight of (MEYER and SEUBERT), 1885, T., 434; (SHAW), 1887, A., 444; (RICHARDS), 1888, A., 916; (STAS), 1890, A., 561; (SEUBERT), 1891, A., 885.  
 molecular weight of (RAMSAY), 1889, T., 532.  
 (metal) a remarkable nugget of (KUNZ), 1888, A., 346.  
 native, from the French Congo (JANNETTAZ), 1891, A., 647.  
 in volcanic dust (MALLER), 1887, A., 454; 1891, A., 277.  
 containing bismuth (GOWLAND and KOGA), 1887, T., 410; P., 45.  
 'chaldean' (BERTHELOT), 1887, A., 443.  
 allotropic or colloidal (LEA), 1890, A., 210, 334; 1891, A., 803; 1892, A., 15, 116; (PRANGER), 1891, A., 266; (SCHNEIDER), 1892, A., 117, 941; (PETERSEN), 1892, A., 405.  
 pure, preparation of (SCHNEIDER), 1892, A., 775.  
 extraction of, from ores by means of sodium thiosulphate (ANON.), 1884, A., 1084.  
 purification of, by electrolysis (ANON.), 1885, A., 941.  
 pure, properties of (BRAUNER), 1889, T., 399.
- Silver** (metal), ductility of, effects produced by small quantities of bismuth on (SCULLY), 1888, A., 108.  
 spectrum of (HARTLEY), 1883, T., 396.  
 fused, and fused platinum, comparative radiation of (VIOLE), 1887, A., 1010.  
 specific heat of (NACCARI), 1888, A., 1236.  
 electrical resistance of (LE CHATELIER), 1891, A., 5.  
 electrochemical equivalent of (F. and W. KOHLRAUSCH), 1884, A., 1089; (RAYLEIGH and SIDGWICK), 1885, A., 469.  
 electrolysis of (GRAY), 1887, A., 315.  
 permeability of, to oxygen (TROOST), 1884, A., 961.  
 absorption of oxygen by (NEUMANN), 1892, A., 943.  
 (of *Stas*) occlusion of oxygen in (BRAUNER), 1889, T., 400.  
 lowering of the freezing-points of bismuth, cadmium, and lead by (HEYCOCK and NEVILLE), 1892, T., 895, 900, 907; P., 145.  
 influence of, on the freezing-point of gold (ROBERTS-AUSTEN), 1891, A., 1161.  
 effect of, on the freezing-point of sodium (HEYCOCK and NEVILLE), 1889, T., 674.  
 effect of, on the freezing-point of tin (HEYCOCK and NEVILLE), 1890, T., 377.  
 action of bromine on (GAUTIER and CHARPY), 1892, A., 118.  
 action of chlorine on (COWPER), 1883, T., 154; (GAUTIER and CHARPY), 1892, A., 118.  
 action of hydrogen sulphide on (CAHILL), 1885, A., 124.  
 action of nitric acid on (DIVERS), 1883, T., 456; 1885, T., 230; (MONTEMARTINI), 1892, A., 1403.  
 action of nitric peroxide on (DIVERS and SHIMIZU), 1885, T., 632.  
 action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 659.  
 action of potassium permanganate on (FRIEDHRIM), 1887, A., 1079; 1888, A., 415.  
 action of silicon on (WARREN), 1889, A., 1125.  
 oxidation of (V. DER PFORDTEN), 1888, A., 221; (LE CHATELIER), 1888, A., 651.  
 toughening, in the melting crucible (BOOTH), 1884, A., 1445.

**Silver** (metal), amalgamation process, use of bromine in (ARNOLD), 1883, A., 399.  
 Mexican amalgamation process, reactions in (HUNTINGTON), 1883, A., 134.  
 deposition of, on glass, etc. (JAMES), 1885, A., 616.  
 phosphorised, properties of (WARREN), 1887, A., 1079.  
 slags, estimation of bismuth in (HAMPE), 1892, A., 919.  
 solutions, red, formation of, by reduction (V. DER PFORDTEN), 1885, A., 955.  
**Silver alloy** with cadmium, analysis of (HEYCOCK and NEVILLE), 1892, T., 913.  
 with lead and zinc (WRIGHT and THOMPSON), 1891, A., 267.  
 with mercury, from Oberlahnstein (v. DECHEN), 1885, A., 219.  
 with mercury, from the Sala mines (NORDSTROM), 1883, A., 426.  
 with zinc and with zinc and bismuth (WRIGHT and THOMPSON), 1891, A., 1158.  
**Silver**, lowest compounds of (MUTHMANN), 1887, A., 636; (DRECHSEL), 1887, A., 699; (v. DER PFORDTEN), 1887, A., 699; 1888, A., 221; (GUNTZ), 1891, A., 983.  
 compounds, with sulphur, arsenic and phosphorus (POLECK and THUMMEL), 1884, A., 156.  
**Silver salts**, molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 596.  
 comparative effect of different parts of the spectrum on (ABNEY), 1886, A., 749; (ABNEY and EDWARDS), 1890, A., 933.  
 electromotive dilution constants of (MIESLER), 1887, A., 1072.  
 coefficients of solubility of (LONGI), 1883, A., 1172.  
 action of light and reducing agents on (LEA), 1888, A., 1.  
 action of dyes and other substances in increasing the sensibility of (EDER), 1885, A., 703.  
 action of sodium thiosulphate on (FOGH), 1890, A., 694.  
 combinations of, with colouring matters (LEA), 1885, A., 350, 611.  
 compounds of thiocarbamide with (REYNOLDS), 1892, T., 249; P., 14.  
 of organic acids, dry distillation of (KACHLER), 1892, A., 38; (KÖNIGS), 1892, A., 293; (LIEBEN), 1892, A., 811.

**Silver salts**, haloid, behaviour of, in the solar spectrum (EDER), 1885, A., 703, 936.  
 effect of the spectrum on (ABNEY and EDWARDS), 1890, A., 933.  
 decomposition of, by light (GRIVEAUX), 1889, A., 199.  
 electrical conductivity of (KOHLENAUSCH), 1883, A., 769.  
 precipitation of (SCHNEIDER), 1885, A., 1010.  
**Argentammonium** compounds (REYCHLER), 1884, A., 1261; 1885, A., 18.  
 organic (REYCHLER), 1884, A., 721.  
 antimonate (BEILSTEIN and v. BLÄSE), 1889, A., 1124.  
 bromide, crystallised (TERREIL), 1885, A., 18.  
 chloride, crystallised (TERREIL), 1884, A., 890; 1885, A., 18.  
 iodide (LONGI), 1883, A., 1052.  
 crystallised (TERREIL), 1884, A., 890.  
 nitrate (REYCHLER), 1883, A., 902; 1884, A., 261; (DITTE), 1886, A., 122; (DRAPER), 1887, A., 331.  
 phosphate (WIDMAN), 1885, A., 18.  
**Silver** antimonate (BEILSTEIN and v. BLÄSE), 1889, A., 1124; (EBEL), 1890, A., 216.  
 arsenates (JOLY), 1887, A., 215.  
 bromide, modifications of (VOGEL), 1883, A., 936; 1885, A., 846; (DE PITTEURS), 1885, A., 349, 611.  
 modification of colour sensitiveness of (LOHSE), 1885, A., 612.  
 action of light on (TOMMASI), 1883, A., 3.  
 relation between the absorption spectrum and sensitising action of dyes on (VOGEL), 1886, A., 585.  
 sensitising action of dyes on (EDER), 1886, A., 497.  
 action of iodine on (JULIUS), 1884, A., 393, 556.  
 combination of, with colouring matters (LEA), 1885, A., 350, 611.  
 photobromide (LEA), 1888, A., 5.  
 carbonate (JOHNSON), 1886, A., 980.  
 action of magnesium on (WINKLER), 1890, A., 333.  
 potassium carbonate (DE SCHULTEN), 1888, A., 110.  
 chlorate, electrolysis of (GORE), 1885, A., 110.  
 and the chlorates of the alkali metals, isomorphism of (REUTERS), 1890, A., 1208.

- Silver perchlorate**, electrolysis of (GORE), 1885, A., 110.
- subchloride** (GUNTZ), 1891, A., 983, 1322.
- attempt to prepare (NEWBURY), 1885, A., 956; 1886, A., 770.
- chloride**, modifications of (VOGEL), 1883, A., 936.
- photochromatic properties** of (STAATS), 1887, A., 1071; 1888, A., 1001.
- darkened, not an oxychloride (LEA), 1890, A., 385.
- darkened, examination of, for oxygen (RICHARDSON), 1891, T., 543.
- electrolysis** of, dissolved in sodium thio-sulphate (ASLANOGLU), 1890, A., 1204.
- vapour density** of (BILTZ and MEYER), 1889, A., 674.
- action of light** on (AMATO), 1884, A., 1288; (NEWBURY), 1885, A., 956; (HITCHCOCK), 1890, A., 213; 1891, A., 1155; (RICHARDSON), 1891, T., 536; P., 81; (GUNTZ), 1891, A., 1420; (BAKER), 1892, T., 728; P., 120; (BÉCHAMP), 1892, A., 775.
- action of bromine and iodine** on (JULIUS), 1884, A., 393, 556.
- action of carbonic oxide** on (BLOXAM), 1886, A., 17.
- sensitising action of dyes** on (EDER), 1886, A., 497.
- displacement of chlorine by bromine** in (HUMPHRIDGE), 1884, A., 1245.
- filtering of** (OSBORNE), 1888, A., 1351.
- solution of**, in aqueous ammonia (BONLANDER), 1892, A., 1154.
- combination of**, with colouring matter (LEA), 1885, A., 350, 611.
- combination of**, with metallic chlorides (LEA), 1888, A., 109.
- cyanide, thiocyanate, ferricyanide and ferrocyanide**, analysis of a mixture of (TEISSIER), 1889, A., 83.
- photochloride** (LEA), 1888, A., 2.
- chromate**, solubility of, in ammonium nitrate (CARPENTER), 1887, A., 216.
- chromates** (JÄGER and KRÜSS), 1889, A., 1121.
- chromiodate** (BERG), 1890, A., 1378.
- subfluoride** (GUNTZ), 1890, A., 1055; 1891, A., 983.
- fluoride** (MOISSAN), 1891, A., 1421.
- electrolysis of** (GORE), 1885, A., 110.
- hydroxide** (BRUCE), 1885, A., 124.
- Silver hydroxide**, dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 64, 79.
- inidosulphonates** (DIVERS and HAGA), 1892, T., 974.
- periodates** (KIMMINS), 1887, T., 358; 1889, T., 152.
- iodide from New Mexico** (GENTH and VOM RAUH), 1886, A., 26.
- dimorphism of** (MALLARD and LE CHATELIER), 1884, A., 16, 1260.
- fused and solid**, transfer of ions in (LEHMANN), 1890, A., 317.
- and its alloys with cuprous and lead iodide**, specific heat and heat of transformation of (BELLATI and ROMANESE), 1883, A., 274.
- as a blowpipe reagent** (CASAMAJOR), 1885, A., 1157.
- action of bromine on** (JULIUS), 1884, A., 393, 556.
- combination of**, with colouring matter (LEA), 1885, A., 350, 611.
- photoiodide** (LEA), 1888, A., 6.
- permanganate**, decomposition of (GORGÉU), 1892, A., 942.
- permolybdate** (PICHARD), 1892, A., 1160.
- nitrate**, constancy of the heat produced by the reaction of, with solutions of metallic chlorides (RICHARDSON), 1888, A., 400.
- isomorphism of**, with the alkali nitrates (REYNOLDS), 1890, A., 328.
- action of certain metallic compounds on** (PILLITZ), 1883, A., 288.
- action of metals on solutions of** (SENDERENS), 1887, A., 550.
- action of non-metals on solutions of** (SENDERENS), 1887, A., 331.
- reaction of**, with hydrogen arsenide (MARCHELEWSKI), 1891, A., 1151.
- reaction of**, with mercuric cyanide, in presence of ammonia (BLOXAM), 1884, A., 168.
- reaction of**, with sodium thio-arsenate (PREIS and RAYMAN), 1887, A., 889.
- and ammonia**, compound of (REYLLER), 1883, A., 902; 1884, A., 261, 721; (DRAPER), 1887, A., 331.
- compound of**, with alkali nitrates (DITTE), 1886, A., 122.
- testing of** (ANON.), 1883, A., 381.
- nitride** (RASCHIG), 1886, A., 850; (CURTIUS), 1892, A., 112.
- action of nitric acid on** (DIVERS), 1885, T., 230.

**Silver nitrite**, action of nitric peroxide, and of heat on (DIVERS and SHIMIDZU), 1885, T., 634.  
 and ammonia (REYCHLER), 1884, A., 157.  
**hyponitrite**, composition of (DIVERS and HAGA), 1884, T., 78.  
 heat of formation of (BERTHELOT and OGIER), 1883, A., 423.  
**suboxide** (PILLITZ), 1883, A., 288; (BAILEY and FOWLER), 1887, T., 416; P., 54; (V. DER PFORDTEN), 1887, A., 700; 1888, A., 221, 1029; (BAILEY), 1887, A., 771; (FRIEDHEIM), 1887, A., 1079; 1888, A., 415.  
**oxide**, action of, on magnesium (WINKLER), 1890, A., 333.  
 action of, on potassium chlorate (FOWLER and GRANT), 1890, T., 279.  
 and lead oxide, compounds of (ASTON), 1891, T., 1093; P., 133.  
**phosphates** (JOLY), 1887, A., 214, 215.  
**hypophosphate** (PHILIPP), 1883, A., 1052.  
**ruthenate** (DEBRAY and JOLY), 1888, A., 921.  
**silicate** (HAWKINS), 1890, A., 849.  
**nitrosilicate** (ROUSSEAU and TITE), 1892, A., 684.  
**subsulphide** (*argentous sulphide*) (V. DER PFORDTEN), 1887, A., 700.  
**hydrosulphide** (LINDER and PICTON), 1892, T., 132.  
**sulphite** (SODRAV), 1892, A., 684.  
**potassium thiosulphate** (COHEN), 1887, T., 39.  
**sodium thiosulphate** (SCHWICKER), 1889, A., 943.  
**barium phosphotungstate** (KEHRMANN and FREINKEL), 1892, A., 1160.  
**Silver organic compounds**:—  
**Silver acetylide** (PLIMPTON), 1892, P., 109; (KEISER), 1892, A., 1416.  
**cyanide**, action of cupric salts on (VARET), 1890, A., 464.  
 action of nitric acid and of sodium carbonate on (BLOXAM), 1885, A., 133.  
 action of, on sulphur chloride (SCHNEIDER), 1885, A., 1193.  
 reactions with, and detection of (BLOXAM), 1884, A., 118.  
**ferricyanide** and **ferrocyanide**, reactions with (BLOXAM), 1884, A., 118.  
**nitrocyanide** (BLOXAM), 1884, A., 168; 1885, A., 133.  
**organosol** of (SCHNEIDER), 1892, A., 775.

**Silver**, **detection**, **estimation** and **separation**:—  
 containing bismuth, assay of (SCULLY), 1888, A., 108.  
 method of detecting, in the body, in cases of poisoning (LEHMANN), 1883, A., 687.  
 detection of, in presence of lead (JOHNSTONE), 1890, A., 826.  
 detection, electrolytic, of (KOHN), 1892, A., 541.  
 microchemical test for (V. HAUSHOFFER), 1887, A., 300.  
 estimation of (FÜHR), 1885, A., 84.  
 estimation of, in base metals (WHITEHEAD), 1892, A., 1525.  
 estimation of, in lead flux (HEPPE), 1891, A., 1292.  
 estimation of, in burnt pyrites (THILO), 1887, A., 79.  
 estimation of, in alloys of silver and copper (ROSSLER), 1888, A., 755.  
 estimation of copper and, in the same solution (QUESSAUD), 1885, A., 441.  
 estimation of gold and, when contained in potassium cyanide solutions (OPIFICIUS), 1889, A., 189.  
 estimation of, by means of hydroxylamine hydrochloride (LAINER), 1892, A., 662.  
 estimation, electrolytic, of (BRAND), 1890, A., 294; (SMITH), 1890, A., 1029.  
 estimation, volumetric, of (CARNOT), 1889, A., 1246.  
 separation of, from alloys (SOLTHIEN), 1883, A., 243.  
 separation of, from lead (BENEDIKT and GANS), 1892, A., 1522.  
 separation of, from sulphides by air blast (ANON.), 1883, A., 400.  
 separation of, from zinc and lead in galena and blende (AUBIN), 1892, A., 1378.  
 separation, electrolytic, of, from cobalt, copper, nickel and zinc (SMITH and FRANKEL), 1890, A., 664.  
 separation, electrolytic, of, from arsenic, molybdenum and tungsten (SMITH and FRANKEL), 1890, A., 1029.  
 separation, electrolytic, of, from osmium (SMITH and WALLACE), 1892, A., 920.  
 separation, electrolytic, of, from platinum (SMITH and MUHR), 1891, A., 1296.  
**Silver-bismuth-glance**, artificial (SCHNEIDER), 1890, A., 710.

- Silver bromide-gelatin-emulsion** (OBERNETTER), 1883, A., 395.
- Silver coins**, German standard, presence of gold in (ANON.), 1883, A., 629.
- Silvering of glass and mirrors** (HERZOG), 1885, A., 1020.
- Silver-lead thioisomuthite** (FOSTER), 1886, A., 515.
- Silver ore** (WARREN), 1892, A., 1404.  
red. See Pyrargyrite and Proustite.
- Sinapanpropionic acid** (LANGLET), 1892, A., 441.
- Sinapic acid**, and its salts (REMSSEN and COALE), 1884, A., 1387.
- Sinapine** (REMSSEN and COALE), 1884, A., 1387.
- Sinapis alba***, composition of, during various stages of growth (HORNBERGER), 1885, A., 1087.
- "Sinidor"** (*basic magnesium acetate*) (ANON.), 1883, A., 396.
- Siphon** for hot liquids or for those evolving gases or vapours (ESSNER), 1892, A., 270.
- Sipyrite**, crystalline form of (MALLET), 1883, A., 435.
- Sismondine**, crystalline form and optical characters of (DES CLOIZEAUX), 1885, A., 1118.
- Skatole**. See 3'-Methylindole.
- Skeletins** (KRUKENBERG), 1886, A., 481.
- Skim milk**. See Milk under Agricultural Chemistry.
- Skimmetin** and **Skimmin** (EIJKMAN), 1885, A., 553.
- Skimmia japonica***, active constituents of (EIJKMAN), 1885, A., 553.
- Skin**, excretion of nitrogen from (POWER), 1883, A., 227.  
secretion of perspiration by, after taking alcohol (BODLÄNDER), 1888, A., 977.
- Skrivanoff's cell** (ANON.), 1883, A., 840; (MONNIER), 1884, A., 581.
- Slag**, basic (*Thomas-slag*), process for the recovery of (ANON.), 1884, A., 1226.  
working-up (SCHUCHTERMANN), 1885, A., 940.  
crystalline appearance of (ANON.), 1884, A., 1085.  
crystals in (STEAD and RIDSDALE), 1887, T., 601; P., 65.  
basicity of the silicate in (HILGENSTOCK), 1888, A., 223.  
influence of the ferrous oxide in, on the growth of plants (MUNRO), 1887, A., 178.  
behaviour of, with water charged with carbonic anhydride (V. REIS), 1886, A., 663; 1888, A., 222.
- Slag**, basic (*Thomas-slag*), detection of foreign raw phosphates in (BLUM), 1891, A., 109.  
estimation of phosphoric acid in (KLEIN), 1886, A., 740; (BRUNNEMANN), 1887, A., 527; (KENNEPohl), 1888, A., 321; (VOGEL), 1888, A., 991; (V. REIS), 1889, A., 439.  
See also Agricultural Chemistry.  
crystalline (FOUQUÉ), 1888, A., 794.  
furnace, gehlenite in (DILLER), 1889, A., 681.  
Thomas. See Slag, basic.
- Slags**, formation and use of (ANON.), 1884, A., 1226.  
composition of (VOGT), 1891, A., 651.  
bismuth and lithium in (WARREN), 1888, A., 1256.  
crystallised, presence of tetragonal minerals in (VOGT), 1888, A., 1259.  
decomposition and analysis of (ILES), 1885, A., 192.  
estimation of, in wrought iron (BARROWS and TURNER), 1892, T., 551; P., 122.  
estimation of alumina in (KOSMANN), 1886, A., 489.  
siliceous, estimation of antimony and tin in (WARREN), 1888, A., 632.  
silver, estimation of bismuth in (HAMPE), 1892, A., 919.  
estimation of metallic iron in (KOSMANN), 1886, A., 489; (NEUMANN), 1887, A., 1140.  
estimation of phosphoric acid in (KOSMANN), 1886, A., 489; (ARTH), 1890, A., 292; (EDWARDS), 1892, A., 382.  
soluble, estimation of sulphur in (CAMPELL), 1887, A., 526.
- Sleep**, influence of, on the activity of respiratory combustion (DE SAINT-MARTIN), 1888, A., 305.
- Sleepers**, railway, solution for the preservation of (WRIGHT), 1884, A., 1233.  
railway, pickled, estimation of zinc and nitrogen in (GRITNER), 1891, A., 620.
- Sludge**, sea, and its absorptive power for lime and potash (MULLER), 1889, A., 1241.
- Smaltite** (*smaltine*; *cobalt arsenide*), action of acids on (VOLLHARDT), 1888, A., 1257.  
in Colorado (ILES), 1883, A., 559.  
from Schneeberg (McCARV), 1884, A., 1100.

- Smell**, sensitiveness of the sense of (FISCHER and PENZOLDT), 1887, A., 983.
- Smilax glycyphylla*, sweet principle of (RENNIE), 1886, T., 857; P., 239.
- Smithsonite** from Pelsőcz Ardó (LOUČKA), 1885, A., 730.
- Smoke**, acid, influence of, on vegetation (v. SCHROEDER), 1885, A., 76.
- Snake poison** (WOLFENDEN), 1886, A., 1057.
- Snakes**, organic basis of shells of eggs of (ENGEL), 1891, A., 236.
- Snow**, fallen, influence of, on the temperature of the air (BILLWILLER), 1883, A., 500.
- Soap lyes**, estimation of glycerol in (HEHNER), 1890, A., 425.  
 solution, standard (GARNIER), 1884, A., 1072; (TEED), 1890, A., 421; (NEUGEBAUER), 1891, A., 116.  
 solution, standard, preparation of (NELSON), 1890, A., 193.  
 solution, use of (ELLY), 1886, A., 1076.  
 varnishes (ANDRES), 1884, A., 648.
- Soaps**, preparation of, from oil seeds (SEEMANN), 1885, A., 1023.  
 as constituents of blood plasma and chyle (HOPPE-SEYLER), 1885, A., 573.  
 basic salts in (DECHAN and MABEN), 1886, A., 186.  
 adulterated (ANON.), 1883, A., 893.  
 use of, in dyeing (LAUBER and STEINHEIL), 1883, A., 894.  
 analysis (LEEDS), 1884, A., 223; (VALENTA), 1885, A., 696; (GAWALOWSKI), 1885, A., 844; (PIRETTE), 1892, A., 550.  
 estimation of fatty acids in (SCHULZE), 1887, A., 307; (BAUR), 1887, A., 401; (SAMUELSON), 1889, A., 194; (SAUPE), 1890, A., 1475.  
 estimation of combined alkali in (WILSON), 1892, A., 384.  
 estimation of free alkali in (WILSON), 1889, A., 448, 1037.  
 estimation of cane sugar in (WILSON), 1891, A., 1558.  
 estimation of resin in (HEINER), 1885, A., 933; (WRIGHT and THOMPSON), 1886, P., 175; (GRITNER and SZILASI), 1886, A., 747; (WILLIAMS), 1891, A., 131.  
 separation of, from the lyes by centrifugal means (ANON.), 1885, A., 310.  
 carbolic, assay of (ALLEN), 1887, A., 185.  
 curd, preparation of (EICHBAUM), 1885, A., 944.  
 toilet, cheap cocoa-nut, preparation of (EICHBAUM), 1885, A., 944.
- Sobrerol and Sobrerone**. See under Terpenes.
- Soda**. See Sodium hydroxide.
- "Soda caustique," Renz's** (BELLMER), 1884, A., 1088.
- Soda-ammonia process**, removal of the ammonium salts in the sodium hydrogen carbonate obtained by (ANON.), 1885, A., 1269.  
 recovery of hydrochloric acid as a bye-product in (MOND), 1885, A., 199.
- Soda-ash**, estimation of the relative amounts of hydroxide and carbonate in (HART), 1888, A., 99.  
 estimation of sodium hydroxide in (WILLIAMS), 1888, A., 89.
- Soda industry** (LUNGE), 1883, A., 524; (SCHEURER-KESTNER), 1883, A., 887; 1884, A., 643, 1442; (ANON.), 1885, A., 455, 1269.
- Soda-lime**, preparation of (DREYFUS), 1884, A., 639.  
 true rôle of, in the estimation of nitrogen (QUANTIN), 1889, A., 306.
- Soda liquor**, causticised, estimation of caustic in (UPWARD), 1886, A., 1074.
- Soda liquors**, a crystalline silicocarbonate from (RAMMELSBERG), 1887, A., 12.
- Soda-lyes**, crude, vanadium, fluorine, and phosphorus in (SCHEURER-KESTNER), 1883, A., 887.  
 crude, examination of (KALMANN and SPULLER), 1887, A., 1063.
- Soda-potash-felspar**, triclinic (*anorthoclase*; *microclase*) (WIJK), 1884, A., 970.
- Soda-potash-felspars** of Silesia (BEUTEL), 1885, A., 31.
- Soda solutions**, concentrated, specific heat of (BLUMCKE), 1885, A., 1101.
- Soda waste**, decomposition of, by means of carbonic anhydride (KEMP), 1885, A., 1017.  
 recovery of sulphur from (TROUVEN), 1885, A., 614.
- Sodalite**, Canadian (HARRINGTON), 1888, A., 431.  
 from Litchfield, Maine (CLARKE), 1886, A., 677.  
 formation of (U. and G. FRIEDEL), 1890, A., 1080.
- Sodalite syenite** of South Greenland, minerals in (LORENZEN), 1883, A., 960.
- Sodamide** (JOANNIN), 1891, A., 642.
- "Sodionitrallyl"** (ASKENASY and MEYER), 1892, A., 1062.
- Sodium**, molecular weight of (RAMSAY), 1889, T., 527, 530, 533.  
 (metal) production of, by electrolysis (FISCHER), 1885, A., 942.

- Sodium** (metal), spectrum of (KAYSER and RUNGE), 1891, A., 187.  
 boiling point of (PERMAN), 1889, T., 326; P., 78.  
 preservation and properties of (ROSENFELD), 1891, A., 982.  
 lowering of the freezing point of, by the addition of other metals (HEYCOCK and NEVILLE), 1889, T., 666; P., 127.  
 lowering of the freezing point of bismuth, of cadmium and of lead by (HEYCOCK and NEVILLE), 1892, T., 892.  
 effect of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 380.  
 action of bromine and iodine on (MERZ and HOLZMANN), 1889, A., 755.  
 action of chlorine on (COWPER), 1883, T., 155.  
 action of chromic fluoride on (EVANS), 1892, A., 19.  
 action of, on the ethylic salts of the higher fatty acids (WOHLBRUCK), 1887, A., 1099.  
 loss of, in caustification, and in the Le Blanc process (SCHETTER-KESTNER), 1883, A., 888.  
 as a plant food (AITERBERG), 1892, A., 1508.
- Sodium alloys** with bismuth, antimony and lead (JOANNIS), 1892, A., 773.  
 with gold, properties of (HEYCOCK and NEVILLE), 1889, T., 670.  
 with mercury (JOANNIS), 1892, A., 275.  
 with potassium (JOANNIS), 1888, A., 1238.  
 with tin (BAILEY), 1892, A., 572.
- Sodium alum** (AUGÉ), 1890, A., 1059.  
 monosymmetrical (SORET), 1886, A., 595.
- Sodammonium** (JOANNIS), 1890, A., 210, 560; (ROOZEBOOM), 1890, A., 450; (MOUTIER), 1890, A., 679.  
 heat of formation of (JOANNIS), 1890, A., 319.  
 action of, on metals (JOANNIS), 1892, A., 275, 773.  
 tungstates, two (GIBBS), 1886, A., 206.
- di*Sodammonium chloride** (JOANNIS), 1891, A., 642.
- Sodium salts**, magnetic rotation of (PERKIN), 1890, P., 142.  
 molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 596.  
 action of aqueous soda on (THOMSEN), 1887, A., 440.
- Sodium salts**, reaction of (HAGER), 1885, A., 441.  
 haloid salts of, molecular refraction of the (WEGNER), 1890, A., 549.  
 haloid salts of, action of air, silica and kaolin on (GORGEU), 1886, A., 664.  
 oxygen compounds, reduction of (ROSENFELD), 1891, A., 150.
- Sodium aluminat** (LYFE), 1885, A., 638; (BAYER), 1889, A., 213; 1891, A., 864; (LUNGE), 1891, A., 365.  
 arsenates (JOLY and DUFEY), 1886, A., 769; (HALL), 1887, T., 95, 97; (PREIS), 1890, A., 1053.  
 arsenate, action of, on *sesquioxides* (LEFEVRE), 1890, A., 1377.  
 reduction of, with oxalic acid (NAYLOR and BRATTHWAITE), 1883, A., 513.  
 hydrates of (LESCŒUR), 1887, A., 698.  
 and arsenite, behaviour of, with indicators (THOMSON), 1884, A., 869, 870.  
 aluminium, chromium and iron arsenates (LEFEVRE), 1890, A., 1378.  
 cadmium, cobalt, magnesium, manganese, nickel and zinc arsenates (LEFEVRE), 1890, A., 563.  
 copper arsenates (HIRSCH), 1891, A., 644.  
 strontium arsenates (JOLY), 1887, A., 637.  
 biborate (*borax*) from California and Nevada (AYRES), 1884, A., 260; (VON.), 1885, A., 957.  
 action of polyhydric alcohols on (DUNSTON), 1884, A., 278.  
 action of, in photographic developers (MERCIER), 1891, A., 139.  
 physiological action of (VIGIER), 1884, A., 1061; (JOHNSON), 1886, A., 572.  
 as an internal disinfectant (DE CYON), 1884, A., 1440.
- bromate, use of, in volumetric analysis (KRATZSCHER), 1886, A., 280.  
 bromide, action of sulphuric acid on (ADDYMAN), 1891, P., 168; 1892, T., 91, 101, 102.  
 compound of arsenious acid with (KUDORFF), 1889, A., 103.  
 stannibromide (LEFEVRE), 1892, A., 121.  
 carbonate, artificial, history of the preparation of, from common salt (DUMAS), 1884, A., 16.  
 crystalline, direct preparation of, from sodium chloride (HEMPPEL), 1890, A., 10.

- Sodium carbonate**, preparation of (CASTNER), 1887, A., 107.  
 alleged reaction for preparing (SMITH and HART), 1887, A., 330.  
 anhydrous, heat of solution of (PICKERING), 1887, T., 73.  
 vapour pressure of solutions of (ANDREAE), 1891, A., 782.  
 dissociation of (KISSLING), 1891, A., 364.  
 decomposition of, by fusion (PICKERING), 1887, T., 72.  
 and sodium hydrogen carbonate, solubility of, in solutions of sodium chloride (REICH), 1892, A., 116.  
 limits of the conversion of, into sodium hydroxide, lytime (LUNGE and SCHMID), 1886, A., 203.  
 action of chlorine on solutions of (DUNSTAN and RANSOM), 1883, A., 647.  
 reduction of, by magnesium (WINKLER), 1890, A., 332.  
 test for, in milk (BACHMEYER), 1883, A., 385.  
 and hydroxide, volumetric estimation of, in caustic soda (GOEBEL), 1890, A., 293.  
 See also Trona.  
 calcium carbonate from the crude soda solution of Leblanc's process (SCHEURER-KESTNER), 1884, A., 1442.  
 calcium carbonate from the soda manufacture (REIDEMEISTER), 1887, A., 12.  
 hydrogen carbonate, preparation of (GASKELL and HURTER), 1884, A., 712.  
 particular case of the formation of (DE MONDÉSIR), 1887, A., 699.  
 obtained by the ammonia soda process, removal of the ammonium salts in (ANON.), 1885, A., 1269.  
 scale formed in the manufacture of (LEIGHTON), 1887, A., 108.  
 action of polyhydric alcohols on mixtures of boric acid and (JEHN), 1887, A., 790; 1883, A., 1172.  
 detection of thiosulphate in (BRENNSTEIN; SALZER), 1887, A., 79; (MUSSET), 1891, A., 498.  
 detection and estimation of, in milk (PADÉ), 1889, A., 1244.
- Sodium hydrogen carbonate**, estimation of, in presence of normal carbonate (THOMSON), 1884, A., 869.  
 potassium carbonate (HUGOUNENQ and MOREL), 1888, A., 786.  
 chlorate, preparation of (MUSPRATT and ESCHHELLMANN), 1885, A., 17.  
 refraction and dispersion of (DUSAUD), 1892, A., 1.  
 pyroelectricity of (FRIEDEL and CURIE), 1884, A., 3.  
 perchlorate, properties of (POTILIZIN), 1890, A., 338.  
 chloride (*common salt*) in plants (LESAGE), 1892, A., 651.  
 in rain-water (BELLUCI), 1889, A., 299.  
 molecular refraction of, in water (SCHUTT), 1890, A., 1033.  
 doubly refracting crystals of (BEN SAUDE), 1886, A., 206.  
 electrolysis of (NAUDIN and BIDER), 1884, A., 511.  
 electrolysis of, and its industrial applications (ROTONDI), 1884, A., 248.  
 solutions, dilute, cryoscopy of (PICKERING), 1892, A., 1045.  
 solid, compressibility of (BRAUN), 1887, A., 436; 1888, A., 214, 404; (RONTGEN and SCHNEIDER), 1888, A., 22, 1019.  
 measurement of the vapour pressures of solutions of (EWAN and ORMANDY), 1892, T., 773.  
 and potassium chloride, simultaneous solubility of (ETARD), 1890, A., 103, 442.  
 blue or violet flame produced by, in a coal fire (LEONARD), 1889, A., 336; (SMITH), 1890, A., 1202.  
 combination of, with ammonia (JOANNIS), 1891, A., 643.  
 effect of, on digestion (STUTZER), 1891, A., 752.  
 influence of, on nitrogenous excretion (DUBELIN), 1892, A., 904.  
 as a manure (HEQUET D'ORVAL; PAGNOUL), 1884, A., 866; (ANON.), 1884, A., 926.  
 and potassium chloride, polarisrobometric analysis of a mixture of (SCHUTT), 1888, A., 1341.  
 estimation of, in presence of potassium chloride (ROTTGER and PRECHT), 1885, A., 1263; (LAUBE), 1886, A., 920.  
 estimation of, in wine (GONDOIN), 1891, A., 1398.  
 See also Rock-salt.

**Sodium rhodium chloride**, decomposition of, in solution (FOUSSEREAU), 1886, A., 975.  
*di-* and *tri-*chromates, and copper and magnesium chromates (STANLEY), 1887, A., 110.  
 chromate, dispersion of (WYRUBOFF), 1885, A., 211.  
 lead chromates (LACHAUD and LEPIERRE), 1890, A., 1065.  
 chromiodate (BERG), 1887, A., 777.  
 ferrite, hydrated, dehydrating action of glycerol on (ROUSSEAU), 1892, A., 119.  
 fluoride, antiseptic properties of (HEWELKE), 1891, A., 237.  
 commercial, analysis of (HINTZ and WEBER), 1891, A., 498.  
 compounds of, with fluorides of heavy metals (WAGNER), 1886, A., 670.  
 fluorides, heat of formation of (GUNTZ), 1884, A., 546.  
 manganese fluoride (CHRISTENSEN), 1887, A., 448.  
 vanadium fluoride (BAKER), 1885, T., 358; (PETERSEN), 1889, A., 1123.  
 fluoroxovanadate (PICCINI and GIORGIS), 1892, A., 786.  
 hydroxide (*caustic soda*) from Vesuvius (SCACCHI), 1891, A., 23.  
 limits of the conversion of sodium carbonate into, by lime (LUNGE and SCHMID), 1886, A., 203.  
 preparation of (LOWIG), 1884, A., 15.  
 heat of formation of (MULLER), 1889, A., 811.  
 solutions of, electrical conductivity of (CROMPTON), 1888, T., 123.  
 coefficient of diffusion of (STEFAN), 1889, A., 1047.  
 absorption of, by wool, silk and cotton (MILLS and TAKAMINE), 1883, T., 145, 147, 148.  
 arsenic in (MARSHALL and POTIS), 1889, A., 841.  
 manufacture, occasional products of (RAMMELSBERG), 1887, A., 331.  
 compound of, with *isobutyl* alcohol (GÜTTIG), 1890, A., 1222.  
 compounds of methyl alcohol with (GÜTTIG), 1888, A., 437.  
 hydrates of (MAUMENÉ), 1886, A., 422; (GÜTTIG), 1887, A., 550.  
 or potash and carbon, use of, in analysis (BURGHARDT), 1890, A., 1027.  
 titration of, in presence of aluminium, vanadium and tungsten ("E. B."), 1886, A., 650.

**Sodium hydroxide** (*caustic soda*), estimation of small proportions of, in presence of large quantities of carbonates (THOMSON), 1884, A., 869.  
 total and available, in black ash, estimation of (LUNGE), 1891, A., 497.  
 estimation of available soda in (WATSON), 1891, A., 498.  
 estimation, volumetric, of sodium carbonate and hydroxide in commercial (GOEBEL), 1890, A., 293.  
 separation of, from ferric oxide, alumina, lime, and magnesia in silicates (KNOP), 1884, A., 110.  
 imidosulphonates (DIVERS and HAGA), 1892, T., 954.  
 triiodate (BLOMSTRAND), 1890, A., 107.  
 periodates (KIMMINS), 1887, T., 357.  
 iodide, compounds of arsenious acid with (RÜDORFF), 1889, A., 103.  
 manganites (ROUSSEAU), 1886, A., 982; 1891, A., 645.  
 permolybdate (PÉCHARD), 1892, A., 1160.  
 nitrate (*Chili saltpetre*) in gun cotton (NETLEFOLD), 1887, A., 715.  
 formation of beds of (MUNTZ), 1886, A., 210.  
 conductivity of a fused mixture of potassium nitrate and (BOUVE and POINCARÉ), 1888, A., 1231.  
 fused, solubility of certain salts in (GUTHRIE), 1885, T., 94.  
 reaction of, with ferrous hydroxide and water (DUNSLAN and DYMOND), 1887, T., 655.  
 phosphoric acid in (OCHSENIUS), 1887, A., 558.  
 rubidium, caesium, lithium and boric acid in (DIEULAFAT), 1884, A., 968.  
 testing, for iodine and iodic acid (BECKURS and ROUGE-MON), 1886, A., 834.  
 estimation of nitrogen in (FOERSTER), 1891, A., 107.  
 See also Agricultural Chemistry.  
 silver nitrate (DITTE), 1886, A., 122.  
 nitride (CURTIUS), 1892, A., 112.  
 nitrite, preparation of (WARREN), 1891, A., 1321.  
 commercial (MAC EWAN), 1881, A., 514.  
 reaction of, with ferrous hydroxide and water (DUNSLAN and DYMOND), 1887, T., 651.  
 analysis of (LUNGE), 1892, A., 1029.  
 rhodium nitrite (LEIDHÉ), 1890, A., 1382; 1891, A., 809.

**Sodium hyponitrite solution**, preparation of (DIVERS and HAGA), 1884, T., 85.  
 reactions of, with ferrous hydroxide and water, and with sodium amalgam and water (DUNSTAN and DYMOND), 1887, T., 654.  
 nitroprusside, action of heat on (ETARD), 1885, A., 234.  
 action of, on animals (GIBBS and REICHERT), 1891, A., 1393.  
 reactions of (BRUNNER), 1890, A., 198.  
 as a reagent for sugars (LASCH), 1885, A., 600.  
 zinc oxides (COMERY and JACKSON), 1889, A., 674.  
 peroxide (BOLTON), 1886, A., 768.  
 oxythioarsenates (PREIR), 1888, A., 914.  
 o-oxy-mono- and -tri-thiovanadates (KRÜSS and OHNMAIS), 1890, A., 1881.  
 phosphate (JOLY and DUFET), 1886, A., 769; (HALL), 1887, T., 97.  
 dissociation of (MÜLLER-ERZBACH), 1887, A., 436.  
 magnesium in (SCHLAGDENHAUFEN), 1890, A., 664.  
 influence of, on the excretion of uric acid (HAIG), 1890, A., 397.  
 method for the valuation of (THOMSON), 1883, A., 827.  
 ammonium hydrogen phosphate (*microcosmic salt*), action of, on various oxides (WALLROTH), 1883, A., 850.  
 barium phosphate (DE SCHULTEN), 1883, A., 711.  
 calcium, cobalt, magnesium, manganese, nickel and zinc phosphates (OUVRARD), 1888, A., 1034.  
 copper phosphates (STEINSCHNEIDER), 1891, A., 1423.  
 fluorophosphate from soda liquors (BAKER), 1885, T., 360.  
 strontium phosphates (JOLY), 1887, A., 637; (OUVRARD), 1888, A., 1034.  
 thorium and zirconium phosphates (TROOST and OUVRARD), 1887, A., 1017.  
 yttrium phosphates (DUBOIN), 1889, A., 18.  
 hypophosphates, crystalline form of (DUFET), 1886, A., 768.  
 nickel hypophosphates (DRAWER), 1889, A., 341.  
 manganese metaphosphate (SCHJERNING), 1892, A., 1053.  
 pyrophosphates, crystalline form of (DUFET), 1886, A., 768.

**Sodium pyrophosphate**, estimation and separation of metals by means of (VORTMANN), 1888, A., 755.  
 manganese pyrophosphate (CHRISTENSEN), 1884, A., 399.  
 roseorhodium pyrophosphate. See Rhodium.  
 phosphite (AMAT), 1888, A., 915; 1889, A., 569; 1890, A., 438.  
 hypophosphite, use of, in Sandmeyer's reaction (ANGELI), 1892, A., 305.  
 pyrophosphite (AMAT), 1890, A., 438.  
 conversion of, into sodium hydrogen phosphite (AMAT), 1891, A., 641, 799.  
 platinate (ROUSSEAU), 1889, A., 1125.  
 platinoselenostannate (SCHNEIDER), 1892, A., 282.  
 per-ruthenate (DEBRAY and JOLY), 1888, A., 921.  
 selenides (FABRE), 1886, A., 505, 589.  
 aluminium silicate (GORGEU), 1886, A., 667; 1890, A., 13.  
 beryllium silicates (HAUTEFEUILLE and PERREY), 1890, A., 562.  
 stannate, analysis of (AUSTEN), 1884, A., 498.  
 sulphate (*Glauber's salt*; *salt-cake*) (BLAKE), 1890, A., 572.  
 in the atmosphere (PARMENTIER), 1889, A., 826; (MARGUERITE-DELACHARLONNY), 1889, A., 945.  
 formation of, in bricks (CHRISTEL), 1884, A., 127.  
 modifications of (PICKERING), 1884, T., 686.  
 thermochemical investigation of (PICKERING), 1884, T., 686.  
 heat of formation of (DE FORCRAND), 1884, A., 4.  
 anhydrous and decahydrated, heat of solution of (PICKERING), 1886, T., 302.  
 solubility of (FAUCHON), 1884, A., 556; (ETARD), 1892, A., 398.  
 action of carbon on, in presence of silica (SCHEURER-KESTNER), 1892, A., 565.  
 decomposition of ammonium sulphate by means of (BLATTNER), 1886, A., 107.  
 and potassium sulphate, supposed isomorphism of (RETGERS), 1891, A., 147.  
 solution, boiling point of (SAKURAI), 1892, P., 94.  
 solutions, coefficient of expansion of (NICOL), 1883, A., 17.  
 analysis of (ISBERT and VENATOR), 1890, A., 194.  
 See also Mirabilite and Thenardite.

- Sodium sulphide**, manufacture of (WELDON), 1883, A., 627.  
 preparation of (DAMOISEAU), 1885, A., 349.  
 hydrated (GÖTTIG), 1886, A., 980.  
 conductivity of solutions of (BOCK), 1887, A., 758.  
 influence of heat on the combination of water with (GÖTTIG), 1887, A., 331.  
 commercial, technical analysis of (SĚTLÍK), 1890, A., 84.  
*disulphide*, compound of alcohol with (DEMONTE), 1891, A., 1170.  
*pentasulphide*, action of lead hydroxide and silver oxide on an aqueous solution of (GEUTHNER), 1885, A., 217.  
*polysulphides* (BÜTTGER), 1884, A., 1260.  
 chromium, cobalt, iron, manganese and nickel sulphides (BRUNNER), 1890, A., 215.  
 hydrogen sulphide, action of iodine on (SPRING and BOURGEOIS), 1892, A., 681.  
 yttrium sulphide (DUBOIN), 1888, A., 1250.  
*hydrosulphide*, manufacture of (CLAVS), 1885, A., 937.  
 sulphites (HARTOG), 1889, A., 1106.  
 sulphite, neutral, thermochemical researches on (BERTHELOT), 1883, A., 705.  
 normal and acid, heat of solution of (DE FORCRAND), 1884, A., 803.  
 comparative oxidation of solutions of sulphurous acid and (REESÉ), 1885, A., 217.  
 manganese sulphite (GORGEU), 1883, A., 718.  
 mercury sulphite (DIVERS and SHIMIDZU), 1886, T., 538; P., 140.  
 platossammonium sulphite (HABERLAND and HANEKOP), 1888, A., 790.  
 potassium sulphite (SCHWICKER), 1889, A., 942; (HARTOG), 1889, A., 1106.  
 rhodium sulphite (SEUBERT and KOBBE), 1890, A., 1333.  
 hypsulphite. See Sodium thiosulphate.  
 thioarsenate, decomposition of, by silver nitrate (PREIS and RAYMAN), 1887, A., 444, 889.  
 zinc thioarsenate (PREIS), 1890, A., 1053.  
 thiosulphate (*sodium hyposulphite*), preparation of (MANZONI), 1885, A., 723.
- Sodium thiosulphate** (*sodium hypsulphite*), dimorphism of (PARMENTIER and AMAT), 1884, A., 819.  
 dissociation of crystallised (MÜLLER-ERZBACH), 1888, A., 213.  
 action of lead hydroxide and silver oxide on an aqueous solution of (GEUTHNER), 1885, A., 217.  
 action of, on metallic salts (JOCHUM), 1886, A., 17; (VORTMANN), 1889, A., 1107; (VORTMANN and PADBERG), 1890, A., 12.  
 action of potassium permanganate on (GLASER), 1885, A., 957; 1887, A., 336; (HÜNIG), 1885, A., 1111.  
 action of, on silver salts (FOGH), 1890, A., 694.  
 action of sulphurous acid on (VILLIERS), 1889, A., 568.  
 behaviour of, with acids (VAUBEL), 1889, A., 943; 1890, A., 10; (VORTMANN), 1889, A., 1107.  
 behaviour of, with bases (VAUBEL), 1890, A., 10.  
 as a substitute for hydrogen sulphide (VORTMANN), 1886, A., 1071.  
 change proceeding in an acidified solution of, where the products of change are retained in the system (COLEFAX), 1892, T., 176.  
 cadmium thiosulphates (DE SCHULTEN), 1890, A., 12; (FOCK and KLUSS), 1890, A., 1057.  
 cobalt, iron, manganese, thallium and zinc thiosulphates (VORTMANN and PADBERG), 1890, A., 12.  
 lead thiosulphate (VORTMANN and PADBERG), 1890, A., 12; (FOGH), 1890, A., 700.  
 potassium and silver thiosulphates (SCHWICKER), 1889, A., 943.  
*dithiopentersulphate* (VILLIERS), 1888, A., 912.  
*trithionate* (VILLIERS), 1888, A., 915.  
 tungstates (v. KNORRE), 1883, A., 651; (FEIT), 1888, A., 344.  
*pertungstate* (PÉCHARD), 1891, A., 988.  
*paratungstate*, decomposition of, in aqueous solution (v. KNORRE), 1885, A., 1184.  
 tungstovanadates (ROTHENBACH), 1891, A., 18.  
 vanadates (BAKER), 1885, T., 353; P., 47; (HALL), 1887, T., 96; (DITTE), 1887, A., 640.

**Sodium organic compounds:—**

**Sodium ferrocyanide**, water of crystallisation of (V. PEBAL), 1886, A., 860.  
 carbonylferrocyanide (MULLER), 1890, A., 117.

fulminates (SCHOLVIEN), 1885, A., 39;  
 (EHRENBERG), 1885, A., 1191.

iron tetracyanide (ETARD and BÉMONT), 1885, A., 234.

**Sodium, detection, estimation and separation:—**

microchemical test for (STRENG), 1884, A., 366.

estimation of (KRETZSCHMAR), 1886, A., 490.

estimation of, in presence of lithium (KRAUT), 1888, A., 195.

estimation of, in silicates (CHATARD), 1885, A., 296; (HOLLAND), 1887, A., 181.

estimation of, in water (MUCK), 1890, A., 299.

estimation of lithium and, in mixtures of their carbonates (HOLDERMANN), 1887, A., 864.

estimation, volumetric, of (WHITE), 1888, A., 1130.

separation of, from lithium, magnesium and calcium (GOUGH), 1887, A., 528.

separation of, from mercury and phosphoric and arsenic acids (HAACK), 1892, A., 530.

**Sodium amphibole** in a rock from Colorado (LACROIX), 1889, A., 1054.

**Sodium felspar** from Krageroe, Norway (BISCHOF), 1887, A., 453.

**Soil.** See Agricultural Chemistry.

**Soja bean** and *Soja hispida*. See Agricultural Chemistry.

**Solanaceæ**, alkaloids of (SCHÜTTE), 1892, A., 231.

**Solaneine** and **solanidine** (FIRBAS), 1890, A., 75.

**Solanidine** in potato-shoots (JØRISSEN and GROSJEAN), 1890, A., 1182; 1891, A., 473.

**Solanine** (FIRBAS), 1890, A., 75.

amount of, in diseased potatoes (KASSNER), 1887, A., 860.

reaction of (BROCIÑER), 1890, A., 310;  
 (FERREIRA DA SILVA), 1891, A., 1562.

**Solanum grandiflorum**, alkaloid from (FREIRE), 1888, A., 166.

**Solanum lycopersicum**, composition of the fruit of (BRIOSI and GIGLI), 1891, A., 955; (PASSERINI), 1891, A., 956.

**Solanum nigrum**, alkaloids of (SCHÜTTE), 1892, A., 232.

**Solanum tuberosum**, alkaloids of (SCHÜTTE), 1892, A., 232.

**Solanum tuberosum**, bases contained in the young shoots of (FIRBAS), 1890, A., 75.

**Solar heat**, measurement of (FRÖHLICH), 1885, A., 326.

**Solar radiation** and heat, comparative action of (DUCLAUX), 1887, A., 411.

**Solar spectrum.** See Spectrum under Photochemistry.

**Solar temperature**, approximate estimation of (ABNEY and FESTING), 1884, A., 241.

**Soldering mixture**, harmless (ANON.), 1885, A., 852.

**Solfataras** and acidic eruptive rocks, relation between (DE LAPPARENT), 1889, A., 474.

**Solidification** (REYER), 1885, A., 1180.  
 extension of the law of (RAOULR), 1886, A., 763.

of bodies in a state of superfusion, velocity of (GERNEZ), 1883, A., 546.

**Solidifying points**, determination of (LOVITON), 1886, A., 417.

**Solids**, molecular weight of liquids and (evidence deducible from the study of salts) (PICKERING), 1886, A., 198.

determination of the specific gravity of, by means of the specific gravity bottle (PAGLIANI), 1884, A., 213.

chemical action between (HALLOCK), 1889, A., 817.

cohesion of (BARTOLI), 1885, A., 866.

compression of the moist powder of, and the formation of rocks (SPRING), 1888, A., 1243.

so-called critical pressure of (v. RICHTER), 1886, A., 656.

perfect elasticity of (SPRING), 1884, A., 256.

solubility of, in water at various temperatures (ANDREAE), 1884, A., 1090.

influence of pressure on the temperature of volatilisation of (RAMSAY and YOUNG), 1884, A., 252.

determination of the molecular heat of, for their solutions in water and other liquids (WIEDEMANN), 1883, A., 704.

electrical conductivity of, at high pressure (GRAETZ), 1887, A., 5.

unipolar conductivity of (BRAUN), 1883, A., 769.

homogeneous, spontaneous change of form of, induced by internal energy (LEHMANN), 1885, A., 1033.

condensation of water vapour by (IHIMORI), 1888, A., 24.

- Solids**, dissolved, and a substance immersed in the solution, attraction between (THOULET), 1885, A., 476, 866.  
 in dilute solutions and water, attraction between (DE VRIES), 1884, A., 1065.  
 and liquids and gases, relation between (SPRING), 1884, A., 256.
- Solubility**. See Solution.
- SOLUTION** (ALEXÉEFF), 1886, A., 847; (RAMSAY), 1891, A., 793; (WANKLYN and COOPER), 1891, A., 1412; (WANKLYN, JOHNSTONE and COOPER), 1892, A., 264; (WANKLYN), 1892, A., 935.  
 and pseudosolution (NICOL), 1885, A., 115; (PICRON and LINDER), 1892, A., 148.  
 and suspension, connection between (PICRON and LINDER), 1891, P., 177; 1892, T., 151, 165.  
 nature of (GOODWIN), 1883, A., 550; 1885, A., 865; (NICOL), 1884, A., 253; 1886, A., 300; (PICKERING), 1887, T., 593; P., 77; 1889, P., 86, 106; A., 941, 1101; 1890, T., 64, 331, 845; 1891, P., 105, 109; (SELSCHENOFF), 1889, A., 1044; (WANKLYN and JOHNSTONE), 1892, A., 108.  
 nature of, as elucidated by the heat evolved on the dilution of calcium chloride solutions (PICKERING), 1888, P., 35.  
 physical nature of, theory of residual chemical affinity as an explanation of the (PICKERING), 1892, A., 559.  
 theory of (MENDELEEFF), 1887, T., 779; (DURHAM), 1888, A., 21; (PICKERING), 1888, A., 21, 22; (DUHEM), 1888, A., 1016; (OSWALD), 1888, A., 1020; (NERNST), 1890, A., 3; (PAGLIANI), 1890, A., 845; (BRITISH ASSOCIATION REPORT), 1891, A., 786; (WALKER), 1892, A., 264; (VAN'T HOFF), 1892, A., 1015.  
 isohydric, theory of (ARRHENIUS), 1888, A., 1144.  
 isohydric and nonisohydric, of acids, velocity of reaction in mixtures of (MOORE), 1892, A., 936.  
 law of thermodynamical coincidence and its application to the theory of (NATANSON), 1892, A., 557.  
 association *versus* dissociation in (PICKERING), 1891, A., 972; (LUPTON), 1891, A., 973.  
 dissociation hypothesis of (PICKERING), 1891, P., 105; A., 972; (TRAUBE), 1891, A., 255, 638, 874; (ARRHENIUS), 1891, A., 521; (SACK), 1891, A., 966; (KUMMELL), 1891, A., 1145; (LE BLANC), 1891, A., 1405.  
 SOLUTION, strong, and the dissociation hypothesis (PICKERING), 1892, A., 108.  
 electrolytic theory of (LE BLANC), 1891, A., 1405.  
 objection raised to the hypothesis of electrolytic dissociation in (ARRHENIUS), 1891, A., 1148.  
 dissociation of salts in (WIEDEMANN), 1888, A., 1021; (PLANCK), 1888, A., 1144; (MENDELEEFF), 1890, A., 325.  
 the question of free ions in (MENDELEEFF), 1890, A., 325.  
 dilute, kinetic molecular theory of (LORENTZ), 1891, A., 637.  
 deduction from the gaseous theory of (MASSON), 1891, A., 791; (PICKERING), 1891, A., 793.  
 kinetics of substances in (LOLB and NERNST), 1889, A., 327.  
 dilute, applications of gaseous laws to (ARRHENIUS), 1892, A., 935.  
 exceptions to the gaseous laws in (NOYES), 1890, A., 442.  
 molecular constitution of (PLANCK), 1888, A., 895; (GORA), 1890, A., 207.  
 saline, molecular volumes of (NICOL), 1884, A., 658; 1885, A., 331.  
 evidence afforded by fluorescence and absorption of the decomposition of molecular groups in solution (WALLER), 1889, A., 554.  
 electrical conductivity of (CROMPION), 1888, T., 116; (PICKERING), 1889, P., 86.  
 freshly prepared, change of electrical conductivity in (FREIFFER), 1890, A., 204.  
 dilute, electrical conductivity of (BOUÏE), 1884, A., 1211.  
 saline, electrical conductivity of (BOUÏE), 1886, A., 753; (JAGER), 1888, A., 397, 398; (CHRUSTSCHOFF), 1889, A., 808, 809; (CHRUSTSCHOFF and PASCHKOFF), 1889, A., 809; 1891, A., 141.  
 influence of water of crystallisation on the electrical conductivity of (TRÖTSCH), 1891, A., 141.  
 electrical conductivity of, in mixtures of alcohol and water (STEPHAN), 1883, A., 769.  
 alteration of the conductivity of, by addition of a non-electrolyte (HOLLAND), 1892, A., 1382.

- SOLUTION, behaviour of substances in, under the influence of the electric current (PICTON and LINDER), 1892, T., 160.
- voltal energy of aqueous (GORE), 1890, A., 941.
- voltal energy of saline (GORE), 1890, A., 317.
- stoichiometry of (JÄGER), 1892, A., 1382.
- thermal effect of (ALEXÉEFF), 1884, A., 1244.
- thermal effect of mixing (KONOWA-LOFF), 1884, A., 1244.
- dilute, thermal potential of (RIECKE), 1891, A., 786.
- saline, thermal properties of (MOSEB), 1886, A., 925.
- application of thermodynamics to (PLANCK), 1892, A., 395.
- heat capacities of (PICKERING), 1889, P., 86.
- saline, thermal expansion of (NICOL), 1887, A., 760; (DECKER), 1888, A., 1010; (TSCHERNAI), 1889, A., 204, 330, 1101; 1890, A., 318; (BREMER), 1889, A., 329.
- specific heats of (TIMOFÉEFF), 1891, A., 1406.
- saline, specific heat of (ARONS), 1885, A., 1101; (MATHIAS), 1889, A., 4.
- molecular heat of (GERLACH), 1888, A., 894.
- heat of dilution of (MENDELÉEFF), 1886, A., 414.
- saline, heat of dilution of (ARONS), 1885, A., 1101.
- relation between heat of solution and coefficient of (LE CHATELIER), 1885, A., 340, 473; 1887, A., 548; (CHANCEL and PARMENTIER), 1887, A., 632; (VAN DEVENTER and VAN DE STADT), 1892, A., 559.
- homogeneous, equilibrium in, when unequally heated (VAN BERNHEM), 1890, A., 444.
- cryoscopy of (RAOULT), 1885, A., 858; 1888, A., 1242; 1892, A., 935; (ARRHENIUS), 1888, A., 1242; 1891, A., 1148; (PICKERING), 1891, A., 971; 1892, A., 678, 1045; (TRAUBE), 1892, A., 8.
- cryoscopy of; abnormal depression of the freezing point (VAN BIJLERT), 1891, A., 1411.
- lowering of the freezing point of (PICKERING), 1890, A., 846.
- mechanical, physical, and chemical lowering of the freezing points of (PICKERING), 1889, P., 150.
- SOLUTION, law of the freezing points of (RAOULT), 1883, A., 278; 1884, A., 952; (PICKERING), 1889, P., 149; 1890, P., 9.
- alcoholic, dilute, cryoscopy of (PICKERING), 1892, A., 1045.
- alkaline, cryoscopy of (RAOULT), 1884, A., 254.
- saline, cryoscopy of (RAOULT), 1884, A., 1248.
- cryoscopy of double salts in (RÜDORFF), 1890, A., 1044.
- saline, boiling points of (NICOL), 1885, A., 331; (GERLACH), 1887, A., 1012.
- temperature of steam arising from (SAKURAI), 1892, T., 495; P., 92.
- vapour pressure of (TAMMANN), 1889, A., 668; (EMDEN), 1890, A., 323; (CHARPY), 1890, A., 1364; (RAOULT), 1891, A., 386; (EWAN and ORMANDY), 1892, T., 769; P., 141.
- in acetic acid, vapour pressures of (RAOULT and RECOURA), 1890, A., 554.
- alcoholic, vapour pressures of (RAOULT), 1889, A., 7.
- etheral, vapour pressures of (RAOULT), 1887, A., 207; 1888, A., 1145.
- etheral, influence of concentration on the vapour pressure of (RAOULT), 1887, A., 631.
- saline, vapour pressures of (EMDEN), 1887, A., 764.
- vapour pressures of, at 0° (DIETERICI), 1891, A., 783.
- vapour pressure of water from (TAMMANN), 1885, A., 862; (NICOL), 1887, A., 321.
- chemical equilibrium in (THOMSEN), 1886, A., 12, 925; 1887, A., 440; (PLANCK), 1888, A., 780.
- saline, cohesion of, and of their admixtures (RÖTHER), 1884, A., 1251.
- of salts under pressure (BRAUN), 1887, A., 436.
- relation between the compressibilities of, and of their component parts (BRAUN), 1888, A., 214.
- saline, compressibility of (RÜNGEN and SCHNEIDER), 1888, A., 22; (FILBAULT), 1892, A., 766.
- contraction of (CHARPY), 1889, A., 1102.
- considered as a process of diffusion (STEFAN), 1891, A., 384.
- aqueous, diffusion of (SCHEFFER), 1883, A., 1047; 1888, A., 1144; (ARRHENIUS), 1892, A., 1265.

**SOLUTION**, saline, diffusion of (WIEDEBURG), 1891, A., 383.  
 diffusion of double salts in (RÜDORFF), 1888, A., 342, 899; 1889, A., 98.  
 measurement of the osmotic pressure of (TAMMANN), 1892, A., 556.  
 osmotic pressure of salts in (ADIE), 1891, T., 344; P., 25.  
 and gases, osmotic pressure in the analogy between (VAN'T HOFF), 1888, A., 778.  
 aqueous, of organic substances, capillary constants of (TRAUBE), 1891, A., 1408.  
 saline, constants of capillarity of (CHERVET), 1885, A., 1105.  
 rise of, in capillary tubes (GOLDSTEIN), 1890, A., 684.  
 saline, rise of, in capillary tubes (GOLDSTEIN), 1889, A., 205.  
 passage of substances in, through mineral filters and capillary tubes (CHABRIÉ), 1892, A., 1267.  
 dilute aqueous, viscosity of (ARRHENIUS), 1888, A., 336.  
 saline, aqueous, viscosity of (LAUENSTEIN), 1892, A., 1044.  
 variation of density with the concentration of (McGREGOR), 1887, A., 209; 1891, A., 254.  
 specific gravity of (PICKERING), 1889, P., 86; (GERLACH), 1889, A., 814, 1044; (CHARPY), 1892, A., 765.  
 saline, specific gravity of (BENDER), 1884, A., 144, 251; (GERLACH), 1888, A., 894; (BREMER), 1889, A., 329.  
 specific gravity of mixtures of potassium and sodium chloride solution (CHARPY), 1892, A., 1146.  
**Gases**, kinetic theory of, and osmotic pressure (BOLTZMANN), 1891, A., 389, 638.  
 heat of solution of (PAGLIANI), 1890, A., 816; (PICKERING), 1892, A., 1042.  
 absorption coefficients of, solutions of (HENRICH), 1892, A., 1043.  
 solutions of, compressibility of (ISAMBERT), 1888, A., 20.  
 absorption of, by liquids (WINKLER), 1892, A., 556.  
 absorption of, by liquids under high pressure (V. WROBLEWSKI), 1883, A., 418.  
 absorption of, by mixtures of alcohol and water (LUBARSCH), 1890, A., 103.  
 absorption of, by petroleum (GNIEWOSZ and WALFISZ), 1888, A., 342.

**SOLUTION** :—

**Gases**, absorptive power of water for (PETERSSON and SONDÉN), 1889, A., 935.  
 alteration in the volume and density of liquids produced by the absorption of (ÅNGSTRÖM), 1888, A., 401.  
**Solution** partly miscible (PFEIFFER), 1892, A., 1046.  
 ethereal, separation of, from aqueous liquids (GAWALOWSKI), 1889, A., 1086.  
 saline (BENDER), 1888, A., 22.  
 "corresponding" (BENDER), 1885, A., 12.  
 and attached water (GUTHRIE), 1885, A., 337.  
 dilute, existence of acid or basic salts of monobasic acids in (BERTHELOT), 1892, A., 110.  
 of a gas and of a salt in an indifferent salt solution, analogies between (SETCHENOFF), 1892, A., 397.  
 saline, in mixtures of water and organic liquids, formation of layers in (TRAUBE and NEUBERG), 1888, A., 783; (LINEBARGER), 1892, A., 1146.  
 absorption of aqueous vapour by (BEYERINCK), 1892, A., 936.  
 change of colour of (ISAACHSEN), 1891, A., 1319.  
 state of salts in (ETARD), 1892, A., 397.  
 volumes of salts in (GERLACH), 1889, A., 1044.  
 saline, volume alteration attending the mixture of (NICOL), 1883, T., 135.  
 change of volume of salts on (WANKLYN, JOHNSTONE and COOPER), 1892, A., 261; (SKUBICH), 1892, A., 766.  
 of double salts (TREVOR), 1891, A., 973.  
 aqueous, of double salts (THOMSEN), 1886, A., 925; (KISTAKOWSKI), 1891, A., 6.  
 behaviour of molecular compounds on (BODLÄNDER), 1892, A., 1154.  
 of carbonates in acids, rate of (SPRING), 1890, A., 843.  
 of metals in acids, method of investigating (VELEY), 1889, T., 361; P., 65.  
**Solvents**, distribution of a substance between two (NERNST), 1891, A., 1148.  
**Solubility**, relation between heat of fusion and (CARNELLEY and THOMSON), 1888, T., 782; P., 80; (WALKER), 1890, A., 686.

- Solubility of gases** (WUKOLOFF), 1889, A., 670.  
 of gases in water (WINKLER), 1891, A., 384; 1892, A., 271; (BOHR and BOCK), 1892, A., 107.  
 of double compounds (BEHREND), 1892, A., 1047, 1385.  
 of mixed crystals (ROOZEBOOM), 1892, A., 265; (NERNST), 1892, A., 560.  
 of saline mixtures (RUDORFF), 1885, A., 865; (ETARD), 1890, A., 103, 442, 443.  
 of salts (ETARD), 1884, A., 887; (LE CHATELIER), 1889, A., 671.  
 of salts, and their melting points, relations between (ETARD), 1889, A., 460.  
 mutual, of salts in water (NICOL), 1892, A., 8; (TREVOR), 1892, A., 264.  
 of double salts (MEYERHOFFER), 1892, A., 1145.  
 augmented, of salts (LE BLANC and NOYES), 1891, A., 388.  
 of solid substances (BRAUN), 1887, A., 436.  
 of mixed salts in water (BODLÄNDER), 1891, A., 795.  
 of some substances in mixtures of water and alcohol (BODLÄNDER), 1891, A., 794.  
 of mixtures of electrolytically dissociated substances (NOYES), 1891, A., 142; 1892, A., 1143.  
 influence of one salt on the, of another (NERNST), 1890, A., 3.  
 of salts, sudden changes in the, caused by the formation of two layers in the liquid (ROOZEBOOM), 1890, A., 4.  
 of alkali salts, influence of the hydroxides on (ENGEL), 1891, A., 1318.  
 of chlorides, effect of hydrochloric acid on (ENGEL), 1887, A., 445.  
 of mixtures of sodium and potassium nitrates (CARNELLEY and THOMSON), 1888, T., 783; P., 80.  
 of sulphates, decrease in the (ETARD), 1885, A., 548.  
 of sulphates, effect of sulphuric acid on (ENGEL), 1887, A., 546.  
 of isomeric organic compounds (CARNELLEY and THOMSON), 1888, T., 783; P., 80.  
 of minerals in sea water (THOULET), 1889, A., 682.  
**Solubility-coefficients**, determination of (DOYER), 1891, A., 387.  
**Solubility-curves** of pairs of salts (ROOZEBOOM), 1892, A., 1384.  
**Solutions**, saturated (PARMENTIER), 1892, A., 1047.  
**Solutions**, supersaturated (PICKERING), 1883, A., 645; (POTILLIZIN), 1890, A., 333; (LECOQ DE BOISBAUDRAN), 1892, A., 398.  
 saline, saturation of (NICOL), 1885, A., 340; 1886, A., 763.  
 supersaturation of (NICOL), 1886, A., 300; 1887, T., 389; P., 40.  
 electrical conductivity of supersaturated (HEIM), 1886, A., 654.  
 specific heat, heat of solution and specific gravity of supersaturated (BINDEL), 1890, A., 1042.  
 specific gravity of saturated, at various temperatures (ANDREAE), 1885, A., 334.  
 solid (VAN'T HOFF), 1890, A., 1044.  
 of one metal in another (TAMMANN), 1889, A., 932; (SILOW), 1889, A., 933.  
 colloidal, nature of (BARUS and SCHNEIDER), 1891, A., 1412; (LINEBARGER), 1892, A., 766.  
 pedetic motion in relation to (RAMSAY), 1892, P., 17.  
 physical properties of (LUEDEKING), 1889, A., 98.  
 freezing of (LJUBAVIN), 1890, A., 685.  
 See also Liquids, Salts and Solids.  
**Solutions**, metallic, reduction of, by means of gases, &c. (GORE), 1884, A., 393; 1885, A., 1112.  
*Sophora tomentosa*, alkaloid from (GRESHOFF), 1891, A., 335.  
**Sorbic acid**, heat of combustion of (OSSIPOFF), 1889, A., 460.  
**Sorbinose**, **sorbitol** and **sorbose**. See Carbohydrates.  
*Sorbus Aucuparia*, tannic acid in the berries of (VINCENT and DELACHAVAL), 1887, A., 950.  
**Sorghum**, fermentation of (BORDAS), 1887, A., 519.  
 composition of (TROSCHEK), 1885, A., 1155; (CAPTAN), 1885, A., 1278.  
 organic acids in (WILEY and MAXWELL), 1890, A., 819.  
 seed, composition of (WILEY), 1891, A., 240.  
 See also Agricultural Chemistry and Carbohydrates.  
**Sound**, velocity of, in vapours as a means of determining the vapour density (JAEGER), 1889, A., 460.  
**Soxhlet extractor**, improved (LEWIKOWITSCH), 1889, T., 359; P., 90.  
**Sozolic acid** (SERRANT), 1885, A., 1016, 1166; 1886, A., 707.  
**Space**, dead, Liebreich's (GARTENMEISTER), 1888, A., 783.

**Space formulæ** (MEYER), 1890, A., 719.  
**Spangolite** (PENFIELD), 1890, A., 1073.  
**Spark-spectrum.** See Spectrum under Photochemistry.  
**Sparteine** See Alkaloids.  
**Spathiopyrite.** See Safflorite.  
**Specific conductivity.** See Conductivity under Electrochemistry.  
**Specific gravity apparatus** (BAILHACHE and COMMELIN), 1890, A., 206.  
 determinations (PERKIN), 1884, T. 443.  
 of liquids and their atomic weights, relation between (MOULIN), 1891, A., 1315.  
 relation of, to chemical affinity, atomic volume and atomic weight (DONATH and MYRHOFER), 1883, A., 1048.  
 boiling point and molecular weight of a liquid, relation between (RICHARDSON), 1891, A., 780.  
 and specific magnetic rotation, relation (PERKIN), 1884, T., 544.  
 relation of electromotive force to (GORE), 1892, A., 257.  
 capillarity, and cohesion, relation between (SCHALL), 1885, A., 1180.  
 relation between constants of capillarity of members of homologous series and their (SCHALL), 1885, A., 1180.  
 and viscosity of liquids, relation between (WARBURG and SACHS), 1885, A., 9.  
 percentage of sulphurous anhydride in aqueous solutions of various (GILES and SHEARER), 1886, A., 199.  
 of acids of the acetic series (LUEDEKING), 1886, A., 439.  
 of alkyl salts of the acetic acids at boiling points (ELLSASSER), 1883, A., 967.  
 of liquefied air and its constituents (v. WROBLEWSKI), 1886, A., 661.  
 of alloys of lead and tin (KLEIN-GRUBER), 1889, A., 1051.  
 of allylthiocarbimide (LONG), 1889, A., 89.  
 of solutions of pure and commercial aluminium sulphate (REUSS), 1885, A., 458.  
 of alums (SORET), 1885, A., 109.  
 of ammonia solutions (SMITH), 1883, A., 849; (LUNGE and WIERNIK), 1890, A., 107.  
 of solutions of ammonium carbonate (SMITH), 1883, A., 849.  
 of benzene and its halogen derivatives (YOUNG), 1889, T. 488, 504; P. 103.

**Specific gravity**, anomalous, of liquid bismuth (LUEDEKING), 1888, A., 790.  
 of blood (JONES), 1887, A., 608; 1891, A., 1527; (HAYCRAFT), 1891, A., 1123.  
 of blood, method of raising the (HUNTER), 1890, A., 393.  
 of blood in disease (COPEMAN), 1891, A., 761.  
 of blood of Europeans living in the tropics (EIJKMAN; GLOGNER), 1892, A., 363.  
 of isobutyric anhydride (TONNIES and STAUB), 1884, A., 1129.  
 of calcium chloridesolutions (PICKERING), 1891, P., 105.  
 of calcium hydroxide (*lime-water*) (WANKLYN), 1887, A., 700.  
 of calcium hydroxide (*milk of lime*) (LUNGE), 1884, A., 712.  
 of calcium sulphate (MCCALEB), 1889, A., 467.  
 of solutions of carbonic anhydride (BLUMCKE), 1885, A., 215.  
 of mixtures of carbonic anhydride and ethylic alcohol (BLUMCKE), 1887, A., 435.  
 of cereal grains (DRECHSLER), 1883, A., 111.  
 of cerium sulphate solutions (BRAUNER), 1888, T., 357; P., 25.  
 of chloroform at different temperatures (CHANCEL and PARMENTIER), 1885, A., 631.  
 of commercial copper (WATSON), 1884, A., 218.  
 of several organic compounds at temperatures near their melting-points (SHIFF), 1881, A., 1089.  
 of elements in various allotropic modifications (MULLER-FERZBACH), 1883, A., 779.  
 of ethyl ether (OUDEMAN), 1886, A., 437.  
 of some fats (CRAMPON), 1889, A., 801.  
 of fibres (DE CHARDONNET), 1892, A., 1036.  
 of aqueous solutions of glycerol (GERLACH), 1885, A., 499; (NTOOT), 1888, A., 437.  
 of hydrochloric acid, tables of (LUNGE and MARCINIEWSKI), 1892, A., 11.  
 of liquids, alteration in the volume and, produced by the absorption of gases (ANGSTROM), 1888, A., 401.  
 of liquids, determination of (PAGLIANI), 1881, A., 213; (TAYLOR) 1888, A., 547.

**Specific gravity** of liquids, determination of, at higher temperatures (SCHIFF), 1885, A., 950.  
 of manganese (GLATZEL), 1890, A., 110.  
 of aqueous and alcoholic solutions of mercuric chloride (SCHRÖDER), 1886, A., 412.  
 of metals in the liquid state (ROBERTS-AUSTEN and WRIGHTSON), 1884, A., 708.  
 of cows'-milk (VIETH), 1889, A., 915.  
 of fat and solids of milk, relation between (VIETH), 1888, A., 634.  
 of minerals (GISEVIUS), 1883, A., 1031; (JOLY), 1888, A., 103.  
 of isomorphous mixtures (RETGERS), 1889, A., 931.  
 of nitric peroxide, nitrogen trioxide, and nitrosyl chloride (GEUTHER), 1888, A., 785.  
 of oils (LONG), 1889, A., 85; (CRAMPTON), 1889, A., 801.  
 of fixed oils (ALLEN), 1887, A., 88.  
 of paraffin, solid, fused, and in solution (BRILBY), 1883, T., 388.  
 of porous bodies (FLETCHY), 1885, A., 334; (JOLY), 1888, A., 103.  
 of racemic and tartaric acid solutions (MARCHELEWSKI), 1892, A., 964.  
 of soluble salts, determination of (ANDREAE), 1885, A., 332; (RETGERS), 1889, A., 812, 1101.  
 of silk (VIGNON), 1892, A., 1036.  
 of solids, determination of (DOBBIE and HUTCHERSON), 1885, A., 332; (KLEINSTÜCK), 1891, A., 11.  
 of solids and liquids, determination of, by means of the specific gravity bottle (PAGLIANT), 1884, A., 213.  
 of solutions (BENDER), 1884, A., 251; (MCGREGOR), 1887, A., 209; 1891, A., 254; (GERLACH), 1888, A., 894; 1889, A., 814, 1044; (PICKERING), 1889, P., 86; (BREMER), 1889, A., 329; (CHARPY), 1892, A., 765, 1146.  
 of normal salt solutions (BENDER), 1884, A., 144.  
 of saturated solutions of solid substances at various temperatures (ANDREAE), 1885, A., 334.  
 of supersaturated salt solutions (BINDEL), 1890, A., 1042.  
 of sugar solutions (WANKLYN), 1892, A., 935.  
 of soluble substances, determination of (ZEHNDE), 1887, A., 9.  
 of substances in the solid state and in aqueous solution (GROSHANS), 1885, A., 333.

**Specific gravity** of viscid substances, determination of (SCHEIBLER), 1891, A., 520; (BRUHL), 1891, A., 520, 1147.  
 of sulphuric acid of various degrees of concentration (KOHLEBAUSCH), 1883, A., 413; (LUNGE and NAEF), 1883, A., 851; (LUNGE), 1884, A., 1256; 1885, A., 216; (MENDELÉEFF), 1885, A., 121; 1886, A., 413; 1888, A., 343; (PICKERING), 1889, P., 86; 1890, T., 69, 139; 1892, A., 271, 272; (LUNGE and ISLER), 1891, A., 150; (RÜCKER), 1892, A., 271.  
 of crystalline strychnine (BLUNT), 1886, A., 1047.  
 of frothy syrups, estimation of (GENIESER), 1891, A., 142.  
 of turpentine (DUNWODY), 1891, A., 217.  
 of waxes (ALLEN), 1887, A., 186; (KLEINSTÜCK), 1892, A., 428.  
 of wheat (PAGNOT), 1888, A., 1128.  
 of zinc iodide (CLARKE and KEBLER), 1884, A., 394.  
 See also Density and Vapour-density.  
**Specific heat.** See Thermochemistry.  
**Specific inductive capacity.** See Electrochemistry.  
**Specific rotation.** See Photochemistry.  
**Specific volume.** See Volume, specific.  
**Spectrum and Spectroscope.** See under Photochemistry.  
**Specular iron ores** of Cuba, genesis of (KIMBALL), 1885, A., 356.  
**Speiskobalt**, examination of (McCAY), 1886, A., 209.  
*Spergula arvensis* (spurrey), spurrey seed, and spurrey silage, composition of (MUNRO), 1886, A., 173.  
**Spermin** (LADENBURG and ABEL), 1888, A., 441; (V. Hofmann), 1891, A., 169; (MAJERT and SCHMIDT), 1891, A., 415, 538; (v. POEHL), 1891, A., 538; (JURGENSEN), 1891, A., 759.  
 supposed reaction of (DUCLAUX), 1892, A., 1300.  
**Sperryllite** (WELLS and PENFIELD), 1889, A., 471.  
**Spessartite** (*spessartina*; *manganese-garnet*) (ROBINSON), 1889, A., 473.  
 from Virginia (CLARKE), 1892, A., 1411.  
 artificial production of (GORGUE), 1884, A., 410.  
**Sphacelic acid** (KOBERT), 1885, A., 821.  
**Sphaerolite tachylite** from the Ussuri District (WENTKOFF), 1890, A., 461.

- Sphalerite.** See Blende and Zinc blende.
- Sphene** (*titane*) (BUSZ), 1888, A., 33.  
from Lehigh Co., Pa. (SMITH), 1885, A., 960.  
from Magnet Cove, Arkansas (GENTH, PENFIELD and FIRSSON), 1891, A., 1830.  
artificial production of (BOURGOIS), 1884, A., 565.  
American, cleavage of (WILLIAMS), 1886, A., 317.  
rutile, as a product of the decomposition of (MANN), 1883, A., 33.
- Spheroidal state** (LUVINI), 1884, A., 957; (GOSNART), 1887, A., 763.  
quantitative evaporation of liquids in the (BOHLIG), 1886, A., 647.
- Spice**, champion (LEHMANN), 1884, A., 473; (HARZ), 1884, A., 865.
- Spices**, examination of (BURGMANN), 1884, A., 642.
- Spiders**, guanine in the excrement of (WEINLAND), 1889, A., 430.
- Spiegeleisen**, the carbon of (RATHKE), 1891, A., 646.  
estimation of manganese in (KALMANN and SMOLKA), 1885, A., 690.
- Spike**, oil of, and **Spikol** (VOIRY and BOUCHARDAT), 1888, A., 605.
- Spinach**, cooked, composition of (WILLIAMS), 1892, T., 227.
- Spinel**, fluorescence of (LECOQ DE BOISBAUDRAN), 1887, A., 1005.  
inclusions in (PRINZ), 1888, A., 1062.  
rose, artificial production of (MEUNIER), 1887, A., 707.
- "Spirit of nitrous ether,"** estimation of (DOTT), 1885, A., 1013.  
estimation of ethylic nitrite in (DYMOND), 1885, A., 842; (ALLEN), 1885, A., 1013; (THRESE), 1890, A., 927.
- Spirit factories**, simultaneous use of potatoes and grain in (ANON.), 1883, A., 630.
- Spirits**, influence of extractive matter on the real alcoholic strength of (BLANEZ), 1891, A., 865.  
analysis of (TRAUBE), 1889, A., 654; (FRENSENIUS), 1890, A., 1194; (MOHLER), 1891, A., 503; (BELL), 1892, A., 387.  
examination of, for secondary constituents (ALLEN and CHATTAWAY), 1892, A., 244.  
estimation of fusel oil in (ROSE), 1885, A., 600; (TRAUBE), 1886, A., 743; 1888, A., 91, 198; 1889, A., 654; 1892, A., 543; (UFFELMANN), 1886, A., 1079; (EKMAN), 1889, A., 190; (STUTZER and REIFMANN), 1891, A., 622; (SCALA), 1891, A., 1556; (ALLEN and CHATTAWAY), 1892, A., 244.  
See also Brandy, Ethylic alcohol and Potato spirit.
- Spirographidine** and **spirographin** (KRUKENBERG), 1886, A., 482.
- Spirogyra**, albumin in (LOEW), 1884, A., 343.
- Spleen**, function of the (HORBACZEWSKI), 1890, A., 184.  
iron in the (KRÜGER, MEYER and PERNOT), 1891, A., 848.  
of young animals, quantity of iron in the (LAPICQUE), 1890, A., 185.  
hæmoglobin in blood passing to and from the (v. MIDDENDORFF), 1889, A., 1023.
- Splenic fever**, preventive inoculation of (ROLOFF), 1884, A., 914; (CHAUVEAU), 1885, A., 1084.  
See also Bacillus, splenic fever.
- Splenic vein**, is free hæmoglobin present in the blood plasma of the? (SCHÄFER), 1890, A., 1016.
- Spodosite**, place of, in the mineral system (SJÖGREN), 1887, A., 346.
- Spodumene** and the product of its alteration (BRUSH and DANA), 1883, A., 438.  
from Brazil (JANNASCH), 1888, A., 795.  
from Dakota (BLAKE), 1884, A., 23.  
from North Carolina (HIDDEN and DES CROIXEAUX), 1887, A., 118.
- $\beta$ -Spodumene** (BRUSH and DANA), 1883, A., 439.
- Sponge**, sea water, presence of chlorophyll in (MACMUNN), 1887, A., 613.
- Sponges**, chromatology of (MACMUNN), 1888, A., 619.
- Spongin** (KRUKENBERG), 1886, A., 481.  
constitution of (ZALOCOSTAS), 1888, A., 1318.
- Spring water.** See under Water.
- "Sprudelsalz,"** preparation of (HARNACK), 1883, A., 396.
- Spurrey** (*spargula arvensis*), spurrey seed, and spurrey silage, composition of (MUNRO), 1886, A., 173.
- Sputum**, nitrogen in (PANOFF), 1889, A., 1076.
- Stachyose** (v. PLANTA and SCHULZE), 1890, A., 1089; 1891, A., 1416.
- Stachys tuberifera**, nitrogenous constituents of the tubercles of (v. PLANTA), 1890, A., 1183.
- Stalactite**, a, formation of, by vapour (BROWN), 1885, A., 1034.
- Stalagmometer** (TRAUBE), 1888, A., 91, 198; 1892, A., 543.

**Stannous and Stannic.** See Tin.

**Star-anise**, composition of the fruit and seeds of (OSWALD), 1891, A., 957.  
products of the distillation of the leaves and fruits of the (ELJMAN), 1886, A., 95; 1887, A., 497.  
oil of (UMNEY), 1889, A., 659.  
tree, cultivation of, and the preparation of the oil in Annam (ANON.), 1885, A., 1275.

**Starch.** See Carbohydrates.

**Starch factories**, waste water from (SCHÜTZER), 1886, A., 1066.

**Starch refuse** as fodder (SAARE), 1885, A., 1155.

**Starch sugar.** See Dextrose under Carbohydrates.

**Starch syrup**, composition of (SIEBEN), 1885, A., 693.

**Star-fish**, manurial value of (MAYER), 1889, A., 1085.

**Starvation**, influence of, on the glycogen of the liver and muscle (ALDERHOFF), 1889, A., 427.

See also Hunger.

**Stassfurt liquors**, working up of (FISCHER), 1887, A., 1079.

occurrence of hydrogen sulphide and sulphur in (PFEIFFER), 1890, A., 336.

**Stassfurt salts** as absorbents in stables (MÄRCKER), 1884, A., 491.

**Stassfurt salt mines**, minerals from (LUDECKE), 1887, A., 1085.

**Stature**, influence of, on the interchange of matter and energy (RUBNER), 1884, A., 1393.

**Staurolite** (*staurolite*) (COLORIANU), 1886, A., 319.

chemical constitution of (FRIEDL), 1886, A., 32.

crystallographical examination of (PRIMIC), 1885, A., 733.

**Steam**, specific heat of, at high temperature (BERTHELOT and VIEILLE), 1885, A., 7.

superheated, experimental determination of the ratio of the specific heats of (COHEN), 1890, A., 205.

arising from boiling salt solutions, temperature of (SAKURAI), 1892, T., 495; P., 92.

dissociation of (V. HOFMANN), 1891, A., 143.

action of carbonic oxide on (MAQUENNE), 1883, A., 860; (NAUMANN and PISTOR), 1886, A., 120.

action of induction sparks on carbonic oxide and (DIXON), 1886, T., 103.

use of, in chemical laboratories (WALTER), 1885, A., 482.

**Stearic acid** (*heptadecylic acid*) (KRAFFT), 1884, A., 1280.

conversion of oleic acid into (DE WILDE and REYCHLER), 1889, A., 1140.

action of bromine on (KRAFFT and BEDDIES), 1892, A., 695.

oxidation of (CARETTE), 1886, A., 611, and naphthalene, solidification of different mixtures of (COURTONNE), 1883, A., 176.

derivatives of (HELL and SADOMSKY), 1891, A., 1335.

**Stearic acid**, amido- [m.p. 63°] (GAUTIER and ETARD), 1884, A., 89.

$\alpha$ -amido- [m.p. 221°] (HELL and SADOMSKY), 1891, A., 1336.

$\alpha$ -bromo- (PIOTROWSKI), 1890, A., 1396; (HELL and SADOMSKY), 1891, A., 1336.

*mono*- and *di*-chloro- (PIOTROWSKI), 1890, A., 1396.

$\alpha$ -cyano- (HELL and SADOMSKY), 1891, A., 1451.

oxime of (CLAUS and PFEIFFER), 1891, A., 541.

**Stearin**, preparation of (HUNDENHAGEN), 1884, A., 280.

stearic acid, paraffin, wax and, analysis of a mixture of (JEAN), 1891, A., 1400.

**$\alpha$ -Stearinsulphuric acid** (*sulphohydroxy-stearic acid*) (BENEDIKT and ÜLZER), 1887, A., 914; (GETTEL), 1888, A., 578.

**Stearoctic acid** (URBAIN), 1884, A., 859.

**Stearolic acid**, oxidation of (HAZURA and GRÜSSNER), 1889, A., 375.

*di*iodo- (LIEBERMANN and SACHSE), 1892, A., 470.

**Stearolic phenylhydrazide** (HOLT), 1892, A., 1428.

**Stearone**, preparation of (KIPPING), 1890, T., 537.

**Stearoneoxime** (SPIEGLER), 1884, A., 1115; (KIPPING), 1890, T., 539.

**Stearopten**, from *Bursera crenata* (SPICA), 1885, A., 1142.

from essence of patchouli (MAISCH), 1885, A., 394.

**Stearyl chloride** (KRAFFT and BÜRGER), 1884, A., 1126; (SCHWEIZER), 1885, A., 509.

**Stearyl-diglycerol and -glycerolphosphoric acid** (HUNDENHAGEN), 1884, A., 282.

**Steatite** (*saponite*), variety of (DOBIE), 1885, A., 229.

**Steenstrupite**, analysis of (LORENZEN), 1883, A., 960.

**Stephanite**, crystal of, from Wheal Newton (LEWIS), 1884, A., 405.

- Stercobilin.** See Hydrobilirubin.  
*Sterculia acuminata* (Kola nuts) (NATTON), 1885, A., 712.
- Stereochemical isomerism of asymmetrical monoximes** (HANTZSCH), 1890, A., 1263.  
 models of organic molecules (ELOART), 1892, A., 679.  
 studies (LOSCHMIDT), 1890, A., 602.  
 results and aims of (MEYER), 1890, A., 719.  
 in the piperazine group (BISCHOFF), 1890, A., 1331.
- Stereochemistry and the laws of rotatory power** (COLSON), 1892, A., 758; (GUYE), 1892, A., 759.  
 and the oximes (CLAUS), 1892, A., 50.
- Sterilisation of liquids and the use of plaster filters for** (GAUTIER), 1885, A., 287; (CAZENÈVE), 1885, A., 288.  
 of organic liquids, use of liquefied carbonic anhydride for (D'ARSONVAL), 1891, A., 854.
- Stibiatil** (IGELSTRÖM), 1890, A., 1076.
- Stibnite** (*antimonite*) from Czerwenitz (V. FOULLON), 1886, A., 22.  
 from Felsobánya and from Magurka (LOCZKA), 1892, A., 1054.  
 from Japan (DANA), 1884, A., 22; (KRENNER), 1885, A., 221.  
 from Valdagno (LUZZATTO), 1887, A., 1084.  
 pseudomorph of (HINTZE), 1883, A., 430.  
 See also Antimony trisulphide.
- $\alpha$ -Stilbazole.** See  $\alpha$ -Styrylpyridine.
- Stilbazoline.** See  $\alpha$ -Phenethylpiperidine.
- Stilbene** (*s-diphenylethylene; toluylene*), formation of (V. MILLER and ROHDK), 1890, A., 978.  
 formation of, from the polymeric thiobenzaldehyde (BAUMANN and KLETT), 1892, A., 181.  
 attempted formation of a geometrical isomeride of (ARONSTEIN and HOLLMAN), 1889, A., 51.  
 heat of combustion of (OSSIPOFF), 1889, A., 6, 460.  
 reaction of (ERRERA), 1887, A., 53.  
 substitution products of (KOPP), 1892, A., 718.  
 derivatives of (REDZKO), 1890, A., 783.  
 alcohol. See Hydrobenzoin.
- Stilbene, diamido-derivatives of** (GROSSMANN), 1889, A., 1191.  
*diamido-*, sulphide (ANSCHÜTZ and SCHULTZ), 1889, A., 602.  
 See also Dehydrothiokoluidine.
- Stilbene, *o*-diamido-**, azo-dyes from (BISCHOFF), 1888, A., 1094.  
*p*-diamido- (BENDER and SCHULTZ), 1887, A., 268.  
 2-dichloro-4-dinitro- (WITT), 1892, A., 444.  
*dicyano-* (CHALANEY and KNOEVRNAGEL), 1892, A., 618.  
 nitro- (*nitrodiphenylethylene*) (ANSCHÜTZ and ROMIG), 1885, A., 768.  
*o*-dinitro- (BISCHOFF), 1888, A., 1094.  
*p*-dinitro-, bromide (ELBS and BAUER), 1887, A., 151.  
*o*-nitramido- (BISCHOFF), 1888, A., 1094.
- Stilbenes**, substituted, formation of (ELBS; ELBS and BAUER), 1887, A., 151.
- isoStilbene**, derivatives of (REDZKO), 1890, A., 783.
- Stilbene- $\alpha\alpha$ -dicarboxylic acid.** See Diphenylmaleic acid.
- Stilbenedi-*o*-carboxylic acid** (HANSSELBACH), 1888, A., 486.
- Stilbene-group**, isomerism in the (WILLIAMS and BLANK), 1889, A., 261; (WALDEN and KERNBAUM), 1890, A., 1299; (SUMBOROUGH), 1892, A., 1224.
- Stilbenesulphonic acid, diamido-** (BENDER and SCHULTZ), 1887, A., 268.
- Stilbite** (*desmine*) (HEDDLE), 1883, A., 411; (GROSS and HILLEBRAND), 1883, A., 957.  
 from Berks Co., Pa. (SMITH), 1885, A., 960.  
 from the French Creek mines (EYERMAN), 1890, A., 113.  
 from the Viesch Glacier (BRUN), 1884, A., 402.  
 and heulandite group, relations between minerals of the (RINNE), 1892, A., 417.
- Stomach**, amount of acid in the, on an amylaceous diet (ROSENHEIM), 1889, A., 617, 972.  
 formation of hydrochloric acid in the (FRIEDICH), 1886, A., 639.  
 normal, digestion of flesh in the (CAHN and V. MERING), 1888, A., 859.  
 relative absorption of neutral salts in the (JAWORSKI), 1884, A., 193.  
 action of acids on the functional activity of the (JAWORSKI), 1888, A., 616.  
 behaviour of carbonic anhydride, oxygen and ozone in the (JAWORSKI), 1885, A., 280.  
 function of animal gum in the (LANDWEHR), 1888, A., 176.

**Stomach**, reaction of the living mucus-lining of the (EDINGEN), 1883, A., 815.  
 alteration of cane-sugar in the (v. LEUBE), 1884, A., 91.  
 dehydration of glucose in the (CHITTENDEN), 1888, A., 79.  
 conversion of starch in the (ZEH-NISSEN), 1889, A., 631.  
 decomposition of bromides and iodides by the (KÜLZ), 1887, A., 508; (DRECHSEL), 1889, A., 426.  
 horse's, sugar contents of the (ELLENBERGER and HOFMEISTER), 1889, A., 176.  
 horse's, absorption in the (GOLD-SCHMIDT), 1887, A., 743.  
 estimation of hydrochloric acid in the (GÜNZBURG), 1888, A., 617; (SJOQVIST), 1889, A., 302; (GRAF-FENBERGER), 1892, A., 236; (LANGERMANN), 1892, A., 1125.  
 estimation of peptones in the (RIVAROCI), 1892, A., 1136.  
**Stone**, artificial, preparation of (ANON.), 1884, A., 379.  
**Stone-fruit**, ratio of flesh to stone in (WILHELM), 1884, A., 477.  
**Stones**, waterproof paint for (ANON.), 1883, A., 760.  
 building, decay of (WALLACE), 1883, A., 1036.  
**Stoneware** (WAGENER), 1883, A., 397.  
**Stone-work**, process for preserving and colouring (KEIM and THIENN), 1884, A., 880.  
**Stony concretions** in animals (SCHUBERG), 1884, A., 348.  
**Storage batteries**. See Accumulators under Electrochemistry.  
**Storax**, American (FLÜCKIGER; v. MILLER), 1883, A., 407.  
**Stramonium seed**, preparation of daturine from (HARTZ), 1885, A., 820.  
**Stratiotes aloides**, constituents and properties of, and its use as a manure (NIEDERSTADT), 1884, A., 108.  
**Straw**. See Agricultural Chemistry.  
**Strawberries**. See Agricultural Chemistry.  
**Straw-gum** (HÉBERT), 1890, A., 1460.  
**Strengite**, artificial production of (DE SCHULTEN), 1885, A., 1043.  
**Striking distance** and potential difference, relation between, in various gases (PASCHEN), 1889, A., 806.  
**Stromeyerite** from California (MELVILLE and LINDGREN), 1892, A., 1407.  
 from Mexico (KÖNIG), 1887, A., 643; 1888, A., 560.  
**Strontia**. See Strontium oxide.

**Strontia-sugar**. See Carbohydrates.  
**Strontianite** from Althahen (VIRBA), 1889, A., 837.  
 from the Kaiserstuhl (BECKENKAMP), 1888, A., 659.  
 from Leadhills (COLLIE), 1889, T., 95.  
 in Westphalia (VENATOR), 1883, A., 431.  
 artificial production of (BOURGEOIS), 1883, A., 31.  
 See also Strontium carbonate.  
**Strontium** compounds, recovery of (MUCK), 1884, A., 394.  
 salts, pure, preparation of (BARTHE and FALIERES), 1892, A., 1277.  
 removal of barium from (ADRIAN and BOUGAREL), 1892, A., 776.  
 physiological action of (LABORDE), 1891, A., 99; 1892, A., 227.  
**Strontium arsenates** (LEFÉVRE), 1889, A., 826.  
 sodium arsenates (JOLY), 1887, A., 637.  
 carbonate, preparation of (MEERS and DECASTRO), 1885, A., 1269.  
 action of potassium sulphate on (KOUKLIN), 1892, A., 1276.  
 See also Strontianite.  
 chlorate and the velocity of its decomposition by heat (POTILIZIN), 1890, A., 696.  
 chloride, preparation of (WACKENRODER), 1885, A., 19.  
 vapour pressure of solutions of (ANDREAE), 1891, A., 782.  
 solubility of (ETARD), 1892, A., 398.  
 application of, in purifying syrups (KOTTMANN), 1883, A., 252.  
 lead and mercury oxychlorides (ANDRÉ), 1887, A., 446, 447.  
 chromate, solubility of, in dilute alcohol (FREMENIUS and RUPPERT), 1892, A., 914.  
 hydrates (NIEWERTH), 1884, A., 712; (CLAUS), 1884, A., 1224; 1885, A., 937; (MAUMENÉ), 1886, A., 421; (HEYER), 1887, A., 108, 217; (SCHRIBLER; FINKENER), 1887, A., 217; (MÜLLER-ERZBACH), 1887, A., 765.  
 hydride (WINKLER), 1891, A., 1156.  
 hyponitrite (MAQUENNE), 1889, A., 945.  
 manganite (ROUSSEAU), 1886, A., 425.  
 formation and dissociation of (ROUSSEAU), 1886, A., 507.  
 nitrate, solubility of, in alcohol (HILL), 1889, A., 345.  
 nitride (MAQUENNE), 1892, A., 566, 776.

- Strontium oxide** (*strontite*), crystalline (BRUGELMANN), 1890, A., 850.  
 phosphorescence of (CROOKES), 1887, A., 1068.  
 action of magnesium oxide on (WINKLER), 1890, A., 452.  
 phosphates (BARTHE), 1892, A., 1156.  
 potassium phosphates (OUVRARD), 1888, A., 1034.  
 sodium phosphates (JOLY), 1887, A., 637; (OUVRARD), 1888, A., 1034.  
 plumbate (KANSNER), 1890, A., 561.  
 selenate (MICHEL), 1888, A., 650.  
 silicofluoride, solubility of (FRESENIUS), 1890, A., 925.  
 sulphate, solubility of, in acids (OSTWALD), 1884, A., 813.  
 process for working up (ANON.), 1884, A., 1225.  
 See also Celestite.  
 sulphide, phosphorescent, preparation of (BECQUEREL), 1889, A., 198.  
 oxysulphide (GEUTHER), 1884, A., 1263.  
 thiosulphate (FOCK and KLÜSS), 1890, A., 330.  
 cadmium thiosulphates (FOCK and KLÜSS), 1890, A., 1058.  
 potassium thiosulphate (FOCK and KLÜSS), 1892, A., 13.  
 titanate (BOURGOIS), 1886, A., 985.  
 tungstate (v. KNOORRE), 1885, A., 486.  
 tungstovanadates (ROHMENBACH), 1891, A., 18.  
 vanadates (MANASSE), 1887, A., 339.  
 zirconate (OUVRARD), 1891, A., 1432.
- Strontium organic compound**:—  
 acetylhyponitrite (MAQUENNE), 1889, A., 945.
- Strontium, detection, estimation and separation**:—  
 microchemical test for (v. HAUSSHOFFER), 1887, A., 301.  
 detection of (RANSOM), 1883, A., 509.  
 detection of, in presence of barium (LUEDEKING), 1891, A., 364.  
 estimation, volumetric, of (VITALI), 1892, A., 1521.  
 separation of, from barium (FRESENIUS), 1890, A., 826, 924; 1891, A., 110.  
 separation of, from barium and calcium (RUSSMANN), 1888, A., 629; 1891, A., 111; (KUPFFERSCHLAGER), 1889, A., 77; (FILETT), 1892, A., 660.  
 separation of, from calcium (SIDERSKY), 1883, A., 509; 1884, A., 497; (BOGOMOLETZ), 1884, A., 1077; (BROWNING), 1892, A., 915.
- Strontium**, separation of, from calcium as chromates (FRESENIUS and RUPPERT), 1892, A., 914.
- Strophanthidin** (FRASER), 1887, A., 1116; 1888, A., 607.
- Strophanthin**. See Glucosides.
- Strophanthus** (GERRARD), 1887, A., 970; (ELBORNE; MERCK), 1887, A., 1116.  
 crystalline compound from glabrous (ARNAUD), 1889, A., 407.  
 seeds, constituents of (ELBORNE), 1887, A., 991.
- Strophanthus hispidus* (FRASER), 1890, A., 262.
- Structural formulæ** of alkylene oxide, acetaldehyde and its polymerides, trimethylene and benzene (BRÜHL), 1891, A., 633.  
 several, possibility of, for the same chemical compound (LAAR), 1885, A., 722.
- Struvite** (MACIVOR), 1887, A., 709.
- Strychnic acid** (*strychnol*) (PLUGGE), 1884, A., 188; (LOEBNICH and SCHOOP), 1886, A., 814; (TAFEL), 1891, A., 1262.  
 nitro- (LOEBNICH and SCHOOP), 1886, A., 814.  
 isostrychnic acid (*dihydrostrychnine*), and its methiodide (LOEBNICH and SCHOOP), 1886, A., 815; (TAFEL), 1891, A., 1262.  
 nitroso- (TAFEL), 1892, A., 1012.
- Strychnine**. See Alkaloids.
- Strychnedisulphonic acid** (SROEDER), 1886, A., 269.
- Strychninesulphonic acids** (SROEDER), 1886, A., 269; 1888, A., 73; (GUARINCHI), 1887, A., 553.
- Strychnos Nux vomica*, glucoside from (DUNSTAN and SHORT), 1885, A., 395.  
 indigenous to Ceylon, chemistry and botany of (DUNSTAN and SHORT), 1885, A., 538.
- Strychnos toxiferu*, emarine from (VILLIERS), 1885, A., 997.
- Stüvenite** (DARAPSKY), 1887, A., 559.
- Stylophorum diphyllum*, alkaloids of the root of (SELLE), 1890, A., 649.
- Styphnic acid** (2:4 6-trinitroresorcinol), constitution of (HENRIQUE), 1883, A., 329; (v. KOSTANECKI and FEINSTEIN), 1889, A., 130.  
 derivatives of (NÜLTING and COLLIN), 1884, A., 1004.
- Stypticite**. See Fibroferrite.
- Styrene** (*cinnamene*; *phenylethylene*; *styrol*; *styrolene*) in coal tar (KRAEMER and SPILKER), 1891, A., 206.

- Styrene** (*cinnamene*; *phenylethylene*; *styrol*; *styrolene*), molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
 condensation of, with methylbenzene derivatives (KRAEMER and SPILKER), 1891, A., 206.  
 condensation of, with phenols (KOENIGS), 1891, A., 208; (KOENIGS and CARL), 1892, A., 446.  
 derivatives of (BERNTSEN and BENDER), 1883, A., 70.  
 derivatives of aromatic hydrocarbons and their conversion into anthracenes and methylanthracenes (KRAEMER, SPILKER and EBERHARDT), 1891, A., 207.
- Styrene**, *p*-amido- (BERNTSEN and BENDER), 1883, A., 70.  
*p*-bromo-, *di*bromide and glycol (SUHRAMM), 1891, A., 898.  
*di*bromo-, action of bromine vapour on (KINNICUTT and PALMER), 1884, A., 603.  
 $\omega$ -chloro-*o*-amido- and  $\omega$ -chloro-*o*-nitro- (LIPP), 1884, A., 1030.  
*tri*iodo- (LIEBERMANN and SACHSE), 1892, A., 470.  
 $\omega$ -nitro-, and its derivatives (PRIEDS), 1884, A., 313; 1885, A., 160; (ERDMANN), 1884, A., 906.  
 preparation of (ERDMANN), 1891, A., 1483.  
 $o$ -nitro-, action of sulphuric acid on, and its *di*bromide (EINHORN), 1884, A., 66.  
*m*-nitro- and its *di*bromide (PRAUSNITZ), 1884, A., 1175.  
*p*-nitro- and its *di*bromide (BASLER), 1884, A., 604.  
 4: $\omega$ -*di*nitro- (FRIEDLANDER and MÄNLY), 1885, A., 1138.  
 nitro-*p*-amido- $\omega$ -nitro- (FRIEDLÄNDER and LAZARUS), 1885, A., 1139.
- Styrogallol** (*o*-*di*hydroxyanthracoumarin) (JACOBSEN and JULIUS), 1888, A., 56; (V. KOSFANECKI), 1888, A., 292.
- Styrolene**. See Styrene.
- Styrolene alcohol**. See Dihydroxyethylbenzene.
- Styryl methyl ketone** (*benzylidenecetone*) (CLAISEN and PONDER), 1884, A., 1166.  
 phenylhydrazone (KNORR), 1887, A., 678.  
*m*-amido- (V. MILLER and ROHDE), 1890, A., 1138.  
 5-chloro-2-nitro- (EICHENGRÜN and EINHORN), 1891, A., 1099.
- Styryl methyl ketone** (*benzylidenecetone*),  $o$ -nitro- (V. BAeyer and DREWSEN), 1883, A., 341; (FISCHER and KUZEL), 1883, A., 587.  
*p*-nitro- (V. BAeyer and BECKER), 1883, A., 1120.
- Styryl methyl ketoxime** (JACOBY), 1886, A., 800.  
 action of dehydrating agents on (ZELINSKY), 1887, A., 666.
- Styryl nitrosomethyl ketone** (CLAISEN and MANASSE), 1889, A., 585.
- Styrylacrylic acid** (*cinnamylacrylic acid*), oxidation of (DOEBNER), 1890, A., 1274.  
 $o$ -amido- and  $o$ -nitro- (DIEHL and EINHORN), 1885, A., 1222.
- Styrylangelic acid**, preparation of (EDELENT), 1891, A., 1225.
- Styrylbenzaldazine** (CURTIS and THUN), 1891, A., 1357.
- $\alpha$ -Styrylcinchonic acid** (DOEBNER and PETERS), 1890, A., 176.
- Styryldimethylglyoxaline** (WADSWORTH), 1890, T., 11.
- 4-Styryl-2,6-dimethylpyridine-3:5-dicarboxylic acid** (LEPSCH), 1886, A., 258.
- Styryldiphenyleneoxazole** (WADSWORTH), 1890, T., 12.
- 2-Styryl-5-ethyloctahydropyridine** (*ethyloctahydrostilbazole*) (PLATH), 1889, A., 164.
- Styrylgyoxylic acid**, nitro-. See Nitrocinnamoylformic acid.
- Styrylhydantoin** (*styrylmethylpyrazolone*), preparation of, and its *di*bromide (PINNER and LIFSCHÜTZ), 1887, A., 1055; (PINNER and SPILKER), 1889, A., 704.
- Styryl- $\psi$ -hydantoin** and its *di*bromide (PINNER and SPILKER), 1889, A., 704.
- Styrylhydantoinamide** (PINNER and SPILKER), 1889, A., 705.
- $\mu$ -Styryl- $\beta$ -methyloxazoline** (ELFELDT), 1892, A., 215.
- Styrylmethylpyridine** (*methylstilbazole*), and its reduction products (BACHER), 1889, A., 162.
- $\alpha$ -Styryl- $\alpha$ - and - $\beta$ -naphthacinchonic acids** (DOEBNER and PETERS), 1890, A., 1007.
- $\alpha$ -Styryl- $\alpha$ - and - $\beta$ -naphthaquinolines** (DOEBNER and PETERS), 1890, A., 1008.
- $\mu$ -Styryl-oxazoline and -pentoxazoline** (ELFELDT), 1892, A., 215.
- Styrylpropionic acid**, oxidation of (FITTING), 1883, A., 595.  
 $o$ -amido- (DIEHL and EINHORN), 1887, A., 485.  
 See also Hydrostyrylacrylic acid.

- Styrylmetapyrazole** (PINNER and LIFSCHUTZ), 1887, A., 1055.
- Styrylmetapyrazolone.** See Styrylhydantoin.
- $\alpha$ -Styrylpyridine** ( *$\alpha$ -stilbarole*), and its reduction products (BAURATH), 1888, A., 65, 608.
- m*-amido-, and *m*-nitro-, and its reduction products (SCHUFFAN), 1890, A., 1437.
- Styryltetrahydroketo-naphthaquin-oxaline** and **-quinoxaline** (GEORGE-ENCU), 1892, A., 886.
- Styrylvinyl methyl ketone** (*phenylbutylene methyl ketone*) and its derivatives (DIEHL and EINHORN), 1885, A., 1221.
- o*-nitro- (DIEHL and EINHORN), 1885, A., 1222.
- p*-nitro- (EINHORN and GEHRENBECCK), 1890, A., 162.
- Styryl-.** See also Cinnamyl- and Cinnamyl-.
- Suberic acid** and its salts (HELL and REMPEL), 1885, A., 756.
- Suberic acid**, thermochemistry of (LUGININ), 1889, A., 5; (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (STOHMANN and KLEBER), 1892, A., 1041.
- boiling points of (KRAFFT and NOERDLINGER), 1889, A., 691.
- derivatives of (HELL and REMPEL), 1885, A., 755; (HEMPFL), 1885, A., 756.
- chloro-, action of potassium cyanide and potassium hydroxide on (BAUER), 1883, A., 970.
- Suberin** (URBAIN), 1884, A., 860; (GILSON), 1891, A., 465.
- Suberinic acid** (GILSON), 1891, A., 465.
- Suberonyl alcohol** and **suberonylene** (MARKOWITZOFF), 1890, A., 728.
- Suberoxime** (NAGELI), 1883, A., 728.
- Sublimation apparatus** (RICHTER), 1884, A., 361; (BRUHL), 1889, A., 463.
- Submersion figures** (TOMLINSON), 1887, A., 209.
- Substances**, apparatus for drying, under diminished pressure (SIDERSKY), 1890, A., 1185.
- viscid, determination of the specific gravity of (SCHEIBLER), 1891, A., 520; (BRUHL), 1891, A., 520, 1147.
- Substitution**, explanation of the laws which govern, in benzenoid compounds (ARMSTRONG), 1887, T., 258, 538; P., 8, 44, 62; (MORLEY), 1887, T., 579.
- Substitution**, dependence of, on the atomic or molecular weights of certain atoms or groups (KEHRMANN), 1890, A., 484.
- in the aromatic series (LOBRY DE BRUYN), 1891, A., 428.
- in the fatty series (MEYER and MÜLLER), 1892, A., 577, 1414.
- Substitution-derivatives**, formation of (GORDON), 1891, P., 62.
- Succinaldoxime** (CIAMICIAN and ZANETTI), 1889, A., 1208.
- Succinamic acid** (SERDA and WIEDEMANN), 1891, A., 175.
- nitrile of (DROUIN), 1889, A., 686.
- iso***Succinamic acid**,  $\alpha$ -amido- (KORNER and MENOZZI), 1888, A., 133.
- s*-**Succinamide** (HENRY), 1885, A., 886.
- imido- (HELL and POLIAKOFF), 1892, A., 820.
- as-dihydro*- (CURRIUS and LANG), 1892, A., 453.
- iso***Succinamide** (FRANCHIMONT and KLOBBIE), 1889, A., 1143.
- $\alpha$ -amido- (KORNER and MENOZZI), 1888, A., 133.
- Succinamidine hydrochloride** (PINNER), 1883, A., 731.
- Succinamidobenzoic acid** (PELLIZZARI), 1885, A., 534.
- Succinamidotrimethylphenylammonium** (GRIEß), 1885, A., 1220.
- Succinamil**, dibromo- (ANSCHUTZ and WIRTZ), 1887, A., 931.
- Succinazone** (CIAMICIAN and ZANETTI), 1889, A., 1208; 1891, A., 1502.
- Succinenylazoxybenzene** (SEMBRITZKI), 1888, A., 935.
- Succinenyldiamidoxime** and its derivatives and ethyl ether (SEMBRITZKI), 1888, A., 935; 1890, A., 125.
- formation of (GARNY), 1892, A., 137.
- Succinenyldiazoximedibenzenyl** (SEMBRITZKI), 1890, A., 125.
- Succinenyl-diuramidoxime** and **-imido-dioxime** (SEMBRITZKI), 1888, A., 935; 1890, A., 125.
- Succinenylimidoxime** (TIEMANN), 1892, A., 135; (GARNY), 1892, A., 136.
- Succinethylenephénylhydrazide** (BURCHARD), 1890, A., 250.
- Succinic acid** (SCHMIDT), 1886, A., 869; (GUINOCHET), 1890, A., 238; (DEMUTH and MEYER), 1890, A., 595.
- thermochemistry of (LUGININ), 1889, A., 5; (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (MASSEL), 1891, A., 968; (STOHMANN and KLEBER), 1892, A., 1041.

- Succinic acid**, heat of solution of (TANATAR), 1890, A., 320.  
 specific heat of (HESS), 1889, A., 93.  
 boiling points, of (KRAFFT and NOERDLINGER), 1889, A., 690.  
 solubility of (MICZYNSKI), 1886, A., 935.  
 pyrogenic decomposition of (HARRIOT), 1886, A., 224.  
 decomposition of, by sun-light in presence of an uranium salt (WISBAR), 1891, A., 1018.  
 and acetaldehyde, condensation of (FITTIG and FRÄNKEL), 1890, A., 584.  
 and anisaldehyde, condensation of (FITTIG and POLITZ), 1890, A., 770.  
 and butaldehyde, condensation of (FITTIG and SCHMIDT), 1890, A., 588.  
 and isobutaldehyde, condensation of (FITTIG and ZANNER), 1890, A., 589.  
 and chloral, condensation of (FITTIG and MILLER), 1890, A., 586.  
 action of ethylenediamine on (MASON), 1889, T., 10.  
 and ethylic acetoacetate, condensation of (v. EYERN), 1889, A., 592.  
 and ethylic benzoylacetate, condensation of (SCHLOESER), 1889, A., 594.  
 and propaldehyde, condensation of (FITTIG and DELISLE), 1890, A., 587.  
 and valeraldehyde, condensation of (FITTIG and SCHNEEGANS), 1890, A., 590.  
 bromination of (AUWERS and IMHÄUSER), 1891, A., 1191.  
 separation of malic acid from (MICKO), 1892, A., 1531.  
 ferment and its action on cane-sugar (TEIXEIRA-MENDES), 1885, A., 1152.  
 derivatives, explanation of isomerism in (BISCHOFF), 1891, A., 892.  
 derivatives, action of hydroxylamine on (GARNY), 1892, A., 136.  
 alkyl derivatives of, synthesis of (BROWN and WALKER), 1891, A., 1193.  
 potassium salt of, heat of formation of (TANATAR), 1890, A., 320.  
 potassium salt of, normal and acid, water of crystallisation of (SALZER), 1884, A., 584.  
 potassium hydrogen salt of, dry distillation of (WISBAR), 1891, A., 1012.
- Succinic acid**, sodium salt of, heat of formation of (TANATAR), 1890, A., 320.  
 substitution derivatives of (BISCHOFF), 1891, A., 891.
- Succinic acid**, amido-. See Aspartic acid.
- diamido-** (CLAUS), 1883, A., 43.  
 bromo- (VOLHARD), 1888, A., 129; (ANSCHÜTZ and BENNERT), 1890, A., 363; (AUWERS and IMHÄUSER), 1891, A., 1191.  
*mono-* and *di-*bromo-, electrolysis of (LASSAR-COHN), 1889, A., 1056.  
*s-di*bromo- (CLAUS), 1883, A., 43; (GUINCHET), 1889, A., 588; (DEMUTH and MEYER), 1890, A., 595.  
 preparation of (GORODETZKY and HELL), 1888, A., 820.  
 action of aniline on (REINERT), 1886, A., 791.  
 action of sodium ethylate on the sodium salt of (MÜLDER and HAMBURGER), 1883, A., 312.  
*iso-di*bromo- (DEMUTH and MEYER), 1888, A., 360.  
 bromamido- (CLAUS), 1883, A., 43.  
 chloro- (ANSCHÜTZ and BENNERT), 1890, A., 363.  
*monoximido-* (CRAMER), 1891, A., 823; (PIUTTI), 1891, A., 1191.  
*α-oximido-* and its salts (EBERT), 1885, A., 1123.  
*β-oximido-* (CRAMER), 1891, A., 824.  
*ββ-dioximido-* and its salts (MÜLLEN), 1884, A., 584.  
*αα-* and *ββ-dioximido-* (SÜDERBAUM), 1891, A., 825.
- isoSuccinic acid** (*methylmalonic acid*), preparation of (LASSAR-COHN), 1889, A., 1056.  
 thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (MANSOL), 1892, A., 1140.  
 heat of solution of (TANATAR), 1890, A., 320.  
 specific heat of (HESS), 1889, A., 93.  
 action of nitric acid on (FRANCHIMONT), 1887, A., 466.  
 condensation-products formed by benzaldehyde with (STUART), 1883, T., 403.  
 derivatives of (KÖRNER and MENOZZI), 1888, A., 132.
- isoSuccinic acid**, *α-amido-* (KÖRNER and MENOZZI), 1887, A., 801.  
*mono-* and *di-*bromo-, electrolysis of (LASSAR-COHN), 1889, A., 1057.  
 bromo-, action of alcoholic potash on (TANATAR), 1890, A., 1238; 1892, A., 1305.

- Succinic acids**, substituted (BISCHOFF and WALDEN), 1889, A., 959; (BISCHOFF), 1890, A., 237, 742.  
 electrical conductivity of (BISCHOFF and WALDEN), 1890, A., 1038.  
 anhydride-formation and intramolecular change of (AUVERS and MEYER), 1890, A., 479; (BISCHOFF), 1890, A., 741; 1891, A., 892; (BISCHOFF and MINTZ), 1890, A., 744.  
 dibromo-, action of phosphorus sulphides on (OSSIPOFF), 1889, A., 237.  
**Succinates** and *isosuccinates*, solubilities of (MICZYŃSKI), 1886, A., 935.  
**Succinic aldehyde diphenyldihydrazone** (*succinazone*) (CIAMICIAN and ZANETTI), 1889, A., 1208; 1891, A., 1502.  
**Succinic anhydride**,  $\beta$ -oximido- (CRAMER), 1891, A., 825.  
 thio- (ZANETTI), 1889, A., 960.  
*isoSuccinic-ureide* (FRANCHIMONT and KLOBBE), 1888, A., 1181.  
**Succinimide** and its derivatives (LANDSBERG), 1883, A., 476.  
 thermochemistry of (BERTHELOT and FOGH), 1890, A., 1360.  
 action of ammonia on (RUBZOFF), 1886, A., 141.  
 action of hypobromites on (HOOGWERFF and VAN DORP), 1891, A., 1216.  
 bromo- (KUSSEROW), 1889, A., 1064.  
*isoSuccinimide*, alkyl derivatives of (COMSTOCK and WHEELER), 1892, A., 701.  
**Succinimidine hydrochloride** (PINNER), 1883, A., 731, 1088.  
**Succinimidine nitrite** (LUSSEN), 1892, A., 53.  
**Succinimidobenzenesulphonic acid**, sodium salt of (PELLIZZARI and MAITEUCCI), 1888, A., 1302.  
**Succinobenzimide** (PINNER), 1890, A., 69.  
**Succinobenzyl-**. See Benzylsuccin-.  
**Succinodibenzamic acid** (PELLIZZARI), 1885, A., 533.  
**Succinodiphenylhydrazide** (ZANETTI), 1889, A., 960.  
**Succinonitrile** (*ethylenic cyanide*) (HENRY), 1885, A., 646.  
 preparation of (FAUCONNIER), 1889, A., 227.  
 heats of combustion and formation of (BERTHELOT and PETIT), 1889, A., 812.  
 action of aniline hydrochloride on (BLOCHMANN), 1887, A., 931.  
**Succinonitrile** (*ethylenic cyanide*), action of, on hydrochloric acid and alcohol (PINNER), 1883, A., 730.  
**Succinophenone** (AUGER), 1888, A., 952.  
**Succinophenyldicarbazine** (FREUND and GOLDSMITH), 1888, A., 1187.  
 $\alpha$ -**Succinophenylhydrazide** [m.p. 156°] (HOITE), 1886, A., 351; 1887, A., 671.  
 $\beta$ -**Succinophenylhydrazide** [m.p. 199°] (MICHAELIS and HERMENS), 1892, A., 1494.  
**Succinophenylhydrazide** [m.p. 208°] (FREUND and GOLDSMITH), 1888, A., 1187.  
**Succinyl compounds**, action of phosphorus pentachloride on (KAUDER), 1885, A., 551.  
**Succinyl chloride** (AUGER), 1888, A., 953.  
 constitution of (EMERY), 1890, A., 236.  
 magnetic rotatory power of (PERKIN), 1888, T., 563, 590.  
 action of phosphorus pentachloride on (KAUDER), 1884, A., 40.  
 action of zinc ethyl on (RJASANIZEFF), 1889, A., 1059.  
**Succinylsuccinic acid** (v. BAeyer and NOYES), 1889, A., 1147.  
 constitution of (GEURHER), 1888, A., 579.  
**Succirubra bark**, natural and renewed, analysis of (HODGKIN), 1884, A., 919.  
**Succus entericus**, human (TUDBY and MANNING), 1892, A., 1368.  
**Sucrose** (*saccharose*) and its derivatives. See Carbohydrates.  
**Suet** and other fats, recognition of suint in (MEYER), 1883, A., 750.  
**Sugar-cane**, researches on (KNOP), 1884, A., 1212.  
 artificial manuring of (RIFFARD), 1883, A., 506.  
 percentage of ash in (KNOP), 1883, A., 110.  
 fermentation of the juice of (MARCANO), 1889, A., 915.  
 analysis of the juice of (CRAMPON), 1887, A., 751.  
 healthy and diseased, analyses of (STURZER), 1892, A., 1372.  
**Sugars**. See Carbohydrates.  
**Suint**, composition of (BUISSINE), 1886, A., 902; (MAUMENL), 1886, A., 1055.  
 volatile acids of (BUISSINE), 1888, A., 673.  
 amines in (BUISSINE), 1887, A., 792.  
 glycollic acid and pyrotartaric acid in (A. and F. BUISSINE), 1889, A., 178.  
 malic acid in (A. and P. BUISSINE), 1888, A., 976.

Suint, recognition of, in suet and other fats (MEYER), 1883, A., 750.  
 "Sulfuraires," reduction of sulphates by (PLAUCHUD), 1883, A., 610.  
 Sulphacetic acid and its derivatives (FRANCHIMONT), 1888, A., 1175.  
 alkyl salts of (MAUZELIUS), 1888, A., 821.  
 chloro- (ANDREASCH), 1886, A., 786.  
 o-Sulphamido-benzanilide and -o- and -p-benzotoluidides (REMSEN and DOHME), 1889, A., 992.  
 Sulphamidobenzeneazo-compounds. See Azo-  
 o-Sulphamidobenzoic acid (NOYES), 1886, A., 804; (FAHLBERG and LIST), 1887, A., 835.  
 p-nitro- (NOYES and WILEY), 1889, A., 711.  
 m-Sulphamidobenzoic acid (EITNER), 1892, A., 714.  
 o-Sulphamidocarboxylic acids, formation of (FAHLBERG and LIST), 1888, A., 367.  
 Sulphamidocuminic acid and its salts (REMSEN and DAY), 1884, A., 456.  
 Sulphamidoisodurylic acids (JACOBSEN), 1883, A., 53.  
 Sulphamidohemimellithylic acids,  $\alpha$ - and  $\beta$ - (JACOBSEN), 1887, A., 36.  
 3-Sulphamido-p-propylbenzoic acid and its salts (REMSEN and KEISER), 1884, A., 457.  
 Sulphamidoterephthalic acid (NOYES and WALKER), 1887, A., 728.  
 3-Sulphamido-p-toluic acid (WEBER), 1892, A., 1092.  
 Sulphamidotrimellitic acid, salts of (JACOBSEN and MEYER), 1883, A., 590.  
 Sulphamido-xylylidic and -xylylic acids (JACOBSEN and MEYER), 1883, A., 589.  
 Sulphanilazocumenol, potassium salt of (LIEBERMANN and V. KOSTANECKI), 1884, A., 1147.  
 Sulphanilic acid. See Aniline-p-sulphonic acid.  
 Sulp anilide (TRAUBE), 1891, A., 569.  
 Sulpamidooacetic acid (PLÜCHL and LOË), 1885, A., 899.  
 Sulphatammon (triammonium imido-sulphonate) (DIVERS and HAGA), 1892, T., 949.  
 "Sulphate" furnace (LARKIN), 1885, A., 1268.  
 Sulphates. See under Sulphur.  
 Sulphatopurpureocobalt salts. See Cobaltammonium.  
 Sulphazides (LIMPRICHT), 1887, A., 723.

Sulphides. See under Sulphur.  
 Sulphime dithiocarbamidodisulphinites, amido- (TREMANN), 1891, A., 557.  
 Sulphimidobenzene, o-, m- and p- (CLEVE), 1887, A., 834.  
 Sulphimido-compounds (CLEVE), 1888, A., 698.  
 Sulphimidonaphthalene,  $\alpha$ -,  $\beta$ -,  $\gamma$ - and  $\delta$ - (CLEVE), 1887, A., 834.  
 Sulphines (KLINGER and MASSEN), 1888, A., 357; 1889, A., 1185; (NASINI and SCALA), 1889, A., 115; 1890, A., 1234; (PATEIN), 1889, A., 234; 1890, A., 880.  
 aromatic (MICHAELIS and GODCHAUX), 1891, A., 714.  
 molecular refraction and dissociation of solutions of (NASINI and COSTA), 1892, A., 34.  
 cyanogen compounds of (PATEIN), 1888, A., 664; 1890, A., 880.  
 Sulphinic acids, constitution of (OTTO and RÜSSING), 1885, A., 1231.  
 tautomerism of (OTTO and RÜSSING), 1892, A., 623.  
 action of phenylhydrazine on (ESCALES), 1885, A., 798.  
 Sulphinates, aromatic ethereal, behaviour of, towards hydrogen sulphide (OTTO and RÜSSING), 1887, A., 1047.  
 Sulphinic anhydrides, aromatic, synthesis of (OTTO and MILCH), 1888, A., 281.  
 Sulphinic derivatives and their analogies to compounds of organic amines (NASINI and COSTA), 1892, A., 34.  
 Sulphinic ethers, aromatic, oxidation of, to sulphonates (OTTO and RÜSSING), 1886, A., 710.  
 Sulphite-cellulose, dextrose from (LINDSEY and TOLLENS), 1892, A., 801.  
 Sulphites. See under Sulphur.  
 Sulphobenzamidinic acid. See Sulphaminebenzoic acid.  
 Sulphobenzene-azo- and -diazo-compounds. See Azo-  
 Sulphobenzide. See Diphenylsulphone.  
 o-Sulphobenzonic acid and its derivatives (FAHLBERG and BARGE), 1889, A., 709; (REMSEN), 1889, A., 881; (REMSEN and DOHME), 1889, A., 992.  
 preparation of (BRACKETT and HAYES), 1888, A., 279.  
 p-amido- (HEDRICK), 1888, A., 280.  
 p-nitro- (KASTLE), 1889, A., 711; (HAUSSER), 1892, A., 479.  
 m-Sulphobenzonic acid, p-amido- and o-bromo- (FISCHER), 1892, A., 332.

- o*-Sulphobenzoic anhydride (FAHLBERG and BARGE), 1889, A., 709; (REMSEN and DOHME), 1889, A., 992.
- Sulphobenzoic dichloride (REMSEN and DOHME), 1889, A., 992.
- Sulphobenzylidenethiocarbimidoacetic acid (ANDREASCH), 1889, A., 960.
- $\alpha$ -Sulphobutyric acid, preparation of the salts of (BEILSTEIN and WIEGAND), 1885, A., 740.
- $\beta$ -Sulphobutyric acid (HAUBNER), 1892, A., 424.
- $\alpha$ -Sulphoisobutyric acid (ANDREASCH), 1888, A., 48.
- Sulphocamphoric acid, products from (DAMSKI), 1888, A., 293.
- Sulphocarbometer (GÉLIS and THOMMERET-GYLIS), 1883, A., 386.
- Sulphocinchonic acid (V. GEORGIEVICS), 1888, A., 501; (BUSCH and KOENIGS), 1890, A., 1435.
- Sulphocinnamic acid (KAFKA), 1891, A., 722.
- Sulpho-colouring matters. See Thiazine colouring matters.
- m*-Sulphocuminic acid (WIDMAN), 1889, A., 1185.
- Sulpho-derivatives, action of chlorine on (SPRING and WINSSINGER), 1883, A., 659; 1884, A., 1127.
- Sulpho-2:3-dimethylbenzoic acid (JACOBSEN), 1887, A., 36.
- $\alpha$ -*p*-Sulphodiphenyl- $\alpha$ - $\beta$ -naphthatriazine (MELDOLA and FORSTER), 1891, T., 687.
- Sulphofumaric acid (HILL and PALMER), 1889, A., 386.
- Sulphohalite (HIDDEN and MCKINTOSH), 1889, A., 217.
- Sulpho-*n*-hexoic acid (LUDWIG), 1889, A., 121.
- Sulpho-*p*-hydroxybenzoic acid (HEDRICK), 1888, A., 280.
- Sulphohydroxystearic acid. See  $\alpha$ -Stearyl sulphuric acid.
- Sulphonal (*diethylsulphonedimethylmethane; isopropylidenediethylsulphone*), influence of, on proteid metabolism (HAHN), 1891, A., 1523.
- physiological action of (GORDON), 1890, A., 542; (SMITH), 1892, A., 1507.
- See also Diethylsulphonedimethylmethane.
- Sulphonamide, imido- (DIVERS and HAGA), 1892, T., 952.
- Sulpho- $\alpha$ - and - $\beta$ -naphthylethylxanthic acids, potassium salts of (LEUCKART), 1890, A., 606.
- Sulpho- $\alpha$ - and - $\beta$ -naphthyllic disulphides, potassium derivatives of (LEUCKART), 1890, A., 606.
- Sulphonates, constitution of the double compounds of, with alkyl sulphates (GEUTHER), 1883, A., 973.
- alkaline, action of, on salts of dihalogenated fatty acids (OTTO and ENGELHARDT), 1886, A., 883.
- aromatic, direct conversion of, into the corresponding amido-compounds (JACKSON and WING), 1887, A., 727.
- Sulphonation with potassium hydrogen sulphate (BISCHOFF, SIENIECKI and BRODSKY), 1890, A., 1149.
- Sulphonocarboxylic acids, analogy of ketonic acids to, and their reactions (ROSSING), 1890, A., 781.
- Sulphonocyanamides (HEBENSTREIF), 1890, A., 501.
- Sulphonedi-acetic acid (*dimethylsulphonedicarboxylic acid*) and its derivatives (LOVÉN), 1885, A., 241.
- action of nitrous acid on (LOVÉN), 1886, A., 222.
- $\alpha$ -Sulphone-diisobutyric and-dipropionic acids (LOVÉN), 1885, A., 241.
- Sulphonediisovaleric acid (LOVÉN), 1886, A., 333.
- Sulphonefluorescein (REMSEN and HAYES), 1888, A., 153; (REMSEN and LINN; FAHLBERG and BARGE), 1889, A., 710.
- Sulphonketones (R. OTTO), 1886, A., 801; (R. and W. OTTO), 1888, A., 282.
- Sulphonephthaleins (REMSEN), 1885, A., 539; (REMSEN and LINN), 1889, A., 710.
- Sulphones, formation of (OTTO), 1888, A., 482.
- formation of, from alkylsulphonated acids of the series  $C_nH_{2n}O_p$  (OTTO), 1885, A., 536.
- formation of, on sulphonating naphthalene derivatives (HELLER), 1889, P., 121.
- preparation of (OTTO and ROSSING), 1890, A., 780.
- synthesis of aromatic (OTTO), 1885, A., 535.
- hydrolysis of (STUFFER), 1890, A., 987; 1891, A., 180; (OTTO), 1891, A., 1229.
- stability of, towards alkalis (AUTENRIETH), 1891, A., 1068.
- relation between the physiological action and chemical constitution of (BAUMANN and KAST), 1889, A., 1232; (LAVES), 1892, A., 153.

- Sulphonic acid**, amido- (KRAFFT and BOURGEOIS), 1892, A., 700.  
 chloro- (*sulphuryl hydroxychloride*) (DIVERS and SHIMOSE), 1884, T., 195.  
 new mode of formation of (BILLITZ and HEUMANN), 1883, A., 710.  
 conversion of pyrosulphuric chloride into (OGIER), 1883, A., 642.  
 thermal constants of (OGIER), 1883, A., 642.  
 vapour-density and action of heat on (HEUMANN and KOCHLIN), 1883, A., 781.  
 action of potassium nitrate on (WILLIAMS), 1886, T., 225.  
 conversion of, into sulphur chloride (PRINZ), 1884, A., 1255.  
 fluoro- (THORPE and KIRMAN), 1892, T., 921; P., 160.  
 imido- (DIVERS and HAGA), 1892, T., 943.
- Sulphonic acid-group**, displacement of the amido-group by the (LANDSBERG), 1890, A., 1137.  
 displacement of, by chlorine (KELBE), 1883, A., 806.  
 catalytic reduction of (LOEW), 1891, A., 237.
- Sulphonic acids** (MONARI), 1885, A., 970; (SPIEGEL), 1885, A., 987; (LIMPRICHT), 1885, A., 1232.  
 hydrolysis of (ARMSTRONG and MILLER), 1884, T., 148; (MILLER), 1886, P., 234; (KELBE), 1886, A., 355.  
 decomposition of (FRIEDEL and CRAFTS), 1885, A., 268.  
 decomposition of, in presence of phosphoric acid (FRIEDEL and CRAFTS), 1889, A., 1200.  
 aromatic, method for the isolation of (GATTERMANN), 1891, A., 1226.  
 aromatic, direct conversion of, into amido-compounds (JACKSON and WING), 1886, A., 623.  
 alkyl salts of (KRAFFT and ROOS), 1892, A., 1219.  
 anhydrides of (ARMSTRONG), 1892, P., 41.  
 ethereal salts of, preparation of (ARMSTRONG and ROSSITER), 1891, P., 184.
- Sulphonic acids**, amido- (PELLIZZARI and MATTEUCCI), 1888, A., 1302; (KRAFFT and BOURGEOIS), 1892, A., 700.  
 action of aldehydes on (CAHN and LANGE), 1887, A., 962.  
 aromatic, acetyl-derivatives of (NIEZKI and BENCKNER), 1884, A., 1024.
- Sulphonic acids**, imido- (KRAFFT and BOURGEOIS), 1892, A., 700.  
 nitroso-, preparation of (LIMPRICHT), 1892, A., 475.
- Sulphonic chlorides**, action of alcohols on (ARMSTRONG and ROSSITER), 1891, P., 184.  
 behaviour of, towards thiophenols and thio-alcohols in presence of alkalis (OTTO), 1891, A., 720.
- Sulphonic derivatives**, action of heat on a mixture of sulphuric acid and (ISTRATI), 1890, A., 51.
- Sulphonic iodides**, aromatic, and action of zinc ethyl on (OTTO and TRÜGER), 1891, A., 718, 719.
- Sulpho-oleic acid** (BENEDIKT and ÜLZER), 1887, A., 914.
- Sulphophenylcarbamie acid** (NÖLTING), 1889, A., 144.
- 4-Sulphophthalamide** (RÉE), 1886, T., 521.
- Sulphophthalamides**, 3- and 4- (REMSEN and COMSTOCK), 1884, A., 320.
- 3-Sulphophthalic acid** and its salts (REMSEN and COMSTOCK), 1884, A., 320; (STOKES), 1885, A., 540; (RÉE), 1886, T., 512; (MOULTON), 1891, A., 1064.
- 4-Sulphophthalic acid** (REMSEN and COMSTOCK), 1884, A., 320; (GRÄBE), 1885, A., 902; (RÉE), 1886, T., 510; P., 211.  
 from phthalic acid (RÉE), 1885, A., 1062.  
 salts of (REMSEN and COMSTOCK), 1884, A., 320.
- 2:4-di-Sulphoisophthalic acid** (WINSCHIN), 1891, A., 73.
- 4-Sulphophthalic anhydride** and *mono*- and *di*-chlorides (RÉE), 1886, T., 515, 520.
- 4-Sulphophthalimide**, ammonium salt of (RÉE), 1886, T., 519.
- $\beta$ -Sulphopropionic acid** (ANDREASCH), 1886, A., 226; (ROSENTHAL), 1886, A., 866.
- $\delta$ -Sulphopyromucamide** (HILL and PALMER), 1889, A., 37.
- Sulphopyromucic acid**, *dichloro*- (HILL and JACKSON), 1890, A., 601.
- $\beta$ -Sulphopyromucic acid** (HILL and PALMER), 1885, A., 1204; 1889, A., 386.  
 $\delta$ -bromo- (HILL and PALMER), 1889, A., 386.
- $\delta$ -Sulphopyromucic acid** and its derivatives (HILL and PALMER), 1885, A., 1204; 1889, A., 37.
- Sulphosalicylic acids**, *mono*- and *di*- (PISANELLO), 1889, A., 1062.

- Sulphotoluic acid**, nitro- (LIMPRICHT), 1885, A., 1234.
- 3-Sulpho-*p*-toluic acid** and its derivatives (RANDALL), 1891, A., 1228.
- 3-Sulpho-*p*-toluic anhydride** (RANDALL), 1891, A., 1229.
- Sulphotoluide** (*di-p-tolylsulphone*), decomposition of (OTTO), 1886, A., 1031.
- Sulpho-*o*- and -*p*-tolylazo-*m*- and -*p*-cresols** (*sulphotolueneazocresols*) and their salts (NOLTING and KOHN), 1884, A., 901.
- Sulphotolylic disulphide** (OTTO and TRÖGER), 1891, A., 924.
- Sulphotrimellitic acid**, salts of (JACOBSEN and MEYER), 1883, A., 590.
- Sulphotriphenylacetic acid** (ELBS and TÖLLE), 1886, A., 352.
- Sulphoisovaleric acid** (DE VARDA), 1889, A., 35.
- Sulphoxylenazo- $\beta$ -naphtholdisulphonic acid**, spectrum of (HARTLEY), 1887, T., 188.
- Sulphur**, remarkable bed of (PREUSSNER), 1889, A., 215.
- from Japan (DIVERS and SHIMIDZU), 1884, A., 391.
- from New South Wales (MACIVOR), 1883, A., 560.
- from the island of Saba (LUNGE), 1886, A., 430.
- in the Stassfurt salt deposits (PFIEFFER), 1890, A., 336.
- from the Yellowstone National Park (WEED and PIRSSON), 1892, A., 283.
- from Zielenzig (ARZRUINI), 1885, A., 27.
- in coal (BAILEY), 1890, A., 414.
- from the fumaroles of Montecito in the Island of Ischia (OGLIALORO-TODARO), 1884, A., 1098.
- in marine muds and nodules, and its bearing on their mode of formation (BUCHANAN), 1891, A., 994.
- in masses of metal (WARREN), 1889, A., 13.
- in plants, soils and moulds (BERTHELOT and ANDRÉ), 1888, A., 384.
- in vegetable soils (BERTHELOT and ANDRÉ), 1892, A., 656.
- selenium and tellurium, isomorphism of (MUTHMANN), 1891, A., 1417.
- allotropic modifications of (GERNEZ), 1884, A., 389, 553, 889; 1885, A., 952, 1037, 1109; (MAQUENNE), 1884, A., 1254; 1885, A., 1037; (REICHER and RUYSS), 1885, A., 346; (SABATIER), 1885, A., 952, 1037; (VAN'T HOFF), 1885, A., 1037; (DEBUS), 1888, T., 282; P., 18; (ENGEL), 1891, A., 976; (FRIEDEL), 1891, A., 977; (PETERSEN), 1892, A., 405.
- Sulphur rhombic**, from hydrogen sulphide (ÄHRENS), 1890, A., 1371.
- crystals in square tables, genesis of (BRAME), 1885, A., 1182; 1886, A., 16.
- crystallised, planes in (DANA), 1887, A., 343.
- native, conditions for the formation of (ILOSVAY), 1885, A., 729.
- Magnus's "black" (KNAPP), 1887, A., 110; 1888, A., 1163; 1891, A., 877.
- insoluble (SCHMITZ-DUMONT), 1892, A., 1389.
- insoluble, formation of, from sulphur vapour (GAL), 1892, A., 1150.
- recovery of, by Mond's process (SCHAEFFI), 1883, A., 129.
- recovery of, by Schaffner and Helbig's process (CHANCE), 1884, A., 228.
- recovery of, from alkali waste (GROUVEN), 1885, A., 614; (ANON.) 1885, A., 1017.
- recovery of, from hydrogen sulphide (CLAUS), 1885, A., 304.
- recovery of, from hydrogen sulphide by means of nitrohydrochloric acid in presence of air (LUNGE), 1885, A., 454.
- available for sulphuric acid manufacture, assay of iron pyrites for (WELCH), 1887, A., 180.
- atomic refraction of (NASINI), 1883, A., 264; 1884, A., 149.
- refraction-equivalent of (GLADSTONE), 1884, T., 258.
- dispersion equivalents of (SCHRÄFF), 1886, A., 106; (GLADSTONE), 1888, A., 339.
- phosphorescence of (JACOBSEN), 1883, A., 710.
- electrical conductivity of (DUTER), 1888, A., 640.
- molecular weight of (BILTZ), 1888, A., 1027; 1889, A., 340.
- molecular weight of, in solution (PATERNO and NASINI), 1888, A., 1027; (BECKMANN), 1890, A., 447; (HERTZ), 1891, A., 260.
- vapour density of (KRAUSE and MEYER), 1890, A., 1365; (RIRCKE), 1891, A., 381.
- vapour density of, at a white heat (BILTZ and MEYER), 1889, A., 674.
- valency of (KLINGER and MÄNSEN), 1888, A., 357; 1889, A., 1135; (NASINI and SCALA), 1889, A., 115; 1890, A., 1234.

**Sulphur**, expansion coefficient of (SCHRAUF), 1886, A., 408.  
 volatility of (BERTHELOT), 1885, A., 953.  
 igniting point of (HILL), 1890, A., 849.  
 combustion of, in oxygen (BAKER), 1889, A., 465; (NOYES), 1892, A., 679.  
 combustion of, in oxygen at high pressure (HEMPEL), 1890, A., 1050.  
 heat of combustion of substances containing (BERTHELOT and MATIGNON), 1890, A., 1361.  
 affinity of the heavy metals for (SCHÜRMANN), 1889, A., 468.  
 a property of (LEPIERRE), 1891, A., 1417.  
 sulphur oxides, carbon, and carbon oxides, reactions between (BERTHELOT), 1883, A., 551.  
 action of, on the alkaline earths and on the alkalis (SENDERENS), 1892, A., 770.  
 action of, on ammonia and metallic bases in presence of water (SENDERENS), 1887, A., 327.  
 vapour, action of, on copper (WARREN), 1888, A., 555.  
 action of, on metallic solutions (VORTMANN and PADBERG), 1890, A., 9; (SENDERENS), 1892, A., 770.  
 action of, on oxides (FILHOL and SENDERENS), 1883, A., 710; 1884, A., 959.  
 action of sulphurous acid on (DEBUS), 1888, T., 347.  
 action of sulphurous acid on flowers of (COLEFAX), 1891, P., 180; 1892, T., 199.  
 action of, on water at 100° (CROSS and HIGGIN), 1883, A., 900; (SENDERENS), 1892, A., 770.  
 influence of, on Eggertz' carbon colour test (HOGG), 1889, A., 76.  
 influence of, on the working of steel (WASTUM), 1883, A., 404.  
 spontaneous oxidation of (POLLACI), 1885, A., 347.  
 oxidation of, in the air (BASAROFF), 1883, A., 551.  
 oxidation of, in carbon compounds (BERTHELOT, ANDRÉ and MATIGNON), 1890, A., 1462.  
 solubility of, in alcohol (BLOXAM), 1886, A., 593.  
 experiments to combine sulphur with (PRINZ), 1884, A., 1255.  
 behaviour of, in the organism (SALKOWSKI), 1889, A., 432; (PRESHU), 1890, A., 312.

**Sulphur**, "neutral" and metabolism (RUDENKO), 1891, A., 1523.  
 attraction of animal tissues for (DE REY-PAILLADE), 1889, A., 633.  
 state of combination of, in proteids (KRUGER), 1889, A., 528.  
 function of, in plants (BERTHELOT and ANDRÉ), 1891, A., 606.  
 fate of, in germination (TAMMANN), 1885, A., 1004.  
**Sulphur-compounds**, certain, action of potassium permanganate on (HÖNIG and ZATZEK), 1884, A., 151.  
 with phosphorus (MAI), 1892, A., 14.  
 volatile organic, analysis of (MEYER and STADLER), 1884, A., 1215.  
**Sulphur salts** derived from phosphorus trisulphide (LEMOINE), 1884, A., 555.  
 amides of (MENRE), 1889, A., 210.  
 bromides and chlorides (SPRING and LÉCRENIER), 1886, A., 977.  
 Thionyl bromide (MICHAELIS), 1891, A., 716.  
**Sulphur chlorides**, thermochemical investigation on the (THOMSEN), 1883, A., 543.  
 chloride, constitution of (PRINZ), 1884, A., 1255.  
 action of, on oils (WARREN), 1888, A., 538, 633, 1348.  
 action of silver cyanide on (SCHNEIDER), 1885, A., 1193.  
 action of, on sulphurous acid (DEBUS), 1888, T., 345.  
 dichloride, molecular weight and refractive energy of (COSTA), 1891, A., 149.  
 estimation, volumetric, of (LE ROY), 1891, A., 617.  
 tetrachloride, compound of auric chloride with (LINDET), 1886, A., 310.  
 Thionyl chloride (SCHORLEMMER), 1885, P., 52.  
 action of, on organic compounds (HEUMANN and KÜCHLIN), 1883, A., 1051.  
**Sulphuryl chloride**, function of the chlorine in (ARMSTRONG), 1891, P., 60.  
 heat of formation of (THOMSEN), 1884, A., 250.  
 action of heat on (HEUMANN and KÜCHLIN), 1883, A., 781.  
 action of potassium nitrate on (WILLIAMS), 1886, T., 226.  
**Hydrogen sulphide** and persulphide. See Hydrogen.

- Sulphide solutions**, physical constitution of (PICCON), 1891, P., 176; 1892, T., 137.
- Sulphides**, metallic (GAUFIER and HALLOPEAU), 1889, A., 677.
- crystalline, from the Mechernich lead works (BRAND), 1890, A., 338.
- formation of natural mineral (PLAUCHUD), 1883, A., 610; (CHUARD), 1891, A., 1434.
- formation of, by pressure (SPRING), 1883, A., 904; 1884, A., 959.
- artificial production of (DOELTER), 1886, A., 207.
- aromatic, preparation of (ZIEGLER), 1890, A., 1292.
- double, of the alkali metals and the heavy metals, synthesis of (BRUNNER), 1890, A., 215.
- mineral, synthesis of (WEINSCHEK), 1890, A., 709.
- metallic, obtained in the wet way, composition of (ANTONY and LUCCHINI), 1890, A., 1216.
- metallic, colloidal state of (WINSINGER), 1888, A., 911.
- metallic, dissociation of (HUNT), 1888, A., 1254.
- alkaline, mineralising action of (HAUTEFEUILLE and PERREY), 1888, A., 562.
- metallic, action of alkylic iodides on (KLINGER and MAASEN), 1889, A., 1136.
- metallic, action of copper chlorides on (RASCHIG), 1884, A., 962.
- metallic, action of ferric chloride on (CAMMERER), 1892, A., 18, 278.
- decomposition of, by air containing bromine (JANNASCH), 1889, A., 1243.
- oxidation of, by the electrical current (SMITH), 1890, A., 1342.
- use of sulphuric acid to oxidise, for the estimation of their metals (DIVERS and SHIMIDZU), 1885, A., 836.
- mineral, natural, solutions of (BECKER), 1887, A., 555.
- metallic, solubility of, in thio-acids (STORCH), 1883, A., 1169.
- and sulphoxides, organic, reaction of, with potassium sulphide (OTTO and RÖSSING), 1887, A., 226.
- conversion of, into sulphates (SOMMER), 1884, A., 1092.
- nitroso- (PAVEL), 1883, A., 297.
- Polysulphides**, constitution of (BÖTTGER; GEUTHNER), 1884, A., 1260.
- Sulphur iodides** (SPRING and LECRENIER), 1886, A., 978.
- Sulphur dioxide** (*sulphurous anhydride*) in the air of Lille (LADUREAU), 1884, A., 710.
- in the air of towns (WITZ), 1885, A., 953.
- origin of, in the gases of volcanoes (RICCIARDI), 1887, A., 643.
- preparation of, with use of a Kipp's apparatus (NEUMANN), 1887, A., 769.
- constitution of (DIVERS), 1885, T., 216.
- latent heat of vaporisation of (MATHIAS), 1888, A., 773.
- and carbonic anhydride, specific weight and vapour pressure of mixtures of (BLUMCKE), 1888, A., 775; (PICTET), 1888, A., 1015.
- and carbonic anhydride, isotherms of a mixture of (BLUMCKE), 1889, A., 750.
- density of, at a white heat (LANGER and MEYER), 1885, A., 950.
- percentage of, in aqueous solutions of various specific gravities (GILES and SHEARER), 1886, A., 199.
- carbonic anhydride, and carbon disulphide reactions with (ELOART), 1886, A., 16.
- action of, on periodic acid (SELMONS), 1888, A., 338.
- decomposition of, by alkali sulphites (DIVERS), 1885, T., 209, 219.
- influence of, on the solution of zinc in dilute sulphuric acid (PULLINGER), 1890, T., 821.
- decomposition of, by carbon at high temperatures (SCHUBERT-KETNER), 1892, A., 681.
- and sulphites, oxidation of solutions of (BACHMAN), 1888, A., 619.
- percentage of sulphuric acid in plants damaged by (MACH), 1888, A., 715.
- in sugar refining (BARRU), 1885, A., 709.
- compounds of (GEUTHNER), 1884, A., 1256.
- compound of, with phenylhydrazine (MICHAELIS), 1890, A., 617.
- dissociation of the hydrate of (ROOZENBOOM), 1886, A., 117.
- Sulphur trioxide** (*sulphuric anhydride*; *sulphuric oxide*) (DIVERS), 1885, T., 218; (DIVERS and SHIMIDZU), 1886, T., 584.
- preparation of (NOBEL and FENRENBACH), 1885, A., 1018.
- lecture apparatus for the preparation of (HODGKINSON and LOWNDES), 1888, A., 647.

**Sulphur trioxide** (*sulphuric anhydride*; *sulphuric oxide*), preparation of, from nitrosyl sulphate (V. GRUBER), 1885, A., 199.

isolation of (WEBER), 1887, A., 212.

action of, on antimonious oxide (ADIE), 1890, T., 541.

action of phosphorus on (ADIE), 1891, T., 231; P., 19.

action of, on selenium selenochloride (DIVERS and SHIMIDZU), 1884, T., 197.

compounds of arsenious oxide with (WEBER), 1887, A., 212; (ADIE), 1889, T., 157; P., 4.

compound of, with boric acid (D'ARCY), 1889, T., 155; P., 4.

combination of, with phosphoric and iodic anhydrides (WEBER), 1887, A., 328.

compounds of with selenious anhydride (WEBER), 1887, A., 212.

**Sulphur heptoxide** (TRAUBE), 1891, A., 978; 1892, A., 401; (CARNEGIE), 1892, A., 111.

**Sulphur acids** :—

**Sulphurous acid**, constitution of (MICHAELIS), 1892, A., 1324.

rate of chemical change between iodic acid and (LANDOLT), 1886, A., 658.

action of copper on (CAUSSE), 1886, A., 423.

action of nitrous acid on (RASCHIG), 1887, A., 549, 635.

action of, on selenious acid (SCHULZE), 1886, A., 302.

action of, on sodium thiosulphate (VILLIERS), 1889, A., 568.

action of, on flowers of sulphur (COLEFAX), 1891, P., 180; 1892, T., 199.

comparative oxidation of solutions of sodium sulphite and (REESE), 1885, A., 217.

reduction of, by hydrogen phosphide (CAVAZZI), 1886, A., 978.

poisonous nature of (OGATA), 1885, A., 577.

injury to vegetation by (JUNT), 1888, A., 318.

contained in furnace gases, absorption and utilisation of (ANON.), 1883, A., 248.

complex salts of (BARTH), 1892, A., 564.

**Sulphites** (HARTOG), 1887, A., 886; 1889, A., 1106; (SCHWICKER), 1889, A., 942.

alkali, thermochemical researches on (BERTHELOT), 1883, A., 704.

**Sulphites**, metallic (RÖHRIG), 1888, A., 649.

constitution of (DIVERS), 1885, T., 205; P., 26; (DIVERS and SHIMIDZU), 1886, T., 533; P., 139.

their place in a series of sulphuryl compounds (DIVERS), 1885, T., 217.

interrelations of, with sulphonates and sulphinites (DIVERS), 1885, T., 211.

instability of (DIVERS), 1885, T., 212.

action of heat on (DIVERS), 1885, T., 208.

action of, on chlorates (PRUD'HOMME), 1885, A., 207.

action of iodine on a mixture of thiosulphates and (COLEFAX), 1892, T., 1083; P., 155.

and nitrites of metals other than potassium, reaction between (DIVERS and HAGA), 1887, T., 659; P., 100.

action of phosphorus pentachloride and of sulphur dioxide on (DIVERS), 1885, T., 206, 209, 219.

action of phosphorus oxychloride on (DIVERS), 1885, T., 207; P., 26; (DIVERS and SHIMIDZU), 1886, T., 588.

conversion of certain other salts into, by sodium, and of sulphites into other salts by chlorine or iodine (DIVERS), 1885, T., 210.

**Pyrosulphites** (*metasulphites*) (BERTHELOT), 1883, A., 705; (MEYSZTOWICZ), 1888, A., 344.

**Sulphurous acid**, detection and estimation :—

delicate test for (WITZ), 1885, A., 954.

microscopic detection of (DENIGES), 1892, A., 237.

detection of, in presence of thiosulphates and sulphates (VILLIERS), 1887, A., 749.

detection of, in wine (LIEBERMANN), 1883, A., 384.

titration of (LUNGE), 1884, A., 776.

estimation of (CLASSEN and BAUER), 1883, A., 934; (REESE), 1885, A., 296; (BLAREZ), 1886, A., 918; (VOLHARD), 1888, A., 192.

estimation of, in admixture with hydrogen sulphide (LUNGE), 1891, A., 498.

estimation of, in beer (HERZ), 1886, A., 102.

**Sulphurous acid, estimation:—**

estimation of, in fuming sulphuric acid (SETLER), 1890, A., 414.

estimation of, in presence of thio-sulphuric acid (KALMANN), 1887, A., 618.

estimation of, in wine (WARTHA), 1883, A., 621.

**Sulphuric acid in chalybeate waters**

(WILLM.), 1891, A., 1440.

in natural and plastered wines (VITALI), 1891, A., 1551.

mode of combination of, in plastered wines (MAGNIER DE LA SOURCE), 1891, A., 768.

theory of the formation of (LUNGE), 1888, P., 3.

formation of, in the animal body (GOLDMANN), 1885, A., 922.

formation of, in burning coal-gas (PRIWOZNIK), 1892, A., 1151, 1889; (LIEBEN), 1892, A., 1874.

formation of, in the preparation of dithionic acid (SPRING and BOURGEOIS), 1886, A., 978.

quantitative production of, a lecture experiment (v. HOFMANN), 1883, A., 281.

manufacture of (BORNTÄGER; PEMBERTON), 1884, A., 126.

manufacture of, in America (ANON.), 1884, A., 230.

manufacture of, from pyrites in America (LUNGE), 1884, A., 1082.

loss of nitre in the manufacture of (ESCHELLMANN), 1884, A., 1222.

influence of the Glover tower in the manufacture of (SCHEURER-KESTNER), 1885, A., 706.

utilisation of the nitrogen-compounds from the manufacture of (WACHTEL), 1883, A., 130.

lead chamber deposit from Japanese (DIVERS and SHIMOMI), 1884, A., 392.

theory of the lead chamber process (LUNGE), 1884, A., 698; 1888, P., 3; 1889, A., 103; (RASCHIG), 1889, A., 103.

chambers, working of (PEMBERTON), 1883, A., 887.

chambers, use of Kortiug's apparatus for forcing the gases through (SCHEURER-KESTNER), 1885, A., 1166.

chambers, the currents of the gases in (ABRAHAM), 1883, A., 129.

chambers, action in (NAEF), 1886, A., 400.

chamber exit gases, testing (LUNGE), 1891, A., 497.

**Sulphuric acid chambers, estimation of the total acidity in the flue gases from**

(YOUNGER), 1888, A., 193.

purification of (MENZIE), 1885, A., 304; (ANON.), 1885, A., 1269; (KUPFFERSCHLAGER), 1886, A., 302.

purification of, for Kjeldahl's process (LUNGE), 1891, A., 617.

dilute, composition of (PICKERING), 1892, A., 271.

specific conductivity of (KOHLEBAUSCH), 1883, A., 413.

electrical conductivity of solutions of (CHROMPION), 1888, T., 118; (PICKERING), 1889, P., 88; 1890, T., 86, 158; (BOUTY), 1889, A., 556.

electrolysis of solutions of, of different degrees of concentration (GLADSTONE and TRIBE), 1883, T., 345; 1884, A., 654; (RICHAIZ), 1885, A., 624; (MCLEOD), 1886, T., 591; P., 215; (BOUTY), 1889, A., 556.

electrolysis of dilute, formation of hydrogen peroxide at the anode during the (RICHAIZ), 1888, A., 12.

thermochemistry of (MASSOL), 1891, A., 968.

heat of neutralisation of (PICKERING), 1889, T., 323; P., 79.

solutions, heat capacity of (PICKERING), 1889, P., 87, 88; 1890, T., 88, 160.

heat conductivity of (CHREE), 1888, A., 641.

heat of dilution of (MENDELÉEFF), 1886, A., 413.

heat of solution of (PICKERING), 1889, P., 86; 1890, T., 94, 165.

solutions, expansion by heat of (PICKERING), 1889, P., 88; 1890, T., 114, 177.

solutions, properties of (PICKERING), 1891, P., 105; A., 973.

solutions of, cryoscopy of (PICKERING), 1889, P., 106, 150; 1890, T., 331; 1892, A., 678.

solutions, specific gravity of (KOHLEBAUSCH), 1883, A., 413; (LUNGE and NAEF), 1883, A., 851; (LUNGE), 1884, A., 1256; 1885, A., 216; (MENDELÉEFF), 1885, A., 121; 1886, A., 413; 1888, A., 343; (PICKERING), 1889, P., 86; 1890, T., 69, 139; 1892, A., 271, 272; (LUNGE and ISLER), 1891, A., 150; (RÜCKER), 1892, A., 271.

**Sulphuric acid** and water, contraction on mixing (PICKERING), 1892, A., 271.  
 volume-weight of (SCHERTEL), 1883, A., 288.  
 volatility of, at ordinary temperatures (COLEFAX), 1891, A., 977.  
 coefficient of diffusion of (STEFAN), 1889, A., 1047.  
 affinity of certain divalent metals for (FINK), 1887, A., 885.  
 quantity of moisture remaining in gases after drying by (MORLEY), 1886, A., 278.  
 action of, on antimonious oxide (ADIE), 1890, T., 541.  
 action of, on metals (VELEY), 1888, A., 104; (DITTE), 1891, A., 260.  
 action of, on zinc (MUIR and ADIE), 1887, P., 106; 1888, T., 47; (PULLINGER), 1890, T., 815; P., 136.  
 action of, on zinc containing lead (SPRING and VAN AUBEL), 1887, A., 1076.  
 influence of, on the action of invertase on cane-sugar (O'SULLIVAN and TOMPSON), 1890, T., 855.  
 as an iodine carrier (NEUMANN), 1887, A., 573.  
 absorption of, by wool, silk and cotton (MILLS and TAKAMINE), 1883, T., 144.  
 total, in urine, relation between, and that existing as ethereal sulphates in rest and work (SHER), 1889, A., 430.  
 as a manure (MÄRCKER), 1883, A., 681; (FARSKÝ), 1881, A., 775; 1885, A., 83; 1886, A., 954; (FRIESENUS; STOCKS), 1881, A., 926.  
 amides and imides of (TRAUBE), 1892, A., 1389.  
 hydrates of (PICKERING), 1889, P., 88, 106, 128, 151; A., 941; 1890, T., 128, 339.  
 compounds of vanadic anhydride with (MUNZING), 1890, A., 336.  
**Sulphates** from California (MELVILLE and LINDGREN), 1892, A., 1407.  
 formation of, in germination (SCHULZE), 1885, A., 1153.  
 constitution and dimorphism of (GEUTHER), 1883, A., 973.  
 magnetic rotation of (PERKIN), 1890, P., 143.  
 efflorescence of metallic (BAUBIGNY and PICHARD), 1892, A., 1271.

**Sulphates** and chlorides, relation between the heats of formation of, in aqueous solution (FAY), 1888, A., 401.  
 determination of atomic weights by means of normal (BAILEY), 1887, T., 676; P., 100.  
 solubility of (ETARD), 1888, A., 645.  
 solubility of, effect of sulphuric acid on the (ENGEL), 1887, A., 546.  
 solubility of, decrease in the (ETARD), 1888, A., 548.  
 reduction of, by algæ (ETARD and OLIVIER), 1883, A., 229; (ETARD), 1883, A., 680.  
 alkaline, reduction of, by hydrogen and by carbon (BERGHELOT), 1890, A., 1053.  
 reduction of, by "sulfuraires" (PLATCHUD), 1883, A., 610.  
 reaction between ferric oxide and certain, at high temperatures (SCHEURER-KESNER), 1885, A., 125.  
 anhydrous, crystallised (KLOBB), 1892, A., 941.  
 basic (HABERMANN), 1884, A., 151.  
 conjugated (ROY), 1887, P., 53.  
 double, hydrous, natural (BLAAS), 1884, A., 1103.  
 double, modifications of: specific heat determinations (PICKERING), 1885, P., 101, 112; 1886, T., 1, 12.  
 multiple (ASTON and PICKERING), 1885, P., 129; 1886, T., 123.  
 octo- (WEBER), 1885, A., 121.  
 nitro- (DIVERS and HAGA), 1885, T., 203; P., 25.  
**Sulphuric acid**, detection and estimation:—  
 detection of (PICKERING), 1883, A., 240.  
 detection of nitrogen compounds in seleniferous (LUNGE), 1887, A., 998.  
 detection of nitrous compounds in (WILSON), 1890, A., 922.  
 detection of nitric oxide in (LUNGE), 1885, A., 954; 1886, A., 391; (BAYLEY), 1886, A., 833.  
 detection of, in aluminium sulphate (MILLER), 1883, A., 1168; (EGGER), 1889, A., 648.  
 detection of, in wines (MAGNIER DE LA SOURCE), 1891, A., 768.  
 titration of (SOLTSIEN), 1891, A., 115.

**Sulphuric acid, detection and estimation:—**

and iodates, precipitation of mixtures of, by barium salts (CHRUSCHOFF), 1887, A., 884.

estimation of (MARSH), 1889, A., 1032; (V. MEYER), 1890, A., 1342; (BAUMANN), 1892, A., 104, 538; (LUNGE), 1892, A., 538; (CAZENEUVE and NICOLLE), 1892, A., 659.

estimation, volumetric, of (KNOFER), 1886, A., 180; (WILSING), 1887, A., 181; (QUANTIN), 1887, A., 181; 1889, A., 1087; (GAWALOWSKI), 1888, A., 751; 1890, A., 825; (NORTH), 1889, P., 5; (LINOSSIER), 1889, A., 75; (SIDERSKY), 1889, A., 306; (ANDREWS), 1890, A., 414; (BOURIEZ), 1892, A., 1377; (FARNSTEINER), 1892, A., 1515.

estimation of, in presence of alkaline chlorides (SCHULZE), 1883, A., 240.

estimation of, in alum cake and sulphate of alumina (WILLIAMS), 1888, P., 84; A., 88.

estimation of, in presence of iron (JANNASCH and RICHARDS), 1889, A., 926; (JANNASCH; LUNGE), 1889, A., 1244.

estimation of, in presence of organic matter (POMEROY), 1884, A., 109.

estimation of, in soils (FRICKE), 1890, A., 833.

estimation of, in water (FRICKE), 1887, A., 862.

estimation of, in rain water (WARINGTON), 1889, T., 545.

estimation, volumetric, of, in urine (FREUND), 1892, A., 1377.

estimation of ethereal hydrogen sulphates and, in urine (SALKOWSKI), 1886, A., 739.

**Pyrosulphuric acid, specific conductivity of** (KOHLEBAUGH), 1883, A., 413.

action of, on certain metals (DIVERS and SHIMIDZU), 1885, T., 636.

**Pyrosulphates** (SCHULZE), 1885, A., 216.

**Pyrosulphuric chloride** (KONOWALOFF), 1883, A., 553, 782, 900; (HEUMANN and KOCHLIN), 1883, A., 1051.

mode of formation of (HEUMANN and KOCHLIN), 1883, A., 710.

heat of formation of (KONOWALOFF), 1884, A., 250.

**Pyrosulphuric chloride, vapour density of** (OGIER), 1883, A., 423, 646; (HEUMANN and KOCHLIN), 1883, A., 710.

conversion of, into sulphuric monochloride (OGIER), 1883, A., 642.

**Hyposulphurous acid, influence of, on the solution of zinc in dilute sulphuric acid** (PULLINGER), 1890, T., 822.

**Persulphuric acid and its salts** (BERTHELOT), 1892, A., 931.

electrical behaviour of platinum in (RICHARZ), 1889, A., 1041.

galvanic polarisation in the formation of (RICHARZ), 1889, A., 1041.

behaviour of, towards nitrogen (TRAUBE), 1889, A., 941.

formation of hydrogen peroxide from (TRAUBE), 1889, A., 940.

dithio- (VILLIERS), 1888, A., 650.

**Persulphates** (MARSHALL), 1891, T., 771; P., 124; (BERTHELOT), 1892, A., 12.

**Thiosulphuric acid, time of existence of, in aqueous solution** (LANDOLT), 1884, A., 554; (WINKELMANN), 1885, A., 722.

action of potassium permanganate on (HONIG and ZATZEK), 1886, A., 504.

decomposition of (COLEFAX), 1892, T., 176.

**Thiosulphates** (SCHWICKER), 1889, A., 942; (FOCK and KLUGS), 1890, A., 210, 330, 564, 1057; 1891, A., 879; 1892, A., 12; (PUNGOTI), 1892, A., 1418.

formation of (DONATH and MULLNER), 1888, A., 649.

action of acids on (BERTHELOT), 1889, A., 824; (VAUBEL), 1889, A., 943; (VORTMANN), 1889, A., 1107.

and sulphites, action of iodine on mixtures of (COLEFAX), 1892, T., 1083; P., 155.

action of, on metallic salts (VORTMANN), 1889, A., 1107.

decomposition of, by acids (FOURNEREAU), 1887, A., 883.

solutions, preservation of (SALZER), 1892, A., 1514.

alkali (BERTHELOT), 1883, A., 707.

alkaline, and acetic acid (MATHIEU-PLESSY), 1885, A., 1038.

double (JOCHEM), 1886, A., 17; (COHEN), 1886, P., 251; 1887, T., 38.

**Thiosulphuric acid, detection and estimation:—**

detection of, in a mixture of alkaline salts (DE KONINCK), 1887, A., 297; (FLÜCKIGER), 1887, A., 689.

detection of, in sodium hydrogen sulphocarbonate (MUSSET), 1891, A., 498.

detection of, in urine (PRESCH), 1890, A., 812.

detection of, in water (NEUHÖFFER), 1886, A., 99.

estimation of (BRUGELMANN), 1884, A., 492.

**Thionic acids, thermochemistry of** (BERTHELOT), 1889, A., 667.

action of alkalis on (BERTHELOT), 1889, A., 823.

**Dithionic acid, basicity of** (TREY), 1885, A., 870.

formation of, from sodium sulphite (HOLST and OTTO), 1891, A., 978.

formation of sulphuric acid in the preparation of (SPRING and BOURGEOIS), 1886, A., 978.

**Dithionates** (KLÜSS), 1888, A., 784, 1156.**Trithionates, formation of, by the action of iodine on mixtures of sulphites and thiosulphates** (SPRING), 1892, P., 91.

action of alkalis on (BERTHELOT), 1889, A., 823.

action of hydrogen sulphide on (DEBUS), 1888, T., 329.

**Tetrathionates, preparation of, from Wackenroder's solution** (CURTIUS and HENKEL), 1888, A., 552.

alkaline, preparation of (v. KLOBUKOFF), 1885, A., 1110.

action of alkalis on (BERTHELOT), 1889, A., 823.

action of hydrogen sulphide and of sulphurous acid on (DEBUS), 1888, T., 328, 333.

**Pentathionic acid** (SMITH), 1883, T., 355.

method for preparing (SALZER), 1886, A., 850.

influence of time on the formation of (DEBUS), 1888, T., 333.

**Pentathionates, preparation of** (SHAW), 1883, T., 351.

characteristic reactions of (DEBUS), 1888, T., 297.

action of alkalis on (BERTHELOT), 1889, A., 823.

action of hydrogen sulphide and of sulphurous acid on (DEBUS), 1888, T., 328, 331.

**Polythionates** (SPRING), 1892, P., 91.

formulae of (DEBUS), 1888, T., 351.

action of sulphurous acid on (DEBUS), 1888, T., 331; P., 18.

general reactions of (DEBUS), 1888, T., 298.

**Thionic acids.** See also Wackenroder's solution.**Sulphur, detection and estimation:—**

detection of, in alkaline sulphides (PRUNIER), 1890, A., 291.

detection of, not combined with hydrogen in illuminating gas (LOS-VAY), 1891, A., 862.

detection of, in organic compounds (MARSH), 1889, A., 796.

estimation of (CLASSEN and BAUER), 1883, A., 934; (TREADWELL), 1891, A., 1137; 1892, A., 1375;

(CRAIG), 1892, A., 382.

estimation of, influence of copper on the (BRUGMAN), 1887, A., 296.

estimation, simultaneous, of carbon and (PRUNIER), 1890, A., 290.

estimation, volumetric, of (v. KLOBUKOFF), 1885, A., 1159; (FRIEDHEIM), 1886, A., 739; 1887, A., 396, 749; (WEIL), 1886, A., 918;

1887, A., 618, 998; (C. and J. J. BERINGER), 1889, A., 437; (VITALI), 1892, A., 1515.

estimation of, by Sauer's method and some modifications of it (MIXTER), 1883, A., 239.

estimation of, in coal (DROWN), 1883, A., 383; (ATKINSON), 1887, A., 296; (BAILEY), 1890, A., 414;

(NEILSON), 1891, A., 1137.

estimation of, in coal-gas (KNURLAUCH), 1883, A., 382; (FAIRLEY), 1887, A., 297.

estimation of, in coke (ATKINSON), 1887, A., 296; (BLUM), 1888, A., 1333.

estimation of, in copper (PHILLIPS), 1891, A., 362; (LOBBY DE BRUYN), 1892, A., 753.

estimation of, in galena (JANNASCH and ASCHOFF), 1892, A., 658.

estimation of, in iron and steel (CRAIG), 1883, A., 121, 512, 883;

(ROCHOLL), 1883, A., 512, 883;

(PETER), 1885, A., 1161; (WIBORGH), 1886, A., 743; (MÜLLER), 1887, A., 296; (MORGAN), 1887, A., 1140; 1888, A., 1334; (PLATZ), 1887, A., 1141; (ARNOLD and HARDY), 1888, A., 1333; (v. REIS), 1889, A., 648; (BLUM), 1890, A., 921; 1892, A., 1376; (COHEN

**Sulphur, estimation:—**

- ARCHIBUT, 1890, A., 1463; (REINHARDT), 1890, A., 1464; (V. REIS and WIGGERT), 1891, A., 1519; (WILSON), 1892, A., 382.
- estimation of, in oils (ALLEN), 1888, A., 627.
- estimation of, in organic compounds (KEINER), 1884, A., 500; (KLASON), 1886, A., 918; (MESSINGER), 1889, A., 81; (BURTON), 1890, A., 289; (ANGELI), 1892, A., 382.
- estimation of, in proteids (HAMMARSTEN), 1885, A., 914, 931; (KOCIS), 1887, A., 396.
- estimation of, in pyrites (BODEWIG), 1884, A., 492; (LUNGE), 1884, A., 492; 1886, A., 280; 1888, A., 85; 1890, A., 413; 1891, A., 496; (CLARK), 1886, A., 279; (WELCH), 1887, A., 180; (WESTMORELAND), 1888, A., 85.
- estimation of, in burnt pyrites (WATSON), 1889, A., 306; (LUNGE), 1890, A., 193.
- estimation of, in soluble slags (CAMPELL), 1887, A., 526.
- estimation of, in vegetable soil (BERTHELOT and ANDRÉ), 1892, A., 656.
- estimation of, in inorganic sulphides (LUNGE), 1889, A., 1211; (JANNACH), 1889, A., 1241; 1890, A., 1187; (BLUM), 1891, A., 107; (JANNACH and WASOWICZ), 1892, A., 657.
- Sulphuranes** (DEMUTH and MEYER), 1887, A., 906; (BRAUN), 1888, A., 243.
- Sulphuretted hydrogen.** See Hydrogen sulphide.
- Sulphuric acid.** See under Sulphur.
- anhydride or oxide. See Sulphur trioxide.
- Sulphur-island, a,** in New Zealand (MACIVOR), 1888, A., 427.
- Sulphurous acid.** See under Sulphur.
- anhydride. See Sulphur dioxide.
- disinfecting powders, analysis of (MUTER), 1891, A., 124.
- waters. See Water.
- Sulphurylamide, imido-** (MENTE), 1889, A., 211.
- Sulphuvinuric acid** (HANTZSCH and TRAUMANN), 1888, A., 573.
- Sulphydrates.** See Hydrosulphides.
- Sulphhydroethylphthalimide** (*mercapt-ethylphthalimide*) (GABRIEL), 1889, A., 870.
- preparation of (GABRIEL), 1891, A., 815.

- Sulphhydroethylphthalimide** (*mercapt-ethylphthalimide*), action of various reagents on (GABRIEL), 1892, A., 130.
- Sulphydromethenylamidothionaphthol** and its methyl ether (JACOBSON and FRANKENBACHER), 1891, A., 1049.
- $\mu\beta$ -Sulphydromethylthiazoline** ( *$\mu\beta$ -mercaptomethylthiazoline*) (HIRSCH), 1890, A., 860.
- $\mu$ -Sulphydropenthiiazoline** ( *$\mu$ -mercaptopenthiiazoline*) (GABRIEL and LAUER), 1890, A., 473; (LAUER), 1890, A., 1090.
- Sulphydropropylphthalimide** [m.p. 46–48°] (GABRIEL and LAUER), 1890, A., 472.
- [m.p. 88°] (SEITZ), 1891, A., 1473.
- $\mu$ -Sulphydrothiazoline** ( *$\mu$ -mercaptothiazoline*) and its methyl ether (GABRIEL), 1889, A., 849.
- Sumac**, Caucasian wild, tannic acid in (LIDOFF), 1889, A., 541.
- determination of tannin in (MACAGNO), 1887, A., 624.
- Sun**, carbon and platinum in the (TROWBRIDGE and HUTCHINS; HUTCHINS and HOLDEN), 1887, A., 1065.
- want of proof of the presence of oxygen in the (TROWBRIDGE and HUTCHINS), 1887, A., 1065.
- dissociation of oxygen and hydrogen in the atmosphere of the (GRUNWALD), 1887, A., 1070.
- Sunflower oil** (HAZURA), 1889, A., 956.
- atmospheric oxidation of (KINGZETT), 1888, A., 605.
- Sunflower-seed cake** as fodder for milch cows (SCHRODT and V. PETER), 1884, A., 483.
- Sunlight.** See Photochemistry.
- Sunshine recorder** (MCLEOD), 1885, A., 320.
- Superillumination** (FRANKLAND), 1884, T., 236.
- Superphosphates.** See Agricultural Chemistry.
- Supersaturation.** See Solutions, supersaturated.
- Suprarenal capsules**, chemical examination of (MARINO-ZUCCO), 1889, A., 290.
- Surface, free, of liquids** (LIEBREICH), 1891, A., 1150.
- increase of chemical energy at (BECHHOLD), 1890, A., 328.
- Suspension**, connection between solution and (PETER and LINDBER), 1891, P., 177; 1892, T., 151, 165.
- Sussexite** from New Jersey (PENFIELD and SPERRY), 1889, A., 356.

**Sweat of the horse** (SMITH), 1891, A., 349.

human, aromatic products of putrefaction in (KANT), 1887, A., 1132.

excretion of nitrogen in the (ARGUTINSKY), 1891, A., 350.

**Swedes**, digestibility of (LEHMANN and VOGEL), 1891, A., 595.

**Swimming bladder** of fishes, gases in (TRAUBE-MENGARINI), 1890, A., 183.

**Synchodymite**, a new cobalt ore (LAPPEYREN), 1891, A., 1167.

**Syenite**, Biellese, presence of yttrium in the sphene of (CONNA), 1884, A., 158.

near Glatz in Lower Silesia (TRAUBE), 1890, A., 1076.

Dresden, analysis of (GRIFFITHS), 1883, A., 859.

**Syenite-pegmatite veins** of the South Norwegian augite and nephelite syenites, minerals from the (BROGGER), 1890, A., 1077.

**Sylvaneacetic acid** (POLONOWSKY), 1888, A., 1068.

**Sylvanecarboxyacetic acid**. See Methacronic acid.

**Sylvanite** (SIPOCZ), 1886, A., 312; (HANKÓ), 1890, A., 711.

**Sylvestrene** and its compounds. See Terpenes.

**Sylvic acid** and pinaric acid and the hydrocarbons therefrom (LIEBERMANN), 1884, A., 1364; (HALLER), 1885, A., 1241.

**Sylvite** (*sylvine*), thallium in (SCHRAMM), 1883, A., 954.

compressibility of (RÖNTGEN and SCHNEIDER), 1888, A., 1019.

See also Potassium chloride.

**Symmetry**, plane and axial, the criteria of (ARMSTRONG), 1888, P., 93.

**Symphonium fusciculatu** (Clusiaceae), oleaginous seeds of (REGNAULD and VILLEJEAN), 1885, A., 290.

**Symphoricarpos racemosus**, calcium oxalate in the leaves of (WEHMER), 1890, A., 191.

the sugar of (HERRMANN and TOLLENS), 1886, A., 92.

**Symphytum asperinum**, as a fodder plant (WEISKE), 1883, A., 613; (MÄRCKER), 1886, A., 646.

**Synadelphite** (SÖGREN), 1885, A., 960.

**Syntagmatite** (SCHANIZER), 1885, A., 33.

**Syntonin** (DANILEWSKY), 1884, A., 1388.

**Syringenin**, syringic acid, syringin (*dimethoxyconiferin*) and syringinaldehyde (KÖRNER), 1889, A., 159.

**Syrup of tolu**, alteration of (MALENFANT), 1883, A., 407.

**Syssidierite** of Atacama, analysis of the rocky portion of (MEUNIER), 1884, A., 414.

of Lodran, geological history of (MEUNIER), 1884, A., 417.

**Szaboite**. See Hypersthene.

## T.

**Tabernaemontana sphaerocarpa**, alkaloid from (GREYHOFF), 1891, A., 337.

**Tachyhydrite**, synthesis of (DE SCHULTEN), 1891, A., 405.

**Tachylite** of the Western Isles of Scotland (JUDD and COLE), 1884, A., 570.

**Tachylite-sphaerolite** from the Ussuri district (WENUKOFF), 1890, A., 461.

**Tænite** (MEUNIER), 1889, A., 766; (WEINSCHENK), 1891, A., 27.

from the Welland meteoric iron (DAVISON), 1892, A., 21.

**Taiguic acid**. See Lapachol.

**Talc** from South Africa (COHEN), 1887, A., 561.

constitution of (CLARKE and SCHNEIDER), 1890, A., 948.

alteration of quartz into (WEINSCHENK), 1888, A., 1259.

alteration of, into anthophyllite (GENTH), 1884, A., 272.

pseudomorphous, after magnetite (GENTH), 1884, A., 273.

used in paper making (MACADAM), 1887, A., 452.

nickeliferous (BACHMAN), 1888, A., 661.

See also Magnesium silicate.

**Tallow**, bleaching (ANON.), 1885, A., 710.

oxidation of the fatty acids of, by potassium permanganate in alkaline solution (GRÜNER), 1885, A., 883.

saponification of (WARREN), 1891, A., 1144.

analysis of (TAFFE), 1890, A., 305; (MÜLLER and DE KONINGH), 1891, A., 130.

vegetable, or tengkawang fat (BAKKER), 1885, A., 710.

vegetable, treating (LA'CH), 1885, A., 1275.

See also Fat.

**Talomucic acid**, talonic acid and talose (FISCHER), 1892, A., 299.

**Tamarugite**, from Tarapaca (SCHULZE), 1891, A., 1436.

**Tanghinin** (ARNAUD), 1890, A., 171.

from *Tanghinia venenifera* (ARNAUD), 1889, A., 900.

**TANNIC ACIDS and TANNINS** (MUSSET), 1884, A., 1439; (COUNLER), 1885, A., 946; (NOIZL), 1886, A., 496; (ETTI), 1890, A., 161, 257; (BOTTINGER), 1891, A., 70.  
 origin of (NICKEL), 1891, A., 1395.  
 rôle of, in leaves (KRAUS), 1889, A., 917.  
 as a reserve material in evergreen leaves (SCHULZE), 1889, A., 540.  
 from various plants (FRIDOLIN), 1885, A., 808.  
 function of, in plants (KUTSCHER), 1884, A., 628; (GARDINER), 1884, A., 1209; (WESTERMAYER), 1888, A., 187; (BUSGEN), 1890, A., 819.  
 synthesis of (HUNT), 1885, A., 1228.  
 decolourised, manufacture of (VILLON), 1891, A., 70.  
 molecular weight of (SABANÉEFF), 1891, A., 146.  
 isomerides of (SCHIEFF), 1888, A., 840.  
 action of air on solutions of (GUYARD), 1884, A., 1438.  
 blue colouration of, with iodine (KRAUS), 1887, A., 173.  
 action of phenylhydrazine on (BÜTTINGER), 1890, A., 896; 1891, A., 70.  
 action of sodium in alcoholic solution on (BÜTTINGER), 1890, A., 1275.  
 behaviour of, with Fehling's solution (SONNENSCHN), 1885, A., 1163.  
 behaviour of, towards various reagents (ETTI), 1884, A., 1355.  
 behaviour of, in plants (BUSGEN), 1891, A., 104.  
 acetylation of (BÜTTINGER), 1884, A., 1178.  
 oxidation of (BOTTINGER), 1890, A., 1130.  
 conversion of, into benzoic acid (GUYARD), 1891, A., 1481.  
 method of fixing colouring matters on cotton (WITT), 1885, A., 1024.  
 dyes obtainable from (WITT), 1886, A., 403.  
 physiology of (KRAUS), 1889, A., 917; (REINITZER), 1890, A., 186.  
 physiological action of (MORNER), 1892, A., 905.  
 compounds of gelatin with (BOTTINGER), 1888, A., 614.  
 derivatives of (BÜTTINGER), 1892, A., 181.  
 zinc salt of (VILLON), 1891, A., 70.  
**Algarovilla**, tannin of (HURST), 1887, A., 498; (ZÜFFEL), 1891, A., 918.  
*Aspidium felix mas*, tannin of (DACCOMO), 1888, A., 521.  
**Animal tannin** (VILLON), 1888, A., 77.

**Bark tannins**, and some derivatives of (BOTTINGER), 1884, A., 1025.  
**Caffetannic acid** in Virginia creeper (*Cissus quinquefolia*) (PHIPSON), 1885, A., 1255.  
**Chestnut-wood tannin** (TRIMBLE), 1892, A., 716.  
**Cocatannic acid** (WARDEN), 1888, A., 1090; 1889, A., 297.  
**Fraxitannic acid** and its derivatives (GINTI and REINITZER), 1883, A., 216.  
 "Fustin," tannin of (SCHMID), 1886, A., 894.  
**Gallotannic acid**, estimation of, in barks (HINSDALE), 1892, A., 390.  
**Gambier** or *Terra japonica*, analysis of (PROCTER), 1892, A., 928.  
**Hemlock tannin** and some of its derivatives (BOTTINGER), 1884, A., 1025.  
**Hop tannin**, behaviour of, towards the albuminoids in malt (MORITZ and LEE), 1884, A., 527.  
**Mountain ash berry tannin** (VINCENT and DELACHANAL), 1887, A., 950.  
**Myrobalans**, tannin of (ZÜFFEL), 1891, A., 918.  
**Oak-tannic acid** and oak-tannin and quercitannic acid (ETTI), 1883, A., 994, 995; 1890, A., 164; (BÜTTINGER), 1884, A., 321; 1887, A., 584; 1891, A., 70, 1061; (MUSSET), 1884, A., 1439.  
 behaviour of, towards various reagents (ETTI), 1884, A., 1355.  
 oxidation of (BOTTINGER), 1890, A., 1130.  
 reaction of (BOTTINGER), 1890, A., 1275.  
**Sumac**, tannin of (MACAGNO), 1887, A., 624; (LIDOFF), 1889, A., 541.  
**Tannin, detection and estimation**:—  
 iodised, as a reagent (SCHWEISSINGER), 1885, A., 691.  
 detection of (SAUL), 1887, A., 406; (RAWSON), 1889, A., 447.  
 microchemical detection of (MOLL), 1887, A., 311.  
 detection of, in plants (WAAGE), 1891, A., 770.  
 detection of, in urine (KATHEBIN), 1891, A., 964.  
 estimation of (GAWALOWSKI), 1883, A., 391; (PERRET), 1884, A., 696; (SIMAND), 1884, A., 931; (GUYARD), 1884, A., 1438; (CARLES), 1885, A., 302; (ULBRICHT and BEUKER), 1885, A., 934; (HUNT), 1886, A., 285; (SIMAND and WEIN), 1886, A., 1084; (DIEUDONNÉ), 1887, A., 187;

- ("E. B."), 1887, A., 311; (VILLON), 1887, A., 872; (PROCTER), 1888, A., 96; 1890, A., 1477; (GANTTER), 1888, A., 540; 1890, A., 430; (COLLIN and BENOIST), 1888, A., 1138; (GUENEZ), 1890, A., 931; (MOULLADE), 1890, A., 1348 (WHITELEY and WOOD), 1892, A., 667; (FLEURY), 1892, A., 1135.
- Tannin, estimation:—**  
 estimation of, in barks (HINSDALE), 1890, A., 1348; 1892, A., 390.  
 estimation of, in hops (KOKOSINSKI), 1891, A., 870.  
 estimation of, in concentrated solutions, by the Vienna gravimetric method (KOCH), 1888, A., 1138.  
 estimation of, in sumac (MACAGNO), 1887, A., 624; (LIDOFF), 1889, A., 541.  
 estimation of, in tea (WHITE), 1889, A., 1092; (MALTSCHIEWSKY), 1891, A., 132; (DVORAKOVITCH), 1891, A., 1302.  
 estimation of, in Indian and Ceylon teas (HOOPER), 1890, A., 820.  
 estimation of, in wines (ROUS, CUSSON and GIRAUD), 1890, A., 431; (VIGNA), 1891, A., 1399; (VOGEL), 1891, A., 1557.  
 See also Colouring matters.
- Tannin-red** (HOPPE-SEYLER), 1889, A., 285.
- Tanning-liquor**, estimation of the acids in (KOHNSTEIN and SIMAND), 1885, A., 935; (KOCH), 1887, A., 871, 1144; 1889, A., 195.
- Tanning materials**, lime in (PETROWITSCH), 1890, A., 312.
- Tantalite** from the Black Hills, South Dakota (HEADDEN), 1891, A., 886.  
 locality (SCHARFFER), 1885, A., 359.
- Tantalum pentoxide** (*tantalum anhydride*), crystallised (MALLARD), 1888, A., 349.  
 colour reactions of (LÉVY), 1887, A., 304.  
 microchemical test for (V. HAUSHOFFER), 1890, A., 90.
- Tapalpite** from Mexico (GENTH), 1888, A., 564.
- Tapeworms**, mercury in (OELKERS), 1890, A., 396.
- Taps**, safety (SHENSTONE), 1887, P., 108; 1890, T., 958; P., 140.
- Tarconine** methiodide and methochloride (ROSER), 1888, A., 1115.  
 iodo- (ROSER), 1888, A., 1116.
- Tariric acid** (ARNAUD), 1892, A., 582.
- Tar-oils** boiling between 170° and 200°, hydrocarbons from (JACOBSEN), 1887, A., 35.
- Tarondjabin** (*Turkestan manna*) (MARKOWNIKOFF), 1885, A., 943.
- Tartar**. See Tartaric acid, potassium hydrogen salt of.
- Tartar emetic**. See Tartaric acid, potassium antimony salt of.
- d-Tartaric acid** (*dihydroxysuccinic acid*) (GROSJEAN), 1883, T., 331; (PERKIN), 1887, T., 362.  
 from erythrol, attempt to obtain, by electrolytic oxidation (BIZZARRI and CAMPANI), 1884, A., 297.  
 in wine (CLAUS), 1883, A., 935.  
 manufacture of (FRIEDBURG), 1883, A., 1178.  
 synthesis of (GENVRESSE), 1892, A., 822.  
 constitution of aqueous solutions of (AIGNAN), 1891, A., 1018.  
 rotatory power of solutions of (THOMSEN), 1886, A., 12; (PRIBRAM), 1887, A., 755; 1888, A., 1229; 1889, A., 379; (LONG), 1889, A., 380; 1890, A., 313; 1891, A., 249; (KANONNIKOFF), 1892, A., 1308.  
 rotatory power of varying mixtures of, with citric, acetic, and sulphuric acids (THOMSEN), 1886, A., 13.  
 rotatory power of substances formed in solutions of (GERNEZ), 1887, A., 540; 1888, A., 97.  
 optical properties of (BELL), 1886, A., 1.  
 thermochemistry of (JAHN), 1891, A., 969.  
 influence of heat on solutions of (GROSJEAN), 1883, T., 334; (WEDDARD), 1889, A., 36.  
 specific gravity of solutions of (MARCHELLEWSKI), 1892, A., 964.  
 influence of sulphuric acid on the crystallisation of (GROSJEAN), 1883, T., 336.  
 decomposition of, in presence of glycerol (LOWANOWITSCH), 1885, A., 1125.  
 dry distillation of, with excess of lime (FREYDI), 1883, A., 658.  
 action of normal alkaline tungstates on solutions of (GERNEZ), 1888, A., 938.  
 action of phosphorus pentachloride on (KAUDER), 1885, A., 651; (PERKIN), 1888, T., 695.  
 rate of oxidation of (KRUTWIG), 1889, A., 239.  
 reduction of (BALLÓ), 1889, A., 693.  
 combination of normal magnesium and lithium molybdates with (GERNEZ), 1889, A., 859.

- d*-Tartaric acid (*dihydroxy succinic acid*), combinations of, with potash or soda in solution (AIGNAN), 1891, A., 1019.  
 compound of, with ammonium molybdate (GERNEZ), 1888, A., 98.
- d*-Tartaric acid, salts of, specific rotatory power of (KANONNIKOFF), 1892, A., 1308.  
 rotatory dispersion of (KUMMELL), 1891, A., 1145.  
 thermochemistry of (BERTHELOT), 1891, A., 967.  
 dissociation in dilute solutions of (SONNENHAL), 1892, A., 588, 1141.  
 ammonium hydrogen salts of, crystalline form of (SCACCHI), 1886, A., 612.  
 antimony salts of (CLARKE and EVANS), 1884, A., 298; (GUNIZ), 1887, A., 657.  
 barium telluryl salt of (KLEIN), 1886, A., 767.  
 calcium salt of, preparation of (GLADYSZ), 1887, A., 571.  
 crystallography of (ANSCHUTZ), 1885, A., 243.  
 valuation of (WEIGER), 1884, A., 1434.  
 potassium salt of, preparation of (GLADYSZ), 1887, A., 571.  
 solubility of (BORNTRAGER), 1886, A., 1082.  
 potassium antimony salt of (*tartar emetic*), rotatory and refractive powers of, relation between (KANONNIKOFF), 1889, A., 453.  
 circular polarisation of (LONG), 1890, A., 313.  
 heat of formation of (GUNTZ), 1887, A., 544.  
 action of acids and bases on solutions of (GUNIZ), 1886, A., 856.  
 solutions, standard, preserving (MILLER), 1887, A., 403.  
 potassio-antimonic oxalate a substitute for (ANON.), 1881, A., 796; 1885, A., 464.  
 estimation of antimony in (DUNSTAN and BOOLE), 1889, A., 445.  
 potassium boron salt of, circular polarisation of (LONG), 1890, A., 314.  
 potassium hydrogen salt of (*tartar; cream of tartar*) (BLAREZ), 1891, A., 676.  
 in wine (PETROWITSCH), 1886, A., 652. See also Argol.  
 crystalline form of (SCACCHI), 1886, A., 612.
- d*-Tartaric acid, potassium hydrogen salt of (*tartar; cream of tartar*), solubility of (BORNTRAGER), 1886, A., 1082.  
 solubility of, in dilute acids (OSWALD), 1884, A., 812.  
 influence of inorganic potassium salts on the solubility of (BLAREZ), 1891, A., 974.  
 use of, for titrating standard acids and alkalis (BORNTRAGER), 1892, A., 525.  
 analysis of (PHILIPS), 1891, A., 372.  
 rapid estimation of (PICHARD), 1883, A., 755.  
 estimation of tartaric acid in (BORNTRAGER), 1886, A., 1082; 1888, A., 536.  
 estimation of, in wines (HAAK), 1888, A., 1347; (GANS), 1890, A., 427; (SCHNEIDER), 1891, A., 371; (ACKERMANN), 1892, A., 1531.  
 silver hydrogen salt of (PERKIN), 1887, T., 370.  
 strontium salt of, behaviour of, with plastered wines (SPICA), 1892, A., 93.  
 tellurium salts of (KLEIN), 1886, A., 336, 767.  
 thallium and thallium ammonium, antimony, hydrogen, lithium, potassium and sodium salts of, circular polarisation of (LONG), 1890, A., 313.
- d*-Tartaric acid, detection, estimation and separation:—  
 sensitive reaction of (MOHLER), 1891, A., 867.  
 analysis of materials containing (V. LORENZ), 1888, A., 327.  
 detection of, in citric acid (PUSCH), 1885, A., 445; (SALZER), 1888, A., 996; (CRIMMER), 1892, A., 546.  
 estimation of (FERRARI), 1881, A., 371; (PICHARD), 1884, A., 372; (GANTIER), 1888, A., 535; (HENDENHAIN), 1889, A., 657; (TOIN), 1891, A., 128; (WOLFMANN; TELBESZ), 1891, A., 129.  
 estimation of, when mixed with citric acid (WARD), 1889, A., 447.  
 estimation of, in vinegar (JOLLES), 1890, A., 428.  
 estimation of, in wines (CLAUS), 1883, A., 935; (HAAK), 1888, A., 1347; (GANS), 1890, A., 427; (SCHNEIDER), 1891, A., 371; (VIGNA), 1891, A., 1399.  
 estimation of, in wine-lees (OLIVIERI), 1885, A., 843.

- l*-Tartaric acid, estimation and separation:—  
 estimation of, in wine-lees and tartar (BORNTRÄGER), 1886, A., 1082; 1888, A., 536.  
 separation of, from malic acid (MICKO), 1892, A., 1531.
- i*-Tartaric acid (*mesotartaric acid*), formation of, by the oxidation of phenol (DOEBNER), 1891, A., 1020.  
 salts of (PRZYBYTEK), 1884, A., 1124.
- l*-Tartaric acid, thermochemistry of (JAHN), 1891, A., 969.
- meta*Tartaric acid in factory liquors (GRONJEAN), 1883, T., 336.
- para*Tartaric acid. See Racemic acid.
- Tartaric acids, isomeric, melting points of (BISCHOFF and WALDEN), 1889, A., 959.  
 four isomeric, calcium salts of (ANSCHUTZ), 1885, A., 248.
- Tartaric diphenylhydrazide (BULOW), 1887, A., 138.  
 action of carbonyl chloride on (FREUND), 1892, A., 511.  
 di-*o*- and -*p*-toluidides (BISCHOFF and NASTVOGEL), 1890, A., 1112.  
 glucoside, synthesis of (GUYARD), 1884, A., 1304.
- Tartarotartaric acid (MULDER), 1892, A., 965.
- Tartramdobenzoic acids, tartranbenzamic acid, tartranilbenzamic acid, and tartrandibenzamic acid (SCHIFF), 1886, A., 621.
- Tartranilide, preparation and acetyl derivatives of (POLIKIER), 1892, A., 54.
- Tartrazine dyes (ZIEGLER and LOCHER), 1887, A., 578.
- Tartrazinesulphonic acid, nitro-, sodium salt of (LERCH), 1889, A., 881.
- Tartromalic acid (ORDONNEAU), 1892, A., 589.
- Tartronamide (FREUND), 1884, A., 1124; (PINNER), 1886, A., 48.
- Tartronic acid (*hydroxymalonic acid*) (PINNER), 1886, A., 48.  
 from glycerol, attempt to obtain, by electrolytic oxidation (BIZZARRI and CAMPANI), 1884, A., 297.  
 preparation of (PINNER), 1885, A., 759.  
 thermochemistry of (MASSOL), 1892, A., 675.  
 heat of neutralisation of (GAL and WERNER), 1887, A., 96.  
 derivatives of (FREUND), 1884, A., 1123.  
 alkali salts of (MASSOL), 1892, A., 675.
- Tartryl-benzamic, -dibenzamamidic and -dibenzamic acids (SCHIFF), 1886, A., 622.
- Taste, a plant which destroys the sense of, for sweets and bitters (BERTHOLD), 1889, A., 182.
- Taurammeline (RATHEKE), 1888, A., 583.
- Taurammeline, inner anhydride of (RATHEKE), 1888, A., 583.
- Taurine (*amidodithionisulphonic acid*), heats of combustion and formation of (BERTHELOT), 1890, A., 1361.  
 derivatives of (JAMES), 1885, T., 367; P., 46; 1886, T., 486; P., 212.
- Taurines, mono-, di- and tri-substituted, general method for the preparation of (JAMES), 1885, T., 367.
- Taurocholic acid; behaviour of, with albumin and peptones (MALY and EMICH), 1883, A., 673.
- Tauroidiammeline (RATHEKE), 1888, A., 583.
- Tautomeric compounds (NEF), 1889, A., 509; 1890, A., 983.  
 experiments to determine the constitution of (GOLDSCHMIDT and MEISLER), 1890, A., 499.
- Taxine, the alkaloid of the yew tree, and its ethiodide (HILGER and BRANDE), 1890, A., 650.
- Tea, preparation of (KOZAI), 1892, A., 1871.  
 Chinese (DVORKOVITCH), 1891, A., 1302.  
 Japanese (TAKAYAMA), 1885, A., 582.  
 Paraguay (*maté*) (SELLIN), 1884, A., 354; (PECKOLT), 1884, A., 479.  
 alkaloid from (PAUL and COWNLEY), 1889, A., 416.  
 analysis of (KELLNER), 1887, A., 73; (DOMERGUE and NICOLAS), 1892, A., 926.  
 estimation of the quantity of ash in (NIKITINSKI), 1885, A., 845.  
 estimation of caffeine in (PAUL and COWNLEY), 1888, A., 539; 1891, A., 358; (SPENCER), 1891, A., 134, 964; (VITTE), 1891, A., 372; (DVORKOVITCH), 1891, A., 1302.  
 estimation of tannin in (WHITE), 1889, A., 1092; (MALTSCHIEWSKY), 1891, A., 132; (DVORKOVITCH), 1891, A., 1302.  
 Indian and Ceylon, estimation of tannin in (HOOPER), 1890, A., 820.
- Tea-oil from *Camellia oleifera* (DAVIES), 1885, A., 1022.
- Teak, mineral substances in (HOOPER), 1892, A., 230.  
 destructive distillation of (ROMANIS), 1887, T., 868; P., 114.

- Tectone** (ROMANIS), 1887, T., 871.
- Tectoquinone** and its derivatives (ROMANIS), 1888, P., 116.
- Teeth**, influence of various salts on the composition of (WEISKE), 1892, A., 647.
- Tellurium** in copper (EGLESTON), 1883, A., 531.
- from Faczebaya (v. FOULLON), 1885, A., 1116; (LOCZKA), 1892, A., 1054.
- atomic weight of (BRAUNER), 1889, T., 382; P., 94.
- valency of (MICHAELIS), 1887, A., 770.
- compound nature of (BRAUNER), 1889, T., 407, 411.
- spectrum of (HARLEY), 1883, T., 399.
- specific heat of (FABRE), 1888, A., 332; 1889, A., 203.
- heat relations of the allotropic modification of (BERTHELOT and FABRE), 1887, A., 761.
- reactions of (DEMARÇAY), 1884, A., 663.
- action of nitric acid on (KLEIN and MOREL), 1885, A., 16.
- action of, on solutions of silver and copper nitrates (SENDEREN), 1887, A., 332.
- evidence of a new element in (GRÜNWALD), 1890, A., 434.
- sulphur and selenium, isomorphism of (MURMANN), 1891, A., 1417.
- compounds, reaction of (DIVERS and SHIMOSÉ), 1883, T., 329.
- Tellurium tetrachloride**, preparation of (BRAUNER), 1889, T., 396.
- chlorides, thermochemical investigation on (THOMSEN), 1883, A., 543.
- electrolytic conductivity of (HAMPE), 1888, A., 889.
- dichloride (MICHAELIS), 1887, A., 1078.
- tetrachloride, vapour density of (MICHAELIS), 1887, A., 770.
- Tellurous hydrate** (KLEIN and MOREL), 1885, A., 16.
- Tellurium hydride**. See Hydrogen telluride.
- Tellurides**, crystallised, heat of formation of (FABRE), 1887, A., 1010.
- Tellurium iodides**, electrolytic conductivity of (HAMPE), 1888, A., 889.
- nitrate, basic (KLEIN), 1884, A., 1256; (KLEIN and MOREL), 1885, A., 16, 17, 870.
- monoxide (DIVERS and SHIMOSÉ), 1883, T., 319.
- Tellurium dioxide** (*tellurous anhydride*) (KLEIN and MOREL), 1885, A., 16, 870.
- dimorphism of (KLEIN), 1886, A., 767.
- compounds of (KLEIN), 1884, A., 1256; (KLEIN and MOREL), 1885, A., 870.
- sulphoxide (DIVERS and SHIMOSÉ), 1883, T., 323; (DIVERS and SHIMIZU), 1886, T., 583.
- Telluryl** citrates and tartrates (KLEIN), 1886, A., 336.
- Tellurium**, detection, estimation and separation:—
- microchemical test for (v. HAUSHOFFER), 1887, A., 301.
- detection and estimation of (DONATH), 1891, A., 242.
- estimation, volumetric, of (BRAUNER), 1890, P., 168; 1891, T., 58, 238; P., 31.
- separation of (DONATH), 1891, A., 242.
- separation, quantitative, of, from selenium (DIVERS and SHIMOSÉ), 1885, T., 439; P., 53.
- Tellurium minerals** from Honduras (DANA and WELLS), 1891, A., 153.
- Tellurium silver bismuth** from Jalisco, Mexico (DE LANDERO), 1887, A., 1084.
- Tellurous anhydride**. See Tellurium dioxide.
- Temper**, influence of, on the electrical resistance of glass (FOUSSEREAU), 1883, A., 701.
- Temperature**. See under Thermochemistry.
- Tengkawang fat** or vegetable tallow (BAKKER), 1885, A., 710.
- Tephrites** (DOMERET), 1883, A., 721.
- Tephroite** (SJÖGREN), 1881, A., 972.
- artificial production of (GORGEL), 1884, A., 161.
- Teraconic acid**, synthesis of (SCHLICHTER), 1892, A., 427.
- constitution of (FROST), 1885, A., 393.
- Terbia**, equivalent of (LIAOQ DE BOISBAUDRAN), 1886, A., 421, 507; 1891, A., 17.
- Terbia earths**, spectrum of the (LÉCOQ DE BOISBAUDRAN), 1886, A., 293; (BETTENDORFF), 1892, A., 1400.
- β-Terebangelene** (NAUDIN), 1883, A., 810.
- Terebene**. See Pinene under Terpenes.
- Terebenthene** and its derivatives. See under Terpenes.
- Terebenthic acid** (TANRET), 1888, A., 720.

- Terebic acid** and its derivatives (ROSER), 1884, A., 459; (FROST), 1885, A., 393.  
 constitution of (FROST), 1885, A., 393.  
 crystalline form of (LEIVEH), 1886, A., 543.  
 heat of combustion of (OSSIPPOFF), 1889, A., 460.  
 action of alcoholic ammonia and of aniline on (CONSELLI), 1891, A., 1384.
- Terebille acid**, crystalline form of (LEIVEH), 1886, A., 543.  
 action of heat on (FROST), 1885, A., 394.  
 derivatives of (ROSER), 1884, A., 459.  
 chloro-, and some of its salts (ROSER), 1884, A., 460.
- Terecamphene**. See Camphene under Terpenes.
- Terephthalaldehyde** (LOW), 1886, A., 461.  
 preparation of (HONIG), 1889, A., 505.  
 action of ammonia on (OPPENHEIMER), 1886, A., 547.  
 action of potassium cyanide on (OPPENHEIMER), 1886, A., 876.  
 condensation of, with hydrocarbons (OPPENHEIMER), 1886, A., 946.  
 nitro-, action of potassium cyanide on (HOMOLKA and LÖW), 1886, A., 701.
- Terephthalaldehydic acid**, and its derivatives (LÖW), 1885, A., 799.
- Terephthalaldoxime**, and its ethyl and acetyl derivatives (WESTENBERGER), 1884, A., 581.
- Terephthalamie acid** (SANDMEYER), 1885, A., 981.
- Terephthalamide**, 2:5-dichloro- (LEVY and CURCHOD), 1889, A., 1179.  
 thio- (LUCKENBACH), 1884, A., 1158.
- Terephthalamidine**, and its salts (LUCKENBACH), 1884, A., 1158.
- Terephthalic acid** (*p-phthalic acid*), from isobutylbenzoic acid (PAHL), 1884, A., 1010.  
 preparation of (v. BAEYER), 1888, A., 1072; (HELL and ROCKENBACH), 1889, A., 601; (v. BAEYER and HERB), 1890, A., 1130.  
 thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096; (STOHMANN and KLEBER), 1891, A., 376.  
 reduction products of (v. BAEYER), 1888, A., 1069; 1889, A., 1176; (v. BAEYER and HERB), 1890, A., 1130.
- Terephthalic acid** (*p-phthalic acid*), derivatives of (AHRENS), 1886, A., 801.  
 hydrogenised derivatives of, heats of combustion and formation of (STOHMANN and KLEBER), 1891, A., 376.
- Terephthalic acid**, bromo- (FILETI), 1887, A., 52.  
 2:5-dibromo-, and its salts (SCHULTZ), 1885, A., 1054.  
 2:3:5- and 3:6 2-dibromonitro- (FILETI and CROSA), 1891, A., 1056.  
 chloro- (FILETI and CROSA), 1889, A., 496.  
 2:5-dichloro- (LEVY and ANDREOCCT), 1888, A., 841, 1091.  
 chlorobromo- and chlorobromonitro- (WILLGERODT and WOLFIEN), 1889, A., 966.
- Terephthalic chloride**, 2:5-dichloro- (LEVY and CURCHOD), 1889, A., 1179.
- Terephthalic sulphinide** (NOYES and WALKER), 1887, A., 728.
- Terephthalonitrile**, derivatives of (LUCKENBACH), 1884, A., 1157.
- Terephthalophenone** (NOLTING and KOHN), 1885, A., 389; 1886, A., 349.  
 dioxime (MÜNCHMEYER), 1886, A., 877.
- Terephthalyl ethyl ketone** (MÜNCHMEYER), 1886, A., 877.
- Terfâs** (*kâmes*), relation between truffles and (CHATIN), 1892, A., 654.
- Terfezia Boudieri*, *T. claveryi* and *T. hafici*, analysis of (CHATIN), 1892, A., 654.
- Terminalia Chebula**, chebulinic acid from (FRIDOLIN), 1885, A., 396.
- TERPENES and THEIR DERIVATIVES** (WALLACH), 1885, A., 550; 1886, A., 70; 1887, A., 595; 1888, A., 60, 1098; 1890, A., 1314; 1891, A., 217, 1078, 1240; (BRÜHL), 1888, A., 377, 494; 1892, A., 200, 347, 624, 1100; (ARMSTRONG), 1891, T., 311; (MARSH and GARDNER), 1891, T., 648, 725; (DUNWODY), 1891, A., 217; (BRÜHL, BILTZ, CANTZLER and REITER), 1892, A., 623; (BRÜHL and MÜLLER), 1892, A., 772.  
 and ethereal oils (WALLACH), 1887, A., 965; 1888, A., 1204; 1889, A., 1072; 1891, A., 217; (WALLACH and GILDEMEISTER), 1888, A., 1204.  
 "olefinic" (SEMMLER), 1891, A., 655.  
 in the oil from compressed gas (ETARD and LAMBERT), 1891, A., 1085.

## TERPENES and THEIR DERIVATIVES:—

- from oil of myrtle (JAHNS), 1889, A., 616; (BARTOLOTTI), 1891, A., 1348.  
 from oxyisomylamine, synthesis of (RADZISZEWSKI and SCHRAMM), 1884, A., 1190.  
 from *Pinus Abies* (KURILOFF), 1890, A., 789; 1892, A., 625.  
 from *Pinus Cembra* (FLAWITZKY), 1890, A., 789.  
 from Russian turpentine, degree of saturation of (STSCHUKAREFF), 1892, A., 1350.  
 constitution of (KANONNIKOFF), 1886, A., 336; (TILDEN), 1888, T., 879; P., 89.  
 formulæ of (WALLACH), 1887, A., 968.  
 isomerism in (WALLACH), 1889, A., 1069.  
 physical properties of (BRÜHL), 1888, A., 377.  
 molecular refraction as a means of determining the constitution of (WALLACH), 1888, A., 845.  
 specific rotatory and refractive powers of, relation between (KANONNIKOFF), 1889, A., 453.  
 refraction and dispersion equivalents of (GLADSTONE), 1886, T., 612.  
 decomposition of, by heat (TILDEN), 1884, T., 410.  
 presence of ethylene linkages in (MARKOWNIKOFF), 1891, A., 464; (WAGNER), 1891, A., 1084.  
 additive products of (MAIßSEN), 1883, A., 1140.  
 and their compounds with hydroacids (WALLACH), 1887, A., 965.  
 derivatives of, rotatory power of (WALLACH; WALLACH and CONRADY), 1889, A., 1071.  
 physical properties of (BRÜHL), 1888, A., 377.  
**Australene** (*d-pinene*) (BARBIER and HILT), 1889, A., 616; (MARSH and GARDNER), 1891, T., 727.  
*isoAustralene* (BARBIER and HILT), 1889, A., 616.  
**Camphene** (*borneocamphene*, *terecamphene*) (WALLACH), 1886, A., 70; 1891, A., 1082; 1892, A., 868, 1481; (BRÜHL), 1888, A., 377; 1892, A., 625, 1240; (BRÜHL, BILTZ, CANTZLER and REUTER), 1892, A., 624.  
 levogyrate, action of glacial acetic acid on (LAFONT), 1887, A., 969.  
 active (BOUCHARDAT and LAFONT), 1887, A., 536.

## TERPENES and THEIR DERIVATIVES:—

- Camphene** (*borneocamphene*, *terecamphene*), preparation of (MARSH and GARDNER), 1891, T., 648.  
 constitution of (MARSH and STOCKDALE), 1890, T., 964; (COLLIE), 1892, A., 865; (WALLACH), 1892, A., 868.  
 molecular refraction of (WALLACH), 1889, A., 1069.  
 action of heat on (TILDEN), 1884, T., 417.  
 action of phosphoric chloride on (MARSH and GARDNER), 1891, T., 652.  
 oxidation of (MARSH and GARDNER), 1891, T., 649.  
**Camphene-series**, thermochemistry of the (BERTHELOT and MATIGNON), 1891, A., 1313.  
 "Camphenes, olefinic" (SEMMLER), 1891, A., 540.  
**Caoutchene**. See Dipentene.  
**Carvene**. See *d*-Limonene.  
**Cedrene**, molecular refraction and dispersion of (GLADSTONE), 1886, T., 618; 1891, T., 295.  
**Cinene**. See Dipentene.  
**Citrene**. See *d*-Limonene.  
**Colophene**, action of heat on (TILDEN), 1884, T., 417.  
 dihydride (VESTERBERG), 1886, A., 1039.  
**Dihydrocamphene** derivatives (TANNER), 1887, A., 676.  
**Dipentene** (*caoutchene*, *cinene*, *i-limonene*) (TILDEN), 1884, T., 413; (HELL and STURCKE), 1884, A., 1363; (WALLACH and BRASS), 1885, A., 172; (BOUCHARDAT and LAFONT), 1886, A., 890; (BRÜHL), 1888, A., 377; (WALLACH), 1889, A., 1072; 1891, A., 1083.  
 refraction and dispersion equivalents of (GLADSTONE), 1886, T., 618.  
 tetrabromide (WALLACH), 1886, A., 71.  
 dihydrobromide (WALLACH and BRASS), 1885, A., 172; (WALLACH), 1891, A., 1242.  
 dihydrochloride (HELL and RITTER), 1884, A., 1363; (OLIVERI), 1891, A., 1496; (WALLACH and HENSE), 1892, A., 1350.  
 dihydriodide (WALLACH and BRASS), 1885, A., 172.  
 nitrosate (WALLACH), 1888, A., 1098.

## TERPENES AND THEIR DERIVATIVES:—

**Dipentene** (*caoutchouc, cinene, i-limonene*), nitrosochloride (WALLACH), 1888, A., 1099; 1889, A., 1070.

**Dipentenitrolaniline** (WALLACH), 1889, A., 1071; 1892, A., 1348. nitroso- (WALLACH), 1892, A., 1348.

**Dipentenitrolbenzylamine** (WALLACH), 1889, A., 1070; (WALLACH and CONRADY), 1889, A., 1072.

hydrochloride (WALLACH), 1892, A., 1349.

**Dipentenitrolpiperidine** (WALLACH), 1888, A., 1099; 1889, A., 1070; (WALLACH and CONRADY), 1889, A., 1072.

**Diterpene**, a, from urine (LE NOBEL), 1885, A., 668.

**Fenchene** (WALLACH), 1891, A., 1082, 1088.

**Hesperidene**. See *d*-Limonene.

**Laurene** (BRÜHL), 1888, A., 377.

**Licarene** (MORIN), 1888, A., 1308.

***d*-Limonene** (*carvene, citrene, hesperidene*) (GOLDSCHMIDT), 1884, A., 1138; (BRÜHL), 1888, A., 377; (WALLACH), 1888, A., 1204; 1891, A., 1083.

obtained from camphor oil (YOSHIDA), 1885, T., 787.

constitution of (REYCHLER), 1892, A., 1350.

refraction and dispersion equivalents of (GLADSTONE), 1886, T., 615.

thermochemistry of (BERTHELOT and MATIGNON), 1891, A., 1315.

action of heat on (TILDEN), 1884, T., 417.

action of acetic acid on (LAFONT), 1888, A., 718.

derivatives, rotatory power of (WALLACH and CONRADY), 1889, A., 1072.

**tetrabromide** (WALLACH), 1885, A., 550; 1891, A., 1241; (OLIVIERI), 1891, A., 1496.

hydrochloride (WALLACH), 1888, A., 1098.

nitrosobromide (WALLACH), 1888, A., 1098.

nitrosochlorides (WALLACH), 1888, A., 1098; 1889, A., 1069; 1892, A., 1349; (WALLACH and CONRADY), 1889, A., 1072.

**Limonenitrolaniline** (WALLACH), 1889, A., 1071; 1892, A., 1348. nitroso- (WALLACH), 1892, A., 1348.

## TERPENES AND THEIR DERIVATIVES:—

**Limonenitrolbenzylamine** (WALLACH), 1889, A., 1070; (WALLACH and CONRADY), 1889, A., 1072.

hydrochloride (WALLACH), 1892, A., 1349.

**Limonenitrolpiperidine** (WALLACH), 1889, A., 1070; (WALLACH and CONRADY), 1889, A., 1072.

**Limonenitrol-*p*-toluidine** hydrochloride (WALLACH), 1888, A., 1099.

**Limonene-series**, isomerism in the (WALLACH), 1892, A., 1348.

***l*-Limonene** and its derivatives, rotatory power of (WALLACH and CONRADY), 1889, A., 1072.

**Massoyene** (WOY), 1890, A., 638; 1891, A., 464; (WALLACH), 1890, A., 1316; 1891, A., 935.

**Menthene** (BRÜHL), 1888, A., 377; (BERKENHEIM), 1892, A., 866; (SIEKER and KREMERS), 1892, A., 1479.

preparation of (BRÜHL, BILTZ, CANTZLER and REUTER), 1892, A., 623.

transformation of terpine into (BOUCHARDAT and LAFONT), 1889, A., 276.

constitution of (BRÜHL, BILTZ, CANTZLER and REUTER), 1892, A., 624; (BRÜHL), 1892, A., 625.

nitrosochloride (SIEKER and KREMERS), 1892, A., 1479.

**Phellandrene** (PENC), 1884, A., 331; 1886, A., 1038; (WALLACH), 1887, A., 967; 1891, A., 1084.

physical isomerides of (WALLACH and GILDEMEISTER), 1888, A., 1205.

**Phellandrenediamine** (PENC), 1886, A., 1038.

**Pinene** (BRÜHL), 1888, A., 377; (WALLACH), 1890, A., 1315; 1891, A., 1081.

from oil of *Asarum europaeum* (PETERSEN), 1888, A., 630.

constitution of (MARSH and STOCKDALE), 1890, T., 964; (WAGNER), 1891, A., 1242; (COLLIE), 1892, A., 865; (WALLACH), 1892, A., 997.

action of chromium oxychloride on (HENDERSON and SMITH), 1888, P., 116; 1889, T., 45.

oxidation products of, aldehydic nature of (SCHIFF), 1883, A., 1141.

## TERPENES and THEIR DERIVATIVES:—

- Pinene**, *dibromide* (WALLACH), 1891, A., 1241.  
 nitroso-chloride and -bromide (WALLACH), 1888, A., 1098.  
 nitroso- (*nitrosoterpene*) (GOLD-SCHMIDT and ZÜRNER), 1885, A., 1210.  
 See also Australene, Terebenthene.  
**Pinenenitrol-allylamine, -amylamine and -propylamine** (WALLACH and FRUSCHK), 1892, A., 998.  
**Pinenenitrolbenzylamine** (WALLACH), 1889, A., 1071.  
**Pinenenitrolpiperidine** (WALLACH), 1888, A., 1098.  
**Pinene-phthalamic acid and -phthalimide** (PESCI), 1891, A., 1086.  
**Sesquiterpene** (BRUHL), 1888, A., 377.  
 and its derivatives, rotatory power of (WALLACH and CONRADY), 1889, A., 1072.  
 hydrate (BEILSTEIN and WIEGAND), 1883, A., 346.  
**Sesquiterpenes** (WALLACH), 1887, A., 596.  
**Shikimene** (EIJKMAN), 1886, A., 95.  
**Sylvestrene** (WALLACH), 1887, A., 967; (BRÜHL), 1888, A., 377.  
 and its derivatives, rotatory power of (WALLACH and CONRADY), 1889, A., 1072.  
 nitroschloride (WALLACH), 1888, A., 1099.  
**Sylvestrenenitrolbenzylamine** (WALLACH), 1889, A., 1071.  
**Terebenthene** (*l-pinene*) (BRUHL, BILTZ, CANZLER and REUTER), 1892, A., 624; (BRUHL), 1890, A., 625.  
 from camphor oil and its derivatives (YOSHIDA), 1885, T., 782.  
 from frankincense (WALLACH), 1889, A., 1072.  
 thermochemistry of (BERHLEFLOI and MATIGNON), 1891, A., 1315.  
 action of acetic acid and heat on (BOUCHARDAT and LAFONT), 1886, A., 475; 1889, A., 895.  
 action of aluminium chloride and of bromine on (VARET), 1891, A., 1084.  
 French, action of formic acid on (LAFONT), 1888, A., 495.  
 action of picric acid on (LEXTREIT), 1886, A., 71.  
 action of sulphuric acid on (BOUCHARDAT and LAFONT), 1888, A., 294.

## TERPENES and THEIR DERIVATIVES:—

- Terebenthene** (*l-pinene*), oxidation of, in sunlight (ARMSTRONG), 1891, T., 311; (ARMSTRONG and POPE), 1891, T., 315.  
 monohydric alcohols from (BOUCHARDAT and LAFONT), 1886, A., 475.  
 conversion of, into an inactive terpene (BOUCHARDAT and LAFONT), 1886, A., 364.  
 derivatives of (PESCI), 1889, A., 158.  
 hydrochlorides, liquid (BARBIER), 1883, A., 809.  
 hydrochlorides (MARSH and GARDNER), 1891, T., 728.  
**Terebenthene**, amido- (PESCI and BETTELLI), 1887, A., 272.  
 action of phthalic anhydride on (PESCI), 1891, A., 1086.  
 nitrogen derivatives of (TANRET), 1887, A., 595, 675.  
 nitro- (PESCI and BETTELLI), 1887, A., 272; (PESCI), 1889, A., 157.  
 detection of resin oil in (ZUNE), 1892, A., 923.  
*d-Terebenthene* (PESCI), 1889, A., 157; (ARMSTRONG), 1891, T., 313.  
*l-Terebenthene* (ARMSTRONG), 1891, T., 313.  
**Terecamphene**. See Camphene.  
*isoTerpene* from the resin of *Pinus Abies* (KURILOFF), 1892, A., 625.  
 constitution of (KANONNIKOFF), 1886, A., 336.  
*d-isoTerpene* (FLAWITZKY), 1887, A., 969.  
**Terpene** from French essence of terebenthene (BOUCHARDAT and LAFONT), 1889, A., 897.  
 heat of combustion of (LUGNIN), 1889, A., 328.  
 action of heat on (TILDEN), 1884, T., 417.  
 transformation of, into menthene (BOUCHARDAT and LAFONT), 1889, A., 276.  
 dihydrochloride, molecular refraction and dispersion of in solution (GLADSTONE), 1891, T., 591.  
**Terpinene** (WEBER), 1887, A., 596; (WALLACH), 1887, A., 967; 1891, A., 1084.  
 benzoylisonitrosite (WALLACH), 1888, A., 1099.  
 nitrosite (WALLACH), 1887, A., 967; 1888, A., 60.  
**Terpinenenitrol-amine**, -*isoamylamine*, -*diethylamine*, -*dimethylamine*, -*ethylamine*, -*methylamine* and -*piperidine* (WALLACH), 1880, A., 60.

## TERPENES and THEIR DERIVATIVES:—

**Terpinolene** (WALLACH), 1886, A., 71; 1887, A., 966.

**$\beta$ -Terebangelene** (NAUDIN), 1883, A., 810.

**Tetrahydropinene** (WALLACH and BERKENHEIM), 1892, A., 998.

**Winterene** (ARATA and CANZONERI), 1890, A., 405.

## TERPENE OXIDISED COMPOUNDS:—

**Absinthol** (BRÜHL), 1888, A., 494.

**Borneol**. See Borneol.

**Camphene glycol** (WAGNER), 1890, A., 1313.

**Camphor**. See Camphor.

**Carveol** (LEUCKART), 1887, A., 376.

**Carvol** (*carvole*) (BEYER), 1884, A., 331; (BRÜHL), 1888, A., 495.

constitution of (CLARKE and FAHRION), 1889, A., 880.

derivatives of (GOLDSCHMIDT), 1884, A., 1138; (GOLDSCHMIDT and KINER), 1887, A., 475, 923; (WALLACH), 1892, A., 499.

oxime of. See Carvoxime.

**Carvolphenylhydrazine** (GOLDSCHMIDT), 1884, A., 1138.

**Carvyl phenylamidoformate** (LEUCKART), 1887, A., 376.

**Carvylamine** (GOLDSCHMIDT), 1887, A., 249; (LEUCKART and BACH), 1887, A., 377.

**Cineol** (*eucalyptol*; *eucalyptol*) and its derivatives (WALLACH), 1885, A., 171; 1891, A., 1083; (WALLACH and BRASS), 1885, A., 171; (JAHNS), 1885, A., 894; (BRÜHL), 1888, A., 494; (BOUCHARLAT and VOIRY), 1888, A., 719; (VOIRY), 1888, A., 962.

constitution of (WALLACH), 1890, A., 1315.

**Dihydrocarveol** (WALLACH), 1892, A., 499.

**Fenchone** (WALLACH and HARTMANN), 1891, A., 218; (WALLACH), 1891, A., 1082, 1086.

**Fenchoneoximes** (WALLACH and HARTMANN), 1891, A., 218; (WALLACH), 1891, A., 1087; 1892, A., 1237.

**Fenchonitrile** and its derivatives (WALLACH), 1892, A., 1236.

**Geraniol**, oxidation of (SEMMLER), 1891, A., 30.

**Linalool** (*linalool*) (SEMMLER), 1891, A., 540; (SEMMLER and TIEMANN), 1892, A., 868; (BARBIER), 1892, A., 1236; (SCHIMMEL), 1892, A., 1347.

## TERPENE OXIDISED COMPOUNDS:—

**Menthol** (BRÜHL), 1888, A., 494; (BERKENHEIM), 1892, A., 866.

constitution of (BECKMANN), 1889, A., 723; (BRÜHL, BILTZ, CANTZLER and REUTER), 1892, A., 624.

molecular refraction and dispersion of, in solution (GLADSTONE), 1891, T., 591.

specific rotatory and refractive powers of, relation between KANONNIKOFF), 1889, A., 453.

action of carbon disulphide on (DAMBERGER and LODTER), 1890, A., 517.

conversion of into cymene (BRÜHL), 1892, A., 200.

oxidation of, by potassium permanganate (ARTH), 1884, A., 755.

derivatives of (ARTH), 1884, A., 167; 1886, A., 892; (BERKENHEIM), 1892, A., 866.

metallic derivatives of (BRÜHL and BILTZ), 1891, A., 656.

**Menthone** and its derivatives (BERKENHEIM), 1892, A., 867.

*d*- and *l*- (BECKMANN), 1889, A., 721.

**Myristicol** (BRÜHL), 1888, A., 494.

**Pulegone** and its oxime (BECKMANN; PLEISSNER), 1891, A., 936.

**Puleone** and its oxime (BARBIER), 1892, A., 627.

**Sobrerol** (*pinol hydrate*) (ARMSTRONG), 1890, P., 100; 1891, T., 313; (ARMSTRONG and POPE), 1891, T., 315; (WALLACH), 1891, A., 218.

**Sobrerone** (*pinol*) and its derivatives (ARMSTRONG), 1890, P., 100; 1891, P., 314; (WALLACH and OTTO), 1890, A., 169.

and its derivatives, oxidation of (WALLACH), 1891, A., 218.

tribromide (WALLACH), 1891, A., 218.

glycol (*pinol glycol*) and its derivatives (WALLACH), 1891, A., 217; (WALLACH and FRUSTUCK), 1892, A., 998.

diacetate (WALLACH), 1891, A., 217.

ethyl ether (WALLACH and OTTO), 1890, A., 170.

nitroschloride (WALLACH and OTTO), 1890, A., 170.

**Sobreronenitrol-amine**, -aniline, -benzylamine, - $\beta$ -naphthylamine and -piperidine (WALLACH and OTTO), 1890, A., 170.

## TERPENE OXIDISED COMPOUNDS:—

- Terpin** (BRÜHL), 1888, A., 491;  
(WALLACH), 1891, A., 1084.  
heat of combustion of (LUGNIN),  
1889, A., 328.  
formate (LAFONT), 1888, A., 495.  
hydrate (WALLACH), 1886, A., 70;  
(VULPIUS), 1889, A., 1202.  
from eucalyptus oil (MERCK),  
1892, A., 1235.  
molecular refraction and dis-  
persion of, in solution (GLAD-  
STONE), 1891, T., 591.  
heat of combustion of (LUGNIN),  
1889, A., 328.  
action of hydriodic acid on  
(BERKENHEIM), 1892, A., 867.  
reduction of (STOSCHKAREFF),  
1892, A., 1351.
- Terpineol** (*terpinol*, *i-terpilenol*,  
*terpol*) (TANRET), 1885, A.,  
990; (WALLACH), 1886, A., 70;  
(WEBER), 1887, A., 596;  
(BOUCHARDAT and VOIRY), 1887,  
A., 677; (VOIRY), 1888, A., 962.  
synthesis of an inactive (BOU-  
CHARDAT and LAFONT), 1886, A.,  
890.  
ethyl ether (BOUCHARDAT and  
VOIRY), 1887, A., 677; 1888, A.,  
719, 961.
- Terpineols**, action of acids and  
anhydrides on (LAFONT), 1888, A.,  
845.
- Terpenes**. See also Oils, vegetable.
- Terra cotta lumber**, preparation of  
(ANON.), 1883, A., 896.
- Tetanine** (BRIGER), 1888, A., 1317.
- Tetano-cannabine** (HAY), 1888, A.,  
1156.
- Tetanus** produced by a ptomaine  
(BRIGER), 1887, A., 284.
- Tetrabenzoyl-2:4:6-triamidophenol**  
(HINCHBERG and V. UDRINSKY), 1890,  
A., 371.
- Tetrabenzoylsodulcitol** (RAYMAN),  
1887, A., 907.
- Tetrabenzoyl-erythritol and -levulose**  
(SKRAUP), 1889, A., 1152.
- Tetrabenzoylmethane**, preparation of  
(PERKIN), 1885, T., 253.
- Tetrabenzoylquinone** (MAQUENNE),  
1887, A., 908.
- Tetrabenzylacetonedicarboxylic acid**  
(DUNSCHMANN and V. PECHMANN),  
1891, A., 674.
- Tetrabenzyl-carbamide and -oxamide**  
(HAMMERICH), 1892, A., 1083.
- Tetrabenzyl-m- and -p-phenylene-  
diamines** (MELDOLA and COSTE),  
1889, T., 600, 602.

- Tetrabenzylphosphonium compounds**  
(LEDERMANN), 1888, A., 475.  
iodide (LETIS and BLAKE), 1890, A.,  
767.
- Tetrabenzylsilicon**, crystalline form of  
(POLIS), 1886, A., 619.
- Tetrabenzyltrimethylenetrisulphone**  
(CAMPS), 1892, A., 592.
- Tetraisobutyl oxalate** (ANSCHÜTZ),  
1890, A., 236.
- Tetraisobutylmethylenediamine**  
(EIHENBERG), 1887, A., 1027.
- Tetracetyl-diamidoapione** (CIAMICIAN  
and SILBER), 1890, A., 1295.
- Tetracetylamidodihydroxyphenyl-  
quinol and -quinone** (BAMBERGER),  
1884, A., 309.
- Tetracetyl- $\alpha$ -*d*-amidophenanthraquinol**  
(KLEEMANN and WENSE), 1885, A.,  
1240.
- Tetracetyl-diamidothymol and its  
acetate** (MAZZARA), 1891, A., 188.
- Tetracetyl-di- and -tri-bromobrazileins**  
(SCHALL and DRALLE), 1890, A.,  
997.
- Tetracetylenedicarboxylic acid** (V.  
BAYER), 1885, A., 1199.
- Tetracetyldihydrosorcinol** (HERZIG  
and ZEISEL), 1891, A., 75.
- Tetracetylexanthic acid** (HERZIG),  
1892, A., 1354.
- Tetracetylhydrindigotin** (LIEBER-  
MANN), 1892, A., 480.
- Tetracetylhydroxyanthranol** (LIEBER-  
MANN), 1888, A., 717.
- Tetracetylmucic acid** (MAQUENNE),  
1888, A., 676.
- Tetracetylpenterythritol** (TOLLENS and  
WIGAND), 1892, A., 128.
- Tetracetylphenolglucoside** (MICHAEL),  
1884, A., 439.
- Tetracetylquinic acid** (ERWIG and  
KOENIG), 1889, A., 991.
- Tetracetylquinol**, 2-chlor-3:6-*d*-amido-  
(KEHRMANN and TIESLER), 1890, A.,  
243.
- Tetracetylosaniline** (RENOUF), 1883,  
A., 931.
- Tetracetylsaccharic acid** (TIEMANN  
and HAARMANN), 1886, A., 690.
- Tetracetylsalivic acid** (HAZURA), 1887,  
A., 799.
- Tetracresotide** (BARGIONI and SCHIFF),  
1888, A., 838.
- Tetradecahydroanthracene** (LUCAS),  
1888, A., 1201; 1890, A., 637.
- Tetradecaldoxime and tetradecyl-  
amine** (KRAFFT), 1890, A., 1234.
- Tetradecane** (*dibetyl*) (SORAJET), 1885,  
T., 40; (KRAFFT), 1886, A.,  
998.

- Tetradecenoic acid** (*heptylpentylacrylic acid*;  $C_{14}H_{26}O_2$ ) (PERKIN), 1883, T., 48, 62, 66.
- Tetradecenoic aldehyde** ( $C_{14}H_{26}O$ ) (PERKIN), 1883, T., 49.
- Tetradecenyl alcohol** (*heptylpentyl-ethyl alcohol*;  $C_{14}H_{28}O$ ) (PERKIN), 1883, T., 54.
- Tetradecinene** (*methylundecylacetylene*) (KRAFFT and REUTER), 1892, A., 1164.
- Tetradecoic acid** (*heptylpentylacetic acid*;  $C_{14}H_{28}O_2$ ) (PERKIN), 1883, T., 75, 79.
- Tetradecylacetylene** (KRAFFT and REUTER), 1892, A., 1163.
- Tetradecylene**, preparation of (KRAFFT), 1884, A., 571.
- Tetradecylenic bromide** (KRAFFT), 1884, A., 1108.
- Tetradecyl alcohol**, preparation of (KRAFFT), 1883, A., 1075.
- Tetradecylidene** (KRAFFT), 1884, A., 1108.
- Tetradecyl-malonamic and -malonic acids** (HELL and IORDANOFF), 1891, A., 821.
- Tetradymite** from Arizona (GENTH), 1891, A., 154.  
from Zsupkó and from Rézbánya (LOCZKA), 1892, A., 1054.  
See also Bornite.
- Tetraethyl-**. See Tetrethyl-.
- Tetragalactangeddic acid** (O'SULLIVAN), 1891, T., 1069.
- Tetrahidrite** (*fahlore*) (GONNARD), 1885, A., 220.  
of Fibram (BABÁNEK), 1886, A., 514.  
from the Alaska vein, Colorado (LEIVEN), 1886, A., 21.  
and zinc-blende, parallel growth of (BECKE), 1886, A., 207.
- Tetrahydrazoresorufin** (BRUNNER and KRAEMER), 1884, A., 1334.
- Tetrahydroacenaphthene** (BAMBERGER and LODTER), 1888, A., 292; (LIEBERMANN and SPIEGEL), 1889, A., 720.
- Tetrahydro- $\gamma$ -anthracenecarboxylic acid** (BOHNSTEIN), 1884, A., 330.
- Tetrahydrobenzoic acid** and its derivatives (ASCHAN), 1891, A., 1053.
- Tetrahydrobenzoic acids**,  $\Delta^1$ - and  $\Delta^2$ - and their derivatives (ASCHAN), 1891, A., 1481.
- Tetrahydrocarbazolecarboxylic acid** (v. BAeyer and TUTTIN), 1889, A., 1181.
- Tetrahydrocinchonic acid**, hydrochloride of (WEIDEL and HAZURA), 1885, A., 561.
- Tetrahydridibenzylidene-2:6-lutidine** (SCHUSTFR), 1892, A., 1361.
- Tetrahydrodicollidine**, and its derivatives (HANTZSCH), 1883, A., 84.
- Tetrahydrodicoumaric acid** and its salts (DYKON), 1887, T., 68.
- Tetrahydrodicoumarin** (DYKON), 1887 T., 70.
- Tetrahydrodiphenyl** (BAMBERGER and LODTER), 1888, A., 293.
- Tetrahydrodiphenylic dibromide** and its bromo-derivative (BAMBERGER and LODTER), 1888, A., 604.
- Tetrahydrodiquinoline** (FRIEDLANDER and WEINBERG), 1885, A., 990.
- Tetrahydroharmane** (FISCHER), 1889, A., 730.
- Tetrahydro- $\alpha$ -naphthabenzylamine** (BAMBERGER and LODTER), 1887, A., 719.
- Tetrahydro- $\beta$ -naphthabenzylamine** (BAMBERGER and BOECKMANN), 1887, A., 840.
- Tetrahydronaphthalene** (GRAEBE and GUYE), 1884, A., 608.  
derivatives (PERKIN), 1887, P., 92; 1888, T., 1; (KIPPING), 1887, P., 93.
- Tetrahydro- $\alpha$ -naphthalene** (BAMBERGER and BORDT), 1889, A., 717; (BAMBERGER and KITSCHLITZ), 1890, A., 1146.
- Tetrahydro- $\alpha$ -naphthalene, *uv*-amidoazo-** (BAMBERGER and LENGELD), 1890, A., 1305.
- Tetrahydronaphthaleneazo- $\alpha$ -naphthylamine**, and -resorcinol (BAMBERGER and BORDT), 1889, A., 715.
- Tetrahydronaphthaleneazo- $\beta$ -naphthylamine**, 1:4'-amido- (BAMBERGER and BAMMANN), 1889, A., 783.
- $\beta\beta$ -Tetrahydronaphthalenedicarboxylic acid** (PERKIN), 1888, T., 11, 20.  
synthesis of (v. BAeyer and PERKIN), 1884, A., 907.
- $\beta\beta$ -Tetrahydronaphthalenedicarboxylic anhydride** (PERKIN), 1888, T. 12.
- Tetrahydronaphthalenesulphonic acid**, hydrolysis of (FRIEDEL and GRAFIN), 1889, A., 1201.
- Tetrahydronaphthalenesulphonic acids** (GRAEBE and GUYE), 1884, A., 608.
- Tetrahydronaphthalenetetracarboxylic acid** (PERKIN; KIPPING), 1887, P., 93.
- uv*-Tetrahydro- $\alpha$ -naphthamide** (BAMBERGER and BORDT), 1889, A., 716.
- uv*-Tetrahydro- $\alpha$ -naphthaquinol** (BAMBERGER and LENGELD), 1890, A., 1205.
- Tetrahydro- $\alpha$ -naphthaquinoline** and its *p*-amido-derivative (BAMBERGER and STETTENHEIMER), 1891, A., 1258.

- Tetrahydro- $\beta$ -naphthaquinoline** (BAMBERGER and MÜLLER), 1891, A., 1510.
- ar*-**Tetrahydro- $\alpha$ -naphthaquinone** (BAMBERGER and LENGELD), 1890, A., 1305.
- Tetrahydro-naphthathionine and naphthindamine** (BAMBERGER), 1890, A., 1300.
- Tetrahydro- $\alpha$ -naphthoic acid** (BAMBERGER and BORDT), 1889, A., 716; (V. BAeyer, SCHÖDER and BENEFELDER), 1892, A., 192.
- ac*-**Tetrahydro- $\alpha$ -naphthoic acids** (V. SOWINSKI), 1891, A., 1380.
- Tetrahydro- $\beta$ -naphthoic acid** (V. SOWINSKI), 1891, A., 1381; (V. BAeyer, SCHÖDER and BENEFELDER), 1892, A., 191.
- ar*-**Tetrahydro- $\alpha$ -naphthol** (BAMBERGER and ALTHAUSSE), 1888, A., 900; (BAMBERGER and BORDT), 1890, A., 508.
- amido- (BAMBERGER and BAMMANN), 1889, A., 783.
- ac*-**Tetrahydro- $\beta$ -naphthol** (BAMBERGER and LODTER), 1890, A., 506.
- ar*-**Tetrahydro- $\beta$ -naphthol** (BAMBERGER and KITSCHOLT), 1890, A., 627, 638.
- Tetrahydro- $\alpha$ -naphthonitrile and - $\alpha$ -naphthothiamide** (BAMBERGER and BORDT), 1889, A., 716.
- Tetrahydro- $\alpha$ -naphthylamine** (BAMBERGER), 1888, A., 159; (BAMBERGER and ALTHAUSSE), 1888, A., 959; (BAMBERGER and BORDT), 1889, A., 715; (BAMBERGER and BAMMANN), 1889, A., 782, 784.
- Tetrahydro- $\beta$ -naphthylamine and its derivatives** (BAMBERGER), 1888, A., 159; (BAMBERGER and MÜLLER), 1888, A., 599, 712.
- ac*- and *ar*- (BAMBERGER and KITSCHOLT), 1890, A., 631.
- Tetrahydronaphthylamine compounds, relations between the physiological properties and constitution of** (BAMBERGER and FLEHN), 1889, A., 737.
- Tetrahydro- $\beta$ -naphthylaminephenylcarbamide** (BAMBERGER and MÜLLER), 1888, A., 600.
- Tetrahydronaphthylanisole** (KÖNIGS and MAI), 1892, A., 1415.
- ac*-**Tetrahydro- $\beta$ -naphthylbenzylideneamine** (BAMBERGER and KITSCHOLT), 1890, A., 632.
- Tetrahydro- $\beta$ -naphthylcarbinyllamine tetrahydro- $\beta$ -naphthylcarbinyldi-thiocarbamate** (BAMBERGER and HELWIG), 1889, A., 1198.
- $\beta$ -Tetrahydronaphthyldiethylamines, isomeric** (BAMBERGER and WILLIAMSON), 1889, A., 1000.
- Tetrahydronaphthylene chlorhydrin and oxide** (BAMBERGER and LODTER), 1891, A., 1072.
- ar*-**Tetrahydro-1:4-naphthylene/*di*-chloro/*di*imide** (BAMBERGER), 1890, A., 1300.
- Tetrahydro-1:2-naphthylenediamines, *ac*- and *ar*-** (BAMBERGER and SCHIEFFELIN), 1889, A., 893.
- ar*-**Tetrahydro-1:4-naphthylenediamine** (BAMBERGER and SCHIEFFELIN), 1889, A., 893.
- ac*-**Tetrahydro-1:4'-naphthylenediamine** (BAMBERGER and ABRAHAM; BAMBERGER and BAMMANN), 1889, A., 782.
- decomposition of, into its optically active components (BAMBERGER), 1890, A., 511.
- tetrahydroamidonaphthylthiocarbamate (BAMBERGER and BAMMANN), 1889, A., 783.
- $\alpha$ -Tetrahydronaphthylethylamine** (BAMBERGER and HELWIG), 1889, A., 891.
- hydrochloride, *p*-nitroso- (BAMBERGER and HELWIG), 1889, A., 892.
- $\beta$ -Tetrahydronaphthylethylamines, *ac*- and *ar*-** (BAMBERGER and MÜLLER), 1889, A., 888, 890.
- Tetrahydronaphthylhydrazine, amido-** (BAMBERGER and BAMMANN), 1889, A., 784.
- Tetrahydro- $\alpha$ -naphthylhydrazine hydrochloride** (BAMBERGER and BORDT), 1889, A., 717.
- ac*-**Tetrahydro- $\beta$ -naphthyllic acetate, benzoate, sodium carbonate, chloride and phenylcarbamate** (BAMBERGER and LODTER), 1890, A., 507.
- Tetrahydronaphthylphenol** (KÖNIGS), 1891, A., 571; (KÖNIGS and MAI), 1892, A., 1115.
- Tetrahydronaphthylthiocarbamide, di-amido-** (BAMBERGER and BAMMANN), 1889, A., 783.
- ac*-**Tetrahydro- $\beta$ -naphthylxanthic acid, sodium salt of** (BAMBERGER and LODTER), 1890, A., 508.
- Tetrahydro-*p*-oxazine** (KNORR), 1889, A., 1218.
- Tetrahydropapaverine and its derivatives** (GOLDSCHMIEDT), 1887, A., 163.
- Tetrahydropthalic acids,  $\Delta^1$ ,  $\Delta^2$ ,  $\Delta^3$ , and  $\Delta^4$ , *cis*trans (V. BAeyer), 1890, A., 1279; 1892, A., 1216.**

- Tetrahydropthalic anhydrides**,  $\Delta^1$ ,  $\Delta^2$ , and  $\Delta^{2,4,5,6}$  (v. BAeyer), 1890, A., 1280.
- Tetrahydropicoline**,  $\Delta^2$  (LIPP), 1887, A., 277; 1892, A., 1243.
- Tetrahydropicolinic acid**, chloro- (OST), 1883, A., 794.
- Tetrahydropinene** (WALLACH and BERKENHEIM), 1892, A., 998.
- Tetrahydropyrazine** (GARZINO), 1892, A., 633.
- Tetrahydropyridine**. See Piperidine.
- Tetrahydropyridylacrylic acid**. See Anhydroecgonine.
- Tetrahydropyrroline**. See Pyrrolidine.
- Tetrahydroquinaldine**. See 2'-Methyl-tetrahydroquinoline.
- Tetrahydro-*p*-quinanisoil**. See 3-Methoxytetrahydroquinoline.
- Tetrahydroquinazoline**, thio- (BUSCH), 1892, A., 1496.
- Tetrahydroquininic acid** (SRPEK), 1890, A., 177.
- Tetrahydroquinoline** (HOFFMANN and KOENIGS), 1883, A., 1143.  
from crude quinoline (OECHSNER DE CONINCK), 1883, A., 739.  
spectrum of (HARTLEY), 1885, T., 731.  
action of bromine on (HOFFMANN and KOENIGS), 1883, A., 1145.  
oxidation of (HOFFMANN and KOENIGS), 1883, A., 1144; (LELLMANN and REUSCH), 1889, A., 905; (TAFEL), 1892, A., 1104.  
conversion of, into isatin (SCHOTTEN), 1891, A., 722.  
colouring matters from (LELLMANN and BOYE), 1890, A., 1005.  
derivatives (HOFFMANN and KOENIGS), 1883, A., 1143.  
derivatives, oxidation of (SCHOTTEN and SCHLÖMANN), 1892, A., 355.  
benzyl derivatives of (LELLMANN and PEKRUN), 1891, A., 88.  
homologues of (BAMBERGER and WITZ), 1891, A., 1253.  
hydrochloride, spectrum of (HARTLEY), 1885, T., 735.  
methochloride (OSTERMAYER), 1885, A., 672.
- Tetrahydroquinoline**, *p*-amido- (ZIEGLER), 1883, A., 609.  
*d*-nitro- (SIMON-THOMAS), 1892, A., 726.  
*p*-mono- and *di*-nitroso- (ZIEGLER), 1888, A., 610.
- Tetrahydroquinoline-2-carboxylic acid** (FISCHER and KÖRNER), 1884, A., 1197; (LELLMANN and ALT), 1887, A., 503.
- Tetrahydroquinolinedimethylaniline-thiosulphonic indamine** (LELLMANN and BOYE), 1890, A., 1006.
- Tetrahydroquinoline-4-sulphonic acid** (LELLMANN and LANGE), 1888, A., 296.
- Tetrahydroquinolylcarbamide**, and its *d*-nitro-derivative (SIMON-THOMAS), 1892, A., 725.
- Tetrahydroretene** (BAMBERGER and LODTER), 1888, A., 292.
- Tetrahydroterephthalic acid**,  $\Delta^1$  (v. BAeyer), 1887, A., 370.  
constitution of (v. BAeyer), 1888, A., 1070.  
heats of combustion and formation of (STOHMANN and KLEBER), 1891, A., 376.  
oxidation of (v. BAeyer and HERB), 1890, A., 1134.  
hydrobromide (v. BAeyer), 1888, A., 1074.
- Tetrahydroterephthalic acid hydr-iodide**,  $\Delta^{2,4,5,6}$  (v. BAeyer and HERB), 1890, A., 1134.
- Tetrahydroterephthalic acids** (v. BAeyer), 1889, A., 1176, 1178.
- Tetrahydro- $\alpha$ -thiophenecarboxylic acid** and its salts (ERNST), 1887, A., 471.  
thermochemistry of (STOHMANN and KLEBER), 1891, A., 376.
- Tetrahydrothiophen-2:5-dicarboxylic acid** (ERNST), 1887, A., 237.
- Tetrahydroxyisomamylidenephosphonium iodide** (DE GIRARD), 1884, A., 1119.
- Tetrahydroxyanthraquinoline** (GRAEBE and PHILIPS), 1891, A., 1240.
- Tetrahydroxyanthraquinone**, boiling point of (SCHWEITZER), 1891, A., 1240.  
(*rufoptine*) (NÜLTING), 1883, A., 65.
- 1:2:1':4'-Tetrahydroxyanthraquinone** (*quinizarin*; *alizarin-bordeaux*) and its derivatives (LIEBERMANN and WENSE), 1887, A., 593; (SCHMIDT; GATTERMANN), 1891, A., 935.  
formation of, from alizarin (GRAEBE), 1891, A., 463.
- 1:3:2':4'-Tetrahydroxyanthraquinone** (*anthrachrysone*) (NOAH), 1886, A., 556.
- Tetrahydroxyanthraquinones** ( $\alpha$ - and  $\beta$ -*oxyanthragallols*) (NOAH), 1887, A., 56.
- Tetrahydroxyaurindicarboxylic acid** (CARO), 1892, A., 1469.
- 1:2:3:4-Tetrahydroxybenzene**. See Apionol.

- 1 2 3:5-Tetrahydroxybenzene diethyl ether. See Diethoxydihydroxybenzene.
- 1:2:4:5-Tetrahydroxybenzene (LOEWY), 1886, A., 1028; (NIETZKI and SCHMIDT), 1888, A., 1182; (BONIGER), 1889, A., 878.
- amido-, hydrochloride (NIETZKI and SCHMIDT), 1889, A., 969.
- N*-amido-, and its derivatives (NIETZKI and BENCKISER), 1885, A., 780.
- nitramido- (NIETZKI), 1884, A., 58.
- Tetrahydroxybenzophenone and its derivatives (GRAEBE and EICHENGRUN), 1892, A., 1225.
- Tetrahydroxybutanetricarboxylic acid (DULL), 1891, A., 547.
- Tetrahydroxydiphenyl. See Diquinol and Diresorcinol.
- Tetrahydroxydiphenylmethane (BARTH and SCHREDER), 1883, A., 59.
- (methylenediresorcinol) (CARO), 1892, A., 856.
- Tetrahydroxydiphthalyl (GOLDSCHMIEDT and EGGER), 1891, A., 1372.
- Tetrahydroxyditolyl (BRUNNER), 1889, A., 997; (DENINGER), 1890, A., 39.
- Tetrahydroxyethylidenephosphonium compounds (MESSINGER and ENGEL), 1888, A., 442.
- iodide (DE GIRARD), 1884, A., 1119.
- Tetrahydroxyoctolactone (BULITSCH), 1888, A., 450.
- Tetrahydroxypropylenephosphonium compounds (MESSINGER and ENGEL), 1888, A., 442.
- Tetrahydroxyquinone, formula of (NIETZKI and KEHRMANN), 1888, A., 263.
- action of *o*-phenylenediamine on (KEHRMANN), 1890, A., 1265.
- salts of (NIETZKI and BENCKISER), 1883, A., 780.
- Tetrahydroxyquinoneanilide (NIETZKI and SCHMIDT), 1888, A., 944.
- Tetrahydroxystearic acid. See Sativic acid.
- Tetrahydroxyterephthalic acid (LOEWY), 1886, A., 1028.
- Tetrahydroxytoluene, *p*-nitro- (KEHRMANN and BRASCH), 1889, A., 970.
- Tetrahydroxyvaleric acid (*arabonic acid*) (BAUER), 1885, A., 500; 1886, A., 869; (KILIANI), 1887, A., 230.
- phenylhydrazide of (FISCHER), 1890, A., 1398.
- (*ribonic acid*) (FISCHER and PILOTY), 1892, A., 438.
- Tetraketohexamethylene, tribromo- (LANDOLT), 1892, A., 836.
- tetrabromo- (NEF), 1890, A., 1272.
- trichloro-, hydrate (LANDOLT), 1892, A., 835.
- tetrachloro- (NEF), 1890, A., 1271; (LANDOLT), 1892, A., 836.
- dichlorodibromo- (NEF), 1890, A., 1271.
- Tetraketopiperazines, attempts to prepare (BISCHOFF and NASTVOGEL), 1890, A., 1164.
- Tetralkylammonium iodides, formation of (H. and A. MALBOT), 1892, A., 133.
- action of potassium on (THOMPSON and CUNDALL), 1888, T., 761; P., 79.
- Tetramethoxydiamidodiphenyl and its derivatives (BAESSLER), 1884, A., 1330; 1887, A., 364.
- Tetramethoxybenzene (WILL), 1888, A., 458.
- Tetramethoxybenzhydrotricarboxylic acid (*tetramethoxydicarboxydiphenylglycollic acid*) (GOLDSCHMIEDT and EGGER), 1891, A., 1372.
- Tetramethoxydihydrodiphthalyl (GOLDSCHMIEDT and EGGER), 1891, A., 1373.
- Tetramethoxy-diphthalyl and -diphthalylidicarboxylic acid (GOLDSCHMIEDT and EGGER), 1891, A., 1371.
- Tetramethoxyditolyl (BRUNNER), 1889, A., 997.
- Tetramethoxyindigodicarboxylic acid (LIEBERMANN), 1886, A., 468.
- Tetramethoxyquinhydrone, tetrachloro- (KEHRMANN), 1891, A., 905.
- Tetramethylaldine. See Tetramethylpyrazine.
- Tetramethylallylalkine. See Hydroxytetramethylpropylenediamine.
- Tetramethylallylene (VUBBEL), 1891, A., 997.
- Tetramethylamidoarsenobenzene (MICHAELIS and RABINERSON), 1892, A., 1321.
- Tetramethylamidoazobenzene (*dimethylamidobenzenecaradimethylaniline*) (NOLTING and KOHN), 1885, A., 386; (BARBIER and VIGNON), 1888, A., 54.
- Tetramethylamidobenzhydrol (*tetramethylamidodiphenylcarbinol*), condensation of, with xyldine, mesidine,  $\psi$ -cumidine, isoduridine and prehnidine (NOLTING), 1892, A., 138.
- derivatives of (NATHANSON and MULLER), 1889, A., 1189.

- Tetramethyl/iamidobenzophenone** (ZIEGLER), 1887, A., 674.  
 action of nitrous acid on (BISCHOFF), 1888, A., 1197; 1889, A., 511.  
 derivatives and reactions of (NATHANSON and MÜLLER), 1889, A., 1188.  
 nitramine derived from (VAN ROMBURGH), 1888, A., 1196.  
 nitroso-, salts of (BISCHOFF), 1889, A., 511.
- Tetramethyl/iamidobenzophenone** (NATHANSON and MÜLLER), 1889, A., 1189.
- Tetramethyl/iamidochlorethoxyquinone** (KEHRMANN), 1891, A., 904.
- Tetramethyl/iamido/chloronitrotriphenylmethane** (KOCK), 1887, A., 837.
- Tetramethyl/iamidodinaphthylphenylmethane** (*phenyltetramethyl/iamidodinaphthylmethane*) (FRIEDLÄNDER and WELMANS), 1889, A., 151.
- Tetramethyl/iamidodiphenyl** (*tetramethylbenzidine*) (MICHLER and PATTINSON), 1884, A., 747; (GIRAUD), 1890, A., 138; (LAUTH), 1891, A., 457.  
 derivatives (MICHLER and PATTINSON), 1884, A., 747.  
*m*-diamido- (LAUTH), 1892, A., 1222.  
 (*tetramethyl/iamidodiphenyl*) (REULAND), 1890, A., 167.
- Tetramethyl/iamidodiphenylamine**, oxidation of (BERNTESEN), 1884, A., 597.
- Tetramethyl/iamidodiphenylcarbinol**. See **Tetramethyl/iamidobenzhydrol**.
- Tetramethyl/iamidodiphenylethane** (HEUMANN and WIEINIK), 1887, A., 674; (TRÜGER), 1888, A., 287.
- Tetramethyl/iamidodiphenylheptane** (KRAFFT), 1887, A., 253.
- Tetramethyl/iamidodiphenylmethane** (WIEINIK), 1889, A., 130; (VAN ROMBURGH), 1889, A., 146.  
 nitro- (VAN ROMBURGH), 1889, A., 146.
- Tetramethyl/iamidodiphenylmethoxymethylquinolylmethane** (NÖLTING), 1892, A., 190.
- Tetramethyl/iamidodiphenylmethoxytolylmethane** (NÖLTING), 1892, A., 190.
- Tetramethyldiamidodiphenylphenylamidonaphthylcarbinol** (*Victoria blue*) (NATHANSON and MÜLLER), 1889, A., 1190.
- Tetramethyldiamidodiphenylphenylmethylamidonaphthylcarbinol** and its derivatives (NATHANSON and MÜLLER), 1889, A., 1191.
- Tetramethyl/iamidodiphenylquinolylmethane** (NÖLTING), 1892, A., 190.
- Tetramethyl/iamidodiphenylthienylmethane** (LEVI), 1887, A., 481.
- Tetramethyl/iamidodiphenyltolylmethane**, *p*-nitro- (NÖLTING), 1891, A., 727.
- Tetramethyl/iamidodiphenyltolylmethanes** and their derivatives (NÖLTING), 1892, A., 187.
- Tetramethyl/iamidoditolylnitrophenylmethane** (KOCK), 1887, A., 837.
- Tetramethyl/iamidophenylmethane**, action of sulphur on (WALLACH), 1891, A., 189.
- Tetramethyl/iamidoquinone**, preparation of (KEHRMANN), 1890, A., 757.
- Tetramethyl/iamidothiobenzophenone** and its derivatives (BAITHER), 1887, A., 816; 1888, A., 289.
- Tetramethyl/iamidotoluene** (*tetramethyltolylenediamine*) (NIEMENTOWSKI), 1887, A., 938.
- Tetramethyl/iamidotriphenylethane** (DOEBNER and PETSCHOW), 1888, A., 288.
- Tetramethyldiamidotriphenylmethane**. See **Leucomalachite-green**.
- Tetramethyl/iamidotriphenylmethane**, derivatives of (NATHANSON and MÜLLER), 1889, A., 1189.
- Tetramethylammonium salts**, action of heat on (LAWSON and COLLIE), 1888, T., 624; P., 61.  
 bromide, chloride and sulphate, action of bromine, chlorine and iodine on (DOBBIN and MASSON), 1886, T., 847; P., 239.  
*di*bromiodide and *dichloriodide* (DOBBIN and MASSON), 1886, T., 848, 850.  
 cyanide and its salts (THOMPSON), 1884, A., 236; (CLAUS and MERCK), 1884, A., 338.  
 hydroxide, heat of formation of (MÜLLER), 1889, A., 811.  
 iodide, action of bromine and chlorine on (DOBBIN and MASSON), 1886, T., 848.  
 action of potassium on (THOMPSON and CUNDALL), 1888, T., 761; P., 79.  
*heptiodide* and *noniodide* (GETTHER), 1887, A., 910.  
 nitrate, formation of (DUVILLIER and MALBOT), 1885, A., 370.
- Tetramethylanthracene** (FRIEDEL and CRAFTS), 1887, A., 1102.
- Tetramethylapionol** (CIAMICIAN and SILBER), 1890, A., 36.  
*dinitro*- (CIAMICIAN and SILBER), 1890, A., 1295.

- Tetramethylazylidine** (NOLTING and BAUMANN), 1885, A., 385; (NOLTING and KOHN), 1885, A., 386.  
hydrochloride (NOLTING), 1885, A., 895.
- Tetramethylbenzamide** (HARRIS), 1890, A., 158.
- Tetramethylbenzamidobenzophenone**, action of nitrous acid on (HERZBERG and POLONOWSKY), 1892, A., 185.
- Tetramethylbenzene** (v. HOFMANN), 1884, A., 1320.  
amido- (*duruline*) [b.p. 253°] (v. HOFMANN), 1884, A., 1320.
- 1:2:3 4-Tetramethylbenzene**. See Pich-nitene.
- 5-amido- (*prichnidine*)** [b.p. 260°] (LIMPACH), 1888, A., 164.
- 1:2:3:5-Tetramethylbenzene**. See *iso* Durene.
- 4 amido- (*isoduridine*)** (NOLTING and BAUMANN), 1885, A., 384, 893.
- 1 2:4:5-Tetramethylbenzene**. See Durene.
- Tetramethylbenzenecarboxylic acid**. See Tetramethylbenzoic acid.
- Tetramethylbenzenethio-carbamide and -carbimide** (v. HOFMANN), 1884, A., 1820.
- Tetramethylbenzidine**. See Tetramethyldiamidodiphenyl.
- 1:2:3:4-Tetramethylbenzoic acid** (GOTTSCHALK), 1888, A., 261.
- 1 2:4:5-Tetramethylbenzoic acid** (*dur-cinecarboxylic acid*) (JACOBSEN), 1889, A., 877.
- Tetramethylbenzoic acids**, 1:2:3 4- and 1 2:3 5- (CLAUS and FOCKING), 1888, A., 276.
- Tetramethylbenzophenone** (*benzoyliso-durine*) (ESSNER and GOSSIN), 1885, A., 253.
- Tetramethylbenzoylbenzoic acid** (*o-duroylbenzoic acid*) (FRIEDEL and CRAFTS), 1889, A., 242.
- Tetramethylbrazilein** (SCHALL and DRALLE), 1888, A., 295; 1889, A., 55.  
derivatives of (SCHALL and DRALLE), 1889, A., 55.
- Tetramethylbutallylcarbinammonium iodide**. See Trimethylhexenylammonium iodide.
- Tetramethyldiethyl-p-phenylenediammonium diiodide** (LIPPMANN and FLEISSNER), 1884, A., 178.
- Tetramethyldihydroanthracene and its derivatives** (ANSCHUTZ and ROMIG), 1885, A., 768.
- Tetramethyldihydropyridine** (CIAMICIAN and ANDERLINI), 1889, A., 58.
- Tetramethyldihydropyridine**, action of methylic iodide on (ANDERLINI), 1890, A., 67.
- Tetramethyldimethylenedisulphone** (AUTENRIETH), 1887, A., 463.
- Tetramethyldiphenylene** (*tetramethyldiamidodiphenyl*) (REULAND), 1890, A., 167.
- Tetramethyldipicolyl methiodide** (LADENBURG), 1889, A., 161.
- Tetramethyldiquinolylene**. See Tetramethylquinolylquinoline.
- Tetramethyldiquinoxaline** (NIEZKI and MULLER), 1889, A., 601.
- Tetramethylenaldehyde** (COLMAN and PERKIN), 1887, T., 238.
- Tetramethylene ethyl ketone** (PERKIN and SINCLAIR), 1892, T., 51.  
sodium hydrogen sulphite compound of (PERKIN and SINCLAIR), 1892, T., 53.
- Tetramethylene ethyl ketoxime** (PERKIN and SINCLAIR), 1892, T., 51.
- Tetramethylene glycol** (DEKKER), 1891, A., 164.
- Tetramethylene methyl ketone** (COLMAN and PERKIN), 1887, T., 238; P., 12; (PERKIN and SINCLAIR), 1892, T., 47.
- Tetramethylene methyl ketoxime** (PERKIN and SINCLAIR), 1892, T., 49.
- Tetramethylene derivatives** (COLMAN and PERKIN), 1887, T., 228; P., 12; (PERKIN and SINCLAIR), 1891, P., 191; 1892, T., 36.  
*hexabromo-* (SABANIEFF), 1889, A., 1128.
- Tetramethylene-carbanilide and -carboxylamide** (FREUND and GUDLMAN), 1888, A., 1271.
- Tetramethylenecarboxylic acid** (*prich-nine acid*) and its salts (PERKIN), 1883, A., 1084; 1887, T., 8.  
preparation of (PERKIN and SINCLAIR), 1892, T., 40.  
thermochemistry of (SCHIMMANN and KLEBER), 1892, A., 1040.  
dissociation constant of (WALKER), 1892, T., 705.  
calcium salt of, distillation of, with lime (COLMAN and PERKIN), 1887, T., 229.  
 $\alpha$ -bromo- (PERKIN and SINCLAIR), 1892, T., 41.
- Tetramethylenecarboxylic anhydride and nitrile** (FREUND and GUDLMAN), 1888, A., 1271.  
chloride, preparation of (PERKIN and SINCLAIR), 1892, T., 41.

- Tetramethylenediamine** (*putrescine*) and its derivatives (LADENBURG), 1886, A., 528; (V. UDRÁNSZKY and BAUMANN), 1889, A., 33, 1024.  
 in cystinuria (V. UDRÁNSZKY and BAUMANN), 1889, A., 1024.  
 preparation of (LEILMANN and WÜRTHNER), 1885, A., 978.  
 conversion of pyrroline into (CIAMICIAN and ZANETTI), 1889, A., 1208; (CIAMICIAN), 1890, A., 1242.
- Tetramethylene-1:1-dicarboxylic acid** and its salts (PERKIN), 1883, A., 1084; 1887, T., 4.  
 dissociation constant of (WALKER), 1892, T., 705.
- Tetramethylene-1:2-dicarboxylic acid** and anhydride (PERKIN), 1886, A., 934; 1887, T., 22.
- Tetramethylenedicarboxylic acids** (MARKOWNIKOFF), 1892, A., 1306.  
 thermochemistry of (STOHMANN and KLEBER), 1892, A., 1041.
- Tetramethylenedinitramine** (DEKERS), 1891, A., 164.
- Tetramethylene-ethylcarbinol** and -ethylcarbinyl acetate (PERKIN and SINCLAIR), 1892, T., 54, 56.
- Tetramethylenemethylamine** (FREUND and GUDEMAN), 1888, A., 1271.
- Tetramethylenemethyl-carbamide** and -thiocarbamide (FREUND and GUDEMAN), 1888, A., 1271.
- Tetramethylenemethylcarbinol** (PERKIN and SINCLAIR), 1892, T., 50.
- Tetramethylenephénylcarbinol** and its polymeride (PERKIN and SINCLAIR), 1892, T., 62, 65.
- Tetramethylenepropyl bromide** and iodide (PERKIN and SINCLAIR), 1892, T., 57.
- Tetramethylene-1:1:2:2-tetracarboxylic acid** (PERKIN), 1886, A., 934; 1887, T., 17, 21.
- Tetramethylenic dibromide** (GUSTAVSON and DEMJANOFF), 1889, A., 950.
- Tetramethylenylamine**. See Tetramethylenemethylamine.
- Tetramethylethylene** (*hecyene*), action of chlorine on (CHUPOTSKY), 1885, A., 645; (CHUPOTSKY and MARIUTZ), 1890, A., 727.
- Tetramethylethylene oxide** (*hecyene oxide*) (ELTEKOFF), 1883, A., 567.
- $\alpha$ -Tetramethylethylenedipyrroline** (*tetramethyldipyrrolylethylene*) (PAAL and SCHNEIDER), 1887, A., 273.
- Tetramethylglutaramidine platinochloride** (PINNER), 1891, A., 62.
- Tetramethylglycoluril** (FRANCHIMONT and KLOBBE), 1889, A., 126.
- Tetramethylindamine sulphide**, and thiosulphate (BERNTSEN), 1889, A., 777.
- 2':3':3:4-Tetramethylindole** (DENNSTEITZ), 1889, A., 1209.
- Tetramethylmalonamide** (*dimethylmalondimethylidamide*) (FRANCHIMONT), 1886, A., 449.
- 1:2:3:4-Tetramethylmandelic acid** (CLAUS and FÖHLISCH), 1889, A., 50.
- Tetramethylmandelic acids**, 1:2:3:5- and 1:2:5:6- (CLAUS and FÖCKING), 1888, A., 275.
- 1:2:3:4-Tetramethylphenol**. See Prehnitol.
- 1:2:4:5-Tetramethylphenol**. See Durenol.
- 1:2:3:4-Tetramethylphenyl-5-acetic acid** (CLAUS and FÖHLISCH), 1889, A., 50.
- Tetramethylphenylenediamine** (*prehnitylenediamine*) (TOHL), 1888, A., 585.  
 nitroso-, hydrochloride, and its derivatives (WITT), 1885, A., 782.
- Tetramethyl-*o*-phenylenediamine** (*phenylenetetramethylidamine*) (FISCHER), 1892, A., 1474.
- Tetramethyl-*m*-phenylenediamine** (VAN ROMBURGH), 1888, A., 1185.
- Tetramethyl-*p*-phenylenediaminethiosulphonic acid** (BERNTSEN), 1889, A., 777.
- Tetramethylphenylenesaffranine** (ANON.), 1884, A., 539.
- 1:2:3:4-Tetramethylphenylglyoxylic acid** (CLAUS and FÖHLISCH), 1889, A., 50.
- Tetramethylphenylglyoxylic acids**, 1:2:3:5-, and 1:2:4:5- (CLAUS and FÖCKING), 1888, A., 275.
- Tetramethylphenyllutidonecarboxylic acid** (CONRAD and LIMPACH), 1888, A., 851.
- Tetramethylphloroglucinol**, action of hydrochloric acid on (SPITZER), 1890, A., 1407.  
 bi-secondary (MARGULIES), 1889, A., 497.
- Tetramethylphosphonium salts**, action of heat on (COLLIE), 1888, T., 636; P., 62.
- Tetramethylpiperidine** (*methylcopellidine*) and its derivatives (DÜRKOPF), 1885, A., 817.  
 iodo- (FISCHER), 1884, A., 1290.
- Tetramethylpyrazine** (*methylketine*; *tetramethylaldine*) (OECONOMIDES), 1887, A., 29; (WOLFF), 1887, A., 465; (BRAUN and MEYER), 1888, A., 1093; (BRAUN), 1889, A., 613.

- Tetramethylpyrrolyl-pyrroline** and -pyrrolinecarboxylic acid (MAGNANINI), 1889, A., 409.
- 1:3:1:2'-Tetramethylquinoline** [h.p. 297—300°] (DOEDNER and V. MILLER), 1884, A., 1875.
- Tetramethylquinoline** [h.p. 284°] and its salts (LEW and RIEHM), 1886, A., 721.
- Tetramethylquinolylquinoline** and its derivatives (SCHENSTOPAL), 1887, A., 1120.
- Tetramethylrosamine** (HEUMANN and REY), 1890, A., 157.
- Tetramethylstrychnine dihydroxide** (TAFFEL), 1890, A., 1448.
- Tetramethylsuccinic acid** (*hexamethylcarboxylic acid*) (AUWERS and MEYER), 1889, A., 1145; 1890, A., 132, 479; (AUWERS and GARDNER), 1891, A., 290.
- Tetramethylsuccinic anhydride** (AUWERS and MEYER), 1890, A., 479.
- Tetramethyl-succinimide** and -succinophenylimide (AUWERS and GARDNER), 1891, A., 290.
- Tetramethylsulphonamide** (BEHREND), 1884, A., 285.  
action of nitric acid on (FRANCHIMONT), 1885, A., 970.
- Tetramethyltetrahydropyridine.** See Triacetone.
- Tetramethylthioaniline** and its salts (TURSINI), 1884, A., 1141.  
See also Thiodimethylaniline.
- Tetramethylthiophen** (ZELINSKY), 1888, A., 939.
- Tetramethyltricarballic acid** (BISCHOFF and V. KUHLBERG), 1890, A., 747.
- Tetramethyluric acid** (FISCHER), 1881, A., 1310.
- Tetramine-chromic** and -cobalt salts. See Chromammonium under Chromium and Cobaltamine under Cobalt.
- Tetramonocuprammonium bromide.** See Cuprammonium under Copper.
- $\beta$ -Tetranaphthylcarbamide** (KYM), 1890, A., 994; (KUHN and LANDAU), 1890, A., 1311.  
*dithio-* (PASCHKOWETZKY), 1892, A., 166.
- $\beta$ -Tetranaphthyl diamine, thio-** (KYM), 1889, A., 51.
- Tetranes.** See Furfuran.
- Tetranilidonaphthalene** (*tetraphenyl-tetramidonaphthalene*) (FISCHER and HEPP), 1890, A., 911.
- Tetra-p-oxybenzoid** (SCHIFF), 1888, A., 335.
- Tetraphenol.** See Furfuran.
- Tetraphenyl ethylenic hexacyanide** (KRAFFT and KOENIG), 1890, A., 1253.
- Tetraphenylaldine.** See Tetraphenylpyrazine.
- Tetraphenyltetramidomethylene-phenylenediamine** (MOORE), 1890, A., 246.
- Tetraphenylazine.** See Tetraphenylpyrazine.
- Tetraphenylcarbamide, thio-** (PASCHKOWETZKY), 1892, A., 165.  
*dithio-* (FRAENKEL), 1885, A., 1130; (PASCHKOWETZKY), 1892, A., 165.
- Tetraphenylcrotonolactone** (*tubular orylepiden*) (JAPP and KLINGEMANN), 1889, P., 137.  
action of alcoholic ammonia on (KLINGEMANN and LAYCOCK), 1891, T., 144.  
action of methylamine on (KLINGEMANN and LAYCOCK), 1891, T., 147.
- Tetraphenyldiarsine** (MICHAELIS and SCHULTE), 1883, A., 187.
- Tetraphenyldihydropyridazine** (*tetraphenyldihydro-olazine*) (SMITH), 1890, T., 647.
- Tetraphenyldiphosphine** (DORKEN), 1888, A., 833.
- Tetraphenyldiquinoxaline** (NIEZKI and MULLER), 1889, A., 605.
- Tetraphenylenefurfuran** (JAPP and KLINGEMANN), 1890, P., 32.
- Tetraphenylenepyrazine** (*tetraphenylenecine*) (JAPP and BURTON), 1887, T., 101.
- Tetraphenylethane** (ANSCHUTZ), 1884, A., 326; (ANSCHUTZ and KLING), 1884, A., 1031.  
synthesis of (ANSCHUTZ and ELZBACHER), 1888, A., 1132.
- Tetraphenylethylene,** synthesis of (ZIEGLER), 1888, A., 596.  
preparation of (DE BOISSIEU), 1888, A., 959.
- Tetraphenylethylene/dithiosemithiocarbazine** (BURCHARD), 1890, A., 251.
- Tetraphenyl-1-ethylpyrroline** (FEHLIN), 1889, A., 623.
- Tetraphenylylfurfuran** (*lepiden*), constitution of (MAGNANINI and ANGELI), 1889, A., 729.  
Zinin's, constitution of (JAPP and KLINGEMANN), 1889, P., 136; 1890, T., 662.
- Tetraphenylylglycine** (JAPP and CLEMINSHAW), 1887, T., 553; P., 31.
- Tetraphenylic silicate** (MARTINI and WEBER), 1883, A., 983.

- Tetraphenyl-1-methylpyrrolone** (FEHLIN), 1889, A., 623.
- Tetraphenyl-1-methylpyrrolone** (KLINGEMANN and LAYCOCK), 1890, P., 149; 1891, T., 149.
- Tetraphenylpyrazine** (*ditoluenazotide*; *tetraphenylaldine*) (JAPP and WILSON), 1886, T., 829; (JAPP and BURTON), 1887, T., 101; (BRAUN and MEYER), 1888, A., 700.
- conversion of, into diphenanthryleneazotide (JAPP and BURTON), 1886, T., 843; P., 236.
- Tetraphenylpyrrolidone** (KLINGEMANN and LAYCOCK), 1891, T., 146.
- c*-Tetraphenylpyrrolone** (GARRET), 1889, A., 162.
- tetranitro-* (FEHLIN), 1889, A., 623.
- 1:2:3:5-Tetraphenylpyrrolone** (SMITH), 1890, T., 646.
- 3:3:4:5-Tetraphenylpyrrolone** and its reduction (KLINGEMANN and LAYCOCK), 1891, T., 144.
- Tetraphenylsilicon** and its *tetranitro*-derivative (POLIS), 1886, A., 618.
- Tetraphenylsuccinic acid** (BIKEL), 1889, A., 999.
- Tetraphenylsuccinonitrile** (AUWERS and MEYER), 1889, A., 833.
- Tetraphenyltetracarbazone** (CULMANN), 1890, A., 1268.
- Tetraphenylthiophen** (*thiopiciden*; *thionessal*) (ZIEGLER), 1890, A., 1246; (BAUMANN and KLETT), 1892, A., 185.
- substitution products (KOPP), 1892, A., 718.
- "Tetraphenylthiodithiosemicarbazide"** (RUHL), 1892, A., 1326.
- Tetraphenyluvione** (PERKIN and SCHLOSSER), 1890, T., 956.
- Tetrapropylglutarimidine derivatives** (PINNER), 1891, A., 62.
- Tetrapropylmethylenediamine** (EHRENBURG), 1887, A., 1027.
- Tetrapropylsuccinimidine salts** (PINNER), 1891, A., 37.
- Tetraprotocatechutannic acid** (SCHIFF), 1883, A., 335.
- Tetrapyridinerhodium hydrochloride**, *dichloro-* (JORGENSEN), 1889, A., 352.
- Tetrarabinantrigalactangeddic acid** (O'SULLIVAN), 1891, T., 1035.
- $\alpha$ -Tetrazesorcinoldichroin ether**, bromo- (BRUNNER and CHUIT), 1888, A., 1182.
- Tetrathionates**. See under Sulphur.
- Tetra-*p*-tolylamidodimethylene-*o*-phenylenediamine** (MOORE), 1890, A., 247.
- p*-Tetratolylearbamide** (HAMMERICH), 1892, A., 1083.
- Tetratolyethane**, Schwartz's (ELB and WITICH), 1885, A., 518.
- p*-Tetratolylic silicate** (MARINI and WEBER), 1883, A., 983.
- p*-Tetratolyloxamide** (HAMMERICH), 1892, A., 1084.
- Tetra-*m*- and -*p*-tolylsilicon** (POLIS), 1886, A., 619.
- Tetratomic elements**, combination of (COLSON), 1883, A., 15.
- Tetravinylpyridine** (KARAU), 1892, A., 1483.
- Tetrazodiphenol** (KUNZE), 1889, A., 262.
- Tetrazodiphenyl** (TAUBER), 1891, A., 570.
- Tetrazodiphenyldisulphonic acid** (LIMPHICHT), 1891, A., 930.
- Tetrazole** (BLADIN), 1892, A., 1009.
- Tetrazoleazo-dimethylaniline** and - $\beta$ -naphthylamine (THIELE), 1892, A., 1299.
- Tetrazole-series**, amidoximes and azoximes of (BLADIN), 1889, A., 977.
- Tetrazostilbene**, dyes from (BENDER and SCHULTZ), 1887, A., 268.
- Tetrazotic acid**, amido- (THIELE), 1892, A., 1299.
- Tetrazotic acids** (LOSSEN), 1891, A., 1038.
- Tetrethoxybenzene** (NIETZKI and RECHBERG), 1890, A., 968.
- Tetrethoxyquinhydrone**, *tetrachloro-* (KEHRMANN), 1891, A., 905.
- Tetrethylacetone** (*diamyl ketone*) (ULRICH), 1892, A., 1188.
- Tetrethylacetonedicarboxylic acid** (DUNSCHMANN and v. PECHMANN), 1891, A., 674.
- Tetrethylalkaline**. See Hydroxy-tetrethylpropylenediamine.
- Tetrethylamidooarsenobenzene** (MICHAEELS and RABINERSON), 1892, A., 1321.
- Tetrethylamidodiphenylphthalic acid** (SCHIFF and VANNI), 1890, A., 1298.
- Tetrethylamidodiphenylpropane** (DOEBNER and PETSCHOW), 1888, A., 287.
- Tetrethyltriamidodiphenyltolylmethane** (NOLTING), 1892, A., 189.
- Tetrethylamidophenylditolylmethane**, nitro- and amido-derivatives of (NOLTING), 1891, A., 728.
- Tetrethylamidotriphenylmethane**, colour base from, and amido- and *o*-nitro-derivatives of (FISCHER and SCHMIDT), 1884, A., 1316.
- p*-nitro-** (KAESWURM), 1886, A., 553.

- Tetraphylammonium** bromide, compound of, with thiocarbamide (REYNOLDS), 1891, T., 357.  
chloride, magnetic rotatory power of (PERKIN), 1889, T., 715.  
iodide, compound of, with thiocarbamide (REYNOLDS), 1891, T., 387.  
*m*-vanadate (BAILEY), 1884, T., 693.
- 1:2:3:4-Tetraphylbenzene (JACOBSEN), 1889, A., 41.  
1:2:4:5-Tetraphylbenzene and its derivatives (GALLE), 1883, A., 1091; (JACOBSEN), 1889, A., 40.
- Tetraphylbenzenes**, chlorinated (ISTRATI), 1886, A., 231, 343.
- Tetraphylbenzenesulphonic acids**, salts of (GALLE), 1883, A., 1091; (JACOBSEN), 1889, A., 40.
- Tetraphyldiorescinol** (PUKALL), 1887, A., 661.
- Tetraphyleuxanthic acid** (HERZIG), 1892, A., 1354.
- Tetraphylglutaramidine platinochloride** (PINNER), 1891, A., 62.
- Tetraphylindamine thiosulphonate** (BERNTSEN), 1889, A., 778.
- Tetraphylparaleucaniline** (KAESWURM), 1886, A., 553.
- Tetraphylmethylenediamine** (EHRENBERG), 1887, A., 1027.
- Tetraphyl-*p*-phenylenediamine** (*phenyl-ene-tetraphyldiamine*) and its derivatives (LIPPMANN and FLEISSNER), 1888, A., 869, 1100.
- Tetraphylphloroglucinol** (HERZIG and ZEISEL), 1889, A., 247.
- Tetraphylphloroglucinols**, biomo- (HERZIG and ZEISEL), 1890, A., 243.
- Tetraphylphosphonium salts** (LETTIS and COLLIE), 1886, P., 164; (MASSON and KIRKLAND), 1889, T., 126, 135; P., 19, 20.  
action of chlorine and bromine on (MASSON and KIRKLAND), 1889, T., 126; P., 19.  
iodide, action of bromine on (DOBBS and MASSON), 1886, T., 854.
- Tetraphyrosamine** (HEUMANN and REY), 1890, A., 157.
- Tetraphylsaffranine** (NIEZKI), 1883, A., 732; (ANON.), 1884, A., 539.
- Tetraphyl-succinamidine and -succinimidine hydrochlorides** (PINNER), 1891, A., 37.
- iso*Tetraphyl*dithio*xamide (WALLACH and REINHARDT), 1891, A., 1008.
- Tetraphyltrimethylenetrisulphone** (CAMPS), 1892, A., 592.
- Tetric acid** (*acrylucetic acid*) (PAWLOFF), 1883, A., 730; 1884, A., 41; (FITTIG), 1883, A., 1085; (MOSCHELES and CORNELIUS), 1888, A., 1272; (FRER), 1891, A., 1182; (WALDEN), 1891, A., 1187.  
heat of solution, and of neutralisation of (BERTHELOT), 1886, A., 8.  
homologues of (PAWLOFF), 1884, A., 41; (MOSCHELES and CORNELIUS), 1888, A., 1272; (WALDEN), 1891, A., 1187.  
biomo- (MOSCHELES and CORNELIUS), 1888, A., 1272.
- Tetrimamide** (MOSCHELES and CORNELIUS), 1888, A., 1272.
- Tetroden**, poison of the (EIJKMAN), 1883, A., 1049.
- Tetrolcarbamide**. See Pyrrolinecarbamide.
- Tetrole**. See Furfuran.
- Tetrole-nuclei**, constitution of (CLAMICIAN), 1891, A., 1195; (CLAMICIAN and ANGELI), 1892, A., 302.
- Tetrollic acid** (FITTIG and CLUTTERBUCK), 1892, A., 961.  
reduction of (ARONSTEIN and HOLLEMAN), 1889, A., 878.
- Tetrolurethane**. See Pyrrolineurethane.
- Tetronal** (*dithylsulphonatedethylmethane*) (BAUMANN and KAST), 1889, A., 1233; (FROMM), 1890, A., 56.
- Tetronerythrin** (MACMUNN), 1884, A., 196.
- Tetroxydimethylantraquinone**. See Dimethylantrachrysone.
- Tetroxyditolyl**, anhydride of (NIEZKI), 1883, A., 467.
- o*-Tetrylenedicarboxylic acetylanhydride and acetylchloranhydride (MARKOWNIKOFF), 1892, A., 1307.
- Tetrylenedicarboxylic acids** (MARKOWNIKOFF), 1892, A., 1306.
- Teuerin**, action of nitric acid on (OELLALORO-TODARO), 1884, A., 332.
- Thalleioquinine reaction** (MYLIUS), 1887, A., 311.
- Thallic oxide**. See Thallium sesquioxide.
- "**Thallin**." See 3-Methoxytetrahydroquinoline.
- Thallium** in platinum (WARREN), 1887, A., 702.  
in crude zinc (KOHMANN), 1886, A., 851.  
position of, in the chemical system and its presence in sylvin (SCHRAMM), 1883, A., 951.  
molecular weight of (KAMSAY), 1889, T., 531, 533.

- Thallium**, vapour density of (BILTZ and MEYER), 1889, A., 674.  
 action of nitrosyl chloride on (SUDBOROUGH), 1891, T., 657.  
 lowering of the freezing point of cadmium by (HEYCOCK and NEVILLE), 1892, T., 903.  
 influence of, on the freezing point of sodium (HEYCOCK and NEVILLE), 1889, T., 671.  
 influence of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 379.  
 alloy of, with lead, analysis of (HEYCOCK and NEVILLE), 1892, T., 914.
- Thallium salts**, physiological action of (BLAKE), 1890, A., 1452.  
 antimonate (BEILSTEIN and v. BLÄSE), 1889, A., 1124.  
 chlorate and potassium chlorate, solubility of mixed crystals of (ROOZEBOOM), 1892, A., 266.  
*sesquichloride*, double salts of, with other metallic chlorides (NEUMANN), 1888, A., 655.  
 potassium chloride (RAMMELSBERG), 1883, A., 424.  
 chlorochromate (LEPIERRE and LACHAUD), 1891, A., 1422; 1892, A., 568.  
 chromate (LACHAUD and LEPIERRE), 1892, A., 567.  
 reactions of (LEPIERRE and LACHAUD), 1891, A., 1422.  
 potassium chromate (LACHAUD and LEPIERRE), 1892, A., 568.  
 hydroxide, dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 76, 88.  
 iodide, solubility of (LONG), 1891, A., 1295.  
 colalt nitrite (ROSENBLADT), 1887, A., 13.  
 oxides, action of magnesium on (WINKLER), 1890, A., 694.  
 dioxide (PICCINI), 1888, A., 110.  
*sesquioxide (thallie oxide)* (LACHAUD and LEPIERRE), 1892, A., 568.  
 crystalline hydrated (CARNEGIE), 1890, A., 109.  
 phosphates (RAMMELSBERG), 1883, A., 424.  
 hypophosphate (RAMMELSBERG), 1892, A., 403.  
 dihydrogen pyrophosphate (RAMMELSBERG), 1884, A., 397.  
 sodium thiosulphate (VORTMANN and PADBERG), 1890, A., 12.  
 potassium sulphide, action of hydrogen on (SCHNEIDER), 1891, A., 16.
- Thallium dithionates**, double (KLÜSS), 1888, A., 1157.
- Thallium, detection and estimation** :—  
 detection of, in presence of lead (WEHNER), 1886, A., 490.  
 estimation of (NEUMANN), 1888, A., 529; (FEIT), 1889, A., 927; (LONG), 1891, A., 1295; (BAUBIGNY), 1892, A., 238.  
 estimation, electrolytic, of (BRAND), 1890, A., 295.  
 estimation, volumetric, of (CARNOT), 1889, A., 1246.
- Thapsia resin** (CANZONERI), 1884, A., 460.
- Thapsic acid**, and its salts (CANZONERI), 1884, A., 461.
- Thaumasite** from Kjolland (WIDMAN), 1892, A., 1407.
- Thebaine and its derivatives** (HOWARD), 1884, A., 1201; (HOWARD and ROSEN), 1886, A., 813; (PLUGGE), 1887, A., 280.  
 physiological activity of (STOCKMAN and DOTT), 1891, A., 762.
- Theine**. See Caffeine under Alkaloids.
- Thenardite** (MUGGE), 1884, A., 969; (DARAIENKY), 1890, A., 456.  
 from Aguas Blancas (BAERWALD), 1883, A., 434.  
 in Russia (MARKOWNIKOFF), 1888, A., 793.  
 preparation of the artificial variety of (MUGGE), 1884, A., 969.  
 See also Sodium sulphate.
- Theobromine and its derivatives** (FISCHER), 1883, A., 356; (SCHMIDT and PRESSLER), 1883, A., 872; (MALY and ANDREASCH), 1883, A., 1017.  
 action of alkalis on (MALY and ANDREASCH), 1883, A., 1017.
- THERMOCHEMISTRY** :—  
 basis of (MEYER), 1883, A., 773.  
 new law in (BECKER), 1886, A., 498.  
 principles of (PICKERING), 1888, P., 99; 1889, T., 14.  
 relation of, to constitution of carbon compounds (ARMSTRONG), 1887, A., 420; (PICKERING; BRÜHL), 1887, A., 423; (STOHMANN), 1887, A., 425.
- Thermochemical constants** (PICKERING), 1888, P., 52.  
 law respecting non-reversible electrolytic actions (BOLTZMANN), 1887, A., 1072.
- Thermodynamics and chemistry** (LE CHATELIER), 1887, A., 431.  
 second law of, and its application to chemical phenomena (LE CHATELIER), 1892, A., 3.

## THERMOCHEMISTRY:—

- Heat** and volume changes attending mixture (GUTHRIE), 1885, A., 339.
- absorption of, by water-vapour (RONIGEN), 1885, A., 5.
- displacement of chlorine by bromine, and reactions accompanied by the absorption of (POTILIZIN), 1884, A., 955.
- developed by action of acids and alkalis upon silk (VIGNON), 1890, A., 553.
- developed by action of acids and alkalis upon wool and cotton (VIGNON), 1890, A., 939.
- developed by the action of oxygen on the blood (BERTHELOT), 1890, A., 274.
- production of, in animals (ROSENTHAL), 1890, A., 182.
- developed when powders are moistened (MENSNER), 1887, A., 9.
- evolved in the absorption of gases by solids and liquids (CHAPPUIS), 1883, A., 702.
- evolved on diluting solutions of calcium chloride (PICKERING), 1888, P., 35.
- evolved in the electrolysis of copper sulphate (JAHN), 1883, A., 1043.
- constancy in the, produced by the reaction of certain salts on each other (PICKERING), 1888, A., 333.
- Calorimetric** study of the effect of tempering and hammering on cast steel (OSMOND), 1885, A., 856.
- Diathermous power**, molecular weight, density and refractive index of a substance, relation between (AYMONNET), 1892, A., 1.
- Diathermancy** of aesculin (WISSENDONCK), 1885, A., 213.
- Isothermals**, theoretical and empirical, of mixtures, connection between (BLUMCKE), 1891, A., 375; 1892, A., 259.
- Isothermal curves** for carbonic anhydride (AMAGAT), 1892, A., 3.
- Isothermic lines** of bismuth placed in a magnetic field, rotation of (RICHI), 1888, A., 102.
- Isotherms** of a mixture of sulphurous and carbonic anhydrides (BLUMCKE), 1889, A., 750.
- Radiation**, comparative, of fused platinum and fused silver (VIOLE), 1887, A., 1010.
- from silver at the solidifying point (VIOLE), 1883, A., 771.

## THERMOCHEMISTRY:—

- Temperature**, radiation, and energy, relation between (ARNEY and FESING), 1881, A., 249.
- relation between solubility and (VAN DERVENTER and VAN DE STADT), 1892, A., 559.
- relation between pressure and, of saturated vapours (JAKOLIMEK), 1883, A., 417, 951.
- volume and pressure, relation of, in the case of liquids (BARUS), 1890, A., 321.
- volume and pressure, relations of, in the case of saturated vapours (UNWIN), 1886, A., 764.
- physical and chemical phenomena at very low (PICTET), 1892, A., 1138.
- influence of, on spectroscopic observations and measurements (KRUS), 1885, A., 209.
- effect of, on refraction and dispersion (GLADSTONE), 1891, T., 290.
- influence of, on the refractive power of certain organic compounds (PERKIN), 1892, T., 287; P., 115.
- relation of, to the conductive capacity of gases (WINKELMANN), 1887, A., 5.
- influence of, on the electromotive force and resistance of batteries (PREECE), 1883, A., 840; 1884, A., 243.
- influence of, on the magnetism of salts of metals of the iron group (PLESSNER), 1890, A., 678.
- influence of, on the direction of chemical reactions (POTILIZIN), 1889, A., 335.
- influence of, on the rate of certain reactions (MENSCHUTKIN), 1884, A., 1295.
- influence of, on the rate of action of certain acids on marble (SPRING), 1887, A., 882.
- influence of, on the decomposition of oxalic acid by ferric chloride (LEMOINE), 1887, A., 321.
- influence of, on heat of chemical combination (PICKERING), 1886, T., 260; P., 161.
- thermodynamical expression of the influence of, on the rate of chemical change (URECH), 1888, A., 338.
- of saturated vapours of various liquids under the same pressure (COLOR), 1892, A., 1143.

## THERMOCHEMISTRY:—

**Temperature** of the body, influence of meat extract on (RUBNER), 1885, A., 409.

in nerves (ROLLESTON), 1890, A., 536.

influence of, on the exhalation of carbonic anhydride (GRANDIS), 1890, A., 1334.

relation of expansion of substances in gaseous, vaporous, and liquid state to absolute (SCHALL), 1885, A., 1179.

**Critical constants** (PAWLEWSKI), 1884, A., 252.

in chemical decompositions (VAN'T HOFF), 1885, A., 1181.

relation between boiling points and (BARTOLI), 1885, A., 859.

molecular constitution of compounds at their critical temperature and pressure (GUYE), 1890, A., 443.

determination of molecular weight at the critical point (GUYE), 1891, A., 1411.

determination of critical pressures and temperatures (CAILLETET and COLARDEAU), 1891, A., 779.

of bodies, relation between their thermal expansion as liquids and critical temperatures (THORPE and RÜCKER), 1884, T., 135; 1887, A., 429.

of gases (ANSDALL), 1883, A., 277; (JAMIN), 1888, A., 898.

of vapours (VINCENT and CHAPUIS), 1885, A., 861, 1104; 1886, A., 963.

of liquids (DEWAR), 1885, A., 331; (HEILBORN), 1891, A., 380, 969.

of mixed liquids (SCHMIDT), 1892, A., 262.

pressure curves of fluids at their critical points (V. WRÓBLEWSKI), 1886, A., 964.

of liquids, Mendeléeff's formula for the expansion of liquids, and Thorpe and Rücker's formula for determining, from their coefficient of expansion (BARTOLI and STRACCIATI), 1885, A., 859.

so-called, of solids (V. RICHTER), 1886, A., 656.

of alkyl salts (PAWLEWSKI), 1883, A., 276.

of ethyl ether (RAMSAY and YOUNG), 1887, A., 320.

of ethylic alcohol (RAMSAY and YOUNG), 1885, A., 1178.

## THERMOCHEMISTRY:—

**Temperatures**, high, determination of (ANON.), 1883, A., 274.

high, optical measurement of (LE CHATELIER; BECQUEREL), 1892, A., 761.

low, production of (CAILLETET), 1884, A., 383, 656, 1248; (OLSZEWSKI), 1885, A., 1101.

low, use of boiling oxygen, nitrogen, carbonic oxide and atmospheric air for producing (V. WRÓBLEWSKI), 1885, A., 715; (OLSZEWSKI), 1885, A., 1101.

**Thermometers**, air (CAILLETET), 1888, A., 772.

for lecture purposes (YOUNG), 1888, A., 410.

or hydrogen, for low temperatures (COLEMAN), 1886, A., 116.

**Thermometer**, gas (BEILBY), 1886, A., 116.

**Thermometer**, hydrogen, limit to the use of (V. WRÓBLEWSKI), 1885, A., 861.

**Thermometer**, mercurial, relation between the ordinary, and the weight thermometer (BARBIER), 1885, A., 111.

determination of fixed points on (HEYCOCK and NEVILLE), 1890, T., 656.

graduation of (CRAFTS), 1883, A., 842.

comparison of, with the hydrogen thermometer (CRAFTS), 1883, A., 144.

use of, with particular reference to the determination of melting and boiling points (CRAFTS), 1884, A., 656.

influence of the composition of glass on the depression phenomena of (WEBER), 1888, A., 641.

of Jena glass, rise of the zero point of (ALLIHN), 1889, A., 1041; 1891, A., 8.

short range, estimation of the value of a degree of (CALDERON), 1889, A., 203.

**Thermometric readings**, correction of (RIMBACH), 1890, A., 205.

**Thermometers**, platinum (HEYCOCK and NEVILLE) 1890, T., 657.

standardising (CALENDAR and GRIFFITHS), 1891, A., 1146.

determination of boiling and freezing points by means of (GRIFFITHS), 1891, A., 251.

## THERMOCHEMISTRY:—

- Pyrometer** (CARNELLEY), 1884, T., 237; (KNISER), 1887, A., 1073; (MENSCHING and MEYER), 1888, A., 331.  
 Boullier's (LAUTH), 1884, A., 543.  
 platinum-water (Hoadley), 1883, A., 769.  
 Siemens', modification of (SPOHR), 1886, A., 112.  
**Pyrometric use of the principle of viscosity** (BARUS), 1888, A., 1014.  
**Thermo-regulator** (RICHMOND), 1884, A., 656; (MEYER), 1884, A., 883; (RAMSAY and YOUNG), 1885, T., 610; (v. BAUMHAUER), 1885, A., 471; (FOCK), 1885, A., 950; (ANON.), 1885, A., 1157; (KREUSLER), 1886, A., 301; (KAHLBAUM), 1887, A., 206; (RUGHEIMER), 1887, A., 698.  
**Thermal expansion**, method of determining, for equal quantities of heat (DRAGOMIS), 1891, A., 142.  
 of bodies as liquids, relation between critical temperatures and (THORPE and RUCKER), 1884, T., 135; 1887, A., 429.  
 of liquids (KONOWALOFF), 1888, A., 1019; (GRIMALDI), 1888, A., 1143.  
 of liquid bismuth (VICENTINI), 1891, A., 518; (CATTANEO), 1892, A., 259.  
 of phosphorous oxide ( $P_4O_6$ ) (THORPE and TURRON), 1890, T., 560.  
 of sulphuric acid solutions (PICKERING), 1890, T., 114, 177.  
 of saline solutions (NICOL), 1887, A., 760; (DRECKER), 1888, A., 1010; (TSCHERNAI), 1889, A., 204, 330, 1101; 1890, A., 318; (BREMER), 1889, A., 329.  
 of water (PICKERING), 1891, A., 8; (SCHEEL), 1892, A., 7; (MAREK), 1892, A., 106; (PISCHL), 1892, A., 1882.  
 of acetic acid (RAMSAY and YOUNG), 1886, T., 790; P., 225.  
 of ethyl ether (RAMSAY and YOUNG), 1887, A., 320.  
**Heat conductivity of liquids** (CHREE), 1888, A., 641.  
 of bismuth (RIGHT), 1887, A., 1009; 1888, A., 102; (v. ETTINGSHAUSEN), 1888, A., 400.  
 of boric acid (BOCK), 1887, A., 758.  
 of mercury vapour (BERGER), 1888, A., 1237; (SCHLEIERMACHER), 1889, A., 559.

## THERMOCHEMISTRY:—

- Heat conductivity of selenium**, action of light on (BELLATI and LUSANA), 1888, A., 98.  
 of tourmaline (STENGER), 1885, A., 5.  
 of mixtures of ethylic alcohol and water (HENNEBERG), 1889, A., 459.  
 of soils (WAGNER), 1884, A., 923.  
**Heats, specific**, law of variation of (MALLARD and LE CHATELIER), 1883, A., 845.  
 at high temperatures (PIONCHON), 1887, A., 201; (SUTHERLAND), 1889, A., 4.  
 temperatures of combustion, dissociation and pressure of explosive gaseous mixtures, some relations between (BERTHELOT), 1883, A., 771.  
 relation between specific gravity and, of isomerides (COLSON), 1886, A., 961.  
 determination of atomic weight from (JANEČEK), 1887, A., 419.  
 method of determining (THOULIET and LAGARDE), 1885, A., 6.  
 apparatus for the determination of, by cooling (VIOILLE), 1883, A., 6.  
 molecular, of gases (LE CHATELIER), 1888, A., 213, 772.  
 of gases at high temperatures (VIEILLE), 1883, A., 771, 898; (BERTHELOT), 1884, A., 804; (BERTHELOT and VIEILLE), 1885, A., 7.  
 of gases at constant volume (JOLY), 1889, A., 459.  
 of gaseous acetic acid (BERTHELOT and OGIER), 1883, A., 6; (THRELFALL), 1887, A., 429.  
 of carbonic anhydride at high temperature (BERTHELOT and VIEILLE), 1885, A., 7.  
 of gaseous compounds of chlorine, bromine, and iodine with one another and with hydrogen (SCHNECKER), 1883, A., 417.  
 of nitrogen tetroxide (THRELFALL), 1887, A., 129.  
 of steam at high temperature (BERTHELOT and VIEILLE), 1885, A., 7.  
 experimental determination of the ratio of, in superheated steam (COHEN), 1890, A., 205.  
 of liquids (LANGLOIS), 1887, A., 419.  
 of liquids, calculation of (HILSCH), 1892, A., 2.  
 of liquids at temperatures above the boiling point (GRIMALDI), 1892, A., 761.

## THERMOCHEMISTRY:—

- Heats, specific, of water** (NEESEN), 1883, A., 541.  
 of superfused water (CARDANI and TOMASINI), 1888, A., 102.  
 of sea water of different densities (THOULET and CHEVALLIER), 1889, A., 666.  
 of small quantities of substances (THOULET and LAGARDE), 1883, A., 6.  
 of solutions of hydrobromic acid and of the solid hydrate  $\text{HBr} \cdot 2\text{H}_2\text{O}$  (ROOZEBOOM), 1887, A., 628.  
 of saline solutions (ARONN), 1885, A., 1101; (GERLACH), 1888, A., 894; (MATHIAS), 1889, A., 4.  
 of supersaturated saline solutions (BRINDEL), 1890, A., 1042.  
 of aqueous and alcoholic solutions of metallic chlorides, influence of concentration on (BLÜMCKE), 1885, A., 8.  
 of calcium and potassium chloride solutions (DRECKER), 1888, A., 1010.  
 of concentrated soda solutions (BLÜMCKE), 1885, A., 1101.  
 of sulphuric acid solutions (PICKERING), 1889, P., 86; 1890, T., 88, 160.  
 of liquid carbon compounds (SCHIEFF), 1887, A., 6; 1888, A., 14, 771.  
 of acids of the acetic series (LUEDEKING), 1886, A., 439.  
 of solutions of ethylic alcohol (BLÜMCKE), 1885, A., 1031; (TIMOFEEFF), 1891, A., 1406.  
 molecular, of solid compounds (KOPF), 1888, A., 893.  
 molecular, of solids, determination of, from their solution in water and other liquids (WIEDEMANN), 1883, A., 704.  
 of alloys of lead and tin (SPRING), 1886, A., 961.  
 of aluminium (NACCARI), 1888, A., 1236; (RICHTER), 1892, A., 673; (PRONCHON), 1892, A., 1281.  
 of antimony and its compounds (v. PERAL and JAHN), 1886, A., 655; (NACCARI), 1888, A., 1236.  
 of beryllium (HUMPHREY), 1885, A., 1184; 1886, A., 506.  
 of bismuth (CHASSEN), 1890, A., 707.  
 atomic, of chromium (JÄGER and KRÜSS), 1889, A., 1121.  
 of the diamond (CARBONELLI), 1892, A., 761.

## THERMOCHEMISTRY:—

- Heats, specific, of iodine chlorides** (STORTENBEKER), 1892, A., 1387.  
 of mellite (BARTOLI and STRACCIATI), 1884, A., 1214.  
 of mercury (HEILBORN), 1891, A., 632.  
 of mercury, variation of, with temperature (MILTHALER), 1889, A., 750.  
 of metals (NACCARI), 1888, A., 1236.  
 molecular, of niobium pentoxide and niobic hydride (KRUSS and NILSON), 1887, A., 706.  
 of three modifications of anhydrous potassium copper sulphate (PICKERING), 1885, T., 102; 1886, T., 14.  
 of silver iodide, and its alloys with cuprous and lead iodides (BELLATI and ROMANOFF), 1883, A., 271.  
 of sulphuric monochloride (OGIER), 1883, A., 642.  
 of tellurium (FABRE), 1888, A., 332; 1889, A., 203.  
 of thorium (NILSON), 1883, A., 553, 649.  
 of uranium (BLÜMCKE), 1885, A., 8, 625.  
 of solid carbon compounds (HESS), 1889, A., 92.  
 of solid carbon compounds and their chemical composition, relation between (KOPF), 1886, A., 587.  
 of lauric and myristic acids (STOLMANN and WILSING), 1886, A., 1177.  
**Latent heat, relation of F.M.F. to** (GORE), 1892, A., 257.  
**Latent heat of fusion** (EHRHARDT), 1885, A., 625.  
 relation between solubility and (CARNELEY and THOMSON), 1888, T., 782; P., 80; (WALKER), 1890, A., 686.  
 determination of, from the reduction of the freezing point (ELJKMAN), 1889, A., 666.  
 of iodine chlorides (STORTENBEKER), 1892, A., 1387.  
 of nitric peroxide (RAMSAY), 1890, T., 593.  
 of aluminium (PRONCHON), 1892, A., 1281.  
 of lauric and myristic acids (STOLMANN and WILSING), 1886, A., 1177.  
**Heat of solidification of hypophosphoric acid** (JOLY), 1886, A., 408.

**THERMOCHEMISTRY**:—*Heat of formation*=*f.*; *of transformation*=*t.*; *of decomposition*=*d.*; *of dissociation*=*dis.*; *of combination*=*cb.*; *of combustion*=*c.*; *of neutralisation*=*n.*; *of substitution*=*sb.*; *of hydration*=*h.*

**Latent heat of vaporisation** (GERLACH), 1889, A., 813.

relation of specific inductive capacity to (ORACH), 1892, A., 258.

determination of, by means of the steam calorimeter (WIRZ), 1890, A., 1040.

of liquefied gases, measurement of (CHAPPUIS), 1887, A., 627; 1888, A., 733; (MATHIAS), 1888, A., 773.

of liquids (SCHALL), 1884, A., 551; 1885, A., 113.

of hydrofluoric acid (GUNTZ), 1884, A., 511.

of sulphuric monochloride (OETTER), 1883, A., 642.

of homologous carbon compounds (SCHIFF), 1887, A., 9.

of acetic acid (RAMSAY and YOUNG), 1886, T., 790; P., 225.

of ethylether (RAMSAY and YOUNG), 1887, A., 320.

of ethylene oxide (BERTHELOT), 1883, A., 275.

of ethylic alcohol (RAMSAY and YOUNG), 1885, A., 1178.

of a solution (JAGER), 1892, A., 1382.

**Heat of formation** (BERTHELOT), 1885, A., 868; (COLLEY), 1890, A., 681.

(*thermodynamic equivalents*) (DE LANDERO and PRIETO), 1887, A., 99.

and the law of thermal substitution constants (TOMMASI), 1883, A., 143; 1884, A., 883; 1885, A., 8; (BERTHELOT), 1884, A., 702.

**Heat of transformation** in double decomposition (VAN'T HOFF and KRICHER), 1889, A., 930.

**Heat of chemical combination**, influence of temperature on (PICKERING), 1886, T., 260; P., 161.

**Heat of combustion** (GERLACH), 1889, A., 814.

**Heat of neutralisation** (PICKERING), 1887, T., 593; P., 77; 1888, P., 52; (ARRHENIUS), 1891, A., 1406.

**Thermochemical data** for acetaldehyde and its polymerides (*c.*) (BRUHL), 1891, A., 633.

for acetaldehyde into paracetaldehyde (*t.*) (FRANCHIMONT), 1883, A., 454.

for metacetaldehyde (*c.*) (LUGININ), 1889, A., 668.

**Thermochemical data** for acetic acid (*c.*) (JAHN), 1890, A., 99; (*c.* and *f.*) (BERTHELOT and MATIGNON), 1892, A., 1139.

for acetic acid, mercury salt of (*f.*) (BERTHELOT), 1884, A., 706.

for acetocarbamide (*c.* and *f.*) (MATIGNON), 1891, A., 1448.

for acids of the aromatic series (*n.*) (BERTHELOT), 1886, A., 8; (*c.* and *f.*) (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.

for acids of the aromatic series, influence of the nitrosyl amidogen groups on the (*n.*) (ALEXIEFF and WERNER), 1890, A., 439.

for acids of the fatty series (*c.*) (STOHMANN), 1885, A., 857; 1886, A., 296; (STOHMANN and RODATZ), 1885, A., 1177; 1886, A., 296; (LUGININ), 1886, A., 757; (STOHMANN and LANGBEIN), 1891, A., 11.

for acids of the oxalic series (*c.* and *f.*) (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (OSSIPOFF), 1890, A., 680.

for acids of the oxalic and lactic series (*c.*) (LUGININ), 1889, A., 5.

for homologous and isomeric acids (*n.*) (GAL and WERNER), 1887, A., 95.

for solid dibasic acids, relations of, to those of the gaseous hydrocarbons (*c.*) (STOHMANN), 1891, A., 252.

for dibasic organic acids (*n.*) (MANSOL), 1891, A., 968; 1892, A., 395; (*c.* and *f.*) (STOHMANN and KLEBER), 1892, A., 1011.

for albuminoids (*c.*) (STOHMANN), 1885, A., 857.

for alcohols of the fatty series (*c.*) (STOHMANN), 1886, A., 295.

for the polybasic alcohols (*c.* and *f.*) (STOHMANN and LANGBEIN), 1892, A., 763.

for the alkaline earths (*h.*) (THOMSEN), 1884, A., 250.

for alkalis (*h.*) (THOMSEN), 1884, A., 250; (*n.*) (MULLER), 1889, A., 811.

for alkyl oxides (*f.*) (DE FORCRAND), 1884, A., 112, 516; 1885, A., 1102; 1887, A., 204, 318, 319.

THERMOCHEMISTRY:—*Heat of formation*=*f.*; *of transformation*=*t.*; *of decomposition*=*d.*; *of dissociation*=*dis.*; *of combination*=*cb.*; *of combustion*=*c.*; *of neutralisation*=*n.*; *of substitution*=*sb.*; *of hydration*=*h.*

**Thermochemical data for alkylene oxides** (*c.*) (BRUHL), 1891, A., 633.

for allantoin, alloxan and alloxantin (*c.* and *f.*) (MATIGNON), 1891, A., 1448.

for the compounds of aluminium bromide with hydrocarbons (*f.*) (GUSTAVSON), 1885, A., 472.

for aluminium fluoride (*n.*) (PETERSEN), 1890, A., 680.

for aluminium oxide and hydroxide (*f.*) (BAILLE and FÉRY), 1890, A., 110.

for amides (*c.* and *f.*) (BERTHELOT and FOGH), 1890, A., 1359.

for aromatic amines (*n.*) (VIGNON), 1888, A., 1013.

for fatty amines (*c.*) (MULLER), 1886, A., 409; (*n.*) (MULLER), 1889, A., 811.

for some salts of the fatty amines in dilute solutions (*f.*) (MULLER), 1885, A., 716.

for ammonia with silicon tetrafluoride (*cb.*) (TRUCHOT), 1885, A., 626.

for ammonium sulphite and disulphite (*f.*) (DE FONCRAND), 1885, A., 471.

for aniline (*f.*) (PETIT) 1888, A., 773.

for aniline salts (*f.* and *n.*) (BERTHELOT), 1890, A., 1361.

for aniline dichromate (*f.*) (GIRARD and L'HÔTE), 1889, A., 562.

for antimony halogen compounds and oxides (*f.*) (THOMSEN), 1883, A., 544; (GUNTZ), 1881, A., 707, 884, 1246; 1885, A., 1101.

for antimony hydride (*f.*) (BERTHELOT and PETIT), 1889, A., 666.

for allotropic forms of arsenic (*cb.*) (BERTHELOT and ENGEL), 1890, A., 679.

for arsenic halogen compounds (*f.*) (THOMSEN), 1883, A., 544; (GUNTZ), 1885, A., 1101.

for asparagin (*c.*) (STOHMANN), 1885, A., 857.

for aspartic acid (*c.* and *f.*) (BERTHELOT and ANDRÉ), 1890, A., 936; (BERTHELOT), 1891, A., 967.

for atropic acid (*c.*) (OSSIPOFF), 1889, A., 460.

**Thermochemical data for azoimide** (*n.* and *f.*) (BERTHELOT and MATIGNON), 1892, A., 261; (*f.*) (BACH), 1892, A., 933.

for bases where dissociation cannot take place (*n.*) (VAN DEVENTER and REICHER), 1890, A., 553.

for organic bases in relation to Berthollet's laws (*n.*) (BERTHELOT), 1890, A., 1363; (COLSON), 1890, A., 1367, 1368; 1891, A., 377.

for benzene (*c.* and *f.*) (STOHMANN, RODATZ and HERZBERG), 1886, A., 409; (THOMSEN), 1886, A., 842; (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1042; (*c.*) (STOHMANN), 1886, A., 812; (BRUHL), 1891, A., 633.

for benzene and its molecular refraction compared with those of dipropargyl (*c.*) (BRUHL), 1892, A., 1436.

for benzene to the acetic series (*t.*) (BERTHELOT and RECOURA), 1887, A., 1011.

for the solid isomeride of benzene (*c.*) (LUGININ), 1888, A., 893.

for benzoic acid (*c.*) (STOHMANN), 1885, A., 857; (BERTHELOT and RECOURA; BERTHELOT and LUGININ), 1887, A., 762; (*c.* and *f.*) (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.

for benzoyl compounds (*c.*) (STOHMANN, RODATZ and HERZBERG), 1887, A., 878; 1888, A., 333.

for benzylamine (*f.*) (PETIT), 1888, A., 1239.

for beryllium fluoride (*n.*) (PETERSEN), 1890, A., 680.

for bismuth halogen compounds and oxides (*f.*) (THOMSEN), 1883, A., 544.

for borneols (*c.*) (LUGININ), 1889, A., 328.

for bromides by substitution (*f.*) (BERTHELOT and WERNER), 1884, A., 883.

for bromine (*sb.*) (BERTHELOT and WERNER), 1884, A., 883; 1885, A., 627.

for bromine and iodine with magnesium (*cb.*) (BEKEOFF), 1892, A., 762.

for cadmium oxide (*n.*) (THOMSEN), 1884, A., 263.

THERMOCHEMISTRY:—*Heat of formation*=*f.*; *of transformation*=*t.*; *of decomposition*=*d.*; *of dissociation*=*dis.*; *of combination*=*cb.*; *of combustion*=*c.*; *of neutralisation*=*n.*; *of substitution*=*s.*; *of hydration*=*h.*

**Thermochemical data for the camphene series (c. and f.)** (BERTHELOT and MATIGNON), 1891, A., 1818.

for camphoric acids (*n.*) (BERTHELOT), 1885, A., 1178; (GAL and WERNER), 1887, A., 205; (*c.*) (LUGININ), 1889, A., 6; (*c.* and *f.*) (STOHMANN and KLEBER), 1892, A., 1041.

for camphors (*c.*) (LUGININ), 1889, A., 328.

for cyano- and nitro-camphors (*f. c.* and *n.*) (BERTHELOT and PETIT), 1889, A., 1098.

for carbamide (*c.*) (STOHMANN), 1885, A., 857; (*c.* and *f.*) (BERTHELOT and PETIT), 1890, A., 206.

for the carbohydrates (*c.*) (STOHMANN), 1885, A., 857; (*c.* and *f.*) (BERTHELOT and VIEILLE), 1886, A., 757; (STOHMANN and LANGBEIN), 1892, A., 763.

for carbon (*c.*) (BERTHELOT and PETIT), 1889, A., 811.

for carbon with oxygen (*cb.*) (BOILLOT), 1884, A., 141.

for carbon compounds (*f.*) (THOMSEN), 1883, A., 543; (BRUHL), 1887, A., 423; (*c.*) (MULLER-REIZBACH), 1883, A., 1044; (BERTHELOT and VIEILLE), 1885, A., 326; (LUGININ), 1885, A., 327; (DIKONOFF), 1886, A., 115; (THOMSEN), 1887, A., 761; (STOHMANN), 1887, A., 878, 1011; 1888, A., 1013; 1891, A., 251; (OSSIPOFF), 1889, A., 5.

for carbon compounds and their relation to their constitution (*c.*) (DIEFFENBACH), 1890, A., 1206; (THOMSEN), 1891, A., 632.

for carbon tetrachloride and monoxide (*f.*) (THOMSEN), 1888, A., 544.

for carbon disulphide (*c.* and *f.*) (THOMSEN), 1884, A., 249; (BERTHELOT and MATIGNON), 1890, A., 1361.

for carbonic ethers (*c.*) (LUGININ), 1884, A., 547.

for carbonyl chloride (*f.*) (THOMSEN), 1884, A., 250.

for carbonyl sulphide (*c.* and *f.*) (THOMSEN), 1884, A., 249.

**Thermochemical data for alkaline carbonates in very dilute solution (f.)** (MULLER), 1889, A., 810.

for charcoal (*c.*) (BERTHELOT and VIEILLE), 1885, A., 326.

for chlorides and sulphates in aqueous solution, relation between (*f.*) (FAY), 1888, A., 401.

for hydrated metallic chlorides (*f.*) (SABATIER), 1889, A., 1043.

for perchloric acid and its salts (*f. f.* and *n.*) (BERTHELOT), 1883, A., 8.

for organic chlorine compounds (*c.* and *f.*) (BERTHELOT and MATIGNON), 1891, A., 1311.

for chromic acid and its salts (*f.*) (BERTHELOT), 1883, A., 642.

for chromous into chromic chloride (*t.*) (RECOURA), 1885, A., 1102.

for the cinnamic acids (*c.*) (OSCHPOFF), 1889, A., 460; (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096; (LIEBERMANN), 1892, A., 469.

for citraconic acid (*n.*) (GAL and WERNER), 1887, A., 205; (*c.*) (LUGININ), 1888, A., 893.

for citric acid (*c.*) (STOHMANN), 1885, A., 1857; (*n.*) (GAL and WERNER), 1887, A., 205; (MANSON), 1892, A., 763.

for coal (*c.*) (SCHEURER-KESTNER), 1881, A., 122; 1885, A., 848, 1020; 1888, A., 771; 1891, A., 520; (SCHWACHOFER), 1885, A., 691; (ALEXEEFF), 1886, A., 757.

for products of the distillation of coal (*c.*) (MAHLER), 1892, A., 395.

for coal-gas (*c.*) (WITZ), 1885, A., 172; (MAHLER), 1892, A., 396.

for colloids (*h.*) (WIEDERMANN and LUDWIG), 1885, A., 1031.

for some soluble compounds and the law of thermal substitution constants (*f.*) (TOMMASI), 1885, A., 8.

for isocuminic acid (*c.*) (BERTHELOT and LUGININ), 1887, A., 762.

for diazo-derivatives (*f.*) (VIGNON), 1888, A., 771.

for isodibutylene (*c.*) (MAHLER), 1890, A., 320.

for electrolytes (*dis.*) (ARRHENIUS), 1889, A., 1041; 1892, A., 931.

**THERMOCHEMISTRY**:—*Heat of formation*=*f.*; of *transformation*=*t.*; of *decomposition*=*d.*; of *dissociation*=*dis.*; of *combination*=*cb.*; of *combustion*=*c.*; of *neutralisation*=*n.*; of *substitution*=*sb.*; of *hydration*=*h.*

**Thermochemical data** for erythritol (*c.*) (STOHMANN), 1885, A., 857; (LUGININ), 1889, A., 668.

for erythroxides (*f.*) (DE FORCRAND), 1890, A., 935; 1891, A., 1312.

for ethane (*f.*) (THOMSEN), 1883, A., 545.

for ethereal salts of some fatty acids (*c.*) (LUGININ), 1885, A., 327; 1886, A., 192, 757.

for ethyl ether (*c.*) (STOHMANN), 1887, A., 425.

for ethylene oxide (*c.* and *f.*) (BERTHELOT), 1883, A., 275.

for ethylene oxide with hydrogen chloride (*cb.*) (BERTHELOT), 1883, A., 174.

for ethylenic perchloride (*f.*) (THOMSEN), 1883, A., 544.

for ethylic alcohol (*c.* and *f.*) (BERTHELOT and MATIGNON), 1892, A., 1139.

for ethylic acetocyanacetate, benzoylcyanacetate, and cyanomalonate (*n.*) (HALLER and GUNTZ), 1888, A., 894.

for explosive mixtures, some relations between specific heats, dissociation, pressure and (*c.*) (BERTHELOT), 1883, A., 771.

for fats (*c.*) (STOHMANN), 1885, A., 857; (*f.*) (STOHMANN and LANGBEIN), 1891, A., 11.

for ferrous sulphide (*f.*) (MÜLLENHOFF), 1885, A., 950.

for fluorides (*f.*) (GUNTZ), 1884, A., 5, 545, 516; (TOMMASI; BERTHELOT), 1884, A., 515; (*n.*) (PETERSEN), 1890, A., 1.

for fluorine compounds (*f.* and *dis.*) (GUNTZ), 1884, A., 1215.

for fluorine with hydrogen (*cb.*) (BERTHELOT and MOINSAN), 1889, A., 1096.

for formylcarbamide (*c.* and *f.*) (MATIGNON), 1891, A., 1448.

for food constituents and their derivatives (*c.*) (STOHMANN), 1885, A., 857; (STOHMANN and LANGBEIN), 1892, A., 4.

for formic acid (*c.*) (JAHN), 1890, A., 99; (*c.* and *f.*) (BERTHELOT and MATIGNON), 1892, A., 1139.

for fumaric acid (*n.*) (GAL and WERNER), 1887, A., 205; (*c.*) (LUGININ), 1888, A., 893; (*c.*

and *f.*) (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (STOHMANN), 1892, A., 1041.

**Thermochemical data** for certain gases (*cb.*) (RAABE), 1883, A., 274.

for glucose (*c.*) (BERTHELOT and RECOURA), 1887, A., 761.

for glutaric acid (*n.*) (MASSOL), 1892, A., 1141.

for glyceric acid (*n.*) (GAL and WERNER), 1887, A., 205.

for glycerol (*c.*) (STOHMANN), 1885, A., 857.

for potassium glyceroxide (*f.*) (DE FORCRAND), 1887, A., 320.

for glycocine (*c.*) (STOHMANN), 1885, A., 857.

for *mono*- and *di*-sodium glycol (*f.*) (DE FORCRAND), 1888, A., 1238; 1892, A., 421, 576.

for glycollic acid and its salts (*f.*) (DE FORCRAND), 1883, A., 644, 708, 771, 775; (TOMMASI), 1883, A., 708, 775.

for glycollic acid (*h.*) (DE FORCRAND), 1884, A., 547.

for glyoxal ammonium hydrogen sulphite (*f.*) (DE FORCRAND), 1885, A., 627.

for glyoxal barium and potassium hydrogen sulphites (*f.*) (DE FORCRAND), 1884, A., 939.

for glyoxylic acid and its salts (*n.* and *f.*) (DE FORCRAND), 1886, A., 297.

for graphitic and pyrographitic oxides (*c.*) (BERTHELOT and PETIT), 1890, A., 448.

for guanidine and nitroguanidine (*c.*) (MATIGNON), 1892, A., 1142.

for haloid salts (*dis.*, *f.*, *n.* and *t.*) (BERTHELOT), 1884, A., 656.

for hemipinimide (*c.* and *t.*) (LIEBERMANN), 1892, A., 459.

for hexadecylic alcohol and palmitate (*c.*) (STOHMANN), 1885, A., 857.

for hippuric acid (*c.*) (STOHMANN), 1885, A., 857.

for humic acid from sugar (*c.* and *n.*) (BERTHELOT and ANDRÉ), 1891, A., 1456.

for hydrazine (*n.*) (BERTHELOT and MATIGNON), 1892, A., 261; (BACH), 1892, A., 933; (*f.*) (THOMSEN), 1892, A., 1143.

THERMOCHEMISTRY:—*Heat of formation*=*f.*; *of transformation*=*t.*; *of decomposition*=*d.*; *of dissociation*=*dis.*; *of combination*=*cb.*; *of combustion*=*c.*; *of neutralisation*=*n.*; *of substitution*=*sb.*; *of hydration*=*h.*

**Thermochemical data** for aromatic hydrocarbons (*c.*) (STOHMANN, RODATZ and HERZBERG), 1887, A., 427; (*c.* and *f.*) (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1042.  
 for solid hydrocarbons (*c.* and *f.*) (BERTHELOT and VIETLE), 1886, A., 756.  
 for hydrogen compounds (*f.*) (TOMMARI), 1885, A., 716.  
 for hydrogen with fluorine (*cb.*) (BERTHELOT and MOISSAN), 1889, A., 1096.  
 for hydrogen with oxygen (*cb.*) (BOILLOT), 1885, A., 8.  
 for hydrogen chloride with ethylene oxide (*cb.*) (BERTHELOT), 1883, A., 171.  
 for hydroxybenzenes (*c.*) (STOHMANN, RODATZ and HERZBERG), 1886, A., 655.  
 for hydroxybenzoic acids (*f.*, *n.* and *t.*) (BERTHELOT and WERNER), 1885, A., 1103; (*c.* and *f.*) (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.  
 of hydroxyl for hydrogen (*sb.*) (STOHMANN), 1886, A., 656.  
 for hydroxylamine and its salts (*f.*) (BERTHELOT and ANDRÉ), 1890, A., 934.  
 for hyponitrites (*f.*) (BERTHELOT and OGIER), 1883, A., 423; (BERTHELOT), 1889, A., 930.  
 for inosite (*c.* and *f.*) (BERTHELOT and RECOURA), 1887, A., 1011; (BERTHELOT and MAIGNON), 1890, A., 1360; (STOHMANN and LANGBEIN), 1892, A., 761.  
 for isomeric inosites (*t.*) (BERTHELOT), 1890, A., 1011.  
 for iodine and bromine with magnesium (*cb.*) (BEKETOFF), 1892, A., 762.  
 for iodine chlorides (*f.*) (THOMSEN), 1883, A., 543; (*t.*) (STORTENBEKER), 1892, A., 1387.  
 for itaconic acid (*n.*) (GAL and WERNER), 1887, A., 205; (*c.*) (LUGININ), 1888, A., 893.  
 for ketones (*c.*) (LUGININ), 1884, A., 547.  
 for lauric acid (*c.*) (STOHMANN and RODATZ), 1885, A., 1176.  
 for double salts of lead and potassium iodides (*f.*) (BERTHELOT), 1883, A., 275.

**Thermochemical data** for lead oxychlorides and oxybromides (*f.*) (ANDRÉ), 1884, A., 384.  
 for lithium bromide (*f.*) (BODISCO), 1889, A., 1098.  
 for lithium iodide (*f.*) (BODISCO), 1889, A., 329.  
 for lithium oxide (*f.*) (BEKETOFF), 1884, A., 1247.  
 for magnesium compounds (*f.*) (BERTHELOT), 1887, A., 96.  
 for magnesium with bromine and iodine (*cb.*) (BEKETOFF), 1892, A., 762.  
 for malates (*f.* and *n.*) (MASSOL), 1892, A., 260.  
 for maleic acid (*n.*) (GAL and WERNER), 1887, A., 205; (*c.*) (LUGININ), 1888, A., 893; (*c.* and *f.*) (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (STOHMANN and KLEBER), 1892, A., 1041.  
 for maleic anhydride (*h.*) (OSNIPOFF), 1890, A., 680.  
 for malic acid (*n.*) (GAL and WERNER), 1887, A., 96, 205; (*f.* and *n.*) (MASSOL), 1892, A., 260.  
 for malonic acid (*n.*) (GAL and WERNER), 1887, A., 96; (MASSOL), 1888, A., 1240; 1889, A., 857.  
 for malonates (*f.*) (MASSOL), 1889, A., 958; 1890, A., 1396, 1397.  
 for sodium mannitol (*f.*) (DE FORCRAND), 1892, A., 800.  
 for meconic acid (*n.*) (BERTHELOT), 1880, A., 8; (GAL and WERNER), 1887, A., 206.  
 for mellitic acid (*n.*) (BERTHELOT), 1886, A., 8; (GAL and WERNER), 1887, A., 206; (*c.*) (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.  
 for mercury compounds (*f.*) (THOMSEN), 1888, A., 1011; (NERNST), 1888, A., 1012.  
 for mercury oxybromides and oxychlorides (*f.*) (ANDRÉ), 1881, A., 707, 884.  
 for mosaconic acid (*n.*) (GAL and WERNER), 1887, A., 205; (*c.*) (LUGININ), 1888, A., 893.  
 for methane (*f.*) (THOMSEN), 1883, A., 514.  
 for methylaniline (*f.*) (PETIT), 1888, A., 1239.

THERMOCHEMISTRY:—*Heat of formation*=*f.*; *of transformation*=*t.*; *of decomposition*=*d.*; *of dissociation*=*dis.*; *of combination*=*cb.*; *of combustion*=*c.*; *of neutralisation*=*n.*; *of substitution*=*sb.*; *of hydration*=*h.*

**Thermochemical data** for *di-, tri-, tetra-, penta- and hexa-methylene rings* (*c.* and *f.*) (STOHMANN and KLEBER), 1892, A., 1041.

for *methyl alcohol and solid methyl salts* (*c.* and *f.*) (STOHMANN, KLEBER and LANGBEIN), 1890, A., 101.

for *methyl alcohol with sodium* (*cb.*) (DE FORCRAND), 1885, A., 1031.

for *methylmalonic acid* (*n.*) (MASSOL), 1892, A., 1140.

for *methylsuccinic acid* (*c.*) (LUGLIN), 1889, A., 5; (*c.* and *f.*) (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (*n.*) (MASSOL), 1892, A., 1140.

for *rock-forming minerals* (*f.*) (DIEULAFAIT), 1886, A., 35.

for *permolybdic acid* (*f.*) (PÉCHARD), 1892, A., 1383.

for *myristic acid* (*c.*) (STOHMANN and RODATZ), 1885, A., 1176.

for *naphthalene* (*c.* and *f.*) (BERTHELOT and RECOURA; BERTHELOT and LUGLIN), 1887, A., 762; (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1042.

for *nicotine* (*n.*) (COLSON), 1890, A., 101.

for *nitriles* (*c.* and *f.*) (BERTHELOT and PETIT), 1889, A., 812.

for *nitrobenzenes* (*c.* and *f.*) (PETIT), 1888, A., 1013; (BERTHELOT and MATIGNON), 1892, A., 4.

for *nitrogen selenide* (*d.*) (BERTHELOT and VIEILLE), 1883, A., 707.

for *nitrogenous compounds derived from albuminoids* (*c.* and *f.*) (BERTHELOT and ANDRÉ), 1890, A., 936; (*c.*) (BERTHELOT and ANDRÉ), 1890, A., 937.

for the *nitro-group* (*sb.*) (MATIGNON), 1892, A., 1141.

for the *nononaphthenes* (*c.*) (OSSIPOFF), 1889, A., 6, 460.

for *olefines* (*c.*) (GROSHANS), 1886, A., 498.

for the *oxime of opianic anhydride* (*c.* and *t.*) (LIEBERMANN), 1892, A., 459.

for *oxalic acid* (*c.*) (STOHMANN), 1885, A., 857; (JAHN), 1890, A., 100; (*n.*) (GAL and WERNER), 1887, A., 96.

**Thermochemical data** for *oxalic acid, mercury salt of* (*f.*) (BERTHELOT), 1884, A., 706.

for *oxaluric acid* (*c.* and *f.*) (MATIGNON), 1891, A., 1449.

for *oxygen with carbon* (*cb.*) (BOILLOT), 1884, A., 141.

for *oxygen with hydrogen* (*cb.*) (BOILLOT), 1885, A., 8.

for *parabanic acid* (*c.* and *f.*) (MATIGNON), 1891, A., 1449.

for *paraffins* (*c.*) (STOHMANN), 1885, A., 857; (*c.* and *f.*) (GROSHANS), 1886, A., 498.

for *phenol* (*c.*) (STOHMANN), 1885, A., 857; (BERTHELOT and LUGLIN), 1887, A., 762.

for *phenols* (*n.*) (BERTHELOT and WERNER), 1885, A., 623; (BERTHELOT), 1886, A., 6, 7; (*c.* and *f.*) (STOHMANN, RODATZ and HERZBERG), 1887, A., 98; (STOHMANN and LANGBEIN), 1892, A., 763.

for *phenyl ethers* (*c.* and *f.*) (STOHMANN, RODATZ and HERZBERG), 1887, A., 428.

for *phenylenediamine salts* (*f.*) (VIGNON), 1888, A., 1012; (*n.*) (VIGNON), 1889, A., 1099.

for *phosphates* (*f.*) (BERTHELOT), 1887, A., 94; (JOLY), 1887, A., 202, 877.

for *hypophosphoric acid* (*n.*) (JOLY), 1886, A., 408.

for *phosphorus chlorides* (*f.*) (THOMSEN), 1883, A., 544; 1884, A., 250.

for *phthalic acid* (*c.*) (STOHMANN), 1885, A., 857.

for *phthalates* (*f.*) (COLSON), 1885, A., 1104.

for *picrates* (*f.*, *n.* and *h.*) (TSCHELZOFF), 1885, A., 1103; 1886, A., 841; (*f.*) (THOMMAN), 1886, A., 408.

for  *$\pi$ -pimelic acid* (*c.* and *f.*) (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (STOHMANN and KLEBER), 1892, A., 1041.

for *piperidine* (*n.*) (COLSON), 1890, A., 101.

for *platinic bromide and its derivatives* (*f.*) (PIGEON), 1892, A., 3.

for *platinic chloride* (*f.*) (PIGEON), 1890, A., 439.

THERMOCHEMISTRY:—*Heat of formation*=*f.*; of *transformation*=*t.*; of *decomposition*=*d.*; of *dissociation*=*dis.*; of *combination*=*cb.*; of *combustion*=*c.*; of *neutralisation*=*n.*; of *substitution*=*sb.*; of *hydration*=*h.*

**Thermochemical data** for potassiummonium (*f.*) (JOANNIS), 1890, A., 319.  
 for potassium salts containing sulphur (*f.*) (BERTHELOT), 1883, A., 706.  
 for potassium oxide (*f.*) (BEKETOFF), 1884, A., 1247.  
 for propionic acid (*c.*) (JAHN), 1890, A., 100; (*n.*) (MANSOL), 1891, A., 1313.  
 for alkali propionates (*n.*) (MANSOL), 1891, A., 1313.  
 for pyridine (*n.*) (COLSON), 1890, A., 101.  
 for pyrocatechol (*c.*) (STOHMANN), 1885, A., 857.  
 for disodium pyrocatechol (*n.*) (DE FORCRAND), 1892, A., 1185.  
 for the pyrocitric acids (*c.*) (LUGNIN), 1888, A., 893.  
 for pyrogallol (*c.*) (STOHMANN), 1885, A., 857; (BERTHELOT and LUGNIN), 1887, A., 762.  
 for pyrogallols (*f.* and *n.*) (DE FORCRAND), 1892, A., 1313, 1446.  
 for quercitol and quinic acid (*c.* and *f.*) (BERTHELOT and RECOURA), 1887, A., 1011.  
 for quinol (*c.*) (BERTHELOT and LUGNIN), 1887, A., 762.  
 for sodium quinol (*n.*) (DE FORCRAND), 1892, A., 1185.  
 for quinone (*c.*) (BERTHELOT and RECOURA; BERTHELOT and LUGNIN), 1887, A., 762.  
 for resorcinol (*c.*) (STOHMANN), 1885, A., 857.  
 for sodium resorcinol (*n.*) (DE FORCRAND), 1892, A., 1185.  
 for rubidium (*c.*) (BEKETOFF), 1890, A., 679.  
 for salicylic acid (*c.*) (STOHMANN), 1885, A., 857; (BERTHELOT and RECOURA), 1887, A., 762.  
 for salts (*h.*) (PICKERING), 1884, A., 803; 1886, T., 117; P., 257; 1887, T., 75; (*f.*) (PICKERING), 1886, T., 287; P., 164; (POULIZIN), 1886, A., 116; (VAN DEVENTER and REICHER), 1892, A., 262.  
 for selenides (*f.*) (FABRE), 1886, A., 961, 962.  
 for vitreous into metallic selenium (*z.*) (FABRE), 1886, A., 840.  
 for selenium chloride (*f.*) (THOMSEN), 1883, A., 543.

**Thermochemical data** for alkaline silicofluorides (*f.*) (TRUCHOT), 1884, A., 881.  
 for silicon tetrafluoride with ammonia (*cb.*) (TRUCHOT), 1885, A., 626.  
 for silver chloride (*f.*) (RICHARDS), 1888, A., 400.  
 for silver iodide and its compounds with cuprous and lead iodides (*t.*) (BELLATI and ROMANESE), 1883, A., 274.  
 for sodammonium (*f.*) (JOANNIS), 1890, A., 319.  
 for sodium with methylic alcohol (*cb.*) (DE FORCRAND), 1885, A., 1031.  
 for sodium oxide (*f.*) (BEKETOFF), 1884, A., 1247.  
 for sorbic acid (*c.*) (OSSIPOFF), 1889, A., 460.  
 for stannic acid and metastannic acid (*n.*) (VIGNON), 1889, A., 833.  
 for stilbene (*c.*) (OSSIPOFF), 1889, A., 460.  
 for succinic acid (*n.*) (GAL and WERNER), 1887, A., 96.  
 for isosuccinic acid (*c.* and *f.*) (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1097; (*n.*) (MANSOL), 1892, A., 1140.  
 for alkaline succinates and isosuccinates (*f.*) (TANATAR), 1890, A., 320.  
 for sugars (*c.* and *f.*) (BERTHELOT and MATIGNON), 1890, A., 1860; (FOUH), 1892, A., 933.  
 for sulphates (*f.* and *t.*) (PICKERING), 1884, T., 686; 1886, T., 1; (*f.*) (DE FORCRAND), 1884, A., 1; (ILLINGWORTH and HOWARD), 1885, A., 339.  
 for sulphates and chlorides in aqueous solution, relation between (*f.*) (FAY) 1888, A., 101.  
 for alkaline sulphites (*f.* and *n.*) (BERTHELOT), 1883, A., 701.  
 for pyrosulphites (*f.*) (BERTHELOT), 1883, A., 705.  
 for sulphur compounds (*c.* and *f.*) (BERTHELOT and MATIGNON), 1890, A., 1361.  
 for sulphur chloride (*f.*) (THOMSEN), 1883, A., 543.  
 for sulphur oxychloride (*f.*) (THOMSEN), 1884, A., 250.

THERMOCHEMISTRY:—*Heat of formation*=*f.*; *of transformation*=*t.*; *of decomposition*=*d.*; *of dissociation*=*dis.*; *of combination*=*cb.*; *of combustion*=*c.*; *of neutralisation*=*n.*; *of substitution*=*sb.*; *of hydration*=*h.*

**Thermochemical data for sulphuric acid** (*n.*) (PICKERING), 1889, T., 323; P., 79.  
 for *persulphuric acid* and its salts (*f.* and *n.*) (BERTHELOT), 1892, A., 931.  
 for *pyrosulphuric chloride* (*f.*) (KONOWALOFF), 1884, A., 250.  
 for *sulphurous acid* (*n.*) (BERTHELOT), 1883, A., 704.  
 for *tartar emetic* (*f.*) (GUNTZ), 1887, A., 541.  
 for *d-* and *l-tartaric acids* (*c.*) (STOHMANN), 1885, A., 857; (*n.*) (GAL and WERNER), 1887, A., 96; (JAHN), 1891, A., 969.  
 for *tartronic acid* (*n.*) (GAL and WERNER), 1887, A., 96.  
 for *crystallised telluride* (*f.*) (FABRE), 1887, A., 1010.  
 for the *allotropic modification of tellurium* (*f.*) (BERTHELOT and FABRE), 1887, A., 761.  
 for *tellurium chloride* (*f.*) (THOMSEN), 1883, A., 543.  
 for *terebic acid* (*c.*) (ONSIPOFF), 1889, A., 460.  
 for *terephthalic acids* and their salts (*c.* and *f.*) (STOHMANN and KLEBER), 1891, A., 376, 1147.  
 for *terpene, terpin hydrate and terpin* (*c.*) (LUGNIN), 1889, A., 328.  
 for *tetric acid* (*n.*) (BERTHELOT), 1886, A., 8.  
 for *toluidines* (*f.*) (PETIT), 1888, A., 1239.  
 for *triisobutylene* (*c.*) (MALBOT), 1890, A., 320.  
 for *tricarballic acid* (*c.*) (LUGNIN), 1889, A., 668.  
 for *potassium tricarballicates* (*f.*) (MASSOL), 1892, A., 762.  
 for *trimethylene* (*c.*) (BRÜHL), 1891, A., 633.  
 for *trimyristin* (*c.*) (STOHMANN), 1885, A., 857.  
 for *uric acid* (*c.*) (STOHMANN), 1885, A., 857; (*f.*) (MATIGNON), 1890, A., 1040.  
 for *alkaline urates* (*f.*) (MATIGNON), 1890, A., 1040.  
 for *cooked vegetables* (*c.*) (WILLIAMS), 1892, T., 240.  
 for *water-generator gas* and *carbonic anhydride-generator gas* (*c.*) (NAUMANN), 1892, A., 673.

**Thermochemical data for the water molecule** (*dis.*) (WIEDEMANN), 1883, A., 547.  
 for *wood* (*c.*) (GOTTLIEB), 1884, A., 477.  
 for *zinc carbonate* (*f.*) (DIEULAFAIT), 1886, A., 132.  
 for *zinc ethyl* (*f.*) (GUNTZ), 1888, A., 15.  
**Heat of solution, theory of** (DIETZRIE), 1892, A., 676, 765.  
 law of (OSTWALD), 1888, A., 1020.  
 variation of *solubility with variations in* (LE CHATELIER), 1887, A., 548; (CHANCEL and PARMENTIER), 1887, A., 632.  
 of the *alkaline earths* and the *alkalis* (THOMSEN), 1884, A., 250.  
 of *alkylamines* (COLSON), 1891, A., 377.  
 of *aluminium bromide in toluene* (GUSTAVSON), 1885, A., 472.  
 of *allantoin, alloxan and alloxantin* (MATIGNON), 1891, A., 1448.  
 of *amides* (BERTHELOT and FOGU), 1890, A., 1360.  
 of *aniline salts* (BERTHELOT), 1890, A., 1361.  
 of *aspartic acid* (BERTHELOT), 1891, A., 967.  
 of *acids of the benzene series* (BERTHELOT), 1886, A., 8.  
 of *certain compounds of the benzene series* (BERTHELOT), 1885, A., 1177.  
 of *bromine in different liquids* (PICKERING), 1888, T., 865; P., 92.  
 of *α-bromomalonic acid* and its salts (MASSOL), 1892, A., 1140.  
 of *calcium chloride* (PICKERING), 1888, P., 35; 1889, P., 86; 1891, P., 105.  
 of *cyano- and nitro-camphors* (BERTHELOT and PETIT), 1889, A., 1098.  
 of *carbon compounds in various alcohols* (TIMOFEEFF), 1891, A., 1313.  
 of the *perchlorates* (BERTHELOT), 1883, A., 8.  
 of *chlorides in different liquids* (PICKERING), 1888, T., 865; P., 92.  
 of *hydrated metallic chlorides* (SABATIER), 1889, A., 1043.

## THERMOCHEMISTRY:—

- Heat of solution of chromates** (SABATIER), 1886, A., 962.  
 of colloids (WIEDEMANN and LUMDEKING), 1885, A., 1031.  
 of ethoxides (DE FORCRAND), 1881, A., 4, 142.  
 of ethylene oxide (BERTHELOT), 1883, A., 275.  
 of fluorine compounds (GUNTZ), 1884, A., 1245.  
 of hydrofluoric acid (GUNTZ), 1884, A., 544.  
 of fumaric acid (GAL and WERNER), 1887, A., 205.  
 of a gas (PAGLIANI), 1890, A., 846.  
 of gases in liquids (PICKERING), 1892, A., 1042.  
 of glutaric acid (MASSOL), 1892, A., 1141.  
 of glyceroxides (DE FORCRAND), 1887, A., 8; 1888, A., 642.  
 of *mono*- and *di*-sodium glycol (DE FORCRAND), 1888, A., 1238; 1892, A., 421.  
 of glycollic acid and its salts (DE FORCRAND), 1883, A., 644, 774; (TOMMASI), 1883, A., 775.  
 of glyoxylic acid and its salts (DE FORCRAND), 1886, A., 297.  
 of guanidine and nitroguanidine (MATIGNON), 1892, A., 1142.  
 of hydrazine (BERTHELOT and MATIGNON), 1892, A., 261; (BACH), 1892, A., 933.  
 of hydroxybenzoic acids (BERTHELOT and WERNER), 1885, A., 1103.  
 of iodine in different liquids (PICKERING), 1888, T., 873, 877; P., 92.  
 of cast iron containing silicon and aluminium (OSMOND), 1892, A., 19.  
 of itaconic acid (GAL and WERNER), 1887, A., 205.  
 of lithium bromide (BODISCO), 1889, A., 1098.  
 of lithium iodide (BODISCO), 1889, A., 329.  
 of maleic acid (GAL and WERNER), 1887, A., 205.  
 of malic acid and its salts (GAL and WERNER), 1887, A., 96; (MASSOL), 1892, A., 260.  
 of malonic acid (GAL and WERNER), 1887, A., 96.  
 of malonates (MASSOL), 1888, A., 1239; 1889, A., 958.  
 of malonic chloride (BERTHELOT), 1891, A., 967.

## THERMOCHEMISTRY:—

- Heat of solution of sodium mannitol** (DE FORCRAND), 1892, A., 800.  
 of mesaconic acid (GAL and WERNER), 1887, A., 205.  
 of sodium methoxide (DE FORCRAND), 1885, A., 1032.  
 of nicotine (COLSON), 1890, A., 101.  
 of nitrates in different liquids (PICKERING), 1888, T., 865; P., 92.  
 of parabanic acid (MATIGNON), 1891, A., 1449.  
 of phenol (DE FORCRAND), 1892, A., 1042.  
 of phenols (BERTHELOT and WERNER), 1885, A., 628; (BERTHELOT), 1886, A., 6, 7.  
 of phenylenediamines (VIGNON), 1889, A., 1099.  
 of phosphorus trifluoride (BERTHELOT), 1885, A., 328.  
 of hypophosphoric acid (JOLY), 1886, A., 408.  
 of picrates (TSCHERZOFF), 1885, A., 1103; 1886, A., 841.  
 of piperidine (COLSON), 1890, A., 101.  
 of platonic chloride and its compounds (PIGEON), 1891, A., 966.  
 of propionic acid and alkali propionates (MASSOL), 1891, A., 1313.  
 of sodium isopropoxide (DE FORCRAND), 1892, A., 674.  
 of pyridine (COLSON), 1890, A., 101.  
 of *mono*- and *di*-sodium pyrocatechol (DE FORCRAND), 1892, A., 1181, 1185.  
 of sodium resorcinol and quinol (DE FORCRAND), 1892, A., 1185.  
 of hydrated and anhydrous salts (PICKERING), 1886, T., 260; P., 161.  
 of salts, influence of temperature on (TILDEN), 1886, A., 499; P., 66; (PICKERING), 1887, T., 290; P., 20.  
 of salts in water (SCHOLZ), 1892, A., 676.  
 of salts in different liquids (PICKERING), 1888, T., 871, 875.  
 of supersaturated saline solutions (BINDEL), 1890, A., 1012.  
 of selenides (FABRE), 1886, A., 961.  
 of alkaline silicofluorides (TRUCROT), 1884, A., 884.  
 of anhydrous sodium carbonate (PICKERING), 1887, T., 73.

## THERMOCHEMISTRY:—

- Heat of solution** of sodium phosphites and pyrophosphites (AMAT), 1890, A., 438.  
of salts of succinic and isosuccinic acids (TANATAR), 1890, A., 320.  
of sugars (BERTHELOT and MATIGNON), 1890, A., 1860.  
of sulphates (PICKERING), 1884, T., 686; 1885, T., 98, 100; 1886, T., 291, 306.  
of modifications of double sulphates (PICKERING), 1884, T., 686; 1885, T., 101; 1886, T., 1.  
of sulphites (BERTHELOT), 1883, A., 704; (DE FORCRAND), 1884, A., 803.  
of sulphur in different liquids (PICKERING), 1888, T., 874, 877; P., 92.  
of sulphuric acid solutions (PICKERING), 1889, P., 86; 1890, T., 94, 165.  
of persulphuric acid and its salts (BERTHELOT), 1892, A., 931.  
of sulphuric chloride (OGIER), 1883, A., 642.  
of sulphurous acid (BERTHELOT), 1883, A., 704.  
of alkaline thionates (BERTHELOT), 1889, A., 667.  
of tartrates (BERTHELOT), 1891, A., 967.  
of tartaric acid (GALAND WERNER), 1887, A., 96; (MASSOL), 1892, A., 675.  
of tetric acid (BERTHELOT), 1886, A., 8.  
of urea (RUBNER), 1885, A., 328.  
**Heat of dilution** of solutions of hydrobromic acid and of the solid hydrate  $\text{HBr} \cdot 2\text{H}_2\text{O}$  (ROOZEBOOM), 1887, A., 628.  
of hydrofluoric acid (41 NTZ), 1884, A., 511.  
of solutions (MENDELÉEFF), 1886, A., 411.  
of saline solutions (ARONS), 1885, A., 1101.  
of sulphuric acid solutions (MENDELÉEFF), 1886, A., 413.

**Thermodynamics.** See Thermochemistry.  
**Thermoelectric.** See Electrochemistry.  
**Thermometer.** See Thermochemistry.  
**Thermonatrite**, from Vesuvius (SCACCHI), 1891, A., 23.

**Thetincarboxylic acids** (DELSLE), 1892, A., 1133.

**Thialdine**, action of *o*-tolylthiocarbimide and of phenylthiocarbimide on (DIXON), 1889, T., 626, 627.

**Thialdine thiocyanate**, decomposition products of (MARCKWALD), 1886, A., 861.

**Thiamides**, action of aldehydes on (EPHRAIM), 1891, A., 831.

action of alkylene bromides on (GABRIEL and HEYMAN), 1891, A., 701.

action of ethylenediamine on (FORSELL), 1891, A., 1003; 1892, A., 1247.

of aromatic acids, reduction of (BAMBERGER and LODTER), 1888, A., 376.

**Thiazine colouring matters**, production of, by electrolysis (EVER and PICK), 1886, A., 187.

**Thiazole** (HANTZSCH and POPP), 1888, A., 1269; (POPP), 1889, A., 721; (HANTZSCH), 1892, A., 313.

compounds (HANTZSCH and WEBER), 1888, A., 256; (SPICA and CARARA), 1892, A., 215.

derivatives from bromopyruvic acids and from ethylic bromoacetate (STREUDE), 1891, A., 742.

**Thiazole,  $\mu$ -amido-**. See Thiazoline.

$\mu$ -bromo- and  $\mu$ -chloro- (SCHATZMANN), 1891, A., 745.

**Thiazole- $\alpha$ -carboxylic acid,  $\mu$ -amido-** (STREUDE), 1891, A., 743.

**Thiazole $\delta$ -carboxylic acid,  $\mu$ -amido-** (RUBLEFF), 1891, A., 221.

**Thiazoles** (HUBACHER), 1891, A., 220.  
from anidothiazoles (POPP), 1889, A., 721.

from thiamides (HANTZSCH), 1889, A., 723.

synthesis of (HANTZSCH), 1888, A., 571.

reduction of oxythiazoles to (ARAPIDES), 1889, A., 413.

**Thiazoles, amido-**, and their isomerides (TRAUMANN), 1889, A., 411.

from thiocarbamide and halogenated ketones and aldehydes (HANTZSCH and TRAUMANN), 1888, A., 573.

nitroso-derivatives of the (NÄF), 1891, A., 1515.

**Thiazole-series**, diazo-compounds of the (WOHMANN), 1891, A., 225.

**Thiazoletriazole** (NÄF), 1891, A., 1516.

**"Thiazole-yellow"** (TRAUTMANN), 1891, A., 195.

**Thiazoline ( $\mu$ -amidothiazole)** (HANTZSCH and TRAUMANN), 1888, A., 573.

$\mu$ -nitrosoimido- (NÄF), 1891, A., 1515.

**Thiazylacetic acid,  $\mu$ -amido-** (STREUDE), 1891, A., 743.

**Thiazylaniline** (HANTZSCH and TRAUMANN), 1888, A., 573; (TRAUMANN), 1889, A., 115.

- Thienol**, nitro- (STADLER), 1885, A., 1205.
- $\beta$ -Thienone** (*dithienyl ketone*) and its hydrazide (HATTERMANN), 1886, A., 228.
- Thienyl** (MEYER), 1884, A., 586.
- $\beta$ -Thienyl alcohol and chloride** (BIEDERMANN), 1886, A., 536.
- Thienyl hexyl ketone and ketoxime** (SCHLEICHER), 1886, A., 539.
- Thienyl mercaptan and its derivatives** (BIEDERMANN), 1886, A., 788; (MEYER and NEURE), 1887, A., 805.
- Thienyl methyl ketone**. See Acetothienone.
- Thienyl methyl thioether**. See Thiomethoxythiophen.
- Thienyl phenyl ketone**. See Phenyl thienyl ketone.
- Thienyl isopropyl ketone**. See *iso*-Butyrothienone.
- Thienyl styryl ketone** (BRUNSWIG), 1887, A., 237.
- Thienyl disulphide** (MEYER and NEURE), 1887, A., 805.
- Thienyl o-tolyl ketone** (ERNST), 1887, A., 238.
- Thienylacetic acid** (ERNST), 1887, A., 238.
- oxime of (PETER), 1885, A., 765.
- amido- (BRADLEY), 1886, A., 1014.
- Thienylacrylic acid** (BIEDERMANN), 1886, A., 871.
- Thienyl-2:5-dimethylglyoxylic acid** (RUFF), 1887, A., 805.
- Thienyldiphenylmethane** (LEVI), 1886, A., 787.
- Thienylethylamine** (GOLDSCHMIDT and SCHULTHEISS), 1887, A., 718.
- Thienylglycollic acid** (ERNST), 1887, A., 238.
- $\alpha$ -Thienylglyoxylic acid** (PETER), 1885, A., 764; (BRADLEY), 1886, A., 1011.
- derivatives of (BRADLEY), 1886, A., 1011.
- nitro- (PETER), 1885, A., 761.
- $\beta$ -oxime of (PETER), 1885, A., 765; (BRADLEY), 1886, A., 1011; (HANTZSCH), 1891, A., 411.
- Thienylisooxazolic acid** (SALVATORI), 1892, A., 301.
- 5:1-Thienylphenyl-pyrazole and -pyrazolic acid** (SALVATORI), 1892, A., 303.
- Thinolite** of Lake Lahontan, crystallographic study of (DANA), 1886, A., 515.
- Thioacetaldehyde** (MARCKWALD), 1886, A., 864.
- oxidation of (GUARESCHI), 1884, A., 294.
- triThioacetaldehyde** (MARCKWALD), 1886, A., 865; 1888, A., 127; (BAUMANN and FROMM), 1890, A., 25; 1891, A., 1008, 1010; (BAUMANN), 1890, A., 477.
- triThioacetaldehydesulphone** (BAUMANN and FROMM), 1890, A., 26.
- Thioacetals** (*mercaptals*) (BAUMANN), 1885, A., 748.
- Thioacetanilide** (JACOBSON), 1886, A., 700.
- Thioacetic acid**, action of, on ethylic thiocyanate (CHANIAROFF), 1883, A., 39.
- compounds of aldehydes, ketones, and ketonic acids with (BONGARTZ), 1886, A., 937.
- Thioacetic anhydride** (DAVIES), 1892, A., 300, 581.
- Thioaceto-*p*-cumide** (JACOBSON and NEY), 1889, A., 771.
- Thio- $\beta$ -acetomaphthalide** (JACOBSON), 1888, A., 1307.
- Thioacetone** (BAUMANN and FROMM), 1890, A., 26.
- diThioacetonediacetic acid** (*isopropylidenbis-thienylglycollic acid*) (BONGARTZ), 1886, A., 938.
- triThioacetone-di- and -tri-sulphones** (*trisopropylidene-trisulphonic*) (BAUMANN and FROMM), 1890, A., 26.
- diThioacetophenonediacetic acid** (*phenylthiylidenebis-thienylglycollic acid*) (BONGARTZ), 1886, A., 938.
- Thioaceto-*m*-xylylide** (GUDEMAN), 1888, A., 1282; (JACOBSON and NEY), 1889, A., 771.
- Thioacetylquinol** (LEUCKART), 1890, A., 604.
- Thioaldehydes** (BAUMANN and FROMM), 1890, A., 25; 1891, A., 1008; (BAUMANN), 1890, A., 177; (BAUMANN and CAMPS), 1890, A., 478.
- aromatic (BAUMANN and FROMM), 1891, A., 1050.
- Thioallylbenzene** (*thiophenolpropylm-; phenyl allyl sulphide*) (ESCALES and BAUMANN), 1886, A., 879.
- $\alpha$ -Thioallylbenzene** (*phenyl  $\alpha$  allyl sulphide*) (AUTENRIETH), 1890, A., 362.
- Thioammeline and its salts** (KLASON), 1886, A., 523; (RATHKE), 1887, A., 650.
- formula of (RATHKE), 1886, A., 217.
- Thioanhydro-compounds**, formation of (JACOBSON and FRANKENBACHER), 1891, A., 1048.
- Thioanisidine** (v. HOFMANN), 1887, A., 823.
- Thioanisylthiocarbamides**, *mono-* and *di-* (v. HOFMANN), 1887, A., 823.

**Thioanisylthiocarbimide** (V. HOFMANN), 1887, A., 828.

**Thioantimonites** from Colorado (EAKINS), 1889, A., 218.

**Thioarsenates** (PREIS), 1890, A., 1053. from Långban (LINDGREN), 1883, A., 434.

**Thioarsenic acid**, separation of, from thiooxyarsenic acid (McCAY), 1892, A., 1519.

**Thiobenzaldehydes**,  $\alpha$ -,  $\beta$ -, and  $\gamma$ - (BAUMANN and FROMM), 1890, A., 25; 1891, A., 1050; (BARBAGLIA and MARQUARDT), 1891, A., 1049.

***d*-Thiobenzaldehydediacetic acid** (*benzylidenbis(hydroglycollic acid)*) (BONGARTZ), 1886, A., 478, 937.

**Thiobenzaldine** (BAUMANN and FROMM), 1891, A., 1050.

**Thiobenzamide**, action of iodine on (V. HOFMANN and GABRIEL), 1892, A., 1109.

**$\alpha$ -Thiobenzoic acid**, arsenic and mercury salts of (RAYMAN), 1887, A., 950.

**Thiobenzophenone** (BERGREEN), 1888, A., 445.

***d*-Thiobenzophenonediacetic acid** (*diphenylmethylenbis(hydroglycollic acid)*) (BONGARTZ), 1886, A., 479, 938.

**Thiobenzo-*o*-toluidide** (STIEGLITZ), 1890, A., 256.

**Thiobenzo-*p*-toluidide** (MULLER), 1890, A., 43.

**Thiobenzo-xylylide** (GUDEMAN), 1888, A., 1282.

**4-Thiobis-1-phenyl-3-methylpyrazolone** (V. BUCHKA and SPRAGUE), 1890, A., 796; (MICHAELIS), 1890, A., 1269; (SPRAGUE), 1891, T., 332, 335.

**Thiobiuret** (HECHT), 1892, A., 703.

**Thioisobutaldehyde** (BARBAGLIA), 1889, A., 120.

**Thiocarbamates**, reactions of (MARCHESINI), 1892, A., 1318.

***d*-Thiocarbamates**, aromatic (LOSANTSCH), 1892, A., 55.

**Thiocarbamic chloride** (KLASON), 1887, A., 1025.

***tetra*-Thiocarbamidammonium bromide, chloride, and iodide** (REYNOLDS), 1891, A., 384.

**Thiocarbamidazobenzene** (BERNU), 1884, A., 1149; 1885, A., 600.

**Thiocarbamide**, constitution of (REYNOLDS), 1891, T., 391; P., 78; (STORCH), 1891, A., 548. non-nitrifiability of (MUNRO), 1886, T., 639. action of alcoholic potash on (HALLER), 1886, A., 691.

**Thiocarbamide**, action of allylic bromide, and of benzylic chloride on (WERNER), 1890, T., 284, 299; P., 33. action of excess of bromine on (McGOWAN), 1887, T., 378. action of *di*bromobarbituric acid on (TRZCINSKI), 1883, A., 913. action of cyanides on (McGOWAN), 1887, T., 380. action of ethylenic bromide on (BERTRAM), 1892, A., 466. action of ethylic acetoacetate on (LINT), 1886, A., 443. action of mercury fulminate on (SCHOLVIEN), 1886, A., 137. action of silicon *tetra*bromide on (REYNOLDS), 1887, T., 202. conversion of, into carbamide (MALY), 1890, A., 1399. bases obtained by the action of halogen compounds on, oxidation of (ANDREANCH), 1883, A., 664. additive compounds of (REYNOLDS), 1891, T., 383; P., 78. compounds of, with ammonium haloid salts (REYNOLDS), 1891, T., 384. compounds of, with metallic salts (RATHKE), 1884, A., 1017. sulphinic compounds of (McGOWAN), 1887, T., 666; P., 101. benzyl derivatives of (DIXON), 1891, T., 551; P., 84. dihaloid derivatives of (McGOWAN), 1886, T., 190; P., 143; 1887, T., 378; P., 36. methylene derivatives of (V. HEMMELMAYR), 1891, A., 1339. methyl- and ethyl-ammonium salts of (REYNOLDS), 1891, T., 391. See also Thiourea.

**Thiocarbamides** (SALKOWSKI), 1891, A., 1171; (HECHT), 1892, A., 702. chemistry of (WERNER), 1890, T., 283; P., 33. tautomerism of (FOERSTER), 1888, A., 944. action of chloroacetone and bromoacetophenone on (SEICA and CARRARA), 1892, A., 216. action of dihalic acids on (MOINE), 1887, A., 489. action of ammonia and amines on (GERHARDT), 1885, A., 387. action of benzyloxylamine and ethoxylamine on (VOLTMER), 1891, A., 558. action of hydroxylamine on (TIEHMANN), 1889, A., 1165; (VOLTMER), 1890, A., 1126; 1891, A., 558.

**Thiocarbamides**, desulphurisation of, by mercuric cyanide (HEFELMANN), 1886, A., 349.  
 aliphatic, action of oxidising agents on (HECTOR), 1892, A., 292.  
 aromatic, preparation of (WERNER), 1891, T., 396; P., 79.  
 action of thiocarbonyl chloride on (FREUND and WOLF), 1892, A., 983.  
 mixed, products of the decomposition of, by acids (MAINZER), 1883, A., 1106.  
 derivatives of (HECTOR), 1890, A., 526.  
 substituted, and ammonium bromide (REYNOLDS), 1891, T., 386.  
 action of acetic anhydride on (WERNER), 1891, T., 396; P., 79.  
 $\psi$ -Thiocarbamides, aromatic (PRAGER), 1890, A., 159.  
**Thiocarbamido-cresol** and -cumenol (JACOBSON and SCHENCKE), 1890, A., 248.  
**Thiocarbamido- $\alpha$ - and - $\beta$ -naphthols** (JACOBSON), 1888, A., 487; (JACOBSON and SCHENCKE), 1890, A., 248.  
**Thiocarbamidonaphthyl mercaptan** and *disulphide* (JACOBSON), 1888, A., 1307.  
**Thiocarbamidophenanthrol** (JACOBSON and SCHENCKE), 1890, A., 249.  
**Thiocarbamidophenol** (KALCKHOFF), 1883, A., 1109; (V. CHELMICKI), 1887, A., 477; 1891, A., 52.  
 derivatives of (KALCKHOFF), 1883, A., 1109; (SEIDEL), 1891, A., 53.  
**Thiocarbamido-thionaphthol** and -thiophenol (JACOBSON and FRANKENBACHER), 1891, A., 1018.  
**Thiocarbamido-**. See also Thiouramido-.  
**Thiocarbanilide**. See *s*-Diphenylthiocarbanilide.  
**Thiocarbanilidethioxanilide**, and its derivatives (V. STOJENTIN), 1885, A., 1195.  
**Thiocarbanilotolyleneurethane**. See Phenylthiouramido-*p*-tolylurethane.  
**Thiocarbanilotolylloxamethane**. See Ethylic phenylthiouramidotolylloxamate.  
**Thiocarbimides** (DIXON), 1889, T., 618; P., 127.  
 molecular refractive energies of (NASIRI and SOALA), 1887, A., 754.  
 action of, on amido acids (ASCHAN), 1884, A., 907.  
 action of, on hydroxylamine (V. DER KALL), 1891, A., 1222.

**Thiocarbimides**, additive products of aromatic diamines and (LEHMANN and WURUNNER), 1885, A., 977.  
 aromatic, additive products of (HELMERS), 1887, A., 581.  
 compounds of, with aldehyde-ammonias (DIXON), 1892, T., 509; P., 73.  
**Thiocarbimidoacetic acid** (ANDREASCH), 1889, A., 960; (KLASON), 1891, A., 179.  
**Thiocarbimidoethylphthalimide** (COBLENTZ), 1891, A., 1216.  
**Thiocarbizin**, derivatives of (FREUND and GOLDSMITH), 1888, A., 1187.  
**Thiocarbonates**, preparation of, for the destruction of phylloxera (SESTINI), 1883, A., 405.  
 estimation of carbon *disulphide* in (MÜNTZ), 1883, A., 935; (FALLERES), 1884, A., 1077.  
*di*-Thiocarbonic acids (DACCOMO), 1892, A., 306.  
**Thiocarbonyl chloride** (*thiophosgene*) (BERGEREN), 1888, A., 444.  
 polymeric (RATHKE), 1888, A., 1169.  
 action of chlorine on (JAMES), 1887, T., 272.  
 reactions with (BERGEREN), 1887, A., 937.  
*tetrachloride* (*perchloromethyl mercaphen*), action of, on alcohol (JAMES), 1887, T., 274.  
 action of chlorine on (JAMES), 1887, T., 273.  
 reactions of, with aromatic amines (RATHKE), 1886, A., 158.  
**Thiocarbonyl- $\beta$ -amidoresorcinol** (JACOBSON and SCHENCKE), 1890, A., 249.  
**Thiocarbonyl- $\alpha$ -benzidine** (REULAND), 1890, A., 167.  
**Thiocarbonyl- $\beta$ -dinaphthylthiocarbamide** and -*di-p*-tolylthiocarbamide (FREUND and WOLF), 1892, A., 981.  
**Thiocarbonyl ethyl** and -methylamidophenols (SEIDEL), 1891, A., 53.  
**Thiocarbonyl- $m$ -phenylenediamine** (GUCCI), 1888, A., 588.  
 thiocarbonate (GUCCI), 1885, A., 156; 1886, A., 1021; 1888, A., 588.  
**Thiocarbonylthiocarbanilide** (FREUND and WOLF), 1892, A., 983.  
*di*-Thiocarbonyltriphenylenediamine (GUCCI), 1885, A., 156; 1886, A., 1021.  
**Thiocoumarin** (THEMANN), 1886, A., 880.  
 and its analogues (ALDRINGEN), 1892, A., 329.

- Thiocoumarins** and their behaviour towards hydroxylamine and phenylhydrazine (ALDRINGEN), 1890, A., 624.
- "*di*Thiocresolsulphonic acid" (*ditolyl-disulphidedisulphonic acid*) (KLASON), 1887, A., 492.
- Thiocroconic acid** (NIETZKI and BENCKNER), 1886, A., 450.
- iso*Thiocyanacetic acid (ARAPIDES), 1889, A., 414.
- Thiocyanacetone** (ARAPIDES), 1889, A., 414; (TCHERNIAC), 1892, A., 1425, 1426.
- preparation and properties of (TCHERNIAC and HELLON), 1883, A., 654.
- ω*-Thiocyanacetophenone (ARAPIDES), 1889, A., 413.
- iso*Thiocyanethylsulphine (MIOLATI), 1891, A., 893.
- Thiocyanic acid** (KLASON), 1887, A., 789.
- action of acids on (KLASON), 1887, A., 1025.
- colouration of organic substances by (PARENTI), 1890, A., 726.
- in the animal organism (BRUYLANTS), 1888, A., 1324.
- compounds of, with ethers and alcohols (KLASON), 1887, A., 789.
- Thiocyanates**, formation of, from amido-compounds (GATTERMANN and HAUSKNECHT), 1890, A., 749.
- manufacture of (TCHERNIAC), 1883, A., 639.
- molecular refractive energies of (NASINI and SCALA), 1887, A., 754.
- metallic, electrolysis of (FRANKEL), 1891, A., 1170.
- action of *di*bromoharbituric acid on (TRZCINSKI), 1883, A., 913.
- organic, action of chlorine on (JAMES), 1887, T., 268; P., 15.
- effects of, on vegetation and fermentation (MEUSEL), 1887, A., 519.
- alkaline, detection and estimation of chlorine in (MANN), 1890, A., 663.
- iso*Thiocyanates (DIXON), 1889, T., 300; P., 45.
- Thiocyanic acid**, reaction of (COLASANTI), 1890, A., 424; 1891, A., 128.
- estimation of (ZULKOWSKI), 1884, A., 501; (KLASON), 1887, A., 1144; (KRÜSS and MORAHT), 1889, A., 1247; (ALT), 1890, A., 424.
- hydrocyanic acid and hydrochloric acid, method of estimating when simultaneously present (BORCHERS), 1883, A., 1173.
- di*Thiocyanic acids (KLASON), 1889, A., 229.
- Thiocyanobarbituric acid**, salts of (TRZCINSKI), 1883, A., 914.
- γ*-Thiocyanobutyronitrile (GABRIEL), 1890, A., 1221.
- Thiocyanocarbamides** (HECHT), 1892, A., 702.
- Thiocyano-derivatives** (HAGELBERG), 1890, A., 949.
- Thiodicyanodiamidine** (BAMBERGER), 1883, A., 1090.
- ψ*-Thiocyanogen, properties of (HECTOR), 1892, A., 292.
- Thiocyanopropimine** (*mesoamidonmethylethiuric*) (HANTZSCH and WEBER), 1888, A., 257; (TRAUMANN), 1889, A., 414.
- and its derivatives (TCHERNIAC and NORTON), 1883, A., 568.
- thiocyanate<sup>†</sup> (TCHERNIAC and HELLON), 1883, A., 654.
- αβ-di*Thiocyanoisopropylamine and its derivatives (TCHERNIAC and NORTON), 1884, A., 664.
- β*-Thiocyanopropylphthalimide (SETTZ), 1891, A., 1473.
- γ*-Thiocyanopropylphthalimide (GABRIEL and LAUER), 1890, A., 472; (LAUER), 1890, A., 1090.
- Thiocyanotriphenylmethane** (ELBS), 1884, A., 1030.
- di*Thiocyanuric acid (KLASON), 1886, A., 325.
- tri*Thiocyanuric acid and its salts (v. HOFMANN), 1885, A., 1193; (KLASON), 1886, A., 324.
- di*Thiodiacetylbenzaldehyde (*diacetyl-dithiobenzorthaldehyde*) (BONGARTZ), 1886, A., 938.
- Thiodiacetylquinol** (*diacetylthioquinol*) (LEUCKART), 1890, A., 604.
- Thiodialuric acid** (TRZCINSKI), 1883, A., 914.
- γ-di*Thiodibutyramide (GABRIEL), 1890, A., 1221.
- α*-Thiodibutyric acid (LOVÉN), 1886, A., 333.
- Thiodibutyric acids**, *γ*-mono- and *γ-di*- (GABRIEL), 1890, A., 1221.
- Thiodisobutyric acid** (*thio-octoic acid*) (LOVÉN), 1886, A., 333.
- γ*-Thiodibutyronitrile (GABRIEL), 1890, A., 1221.
- di*Thiodicinnamic acid (BONDZYŃSKI), 1887, A., 1109.
- Thiodiethylaniline** (HOLZMANN), 1888, A., 1080; (MICHAELIS and GODCHAUX), 1890, A., 611.
- d*Thiodiethylaniline (HOLZMANN), 1887, A., 723.

- Thiodiglycol compounds** (MEYER), 1887, A., 228.
- Thiodiglycollic acid** (LOVÉN), 1885, A., 241.
- Thiodilactylic acids,  $\alpha$ - and  $\beta$ -mono- and di-** (LOVÉN), 1884, A., 1298.
- d*/Thiodi- $\alpha$ -methoxytoluene** (BONGARIZ), 1888, A., 479.
- Thiodimethylaniline** (HOLZMANN), 1887, A., 723; (MICHAELIS and GODCHAUX), 1890, A., 610.  
See also Tetramethylthioaniline.
- d*/Thiodimethylaniline** (MERZ and WEITH), 1886, A., 792.
- Thiodimethylpyridone** (*thiolutidone*) (GUTZEIT and EPSTEIN), 1887, A., 920.
- Thiodi- $\beta$ -naphthylamine** (RIS), 1886, A., 1036; (KYM), 1889, A., 51.
- d*/Thiodinaphthylamines, two isomeric** (KYM), 1889, A., 51.
- Thiodi- $\beta$ -naphthylcarbamie chloride** (PASCHKOWETZKY), 1892, A., 165.
- as*-Thiodi- $\beta$ -naphthylcarbamide** (PASCHKOWETZKY), 1892, A., 165.
- as*-Thiodi- $\beta$ -naphthylidiphenylcarbamide** (PASCHKOWETZKY), 1892, A., 165.
- Thio- $\beta$ -dinaphthylmethylaniline** (KYM), 1890, A., 1306.
- Thio- $\beta$ -dinaphthylphenylcarbamide** (PASCHKOWETZKY), 1892, A., 166.
- d*/Thiodiphenoxydilactylic acid and its salts** (BAUMANN), 1885, A., 515.
- d*/Thiodiphenoxydimethylmethane** (*di-thiodiphenoxypromane*) (BAUMANN), 1887, A., 126.
- d*/Thiodiphenoxyphenylacetic acid** (ESCALES and BAUMANN), 1886, A., 879.
- a*-*d*/Thiodiphenoxypropionic acid** (BAUMANN), 1885, A., 511; (ESCALES and BAUMANN), 1886, A., 878.
- d*/Thiodiphenoxy- $\gamma$ -valeric acid** (ESCALES and BAUMANN), 1886, A., 879.
- Thiodiphenylamine** (BERNTSEN), 1881, A., 595, 1156; 1885, A., 259; (HOLZMANN), 1888, A., 1080.  
synthesis of (BERNTSEN), 1887, A., 245.  
derivatives of (BERNTSEN), 1884, A., 595, 1156; 1885, A., 259; (FRANKEL), 1885, A., 1130.
- d*/Thiodiphenylamine** (HOLZMANN), 1888, A., 1080.
- Thiodiphenylcarbamie acid, derivatives of** (FRANKEL), 1885, A., 1130.
- Thiodiphenylcarbamie chloride** (PASCHKOWETZKY), 1892, A., 164.
- as*-Thiodiphenylcarbamide** (PASCHKOWETZKY), 1892, A., 164.
- Thiodiphenylmethylaniline** (HOLZMANN), 1888, A., 1080.
- Thiodiisovaleric acid** (LOVÉN), 1886, A., 333.
- Thioeosin** (GRAEBE and ZSCHOKKE), 1884, A., 1025.
- Thioethoxyacetal** (AUTENRIETH), 1891, A., 541.
- Thioethoxyacetone** (AUTENRIETH), 1891, A., 541.
- Thioethoxyacetone-diphenylmercaptole and -ethylmercaptole** (AUTENRIETH), 1891, A., 567.
- Thioethylamine and its derivatives** (GABRIEL), 1891, A., 816; 1892, A., 130.
- d*/Thioethylamine** (COBLENTZ and GABRIEL), 1891, A., 817.
- Thio- $\alpha$ -ethylcoumarin** (ALDRINGEN), 1890, A., 624.
- Thioethylquinol** (LEUCKART), 1890, A., 604.
- Thioflavin** (TRAUTMANN), 1891, A., 195.
- Thiofluorescein** (GRAEBE and ZSCHOKKE), 1884, A., 1025.
- Thioformaldehyde, polymeric** (WOHL), 1887, A., 27; (BAUMANN and FROMM), 1891, A., 1011.  
derivatives of (WOHL), 1887, A., 27.
- tri*/Thioformaldehyde, reactions of** (PULVERMACHEN), 1892, A., 579.
- Thioformanilide and its homologues, action of heat in closed tubes on** (SENIER), 1885, T., 768.
- tri*/Thio- $\alpha$ -formates** (LAVES), 1892, A., 611, 850.
- Thioformic acid** (DEVONT), 1892, A., 421.
- Thioformocumidide** (SENIER), 1885, T., 768.
- Thioformo- $\alpha$ - and - $\mu$ -toluidides** (SENIER), 1885, T., 763, 765.
- Thioformoxylidide** (HUDEMAN), 1888, A., 1282.
- Thioformyl compounds derived from aniline and homologous bases** (SENIER), 1885, T., 762.
- Thiofururaldehyde, Chaur's polymeride of** (BAUMANN and FROMM), 1892, A., 301.
- Thioglycollic acid, compounds of aldehydes, ketones, and ketonic acids with** (BONGARIZ), 1886, A., 937; 1888, A., 478.
- Thiohexenoic acids** (AUTENRIETH), 1890, A., 361.
- Thiohydantoic acid** (*thiocarbamidacetic acid*) (KLARON), 1891, A., 180.  
action of phenylhydrazine on (PROBST), 1892, A., 966.

- Thiohydantoin** (ANDREASCH), 1886, A., 226; 1888, A., 17; (KLASON), 1891, A., 179.
- Thiohydraerylic acid** (LOVÉN), 1884, A., 1299.
- dl*-**Thio-*o*-hydroxybenzaldehydeacetic acid** (BONGARTZ), 1886, A., 937.
- Thiohydroxydiphenylamine** (BERNTSEN), 1885, A., 260; 1886, A., 55.
- Thiohydroxyphenylic disulphide** (LEUCKART), 1890, A., 604.
- Thiolactic acid**, and its salts (LOVÉN), 1884, A., 1298.  
preparation of (BÖTTINGER), 1885, A., 752.  
phenyl-derivatives of (BAUMANN), 1885, A., 511.
- Thiole** (HANTZSCH), 1892, A., 312.
- tr*-**Thio-*o*- and -*p*-methoxybenzaldehydes** (BAUMANN and FROMM), 1891, A., 1050.
- Thiomethoxythiophen** (*methothiothiophen*) (MEYER and NEURE), 1887, A., 805.
- Thiomethylaniline** (MICHAELIS and GODCHAUX), 1891, A., 75.
- dl*-**Thiomethylbenzylidene**. See *dl*-**Thio-di-*o*-methoxytoluene**.
- Thio-*α*-methylcoumarin** (ALDRINGEN), 1890, A., 624.
- Thio-2'-methylquinoline** (*sulphydro-2'-methylquinoline*) (ROOS), 1888, A., 500; (CONRAD and LIMPACH), 1888, A., 1109.
- 2'-Thio-4'-methylquinoline** (*2'-sulphydro-4'-methylquinoline*) (ROOS), 1888, A., 500.
- Thiomethyl-uracil and -uracilacetic acid** (LIST), 1887, A., 128.
- Thiomolybdates**. See under Molybdenum.
- Thionaphthen** (MEYER), 1886, A., 713.
- Thio-*α*- and -*β*-naphthols** and their derivatives (KRAFFT and SCHÖNHERR), 1889, A., 715; (KRAFFT and BOURGEOIS), 1891, A., 76.
- 2:2'-*dl*-Thio-*β*-naphthol** (GROSJEAN), 1890, A., 1305.
- Thionessal** (*tetraphenylthiophen; thiolepiden*) (ZIEGLER), 1890, A., 1246; (BAUMANN and KLETT), 1892, A., 185.  
substitution products of (KOPP), 1892, A., 718.
- Thionic acid**. See under Sulphur.
- iso*-**Thionine** (BERNTSEN), 1886, A., 53.
- Thionol and thionoline** (BERNTSEN), 1886, A., 55.
- Thionyl bromide and chloride**. See under Sulphur.
- Thionyl derivatives of aromatic hydrazones** (MICHAELIS and RUHL), 1892, A., 1324.  
thiocyanate (McMURTRY), 1888, P., 115; 1889, T., 48.
- Thionylamines** (MICHAELIS and HERZ), 1891, A., 310; (MICHAELIS), 1891, A., 715.
- Thionylaniline** (MICHAELIS and HERZ), 1891, A., 310; (MICHAELIS), 1891, A., 715.
- Thionylanilines** and their halogen and nitro-derivatives (MICHAELIS), 1891, A., 717.
- Thionylbenzidine** (MICHAELIS), 1891, A., 717.
- Thionylbismethylaniline**, and nitroso- (MICHAELIS and GODCHAUX), 1891, A., 74.
- dl*-**Thionylidiphenylethylenedihydrazine** (MICHAELIS and RUHL), 1892, A., 1324.
- Thionylethylamine** (MICHAELIS), 1891, A., 718.
- Thionyl-*α*-naphthylhydrazones** (MICHAELIS and RUHL), 1892, A., 1324.
- Thionylphenylbenzylhydrazine** (MICHAELIS and RUHL), 1892, A., 1324.
- Thionylphenylisobutyl-hydrazine and -hydrazone** (MICHAELIS and RUHL), 1892, A., 1324.
- Thionylphenylethylhydrazone** (MICHAELIS), 1889, A., 1163.
- Thionylphenylhydrazine** (MICHAELIS), 1889, A., 1163; 1891, A., 717; (MICHAELIS and RUHL), 1890, A., 617.
- Thionylphenylmethylhydrazine** (MICHAELIS and RUHL), 1892, A., 1324.
- Thionylthio-aniline and -phenylhydrazine** (RUHL), 1892, A., 1326.
- Thionyl-*o*-toluidine** (MICHAELIS), 1891, A., 717.
- Thionyl-*p*-toluidine** (MICHAELIS and HERZ), 1891, A., 310.
- Thionyl-*p*-tolylhydrazones** (MICHAELIS and RUHL), 1890, A., 617; 1892, A., 1324.
- Thio-octic acid** (*thiodiisobutyric acid*) (LOVÉN), 1886, A., 333.
- γ-Thio-octonitrile** (GABRIEL), 1890, A., 1221.
- tetraThiopentone** (FROMM and BAUMANN), 1889, A., 352.
- dl*-**Thiopersulphuric acid** (VILLIERS), 1888, A., 650.
- Thiophen** (MEYER), 1885, A., 887.  
in aniline (LECOQ), 1887, A., 171.  
in coal-tar benzene (MEYER), 1888, A., 1091.  
from erythrite, and from mucic acid (PAAL and TAFEL), 1885, A., 763, 764.

**Thiophen**, formation of (MEYER and SANDMEYER), 1881, A., 45; (PRZYBYLIK), 1886, A., 449.  
 formation of, from acetophenone-acetone (ERLENMEYER), 1855, A., 753.  
 preparation of (MEYER), 1885, A., 141; (SCHULZE), 1885, A., 763; (FRIEDBURG), 1890, A., 1100.  
 synthesis of (MEYER), 1885, A., 515; (PAAL), 1885, A., 516; (VOLHARD and ERDMANN), 1885, A., 763.  
 constitution of (THOMSEN), 1885, A., 1126; (GATTERMANN, KAISER and MEYER), 1886, A., 227; (KNOPF), 1889, A., 198.  
 constants of (PAWLEWSKI), 1888, A., 1068.  
 physical properties of (SCHIFF), 1885, A., 971; (GHIMALU), 1886, A., 613; (CIAMICIAN), 1889, A., 357.  
 molecular refraction of (KNOPF), 1888, A., 938; 1889, A., 198.  
 heats of combustion and formation of (BERTHELOT and MALIGNON), 1890, A., 1361.  
 effect of, on the colour of the derivatives of benzene and its homologues (BIDET), 1889, A., 595.  
 behaviour of, with phenylhydrazine (MINUNNI), 1891, A., 1312.  
 nitration of (MEYER and STADLER), 1885, A., 141.  
 pyrroline, and fufuryl groupings, reciprocal transformation of (CANZONERI and OLIVERI), 1885, A., 1144.  
 bye-products of the manufacture of (MEYER and NEUBER), 1887, A., 805.  
 condensation-products of (MEYER), 1884, A., 586.  
 condensation products of, with aldehydes, methylal, and benzylic alcohol (PIETER), 1881, A., 1000.  
 derivatives of (MEYER and KREIS), 1881, A., 15; (STADLER), 1885, A., 1201.  
 conversion of pentamethylene derivatives into (HANTZSCH), 1890, A., 129.  
 constitution of (MEYER), 1885, A., 763.  
 nitration of (KREIS), 1884, A., 1314.  
 acetyl- and carboxy-derivatives of (DEMUTH), 1886, A., 538.  
 halogen derivatives of, action of acetic chloride on (GATTERMANN and RÖMER), 1886, A., 537.  
 homologues of (MEYER), 1884, A., 586; (MEYER and KREIS), 1884, A., 1131; (SCHULZE), 1885, A., 763.

**Thiophen**, homologues of, effect of, on the colour of the derivatives of benzene and its homologues (BIDET), 1889, A., 595.  
 mercuric chloride (VOLHARD), 1892, A., 828.  
 nitrile (MEYER and KREIS), 1881, A., 46; (DOUGLAS), 1892, A., 831.  
 reaction with nitrous-sulphuric acid (LIEBERMANN), 1888, A., 325.  
**Thiophen**, amido-, hydrochloride, and its derivatives (STADLER), 1885, A., 1204.  
 bromo- (SCHLEICHER), 1886, A., 227.  
 dibromo-, direct preparation of, from coal-tar benzene (MEYER and STADLER), 1885, A., 971.  
 tribromo-, and its sulphonic acid and anhydride (ROSENBERG), 1885, A., 1051.  
 tetrabromo-, oxidation of (CIAMICIAN and ANGELI), 1891, A., 427, 893; 1892, A., 302.  
 dibromodinitro- (KREIS), 1884, A., 1314.  
 tribromonitro- (ROSENBERG), 1886, A., 228.  
 chloro-derivatives of (WEITZ), 1884, A., 1130.  
 trichloro-, and its derivatives (ROSENBERG), 1886, A., 534.  
 tetrachloro-, tetrachloride (WILLGERODT), 1886, A., 339.  
 trichloronitro- (ROSENBERG), 1886, A., 534.  
 diacyano- (JAECKEL), 1886, A., 339.  
 α-iodo- (MEYER and KREIS), 1881, A., 1131.  
 diiodo-, action of ethylic chloro-carbonate and sodium amalgam on (NANNSEN), 1885, A., 1207.  
 iodonitro- (KRIS), 1884, A., 1314.  
 nitro- (MEYER and STADLER), 1885, A., 111.  
 reduction of, to amidothiophen (STADLER), 1885, A., 972.  
 poisonous properties of (MEYER), 1885, A., 1051.  
 dinitro- (STADLER), 1885, A., 761.  
 double compounds of (ROSENBERG), 1885, A., 1051.  
**β-Thiophenalddehyde** (PIETER), 1885, A., 765; (BIEDERMANN), 1886, A., 536, 870.  
**Thiophenaldoximes** (BIEDERMANN), 1886, A., 871; (GOLDSCHMIDT and ZANOLI), 1892, A., 1435.  
**Thiophenamide** (LEUCKART and SCHMIDT), 1885, A., 1224.

- Thiophencarboxylic acid** (*thiophenic acid*), bromo-, and iodo- (GÄTTERMANN and RÖMER), 1886, A., 537.  
 nitro- (ROMER), 1887, A., 362.
- $\alpha$ -Thiophencarboxylic acid** and its derivatives (NAHNSEN), 1885, A., 51; (PETER), 1885, A., 765; (MEYER), 1885, A., 1051; 1886, A., 534.  
 from mucic acid (PAAL and TAFEL), 1885, A., 764.  
 heats of combustion and formation of (STOHMANN and KLEBER), 1891, A., 376.  
 bromination of (BONZ), 1885, A., 1206; (MEYER), 1885, A., 1207.  
 reduction of (ERNST), 1887, A., 471.
- $\beta$ -Thiophencarboxylic acid** and its derivatives (MEYER), 1885, A., 1051; (MUHLERT), 1886, A., 229; (DAMSKI), 1887, A., 237.
- $\alpha\beta$ -Thiophencarboxylic acid** (MEYER and KREIS), 1884, A., 46; (PETER), 1885, A., 765; (MEYER), 1885, A., 1051; 1886, A., 534.  
 relation of, to the normal thiophencarboxylic acids (MEYER), 1887, A., 129.  
 derivatives of (PETER), 1885, A., 765.
- Thiophenchlorophosphine** and its derivatives (SACHS), 1892, A., 966.
- Thiophen-2,3-dicarboxylic acid** (GRÜNEWALD), 1888, A., 49; (GERLACH), 1892, A., 830.  
 bromo- (GERLACH), 1892, A., 831.
- Thiophen-2,4-dicarboxylic acid** (ZELINSKY), 1887, A., 921.
- Thiophen-2,5-dicarboxylic acid** (MESSINGER), 1885, A., 767; (ERNST), 1887, A., 237.  
 synthesis of (BONZ), 1885, A., 1207.  
 methyl and ethyl salts of (MESSINGER), 1885, A., 767, 1052.
- Thiophendiethylmethylphosphonium iodide** (SACHS), 1892, A., 966.
- Thiophendiethylphosphine** (SACHS), 1892, A., 966.
- Thiophendisulphonic acid** and its salts (JÄCKEL), 1886, A., 339, 613.
- Thiophen-green** (PETER), 1885, A., 765; (LEVI), 1887, A., 481.  
 derivatives of (LEVI), 1887, A., 481.
- Thiophen-group** (MEYER and KREIS), 1884, A., 45; (MEYER), 1884, A., 586; 1885, A., 1051; 1886, A., 534; (WEITZ), 1884, A., 1130; (NAHNSEN), 1885, A., 50; (MEYER and STADLER), 1885, A., 250; (ZELINSKY), 1887, A., 921.
- Thiophenic acids.** See Thiophencarboxylic acids.
- Thiophenol.** See Phenyl mercaptan.
- Thiophenoxyacetal** (AUTENRIETH), 1891, A., 540.
- Thiophenoxyacetone** (*acetonylphenylic sulphide*) (DELISLE), 1889, A., 489; (AUTENRIETH), 1891, A., 541.
- Thiophenoxyacetonedithylmercaptole** (AUTENRIETH), 1891, A., 568.
- Thiophenoxyacetonediphenylmercaptole** (AUTENRIETH), 1891, A., 568, 1067.
- Thio- $\alpha$ -phenoxybenzoic acid** (ZIEGLER), 1890, A., 1292; (GRAEBE and SCHULTES), 1891, A., 1058.
- Thiophenoxychlorophosphine** (SACHS), 1892, A., 966.
- $\alpha$ -Thiophenoxyisocrotonic acid** (AUTENRIETH), 1890, A., 362.
- $\beta$ -Thiophenoxyisocrotonic acid** (ESCALES and BAUMANN), 1886, A., 879.
- Thiophenoxydiphenylsulphonepropane** (OTTO and ROSSING), 1891, A., 568.
- tetraThiophenoxyglyoxal.** See tetra-Thiotetraphenoxyethane.
- Thiophenoxy- $\alpha$ -hydroxypropionic acid**, action of certain reagents on (BAUMANN), 1885, A., 514.
- Thiophen-phosphinic and -phosphinous acids** (SACHS), 1892, A., 966.
- Thiophen-series**, synthetical investigations in (ERNST), 1887, A., 238.  
 isomerism in (MEYER), 1884, A., 1131.
- Thiophensulphonic acid**, nitro-, and its salts (STADLER), 1885, A., 764.
- Thiophensulphonic acids** (MEYER and KREIS), 1884, A., 45; (LANGER), 1884, A., 1133; 1885, A., 765, 887.  
 derivatives of (WEITZ), 1884, A., 1130; (LANGER), 1884, A., 1133; 1885, A., 765, 887.
- Thiophensulphonic anhydride**, trichloro- (ROSENBERG), 1886, A., 534.
- $\alpha$ -Thiophenuric acid** (JAFFÉ and LEVY), 1889, A., 239.
- Thiophenylbenzylidenehydrazine** (RUHL), 1892, A., 1326.
- Thiophenylcarbamides**, melting points of (PASCHKOWETZKY), 1892, A., 324.
- $p$ -Thiophenylhydrazine** (RUHL), 1891, A., 801; 1892, A., 1326.
- Thiophenylmethyl- $\beta$ -naphthylamine** (KYM), 1890, A., 1307.
- Thiophenyl- $\alpha$ - and - $\beta$ -naphthylamines** (KYM), 1890, A., 1307.
- Thiophenyl-** See also Thiophenoxy.
- Thiophosphates**, reactions of (KUBIERSCHKY), 1885, A., 633.
- Thiophosphoric acids**, and their salts (KUBIERSCHKY), 1885, A., 632.

- Thiophosphoryl fluoride**, physical properties and chemistry of (THORPE and ROTHER), 1888, T., 766; P., 87; 1889, T., 306; P., 77.
- Thiophosphorylphenylhydrazine** (MICHAELIS and OSIER), 1892, A., 1326.
- Thioisophthalamide** (LUCKENBACH), 1884, A., 1157.
- Thiophthalic anhydride** (GRAEBE and ZSCHOKKE), 1884, A., 1025; (RAYMAN), 1887, A., 951.
- Thiophthalide** (GRAEBE), 1889, A., 140.
- Thiophthalimidine**, derivatives of (DAY and GABRIEL), 1890, A., 1250.
- Thiophthen** (BIEDERMANN and JACOBSON), 1886, A., 1032.
- Thiophylline** (KONSEI), 1888, A., 1114.
- Thiopinacone** (SPRING and VAN MARSENILLE), 1892, A., 1317.
- Thiopropionamide** (HUBACHER), 1891, A., 220.
- Thio- $\alpha$ -isopropylcoumarin** (ALDRINGEN), 1890, A., 624.
- Thiopyrocatechol**. See Hydroxyphenyl mercaptan.
- Thiopyromucamide** (DOUGLAS), 1892, A., 831.
- Thiopyruvic acid**, *mono*- and *di*- (BONGARTZ), 1886, A., 938.
- Thiopyruvic acid**, phenylhydrazone of (RUHL), 1892, A., 1326.
- Thioquinazolones**, new synthesis of (BUSCH), 1892, A., 1495.
- Thio-quinol** and **-quinoethylxanthate** (LEUCKART), 1890, A., 603.
- $\alpha$ -Thioquinoline** (*sulphydroquinoline*) (ROOS), 1888, A., 500.
- Thiorescinol** (LANGE), 1888, A., 375.
- Thio-salts**, inorganic, reduction of (KRÜSS and SOLEREDER), 1887, A., 111.
- Thiosinamine**. See Allylthiocarbamide.
- Thiostannic acid** (STORCH), 1889, A., 1053.
- Thio-salts of** (DITTE), 1883, A., 156.
- Thio succinic anhydride** (ZANETTI), 1889, A., 960.
- Thiosulphonic acids**, aliphatic (OTTO and ROSSING), 1891, A., 926.
- aromatic** (OTTO and TRÜGER), 1891, A., 719; (OTTO and ROSSING), 1891, A., 926; 1892, A., 478.
- action of reagents on** (OTTO and TRÜGER), 1891, A., 719.
- thioanhydrides of** (OTTO and TRÜGER), 1891, A., 924.
- Thiosulphonates**, action of phosphoric chloride on (OTTO and ROSSING), 1891, A., 927.
- Thiosulphonates**, aromatic (OTTO and HEYDENEKE), 1892, A., 990.
- aromatic**, containing divalent alkyl radicals and the products of their reduction with hydrogen sulphide (OTTO and ROSSING), 1887, A., 953, 954.
- etheral, products of the hydrolysis of** (OTTO and ROSSING), 1886, A., 711.
- Thiosulphuric acid**. See under Sulphur.
- Thiotenol** and its acetyl-derivative (KUES and PAAL), 1886, A., 536.
- Thioterephthalamide** (LUCKENBACH), 1884, A., 1158.
- Thiotetrahydroquinazoline** (*thiodihydroquinazolinone*) (BUSCH), 1892, A., 1196.
- di*Thiotetra- $\beta$ -naphthylcarbamide** (PASCHKOWETZKY), 1892, A., 166.
- Thio- $\beta$ -tetranaphthylidiamine** (KYM), 1889, A., 51.
- tetraThiotetraphenoxyethane** (STUFER), 1891, A., 186.
- Thiotetraphenylcarbamide** (PASCHKOWETZKY), 1892, A., 165.
- di*Thiotetraphenylcarbamide** (FRAENKEL), 1885, A., 1130; (PASCHKOWETZKY), 1892, A., 165.
- di*Thiotetra- $p$ -tolylidicarbamide** (TRUHLAR), 1887, A., 473.
- Thiotolen**. See Methylthiophen.
- Thio- $p$ -toluidine** and its derivatives (TRUHLAR), 1887, A., 172.
- Thio- $p$ -tolylthiocarbamide** (TRUHLAR), 1887, A., 473.
- tri*Thiotriacetone** and its *protoxide* (FROMM and BAUMANN), 1889, A., 852.
- tri*Thio- $\alpha$ -triisobutoxytribenzaldehyde** (*triisobutoxytriethyltribenzaldehyde*) (BAUMANN and FROMM), 1891, A., 1051.
- $\alpha$ -*tri*Thiotricinnamaldehyde** (BAUMANN and FROMM), 1891, A., 1051.
- tri*Thiotrifurfuraldehydes**,  $\alpha$ - and  $\beta$ - (BAUMANN and FROMM), 1892, A., 301.
- Thiotriphenylcarbamide** (PASCHKOWETZKY), 1892, A., 164.
- Thiotriphenylsulphonepropane** (*thiophenoxypropylenediphenylsulphone*; *diphenylthiophenoxypropylenedisulphone*) (OTTO and ROSSING), 1891, A., 568.
- tri*Thiotrivaleraldehyde** (BARAGLIA), 1885, A., 136; 1887, A., 462.
- Thionumbelliferone 4-methyl ether** (ALDRINGEN), 1890, A., 624.
- Thio-*m*-uramidobenzoic acid** (TRAUBER), 1883, A., 193.

- Thio-*o*-uramidocinnamic acid** (ROTHSCHILD), 1890, A., 1123; 1891, A., 198.
- Thio-*p*-uramidocinnamic acid** (ROTHSCHILD), 1891, A., 199.
- Thiouramido-**. See also Thiocarb-amido.
- Thiouramidoximes**, condensation products from (KOOH), 1891, A., 560.
- Thiourea** (WERNER), 1892, P., 96.  
properties of (CARRARA), 1892, A., 1309.  
action of nitrous acid on (DIXON), 1892, T., 525.  
compound of, with aldehyde-ammonias (DIXON), 1892, T., 509, 513; P., 73.  
compound of, with ammonium thiocyanate (CARRARA), 1892, A., 1309.  
silver compounds of (REYNOLDS), 1892, T., 249; P., 14; (KURNAKOW), 1892, A., 441.  
See also Thiocarbamide.
- Thioureas**, substituted, isomerism amongst the (DIXON), 1892, T., 536; P., 111.
- Thio- $\psi$ -uric acid** (TRZCINSKI), 1883, A., 914.
- Thiouvinuric acid** (STEUBE), 1891, A., 742.
- Thiovanadates** (KRÜSS and OHNHAUS), 1890, A., 1381; 1891, A., 939.
- dl*-Thioxamide** (WOLFF), 1884, A., 1109; (EPHRAIM), 1889, A., 1142; (FORMÁNEK), 1890, A., 29; (WALLACH and REINHARDT), 1891, A., 1008.  
action of ethylenediamine on (FORSSELL), 1891, A., 1003.
- Thioxanthone** (GRAEBE and SCHULTZ), 1891, A., 1058.  
preparation of (ZIEGLER), 1890, A., 1292.
- Thioxen**. See Dimethylthiophen.
- Thomas-Gilchrist process** (STEAD), 1883, A., 832.
- Thomas slag**. See Slag, basic.
- Thomsonite** (KLEIN), 1883, A., 427; (GROTH), 1884, A., 265; (DES CLOIXEAUX), 1884, A., 716.  
chemical composition of (BRANDL), 1883, A., 29.
- Thomsonite**, lamellar (LACROIX), 1887, A., 350.  
from Colorado (CROSS and HILLEBRAND), 1883, A., 164, 957.
- Thoria**. See Thorium dioxide.
- Thoria minerals** from Llano Co., Texas (HIDDEN and MACKINTOSH), 1890, A., 157.
- Thorite** of Arendal (NILSON), 1883, A., 299; 1884, A., 406.
- Thorium**, atomic weight of (NILSON), 1883, A., 649; (KRÜSS and NILSON), 1887, A., 701.  
valency of (NILSON), 1883, A., 152, 553, 649; (KRÜSS and NILSON), 1887, A., 704.  
metallic, preparation of (NILSON), 1883, A., 152.  
crystals of (NILSON), 1883, A., 553; (BRÜGGER), 1886, A., 427.  
phosphorescence of (CROOKES), 1887, A., 1068.  
specific heat of (NILSON), 1883, A., 553, 649.  
isomorphism of uranium and (RAMMELSBERG), 1890, A., 15.
- Thorium chloride**, vapour density of (TROOST), 1885, A., 1113; (KRÜSS and NILSON), 1887, A., 704.  
hydride (WINKLER), 1891, A., 802.  
oxides, action of hydrogen peroxide on (LECOQ DE BOISEAUDRAN), 1885, A., 635.  
dioxide (*thoria*), action of magnesium on (WINKLER), 1891, A., 802.  
separation of, from the other oxides (SMITH), 1884, A., 111.  
metaphosphate (TROOST), 1885, A., 1113; (JOHNSON), 1889, A., 757.  
potassium phosphate (TROOST and OUVARD), 1886, A., 853.  
sodium phosphates (TROOST and OUVARD), 1887, A., 1017.  
silicates (TROOST and OUVARD), 1887, A., 1016.  
sulphate (DEMARÇAY), 1883, A., 1053; (RAMMELSBERG), 1890, A., 15.  
and its hydrates, solution-equilibrium of (ROOZEBOOM), 1890, A., 686.  
and uranium sulphate, isomorphous (HILLEBRAND and MELVILLE), 1892, A., 571.  
dithionate (KRÜSS), 1888, A., 1156.
- Thorogummite** (HIDDEN and MACKINTOSH), 1890, A., 458.
- Thrombogenic enzymes and thrombogens** (ARMSTRONG), 1890, T., 531.
- Thrombosis** and blood tablets (LOWIT), 1889, A., 427.
- Thulium**, spectral researches on (THÁLEN), 1883, A., 954.  
phosphorescence of erbium and (CROOKES), 1887, A., 1068.
- Thymo-*p*-acrylic acid**, and its methyl-derivative and salts (KOBEK), 1884, A., 57.
- Thymodialdehyde** (KOBEK), 1884, A., 57.

**Thymol** (CLAUS and KRAUSE), 1891, A., 899; (KEHRMANN), 1892, A., 1078. refractive power of, at different temperatures (PERKIN), 1892, T., 305. hygroscopic behaviour of (CLAUTRIAU), 1891, A., 1497. action of iodine on, in alkaline solution (MESSINGER and VORTMANN), 1889, A., 1151. oxidation of (HEYMANN and KOENIGS), 1887, A., 241. isomeride of (SPICA), 1883, A., 459. chloro- and bromo-cymene from (FLETT and CROSA), 1887, A., 37. the propyl-group in (WIDMAN), 1886, A., 470. action of, on higher organisms (MAIRET, PILATTE and COMBEMALE), 1885, A., 1085. derivatives of (RICHTER), 1883, A., 1112; (KOBKE), 1884, A., 56; (MAZZARA and VIGHI), 1890, A., 883. derivatives, constitution of (MAZZARA), 1891, A., 46, 188. ethyl ether (3-ethoxy-1-methyl-4-propylbenzene), 2-bromo- and -2:5-bromo-amido- (MAZZARA and VIGHI), 1890, A., 883. methyl ether, 6-bromo- (MAZZARA), 1890, A., 366. azo-derivatives of (MAZZARA and POSSETTO), 1885, A., 893; 1886, A., 515. test for (VAN ITALLIE), 1889, A., 657; (BORNTÄGER), 1891, A., 370.

**Thymol**, 2-bromo- (CLAUS and KRAUSE), 1891, A., 899, 900. 6-bromo-, derivatives of (MAZZARA), 1890, A., 366. 6-bromo-2-amido- (MAZZARA and DISCALZO), 1886, A., 1019; (MAZZARA), 1890, A., 602. 2-bromo-6-nitro- (MAZZARA and DISCALZO), 1886, A., 1019; (MAZZARA), 1890, A., 602. 6-bromo-2-nitro-, constitution of (MAZZARA), 1890, A., 366, 753. 6-iodo- (WILLOERDT), 1888, A., 910; (WILGERDT and KORNBLUM), 1889, A., 697. diiodo- (MESSINGER and VORTMANN), 1889, A., 1151. iodamido- (KEHRMANN), 1889, A., 993. 2:6-dinitro- (MAZZARA), 1890, A., 602, 753. 6-nitroso- (*thymoquinoneoxime*) (SUTKOWSKI), 1887, A., 41. action of hydroxylamine on (KEHRMANN and MESSINGER), 1890, A., 1403.

**Thymolchloral** (MAZZARA), 1884, A., 187. **Thymolcinnamic acid** (NIGOFFER), 1890, A., 892. **Thymoldichroin** (BRUNNER and CHUIT), 1888, A., 363. **Thymolglycuronic acid** (KULZ), 1890, A., 1286; (BLUM), 1892, A., 1116. **Thymol-phosphoric acids and -phosphoryl chlorides** (DISCALZO), 1886, A., 52. 2(8)-**Thymolsulphonic acid**, and 6-bromo- and their salts (CLAUS and KRAUSE), 1891, A., 899. **Thymol-6-sulphonic acid**, 2-bromo- (CLAUS and KRAUSE), 1891, A., 899. 2-iodo- (KEHRMANN), 1889, A., 993. **Thymoquinol**, oxidation of (HEYMANN and KOENIGS), 1887, A., 1035. 6- or 3-bromo- (MAZZARA and DISCALZO), 1886, A., 1020; (SCHNITER), 1887, A., 720. 3-chloro-, and 6:3-chlorobromo- (SCHNITER), 1887, A., 720. **Thymoquinone**, boiling point of (LIEBERMANN and V. ILINSKI), 1886, A., 239. derivatives, constitution of (MAZZARA), 1891, A., 47, 297. diamido- (ANSCHUTZ and LEATHER), 1886, T., 725. 3-bromo- (KEHRMANN), 1890, A., 367. 6- or 3-bromo- (SCHNITER), 1887, A., 720; (KEHRMANN), 1890, A., 367; (MAZZARA), 1890, A., 753; (CLAUS and KRAUSE), 1891, A., 899. 6- and 3-chloro- and 6:3- and 3:6-chlorobromo- (SCHNITER), 1887, A., 720. 6-iodo- (KEHRMANN), 1889, A., 1185. **Thymoquinoneoxime**. See 6-Nitroso-thymol. **Thymoquinone/oxime** (KEHRMANN and MESSINGER), 1891, A., 297. **Thymotic acid**, alcohol and aldehyde (KOBKE), 1881, A., 56. **Thymus**, lactic acid of the (MOSCARFELLI), 1888, A., 860. **Thymyl acetate and benzoate**, 2:6-dinitro- (MAZZARA), 1891, A., 46. cinnamate, decomposition of, by heat (ANSCHUTZ), 1885, T., 899; A., 1065. ethylic carbonate (RICHTER), 1883, A., 1112; (BENDER), 1887, A., 38. phenylethylamate (LEUCKART), 1890, A., 760. **Thyroid**, lactic acid of the (MOSCARFELLI), 1888, A., 860. gland of men and oxen, chemical constituents of (BUBNOW), 1884, A., 1060.

**Tiemannite** (PENFIELD), 1886, A., 314.  
**Tiglamide**, chloro- (OTTO and HOLST), 1890, A., 958.  
**Tiglic acid** (*methylcrotonic acid*; *pentenoic acid*) (MELIKOFF), 1887, A., 29.  
 constitution of (BEILSTEIN and WIEGAND), 1885, A., 42; (KONDAKOFF), 1889, A., 374; 1892, A., 1301; (PÜCKERT), 1889, A., 587.  
 derivatives of (MELIKOFF), 1887, A., 29; (MELIKOFF and PETRENKO-KRITSCHENKO), 1890, A., 862.  
*di*bromide (PÜCKERT), 1889, A., 587.  
**Tiglic acid**, chloro- (OTTO and BECKURTS), 1885, A., 755; (ISBERT), 1886, A., 1010; (OTTO and HOLST), 1890, A., 958.  
 action of potash on (FRIEDRICH), 1883, A., 969.  
**Tiglic aldehyde** ( *$\alpha\beta$ -dimethylcrotonaldehyde*) (LIEBEN and ZEISEL), 1886, A., 783.  
 action of sulphurous anhydride on (HAYMANN), 1889, A., 487.  
**Tiglyl alcohol** (LIEBEN and ZEISEL), 1886, A., 784; (HAYMANN), 1889, A., 487.  
**Tiles**, Oriental enamel on (BOECK), 1889, A., 1112.  
**Tilias**, oil from the seeds of (MUELLER), 1892, A., 92.  
**Timbers**, solution for the preservation of (WRIGHT), 1884, A., 1233.  
**"Timbo,"** poisonous constituents of (PFAFF), 1891, A., 938.  
**Timboin and timbole** (PFAFF), 1891, A., 938.  
**Tin**, atomic weight of (VANDER PLAATS), 1885, A., 348; (BONGARTZ and CLASSEN), 1889, A., 19.  
 molecular weight of (RAMSAY), 1889, T., 531, 533.  
 (metal), crystallised, allotropic modifications of (v. FOUILLOU), 1886, A., 124.  
 precipitated (VIGNON), 1889, A., 107.  
 production of, from old tin plate by electrolysis (ANON.), 1885, A., 941.  
 influence of various metals on the freezing point of (HEYCOCK and NEVILLE), 1890, T., 376.  
 lowering of the freezing point of, by the addition of other metals (HEYCOCK and NEVILLE), 1889, T., 667.  
 lowering of the freezing points of bismuth, cadmium and lead by (HEYCOCK and NEVILLE), 1892, T., 896, 901, 908.

**Tin** (metal), action of chlorine on (COWPER), 1883, T., 154.  
 action of nitric acid on (MONTMARTINI), 1892, A., 1402.  
 action of nitrosyl chloride on (SUBBOROUGH), 1891, T., 661.  
 action of certain vegetable acids on (HALL), 1883, A., 1038.  
 action of, on the animal organism (WHITE), 1886, A., 1058.  
 oxidation of (VIGNON), 1889, A., 351.  
**Tin alloys**, eutectic (HEYCOCK and NEVILLE), 1890, T., 386.  
 with bismuth, thermal and electrical behaviour of some, in a magnetic field (v. ETTINGSHAUSEN and NERNST), 1888, A., 546.  
 with bismuth and zinc (WRIGHT and THOMPSON), 1891, A., 1158.  
 with cadmium (LAURIE), 1889, T., 679.  
 triple, with cadmium and gold, freezing point of (HEYCOCK and NEVILLE), 1891, T., 936.  
 with copper (BALL), 1887, P., 136; 1888, T., 167.  
 constitution of (LAURIE), 1887, P., 117; 1888, T., 101.  
 with copper and lead (TRENCH), 1890, A., 335.  
 with iridium (DEBRAY), 1887, A., 779.  
 with lead (LAURIE), 1889, T., 677.  
 composition of (KLEINSTÜCK), 1889, A., 1051.  
 melting points of (WELD), 1891, A., 614.  
 specific heat of (SPRING), 1886, A., 961.  
 specific gravity of (KLEINSTÜCK), 1889, A., 1051.  
 estimation of lead in (SCHWARTZ), 1888, A., 992; (WINKLER), 1889, A., 309.  
 with lead and zinc (WRIGHT and THOMPSON), 1890, A., 336; 1891, A., 267.  
 crystalline, with platinum metals (DEBRAY), 1887, A., 779.  
 with sodium (BAILEY), 1892, A., 572.  
 with zinc (LAURIE), 1889, T., 679.  
**Tin**, compounds of, with platinum (SCHÜTZENBERGER), 1884, A., 823.  
 salts (BENAS), 1885, A., 728.  
 action of sodium thiosulphate on (VORTMANN), 1889, A., 1109.  
 halogen salts, double (RICHARDSON), 1892, A., 785.  
**Tin dibromide** (*stannous bromide*) (RAYMAN and PREIS), 1884, A., 1265.

**Tin dibromide** (*stannous bromide*), preparation and properties of (BENAN), 1885, A., 728.

*tetrabromide* and its hydrate (RAYMAN and PREIS), 1883, A., 424; 1884, A., 1265.

double salts (*stannibromides*) (LETEUR), 1892, A., 121.

oxybromide (PREIS and RAYMAN), 1883, A., 425.

*dichloride* (*stannous chloride*), solutions, molecular refraction and dispersion of (GLADSTONE), 1891, T., 596.

boiling point and molecular formula of (BILTZ and MEYER), 1888, A., 345.

influence of hydrochloric acid on the solubility of (ENGEL), 1888, A., 918.

action of sulphur on (VORTMANN and PADBERG), 1890, A., 9.

behaviour of, towards nitric oxide, and towards nitric acid (DIVERS and HAGA), 1885, T., 623.

estimation, volumetric, of (JULLES), 1889, A., 189.

solutions, estimation of free hydrochloric acid in (MINOR), 1891, A., 241.

*tetrachloride* (*stannic chloride*), electrical and chemical properties of (COLDRIDGE), 1890, A., 1065.

vapour pressures and molecular volumes of (YOUNG), 1891, T., 911.

freezing point of (BESSON), 1890, A., 331.

action of water on (VIGNON), 1889, A., 1121.

compounds of, with hydrogen chloride (ENGEL), 1886, A., 984.

potassium chloride (MOREL), 1891, A., 1160; (RICHARDSON), 1892, A., 785.

*monoxide* (*stannous oxide*) and some of its compounds (DITTE), 1883, A., 291.

*dioxide* (*stannic anhydride*; *stannic oxide*) (SPRING), 1889, A., 1051.

preparation of, from sodium stannate (AUSTEN), 1883, A., 425.

variations in the acid function of (VIGNON), 1889, A., 833.

action of magnesium on (WINKLER), 1891, A., 802.

influence of, on potassium chlorate (FOWLER and GRANT), 1890, T., 276.

compounds of, with sulphuric acid and selenic acid (DITTE), 1887, A., 336.

**Tin dioxide** (*stannic anhydride*; *stannic oxide*), colour reactions of (LÉVY), 1887, A., 304.

separation of, from tungstic acid (DONATH and MULNER), 1888, A., 531.

See also Cassiterite.

*trioxide* (*perstannic anhydride*) (SPRING), 1889, A., 1051.

**Stannic acid**, colloidal (VAN BEMMELEN), 1888, A., 1160.

heat of neutralisation of (VIGNON), 1889, A., 833.

dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 68, 83.

combination of phosphoric acid with (HAUTEFUILLE and MARGOTET), 1886, A., 670.

lakes formed by (VIGNON), 1891, A., 807.

$\alpha$ -ortho- (NEUMANN), 1892, A., 412.

**Stannates**, crystallised (DITTE), 1883, A., 716.

**Stannites**, alkali, inaction of, with nitrites and nitrates (DIVERS and HAGA), 1885, T., 363.

**Stannic acid**, bromo- (PREIS and RAYMAN), 1883, A., 425; (SEUBERT and SCHURMANN), 1887, A., 554.

chloro- (ENGEL), 1886, A., 984; (SEUBERT), 1887, A., 554.

thio- (STORCH), 1889, A., 1053.

thio-, salts of (DITTE), 1883, A., 156.

**Metastannic acid**, heat of neutralisation of (VIGNON), 1889, A., 833.

behaviour of, to bismuth and iron oxides (LÉPEZ and STORCH), 1889, A., 1052.

colloidal (VAN BEMMELEN), 1888, A., 1160.

**Tin phosphates**, double (OUARAD), 1890, A., 1379.

**Stanno-phosphomolybdates and phosphotungstates** (GIBBS), 1886, A., 511.

**Tin monoselenide**, action of hydrochloric acid on (DITTE), 1884, A., 19.

sulphide (*stannous sulphide*), action of ammonium sulphide on (BAUDIGNY), 1883, A., 22.

action of hydrochloric acid on (DITTE), 1884, A., 18.

*disulphide* (*stannic sulphide*) (STORCH), 1889, A., 1053.

compounds of, with tin *diselenide* (DITTE), 1883, A., 156.

detection of, in presence of antimonious sulphide (GRIFFITH), 1887, A., 183.

**Tin monotelluride** (*stannous telluride*), action of hydrochloric acid on (DIRTE), 1884, A., 19.

**Stannous dithionate** (KLUS), 1888, A., 156.

**Tin organic compounds**, two (FISCHER), 1885, A., 377.

tetrehthide (LETTIS and COLLIE), 1886, P., 166.

molecular refraction and dispersion of (GLADSTONE), 1891, T., 296.

tetraphenyl (POLIS), 1890, A., 166.

**Tin, detection, estimation and separation** :—

reaction of, with nitric and sulphuric acids (BASSETT), 1886, A., 599.

microchemical reactions of (STRENG), 1889, A., 78.

delicate test for (RIDEAL), 1885, A., 1013.

test for, with mucine (DRYER), 1881, A., 498.

detection of, in corpses (SEYDA), 1891, A., 121.

detection of, in minerals (JOHNSONE), 1890, A., 830.

detection of antimony, arsenic and (PIESZYEK), 1892, A., 918.

precipitation of, from acid solutions by metallic iron (SCHULTZE), 1890, A., 853.

estimation of (CHESMER), 1884, A., 1078; (CLASSEN), 1885, A., 191; (BENAS), 1885, A., 839; (LESSER), 1888, A., 754; (LOVITON), 1888, A., 992; (BRAND), 1890, A., 294; (HILGER and HAAS), 1890, A., 666; (LUCKOW), 1892, A., 1129.

estimation of, in alloys (WACHSMUTH), 1887, A., 304; (WARREN), 1888, A., 632; (FRENCH), 1892, A., 1030.

estimation of, in corpses (SEYDA), 1891, A., 121.

estimation of, in "hardhead" (FRESSENIUS and HINIZ), 1886, A., 180.

estimation of, in siliceous slags (WARREN), 1888, A., 632.

estimation of, in sugar (PHIPSON), 1889, A., 1036.

estimation of lead in (YVON), 1889, A., 549; (PERRON), 1890, A., 665.

separation of, from antimony (CARNOT), 1886, A., 1077; (WARREN), 1888, A., 632; 1891, A., 366; (LOVITON), 1888, A., 992; (CLASSEN and SCHEELE), 1889, A., 77.

separation of, from antimony and arsenic (BERGLUND), 1884, A., 777; 1885, A., 839; (CLASSEN and LUDWIG), 1885, A., 922; (CARNOT),

**Tin, separation** :—

1886, A., 1078; (LESSER), 1888, A., 754; (CLARK), 1892, T., 424; P., 68.

separation of antimony, arsenic and, from gold and platinum (DE KONINCK and LECRENIER), 1888, A., 1344.

separation of, from bismuth, cadmium and lead (JANNASCH and ETZ), 1892, A., 754.

separation of, from titanium (HILGER and HAAS), 1890, A., 666; (HAAS), 1890, A., 1029.

**Tin capels**, Cornish (COLLINS), 1886, A., 988.

**Tin mineral** in process of formation (MEUNIER), 1890, A., 1082.

**Tin ores** from Asia (FISCHER), 1883, A., 435.

deposits of Mt. Bischoff (v. GONDDECK), 1888, A., 431.

analysis of (BURGHARDT), 1890, A., 1027; (WELLS), 1892, A., 510.

dry assay of (HOFFMANN), 1891, A., 246, 502.

**Tinplate**, estimation of lead in (CARLES), 1884, A., 1078.

**Tin scrap**, to work up (ANON.), 1886, A., 109.

**Tin stone**. See Cassiterite.

**Tinder ore** from the Harz (LUEDECKE), 1883, A., 1061.

**Tintometer** (LOVIBOND), 1890, A., 1461.

**Tintura** for wines (JAY), 1885, A., 309.

**Tirmania africana**, analysis of (CHATTIN), 1892, A., 654.

**Tissue**, living, active oxygen in (WURSTER), 1888, A., 863.

pulmonary, action of, in the expiration of carbonic anhydride (GARNIER), 1886, A., 1052.

cellulose (YOUNG), 1892, A., 1113.

vegetable. See Vegetable tissue under Agricultural Chemistry.

**Tissues**, determination of the rate of consumption of oxygen in, by means of the spectroscope (DENNIG), 1884, A., 1391.

deposits of iron and glycogen in (DELÉPINE), 1891, A., 1274.

toxic action of various (HFRICOURT and RICHET), 1892, A., 228.

estimation of the wool, silk, and cotton in (RÉMONT), 1885, A., 96.

**Tissue-fibrinogens** (WRIGHT), 1891, A., 1524; 1892, A., 646.

**Tissue-waste** in the fowl during starvation (KUCKEIN), 1883, A., 603.

**Titanic iron**. See Ilmenite.

- Titanic iron sand** from Brazil, analysis of (MACKINTOSH), 1885, A., 878.
- Titanic oxide.** See **Titanium dioxide**.
- Titaniferous garnet** from North Carolina (GENTH), 1891, A., 155.
- Titanite.** See **Sphene**.
- Titanium** (V. DER PFORDTEN), 1887, A., 14; (KOENIG and V. DER PFORDTEN), 1889, A., 1122.
- atomic weight of (THORPE), 1884, A., 395; 1885, T., 108; P., 1.
- physical constants of (NILSON and PETERSEN), 1887, A., 778.
- alloy of, with silicon and aluminium (LÉVY), 1888, A., 423.
- compounds (KOENIG and V. DER PFORDTEN), 1889, A., 947.
- Titanium tetrabromide**, pure, preparation of (THORPE), 1885, T., 126.
- carbide in pig iron (SHIMER), 1887, A., 703.
- chloride (WAGNER), 1888, A., 557.
- di-* and *tri-*chlorides (V. DER PFORDTEN), 1887, A., 338.
- trichloride*, reduction of (KOENIG and V. DER PFORDTEN), 1889, A., 1123.
- tetrachloride* (V. DER PFORDTEN), 1887, A., 337.
- pure, preparation of (THORPE), 1885, T., 119.
- molecular refraction and dispersion of (GLADSTONE), 1891, T., 299.
- action of, on metals (LÉVY), 1890, A., 1066.
- fluorides, double (PICCINI), 1884, A., 264; 1886, A., 670; 1891, A., 271; (PETERSEN), 1889, A., 107.
- oxyfluorides of (PICCINI), 1884, A., 264.
- oxide, hydrated, from Diamantina (GORCEIX), 1885, A., 640.
- sesquioxide* (KOENIG and V. DER PFORDTEN), 1889, A., 1122.
- action of nitric oxide on (SABATIER and SENDERN), 1892, A., 1152.
- dioxide* (*titanic anhydride*; *titanic oxide*) in soils (MCALLAN), 1888, A., 745.
- hydrated (V. DER PFORDTEN), 1887, A., 337.
- crystallisation of (HAUTEFVILLE and PLERREY), 1890, A., 1071.
- fourth form of (HIDDEN), 1889, A., 354.
- distribution of, on the earth (DUNNINGTON), 1892, A., 791.
- action of carbon *tetrachloride* on (DEMARÇAY), 1887, A., 329.
- action of magnesium and hydrogen on (WINKLER), 1890, A., 1375.
- Titanium dioxide** (*titanic anhydride*; *titanic oxide*), action of magnesium on (WINKLER), 1891, A., 802.
- colour reactions of (LÉVY), 1887, A., 304.
- separation of, from alumina and ferric oxide (COHEN), 1884, A., 640.
- trioxide* (WEILLER), 1883, A., 295; (JACKSON), 1883, A., 823; (CLANSEN), 1888, A., 424, 789; (PICCINI), 1888, A., 789; (LÉVY), 1889, A., 572.
- Titanic acids** (PICCINI), 1883, A., 1056.
- gelatinous modification of (V. DER PFORDTEN), 1884, A., 1093.
- Titanic acid** (WAGNER), 1888, A., 557.
- dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 66, 81.
- influence of, on the fusibility of refractory earths (SEGER), 1884, A., 784.
- action of sodium on (KOENIG and V. DER PFORDTEN), 1889, A., 1122.
- oxidation of (PICCINI), 1883, A., 1055.
- as a mordant (BARNES), 1886, A., 292.
- combination of phosphoric acid with (HAUTEFVILLE and MARCOTRET), 1886, A., 670.
- mono-*, *di-* and *tri-*chlorides (KOENIG and V. DER PFORDTEN), 1888, A., 788.
- hydrochloride (KOENIG and V. DER PFORDTEN), 1889, A., 947.
- phenyl-derivative of (SCHUMANN), 1888, A., 679.
- reaction of (FRENCH), 1886, A., 181.
- estimation of (LÉVY), 1887, A., 1061.
- estimation of, in presence of iron (WIGAND), 1883, A., 381.
- Titanates**, artificial production of certain (BOURGOIS), 1884, A., 564.
- Pertitanic acid**, fluoric derivatives of (PICCINI), 1888, A., 1255.
- Titanium phosphates**, double (OYREARD), 1890, A., 1379.
- sulphides (V. DER PFORDTEN), 1884, A., 1093; 1887, A., 15; (THORPE), 1885, T., 491; P., 69.
- Titanium organic compounds**:—
- cyanonitride (REINHARDT), 1888, A., 1047; (LUDEKING), 1888, A., 1263.

**Titanium organic compounds:—**

**Titanium ethyl**, attempts to prepare (PATERNO and PERATONER), 1889, A., 591.

**Titanium, detection, estimation and separation:—**

detection of (WELLER), 1883, A., 381; (JACKSON), 1883, A., 823; (NOYES), 1891, A., 1295.

estimation of (WELLER), 1883, A., 381; (LÉVY), 1888, A., 196; (HILGER and HAAS), 1890, A., 666; (NOYES), 1891, A., 1295.

estimation of, in iron and its ores (LEDEBUR), 1885, A., 1160.

estimation of, in iron ores (JENNINGS), 1889, A., 189.

estimation of, in rock analysis (CHARTARD), 1891, A., 768.

estimation of, in natural silicates (HOLLAND), 1889, A., 443.

estimation of, in titanium aluminium (HUNT, CLAPP, and HANDY), 1892, A., 1131.

separation of, from aluminium (GOOCH), 1885, A., 1265; 1886, A., 492.

separation of, from iron (GOOCH), 1885, A., 1265; 1886, A., 492; (CLASSEN), 1888, A., 532.

separation of, from niobium and zirconium (DEMARÇAY), 1885, A., 639.

separation of, from tin (HILGER and HAAS), 1890, A., 666; (HAAS), 1890, A., 1029.

**Titanium minerals, distribution of** (THÜRACHER), 1886, A., 126.

decomposition of (JONAS), 1892, A., 664.

**Tobacco, influence of the ash constituents on the combustibility of** (MAYER), 1890, A., 1458.

slow combustion of (SCHLESING), 1888, A., 979; 1889, A., 639.

ratio of starch to sugar in (MÜLLER), 1886, A., 904.

wax from (KISSLING), 1884, A., 173.

climatic conditions for the development of nicotine in (MAYER), 1891, A., 858.

estimation of nicotine in (BIEL), 1888, A., 876; (KISSLING), 1890, A., 430.

composition of "smalls" of (BROWN), 1889, A., 543.

Japanese (TAKAYAMA), 1885, A., 582; (FESCA and IMAI), 1889, A., 69.

Virginian, composition of the midribs of leaves of (MEMMINGER), 1884, A., 99.

(*Tobacco compounds Me=1.*)

**Tobacco.** See also Agricultural Chemistry.

**Tobacco ash**, composition of (ROMANS), 1883, A., 372; (ANON.), 1885, A., 927; (JORDAN; JENKINS), 1888, A., 177; (VAN BEMMELN), 1890, A., 1338.

**Tobacco smoke**, toxic action of, on bacteria (TASSINARI), 1883, A., 1327.

wax-like body from (KISSLING), 1884, A., 173.

**Tolallyl sulphide** (BAUMANN and KREIF), 1892, A., 185.

**Tolane.** See Diphenylacetylene.

**Tolazinedicarboxylic acid, *dl*-amido-** (KEHRMANN), 1889, A., 1154.

***p*-Tolanylamidine derivatives** (GLOCK), 1888, A., 1290.

hydrochloride (CRAYEN), 1891, A., 560.

nitrite (LOSSEN), 1892, A., 53.

**Tolanylamidinebenzenyl-*o*-carboxylic acid** (BISTRZYCKI), 1890, A., 969.

**Tolanylamidinedimethoxybenzenyl-carboxylic acid** (BISTRZYCKI), 1891, A., 746.

***p*-Tolanylamidine-*p*-tolanylazosulphimecarbohydrosulphide** (CRAYEN), 1891, A., 560.

***p*-Tolanylamidosulphime-*p*-tolanylsulphime/*l*-thiocarbamate** (CRAYEN), 1891, A., 560.

***o*-Tolanylamidoxime and its derivatives** (SCHUBART), 1890, A., 49.

***p*-Tolanylamidoxime and its derivatives** (SCHUBART), 1886, A., 797; 1890, A., 47.

action of carbon disulphide on (CRAYEN), 1891, A., 559.

potassium compound of, action of carbon disulphide on (SCHUBART), 1890, A., 49.

3-nitro- (WEISE), 1890, A., 47.

***p*-Tolanylamidoxime-ethylidene** (SCHUBART), 1890, A., 48.

**Tolanyazo-** See Azo-

***p*-Tolanylethoxime salts** (SCHUBART), 1890, A., 47.

***p*-Tolanylimidoacetate and imidoethyl ether** (GLOCK), 1888, A., 1289.

***o*-Tolanylimidoximeamido-*o*-tolylidene** (STIEGLITZ), 1890, A., 255.

***p*-Tolanylimidoximecarbonyl** (SCHUBART), 1890, A., 48.

***p*-Tolanyphenyluramidoxime, -thiouramidoxime and -uramidoxime** (SCHUBART), 1890, A., 48.

***p*-Tolhydaryl-amine (*di-p*-tolylcarbinyl-amine) and -carbamide** (GOLDSCHMIDT and STOCKER), 1891, A., 1479.

(*Toluene compounds*  $Me=1$ .)

**Tolidine** (*duamidoditoly*), polymethylene bases from (SCHIFF), 1892, A., 1223.

***o*-Tolidine**, action of nitrous acid on (SCHULTZ), 1884, A., 903.  
derivatives of (HOBBS), 1888, A., 708.

acetyl-derivatives of (GERBER), 1888, A., 484.

*m*-amido-, and *m*-nitro- (LOEWENHERZ), 1892, A., 852.

*d*-nitro- (GERBER), 1888, A., 484.

***o-m*-Tolidine** (SCHULTZ), 1884, A., 903.

***m*-Tolidine**, preparation of (v. BUCHKA and SCHACHTEBECK), 1889, A., 701.

***p*-Tolidine**, action of nascent nitrous acid on (DENINGER), 1890, A., 38.

**Tolidinedisulphonamide** (HELLE), 1892, A., 1468.

***o*-Tolidinedisulphonic acid** (GRIESS and DUISBERG), 1890, A., 60; (HELLE), 1892, A., 1466.

**Tolidinesulphone** (GRIESS and DUISBERG), 1890, A., 60.

**Tolidinesulphonic acid** (HELLE), 1892, A., 1467.

***o*-Tolidinesulphonic acid** (GRIESS and DUISBERG), 1890, A., 60.

***p*-Tolil** (*di-p-tolyl diketone*) (STIERLIN), 1889, A., 513.

**Tolilbenzil**, *o*- and *p*- (*benzil, tolylimide of; phenyl tolylimidobenzyl ketone*) (BANDROWSKI), 1889, A., 147.

***o*-Tolilbenzoin** (*tolylimidodiphenylethyl alcohol*) (BANDROWSKI), 1889, A., 147.

***p*-Tolilbenzoin** (VOIGT), 1886, A., 888.

**Tolindole**. See 3-Methylindole.

**Tolotylamine** (*octyltolylamine; tolyloctane, amido-*), and its derivatives (BERAN), 1885, A., 524.

***m*-Tolualdehyde**, *o*-nitro-, and *d*-nitro- (BORNEMANN), 1881, A., 1163.

**Tolualdehydes** and their derivatives (BORNEMANN), 1884, A., 1161.

***m*-Tolualdehydephenylhydrazone** (RUDOLPH), 1889, A., 251.

**Tolualloxazine** (KUHNING), 1891, A., 1342.

**$\alpha$ -Toluanide** (PURGOTT), 1891, A., 59.

***o*-Toluanide**, reduction of (HUTCHINSON), 1890, T., 957.

3:5-*di*bromo- (CLAUS and BECK), 1892, A., 1207.

***m*-Toluanide**,  $\omega$ -chloro- (REINGLASS), 1891, A., 1344.

***p*-Toluanide**, 3-amido- (NIEMENTOWSKI), 1888, A., 837.

2:6-*di*bromo- (CLAUS and SEIBERT), 1892, A., 176.

(*Toluene compounds*  $Me=1$ .)

***p*-Toluanide**, 3:5-*di*nitro- (CLAUS and HERBANY), 1892, A., 175.

3:5-bromonitro- (CLAUS and HERBANY), 1892, A., 175.

2- and 3-chloro- (CLAUS and DAVIDSEN), 1889, A., 988.

$\omega$ -chloro-, and  $\omega$ -cyano- (MELLINGHOFF), 1890, A., 239.

3-nitro- (NIEMENTOWSKI and ROZANSKI), 1888, A., 1088; (WEISE), 1890, A., 47.

***p*-Toluanilide** (LEUCKART), 1890, A., 759.

**Toluzophenine** (FISCHER and HEPP), 1891, A., 1046.

***p*-Tolubenzylacetamide** (*tolylcarbonylacetamide; methylbenzylacetamide*) (KROBER), 1890, A., 969.

***o*-Tolubenzylamine**. See Methylbenzylamine.

***p*-Tolubenzylcarbamide** (*tolylcarbonylcarbamide; methylbenzylcarbamide*) (KROBER), 1890, A., 969.

***o*-Toluisobutylthiocarbamide** (*disobutyliditolythiocarbamide*) (EFFRONT), 1885, A., 153, 154.

**Tolucarbostyryl**. See Methylcarbostyryl.

**Toluene** (*methylbenzene*), coal-tar (MEYER), 1883, A., 1092.

formation of, from benzylic bromide (GLADSTONE and TRIBE), 1885, T., 453.

dispersive power of (BARBIER and ROUX), 1889, A., 805.

refractive power of, at different temperatures (PERKIN), 1892, T., 297.

action of the induction spark on (DENFREM), 1881, A., 1243.

action of heat on, and on a mixture of ethylene and (FERKUS), 1887, A., 572.

action of amyl chlorides and amylene on (ESSENER and FOSSIN), 1885, A., 517.

action of chloropierin and chloroform on, in presence of aluminium chloride (ELBS and WITTICH), 1885, A., 517.

action of ethylic diazoacetate on (BUCHNER and CURTIUS), 1885, A., 1208.

action of lead oxide on (VINCENT), 1890, A., 962.

action of methylenic chloride on, in presence of aluminium chloride (FRIEDEL and CRAFTS), 1884, A., 1312; 1887, A., 1102.

bromination of (MILLER), 1892, T., 1023.

(*Toluene compounds Me=1.*)

- Toluene** (*methylbenzene*), chlorination of (SEELIG), 1887, A., 362.  
 purest, of commerce, sulphur compound in (MEYER and KREIS), 1884, A., 46.  
 halogen derivatives of (WILLGERODT and SALZMANN), 1889, A., 985.  
 physical constants of (SEUBERT), 1890, A., 2.  
*tetra-* and *hera-*hydrides from resin essences (RENARD), 1884, A., 844.  
**Toluene**, amido-. See Toluidine.  
*diamido-*. See Tolylenediamine.  
*c-tetramido-*, and its sulphate (NITZKI and ROSER), 1891, A., 192.  
*pentamido-* (PALMER), 1889, A., 390.  
*o-bromo-*, preparation and properties of (MILLER), 1892, T., 1027; P., 155.  
 action of chromyl dichloride on (STUART and ELLIOTT), 1888, T., 803.  
 bromination of (MILLER), 1892, T., 1031; P., 155.  
 oxidation of, with potassium ferricyanide (NOYES), 1886, A., 142.  
*m-bromo-*, oxidation of (NOYES and WALKER), 1886, A., 788.  
*p-bromo-*, preparation and properties of (MILLER), 1892, T., 1026; P., 155.  
 melting point of (NEHNST), 1890, A., 3.  
 action of chlorine on (SRPEK), 1891, A., 44; (ERRERA), 1891, A., 1020.  
 bromination of (MILLER), 1892, T., 1032; P., 155.  
 3:6-bromonitro- (BENTLEY and WARREN), 1890, A., 485.  
 2:5:4:6-dibromonitro- (ULAU), 1888, A., 583.  
 3:5-dibromotritro- (PALMER), 1889, A., 390.  
*o-chloro-* (SEELIG), 1887, A., 362.  
 action of chromyl dichloride on (STUART and ELLIOTT), 1888, T., 803.  
 sulphonation of (WYNNE), 1892, T., 1072; P., 140.  
*m-chloro-*, sulphonation of (WYNNE), 1892, T., 1075; P., 140.  
*p-chloro-*, melting point of (NEHNST), 1890, A., 3.  
 sulphonation of (WYNNE), 1892, T., 1078; P., 140.  
 2:3- and 2:4-dichloro- (SEELIG), 1887, A., 363.  
 2:4-dichloro-, preparation of (ERDMANN), 1891, A., 1462.

(*Toluene compounds Me=1.*)

- Toluene**, 2:5-dichloro- (WYNNE), 1892, T., 1050; P., 139.  
 3:4-dichloro-, preparation of (ERDMANN), 1891, A., 1462.  
 sulphonation of (WYNNE), 1892, T., 1060; P., 139.  
 2:4-, 2:5-, 3:4- and 3:5-dichloro- (LELMANN and KLOTZ), 1886, A., 452.  
 2:3:4- and 2:4:5-trichloro- (SEELIG), 1885, A., 769.  
 3:4:5-trichloro- (WYNNE), 1892, T., 1070; P., 139.  
*pentachloro-* (SEELIG), 1885, A., 770.  
*o-chlorodibromo-*, and *di-*, *tri-* and *tetra-chloro-p-bromo-* (WILLGERODT and SALZMANN), 1889, A., 986.  
 2:4-chloronitro- (LELMANN), 1884, A., 1133.  
 2:5-chloronitro- (GOLDSCHMIDT and HÖNIG), 1887, A., 363; (HÖNIG), 1887, A., 1034.  
 2:6-chloronitro- (GREEN and LAWSON), 1891, T., 1017; P., 129.  
 3:5-chloronitro- (HÖNIG), 1887, A., 1034.  
 4:2-chloronitro- (GOLDSCHMIDT and HÖNIG), 1886, A., 1022.  
 4:3-chloronitro-, and its reduction products (GATTERMANN and KAISER), 1886, A., 49.  
 4:2:3-, 4:2:6- and 4:3:5-chlorodinitro- (HÖNIG), 1887, A., 1034.  
 2:4-dichloronitro- (SEELIG), 1887, A., 363.  
 2:3:4- and 2:4:5-trichloronitro- (SEELIG), 1885, A., 769.  
 cyano-. See Toluonitrile.  
*p-fluoro-* (PATERÒ and OLIVERI), 1884, A., 426; (WALLACH), 1887, A., 130.  
*o-iodo-*, action of chromyl dichloride on (STUART and ELLIOTT), 1888, T., 803.  
*ω-nitro-* (GABRIEL), 1885, A., 903; (GABRIEL and KOPPE), 1886, A., 693.  
*o-nitro-* (STRENG), 1891, A., 1197.  
 action of chlorine on, in presence of sulphur (HAEUSSERMANN and BECK), 1892, A., 1437.  
 action of chromyl dichloride on (v. RICHTER), 1886, A., 694.  
 oxidation of, by potassium ferricyanide (NOYES), 1886, A., 577.  
 fractional reduction of (MINIATI, BOOTH and COHEN), 1888, A., 202.

(Toluene compounds  $M_e=1$ .)

- Toluene**, *m*-nitro-, preparation of (V. БУЧКА), 1889, A., 696.  
 oxidation of (NOYES and MOSES), 1886, A., 143.  
 reduction products of (V. БУЧКА and SCHACHIEBECK), 1889, A., 701.  
*p*-nitro-, action of chromyl dichloride on (V. RICHTER), 1886, A., 694.  
 oxidation of, by potassium ferricyanide (NOYES), 1883, A., 577.  
 fractional reduction of (MINIATI, BOOTH and COHEN), 1888, A., 202.  
 estimation of (NEVERDIN and DE LA HARPE), 1889, A., 84.  
 2:1-*d*initro-, liquid bye-product in the preparation of (NORTING and WITT), 1885, A., 1095.  
 2:5-*d*initro- (NIETZKI and GUIFERMANN), 1888, A., 471.  
 2:6-*d*initro- (CLAUS and BECKER), 1883, A., 1093; (STAEDL), 1885, A., 142.  
 3:5-*d*initro-, constitution of (STAEDL), 1883, A., 865.  
 preparation of (STAEDL), 1883, A., 864, 865.  
 2:4:6-*tr*initro- (CLAUS and BECKER), 1883, A., 1093.  
 $\alpha$ -,  $\beta$ - and  $\gamma$ -*tr*initro- (HEPP), 1883, A., 317.  
 compounds of, with hydrocarbons (HEPP), 1883, A., 318.  
 2:5-*d*initroso- (MEHNE), 1888, A., 463; (NIETZKI and GUIFERMANN), 1888, A., 471.  
**Toluene-aniline**,  $\alpha$  *tr*initro- (HEPP), 1883, A., 317.  
**Tolueneazimidotoluene** (ZINCKE and LAWSON), 1887, A., 731.  
**Tolueneazo-**. See Azo-.  
**Toluenecinnamene** (WISPEK and ZUBER), 1883, A., 977; (KRAMER, SPILKER and EBERHARDT), 1891, A., 207.  
**Toluenecyano-sulphochloride**, and -sulphonic acid (ANON.), 1890, A., 382.  
**Toluenedicarboxylic acid**. See Methylphthalic acid.  
**Toluene-3:5-disulphonic acid**, 2-bromo- (KORNATZKI), 1884, A., 70; (LIMPRICHT), 1885, A., 1233; (HASSE), 1886, A., 151.  
*p*-iodo- (LIMPRICHT), 1885, A., 1233; (RICHTER), 1886, A., 152.  
**Toluene-2:6-disulphonic acid** (KORNATZKI), 1884, A., 70.  
**Toluenedisulphonic acids** (KLASON), 1887, A., 264, 491.

(Toluene compounds  $M_e=1$ .)

- Toluenedisulphonic acids**, *p*-bromo-, and their derivatives (KORNATZKI), 1881, A., 70; (RICHTER), 1886, A., 152.  
**Toluenedisulphothiosulphonic anhydride**. See Sulphotolylic disulphide.  
*p*-**Toluenehydrazo-*p*-cresol** (GOLDSCHMIDT and POLLAK), 1892, A., 974.  
*m*-**Toluene- $\beta$ -methylcoumarin** (V. PECHMANN and DUISBERG), 1884, A., 67.  
**Toluenenaphthalenes**, *di*- and *tri*-nitro- (HEPP), 1883, A., 318.  
**Toluenesulphamine** (PAYSAN), 1881, A., 451; (HEFFTER), 1884, A., 455.  
**Toluenesulphinic acids** (PERI), 1885, A., 391.  
**Toluenesulphonamic acid** (TRAUBE), 1890, A., 1137.  
**Toluene-*o*-sulphonamide**, 4-chloro- (HEFFTER), 1884, A., 73.  
**Toluene-*m*-sulphonamide** (NOYES and WALKER), 1886, A., 788.  
**Toluene-*p*-sulphonamide**, oxidation of, with potassium ferricyanide (NOYES), 1886, A., 142.  
**Toluenesulphonic acid**, 3-chloro-, and its amide and chloride (WYNNE), 1892, T., 1075.  
 2:5-*d*ichloro-, and its metallic salts and amide and chloride (WYNNE), 1892, T., 1051; P., 139.  
 3:4-*d*ichloro-, and its amide and chloride (WYNNE), 1892, T., 1061; P., 139.  
 hydrolysis of (WYNNE), 1892, T., 1068; P., 139.  
 3:4:5-*tr*ichloro-, and its metallic salts and chloride (WYNNE), 1892, T., 1069; P., 139.  
*o*-iodo- and its salts (MABERY and PALMER), 1885, A., 538.  
**Toluene-*m*-sulphonic acid** and its derivatives (VALLIN), 1887, A., 263.  
**Toluene-*p*-sulphonic acid** and its derivatives (VALLIN), 1887, A., 263.  
 action of bromine on (MILLER), 1886, P., 235.  
 amine salts of (NORTON and OTTEN), 1888, A., 698.  
 barium salt of (KILBE), 1883, A., 807.  
 potassium salt of, bromination of (MILLER), 1892, T., 1027; P., 155.  
 2-bromo- (MILLER), 1892, T., 1027; P., 155.  
 2:3:5-*tr*bromo- (CLAUS and IMMER), 1891, A., 1490.  
**Toluene-2-sulphonic acid**, 4-bromo-, and its salts (DE ROODE), 1891, A., 1227.

- (*Toluene compounds*  $M_r=1$ .)
- Toluene-2-sulphonic acid**, 4-chloro-, and its salts (DE ROODE), 1891, A., 1227; (WYNNE), 1892, T., 1078; P., 140.
- 4-iodo- (*o*-(8)-*acid*) and its salts (DE ROODE), 1891, A., 1227.
- 4-fluoro- and its amide (DE ROODE), 1891, A., 1226.
- 4-nitro- (HAUSSEN), 1891, A., 73.
- Toluene-3-sulphonic acid**, 4-chloro-, and its amide (WYNNE), 1892, T., 1078; P., 140.
- Toluene-4-sulphonic acid**, 2-bromo- (MILLER), 1892, T., 1023; P., 155.
- 2-chloro-, and its amide (PAYSAN), 1884, A., 73.
- Toluene-5-sulphonic acid**, 2-bromo-, and its amide (MILLER), 1892, T., 1030; P., 155.
- 2-bromo-, and its chloride, bromide and amide (WYNNE), 1892, T., 1041; P., 155.
- 2:3-*di*bromo-, and its salts, and chloride, bromide and amide (WYNNE), 1892, T., 1038; P., 155.
- 2-chloro-, and its salts and chloride and amide (WYNNE), 1892, T., 1040, 1072; P., 139, 140.
- 2-nitro- (LIMPRICHT), 1885, A., 1234; (FOTH), 1886, A., 153.
- Toluene- $\omega$ -sulphonic acid** (*benzylsulphonic acid*), derivatives of (MOHN), 1884, A., 69.
- 4-bromo- (JACKSON and HARTSHORN), 1884, A., 665.
- Toluenesulphonic acids**, isomeric, formation of (GORDON), 1888, P., 73.
- Toluene-*p*-sulphonic chloride**, condensation of amido-acids with (HEDIN), 1891, A., 203.
- p*-Toluenesulphonic iodide** (OTTO and TRÖGER), 1891, A., 718.
- Toluenesulphothiosulphonic anhydride** (OTTO and TRÖGER), 1891, A., 921.
- Toluenethiosulphonic acid**, reactions of (OTTO and ROSSING), 1892, A., 478.
- Toluene- $\omega$ -thiosulphonic acid** (*benzylthiosulphonic acid*), sodium salt of (PURGOTTI), 1890, A., 1419.
- Toluenethiosulphonic acids** and their salts, action of ethylic chlorocarbonate on (OTTO and ROSSING), 1891, A., 926.
- Toluenethiosulphonic thioanhydride** (OTTO and TRÖGER), 1891, A., 924.
- Toluic acid**, nitrosulpho- (LIMPRICHT), 1885, A., 1234.
- $\alpha$ -Toluic acid**. See Phenylacetic acid.
- o*-Toluic acid** (*methylbenzoic acid*) (RACINE), 1887, A., 945.
- (*Toluene compounds*  $M_r=1$ .)
- o*-Toluic acid** (*methylbenzoic acid*), derivatives of (JACOBSEN and WIERS), 1883, A., 1121; (RACINE), 1887, A., 945.
- 5-amido-, phosphate of (HONIG), 1886, A., 242.
- 4-bromo- (JACOBSEN), 1885, A., 143; (CLAUS and PIESZCZAK), 1887, A., 240; (CLAUS and KUNATH), 1889, A., 987.
- 5-bromo- (NOTTRISSEN), 1887, A., 668; (CLAUS and KUNATH), 1889, A., 987.
- nitration and bromination of (CLAUS and BECK), 1892, A., 1207.
- 4:5- and 3:5-*di*bromo-, and 5:3-, 5:4- and 5:6-bromonitro- (CLAUS and BECK), 1892, A., 1207.
- 4-, 5- and 6-nitro- (JACOBSEN), 1884, A., 715.
- m*-Toluic acid** (SPICA), 1883, A., 459; (MULLER), 1887, A., 724.
- 2-amido-, and its derivatives (*p*-methylanthranilic acid) (PANAOTOVIC), 1886, A., 361.
- $\omega$ -amido- (REINGLAS), 1891, A., 1345.
- 4-chloro- (CLAUS), 1892, A., 1201.
- $\omega$ -chloro- (REINGLAS), 1891, A., 1344.
- 4:6-*di*chloro- (CLAUS and BURNERT), 1890, A., 1106.
- nitro-, from nitro-*m*-isocymene (KELBE and WARTH), 1884, A., 46.
- 5-nitro- (TÖHL), 1885, A., 522.
- p*-Toluic acid**, 3-amido- (*m*-homooanthranilic acid) (NIEMENTOWSKI), 1888, A., 337; 1889, A., 1065; (NIEMENTOWSKI and ROZANSKI), 1888, A., 1088; (NOYES), 1889, A., 391; (FILETI and CROSA), 1889, A., 495.
- 2:3-, 2:6- and 3:6-*di*amido- (CLAUS and JOACHIM), 1892, A., 176.
- 2- and 3-bromo- (CLAUS and KUNATH), 1889, A., 987.
- 3-bromo- (FILETI and CROSA), 1889, A., 496.
- 2:5-*di*bromo-, and its salts (SCHULTZ), 1885, A., 1054.
- 2:3-, 2:5- and 3:5-*di*bromo- (CLAUS and HERBANY), 1892, A., 175.
- 2:6-*di*bromo- (CLAUS and SEIBERT), 1892, A., 176.
- 3:6-*di*bromo- (FILETI and CROSA), 1889, A., 496; (CLAUS and BEYSEN), 1892, A., 177.
- 3:6-bromamido- (FILETI and CROSA), 1889, A., 495.
- 3:2-, 3:5- and 3:6-bromonitro- (CLAUS and HERBANY), 1892, A., 174.
- 3:6-bromonitro- (FILETI and CROSA), 1887, A., 37; 1889, A., 495.

(*Toluene compounds Me=1.*)

- p*-Toluic acid, 6:2- and 6:3-bromonitro- (CLAUS and BEYSEN) 1892, A., 178.  
*o*-chloro- (MELLINGHOFF), 1890, A., 239.  
 2- and 3-chloro- (CLAUS and DAVIDSEN), 1889, A., 988.  
 2:6-dichloro- (CLAUS and BEYSEN), 1892, A., 178.  
 3:6-dichloro- (CLAUS and DAVIDSEN), 1892, A., 172.  
 3:6-chloramido- (CLAUS and DAVIDSEN), 1892, A., 172.  
 2:5-chloramido- (CLAUS and BÖCHER), 1892, A., 173.  
 chlorobromo- and chlorobromonitro- (WILLGERODT and WOLFIEN), 1889, A., 966.  
 3:6-chlorobromo- (CLAUS and DAVIDSEN), 1892, A., 173.  
 2:3- and 2:5-chloronitro- (CLAUS and BÖCHER), 1892, A., 174.  
 2:6-chloronitro- (CLAUS and BÖCHER), 1892, A., 174; (CLAUS and BEYSEN), 1892, A., 178.  
 3:2-chloronitro- (CLAUS and DAVIDSEN), 1892, A., 173.  
 3:6-chloronitro- (FILETTI and CROSA), 1889, A., 496; (CLAUS and DAVIDSEN), 1889, A., 988; 1892, A., 172.  
 3-chloro-2:6-dinitro- (CLAUS and DAVIDSEN), 1889, A., 988.  
*o*-cyano- (MELLINGHOFF), 1890, A., 240.  
 2-nitro- (NOYES), 1889, A., 395.  
 3-nitro- (NIEMENTOWSKI and ROZĄŃSKI), 1888, A., 1088; (NOYES), 1889, A., 394.  
 2:3- and 3:6-dinitro- (ROZĄŃSKI), 1890, A., 52.  
 2:3-, 2:6- and 3:6-dinitro- (CLAUS and JOACHIM), 1892, A., 176.  
 3:5-dinitro- (CLAUS and BEYSEN), 1892, A., 177.  
 6:3-nitramido- (FILETTI and CROSA), 1889, A., 495.  
 2:6- and 3:6-nitramido- (CLAUS and BEYSEN), 1892, A., 177.  
 3-sulpho-, and its derivatives (RANDALL), 1891, A., 1228.  
 3-sulphamido- (WEBER), 1892, A., 1092.  
 Toluic acids, thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.  
*p*-Toluic anhydride, 3-sulpho- (RANDALL), 1891, A., 1229.  
*p*-Toluic sulphinide ("methylsulcarin") (ANON.), 1890, A., 382; (RANDALL), 1891, A., 1228; (WEBER), 1892, A., 1092.

(*Toluene compounds Me=1.*)

- Toluide, sulpho- (*di-p-tolylsulphone*), decomposition of (OTTO), 1886, A., 1031.  
 Toluidine, last runnings obtained in the purification of (HELL and ROCKENBACH), 1889, A., 600.  
 naphthate and phenate (DYSON), 1883, T., 468.  
*o*-Toluidine, action of benzylic chloride on (RABAUT), 1892, A., 48.  
 influence of nucleal methyl on the properties of (ROSENSTIEHL), 1892, A., 1319.  
 and furfuraldehyde, condensation of (DE CHALMOT), 1892, A., 1452.  
 methylation and ethylation of (REINHARDT and STAEDEL), 1883, A., 578.  
 nitration of (NÖLTING and COLLIN), 1884, A., 1012.  
 sulphonation of (CLAUS and IMMEL), 1891, A., 1490.  
 chloracetate (BISCHOFF), 1888, A., 727.  
 hydrobromide and hydriodide (STAEDEL), 1883, A., 578.  
 hydrochloride, spectrum of (HARTLEY), 1885, T., 739.  
 ethylmalonate, action of phosphorus pentachloride on (RUGHEIMER and SCHRAMM), 1888, A., 502.  
 malate (BISCHOFF and NASTVOGEL), 1890, A., 1163.  
 hydrogen sulphate (WELLINGTON and TOLLENS), 1886, A., 347.  
 hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1000.  
 detection of small quantities of *p*-toluidine in (HAEUSSELMANN), 1888, A., 203.  
*o*-Toluidine, 5-bromo- (ALT), 1889, A., 1211.  
 chloro-, conversion of, into chlorotoluene (WYNN), 1892, T., 1047; P., 139.  
 conversion of, into dichlorotoluene (WYNN), 1892, T., 1019; P., 139.  
 1-chloro- (GOLDSCHMIDT and HONIG), 1886, A., 1022.  
 2:3:4- and 2:4:5-trichloro- (SEELIG), 1885, A., 769.  
 cyano-, and its salts (BLADIN), 1884, A., 1142.  
 3-nitro- (LELLMANN and WURFNER), 1885, A., 974.  
 action of reducing agents on (GRAEFF), 1885, A., 1127.

(*Toluene compounds Me=1.*)  
*o*-Toluidine, 4-nitro- (NÖLTING and COLLIN), 1884, A., 1006, 1012; (LEVINSTEIN), 1885, A., 1127; (GREEN and LAWSON), 1891, T., 1015.  
 reduction of (GREEN and LAWSON), 1891, T., 1016.  
 displacement of the amido-group in, by chlorine (GREEN and LAWSON), 1891, T., 1017; P., 129.  
 derivatives of (NÖLTING and COLLIN), 1884, A., 1006.  
 5-nitro- (LEHMANN and WÜRTNER), 1885, A., 974; (GREEN and LAWSON), 1891, T., 1013.  
 6-nitro- (BERTHSEN), 1883, A., 579; (GREEN and LAWSON), 1891, T., 1013.  
 from liquid dinitrotoluene (BERTHSEN), 1883, A., 579; (ÜLLMANN), 1884, A., 1316.  
 reduction of (GREEN and LAWSON), 1891, T., 1016.  
 displacement of the amido-group in, by chlorine (GREEN and LAWSON), 1891, T., 1017; P., 129.  
 3:5-dinitro- (STAEDEL), 1883, A., 865; (BARK), 1888, A., 823.  
 ω-nitroso- (MEYER), 1886, A., 63.  
 5-nitroso- (MEHNE), 1888, A., 463.  
 o-thionyl- (MICHAELIS), 1891, A., 717.  
*m*-Toluidine, preparation of (EHRlich), 1883, A., 54.  
 nitration of (NÖLTING and STOECKLIN), 1891, A., 692.  
 4-bromo- (CLAUS), 1892, A., 1201.  
 4-chloro- (GATTERMANN and KAESER), 1886, A., 49; (GOLDSCHMIDT and HÖNIG), 1886, A., 1022; (CLAUS), 1892, A., 1201.  
 5-chloro- (HÖNIG), 1887, A., 1034.  
 6-chloro-, and its derivatives (GOLDSCHMIDT and HÖNIG), 1887, A., 363.  
 cyano-, and its salts (BLADIN), 1884, A., 1142.  
 2-nitro- (IMPRICHT), 1885, A., 974.  
 action of reducing agents on (GRAEFF), 1885, A., 1127.  
 4-nitro- (STAEDEL and KOLB), 1891, A., 187.  
 5-nitro- (STAEDEL), 1883, A., 865.  
 6-nitro- (FILETI and CROSA), 1889, A., 495.  
 4:6-dinitro- (HEPP), 1883, A., 317; (STAEDEL and KOLB), 1891, A., 187.  
 2:4:6-trinitro- (NÖLTING and v. SALIS), 1883, A., 59.  
 6-nitroso- (MEHNE), 1888, A., 463.

(*Toluene compounds Me=1.*)  
*p*-Toluidine, production of, from *p*-cresol (BUCH), 1885, A., 147.  
 spectrum of (HARTLEY), 1885, T., 741.  
 action of benzylic chloride on (RABAUT), 1892, A., 313.  
 action of bromine on, in presence of sulphuric acid (HAFNER), 1890, A., 137.  
 diazotised, action of, on methyl-*p*-bromaniline (MELDOLA and STREATFIELD), 1889, T., 433.  
 diazotised, action of, on methyl-*p*-chloraniline (MELDOLA and STREATFIELD), 1889, T., 436.  
 action of sulphur on (GREEN), 1889, T., 228.  
 nitration of (NÖLTING and COLLIN), 1884, A., 1012.  
 oxidation of (KLINGER and PITTSCHKE), 1885, A., 151.  
 from *p*-nitrobenzaldehyde, condensation products of (BISCHLER), 1888, A., 287.  
 citric acid derivatives of (GILL), 1887, A., 40.  
 azophenine of (NÖLTING and WITT), 1884, A., 743.  
 chloracetate (BISCHOFF), 1888, A., 726.  
 allocinnamate (LIEBERMANN), 1891, A., 333.  
 hydrate (LEWY), 1887, A., 134.  
 hydrobromide and hydriodide (STAEDEL), 1883, A., 578.  
 oxalate (BORNEMANN), 1890, A., 137.  
 picrate (SMOLKA), 1886, A., 454.  
 sulphate as a test for nitric acid (LONGI), 1884, A., 365.  
 hydrogen sulphate (WELLINGTON and TOLLENS), 1886, A., 347.  
 commercial, assay of (RAABE), 1892, A., 925.  
 estimation of (SCHOEN), 1890, A., 839.  
*p*-Toluidine, 3:5-dibromo- (CLAUS and HERBANY), 1892, A., 175.  
 3:5:6-tribromo- (CLAUS and IMMEL), 1891, A., 1491.  
 3:5-bromonitro- (HÄND), 1886, A., 1018.  
 3:6-bromonitro- (CLAUS and HERBANY), 1892, A., 171.  
 chloro-, conversion of, into chlorotoluene (WYNNE), 1892, T., 1053; P., 139.  
 2-chloro- (WITT), 1892, A., 445.  
 3-chloro- (ERDMANN), 1891, A., 1466.  
 2:5-chloronitro- (CLAUS and BOCHER), 1892, A., 173.

- (*Toluene compounds*  $Me=1$ .)
- p*-Toluidine, 3:5- and 3:6-chloronitro- (CLAUS and DAVIDSEN), 1892, A., 172.
- cyano-, and its salts (BLADIN), 1884, A., 1141.
- 2-nitro- (BERNHUSEN), 1883, A., 579; (NÖLTING and COLLIN), 1884, A., 1012; (ULLMANN), 1884, A., 1316; (LEVINSTEIN), 1885, A., 1127.
- 3-nitro- (NÖLTING and COLLIN), 1884, A., 1012.
- action of ethylenic bromide on (GATTERMANN and ILGER), 1884, A., 1142.
- action of reducing agents on (LIMPRICHT), 1885, A., 974; (GRIEFF), 1885, A., 1127.
- derivatives of (GATTERMANN), 1885, A., 975.
- ovalic acid derivatives of (HINSBERG), 1883, A., 323.
- $\beta$ -*d*-nitro- (HEFF), 1883, A., 317.
- 3:5-*d*-nitro, constitution of (STÄDEL), 1883, A., 865.
- thio-, and its derivatives (TRUHLAR), 1887, A., 472.
- thionyl- (MICHAELIS and HERZ), 1891, A., 310.
- Toluidines** (LEWY), 1886, A., 872.
- heat of formation of (PETIT), 1888, A., 1239.
- action of benzylic chloride on (RABATT), 1892, A., 313.
- action of *d*-brom- $\alpha$ -naphthol on (MELDOLA), 1884, T., 156.
- action of cyanogen on (BLADIN), 1884, A., 1111.
- isomeric, action of  $\mu$ -diazobenzene-sulphonic acid on (GRUBBS), 1883, A., 182.
- action of nascent nitrous acid on (DENINGER), 1890, A., 38.
- action of sulphur on (GATTERMANN), 1889, A., 602.
- chlorination of, and bromination of, in presence of an excess of a mineral acid (HARNER), 1890, A., 37.
- physiological action of (GIBBS and HARE), 1890, A., 1018.
- compounds of, with cupric chloride (POMEY), 1887, A., 472.
- compounds of metallic sulphites with (DENIGES), 1891, A., 1031.
- compounds of, with zinc chloride (LACHTOWICZ and BANDROWSKI), 1888, A., 1281.
- quantitative analysis of (MINIATI, L. BOOTH and COHEN), 1888, A., 202.
- (*Toluene compounds*  $Me=1$ .)
- Toluidines**, separation of (WULFING), 1886, A., 1021; 1887, A., 576.
- separation of, from aniline (LEWY), 1884, A., 46.
- o*-Toluidinealloxan (PELLIZZARI), 1888, A., 682.
- o*-Toluidine-3:5-disulphonic acid (LIMPRICHT), 1884, A., 1232; (HASSE), 1886, A., 150.
- p*-Toluidine-2:3- and -2:6-disulphonic acids and their salts (RICHTER), 1886, A., 151.
- o*-Toluidine-*p*-sulphinic acid and its salts (PAYSAN), 1884, A., 454.
- p*-Toluidine-*o*-sulphinic acid and its salts (HEFFER), 1884, A., 454.
- o*-Toluidine-*p*-sulphonamide (PAYSAN), 1884, A., 72.
- p*-Toluidine-*o*-sulphonamide (HEFFTER), 1884, A., 73.
- Toluidinesulphonic acid**, amido-. See Tolylenediaminesulphonic acid.
- o*-Toluidinesulphonic acid, action of nascent nitrous acid on (DENINGER), 1890, A., 39.
- o*-Toluidine-4-sulphonic acid, and 3:5-*d*-biomo- (CLAUS and IMMEL), 1891, A., 1490.
- o*-Toluidine-5-sulphonic acid (HASSE), 1886, A., 150; (FORTH), 1886, A., 153; (JANOVSKY), 1888, A., 956; (CLAUS and IMMEL), 1891, A., 1490; (WYNNE), 1892, T., 1037; P., 155.
- salts of (WYNNE), 1892, T., 1037; P., 155.
- 3-biomo- (CLAUS and IMMEL), 1891, A., 1490; (WYNNE), 1892, T., 1037; P., 155.
- 4-iodo-, and its barium salt (LIMPRICHT), 1885, A., 1231; (FORTH), 1886, A., 153.
- 3-nitro- (NIEZKI and POLLINI), 1890, A., 502.
- m*-Toluidine-6-sulphonic acid (CLAUS and IMMEL), 1891, A., 1490.
- p*-Toluidine-2-sulphonic acid (LIMPRICHT), 1885, A., 1233; (JANOVSKY), 1888, A., 956.
- 3-nitro- (NIEZKI and POLLINI), 1890, A., 502.
- p*-Toluidine-2- and -3-sulphonic acids, separation of (SCHNEIDER), 1887, A., 146.
- p*-Toluidine-3-sulphonic acid (LIMPRICHT), 1885, A., 1233; (JANOVSKY), 1888, A., 956.
- p*-Toluidine-5-sulphonic acid, 2-nitro-, and its salts (LIMPRICHT), 1885, A., 1233; (FORTH), 1886, A., 152.

(*Toluene compounds*  $M_e=1$ .)

- p*-Toluidine-5-sulphonic acid, 3-nitro- (NIETZKI and POLLINI), 1890, A., 502.
- o*-Toluidine-*p*-thiosulphonic acid (PAY-SAN), 1884, A., 453.
- p*-Toluidine-*o*-thiosulphonic acid (HEFF-TER), 1884, A., 454.
- Toluido-. See Tolylamido-.
- Toluidylmelamine (FRIES), 1886, T., 742.
- Toluisatin (*ditoloxindole*) and its derivatives (v. BAAYER and LAZARUS), 1886, A., 154.
- Tolunaphthazines, isomeric, constitution of (WRTT), 1887, A., 591.
- Tolunitranilic acid (4-nitro-3:6-dihydroxytoluquinone) (KEHRMANN), 1888, A., 940; (KEHRMANN and BRASCH), 1889, A., 969.
- p*-Toluoïn (STIERLIN), 1889, A., 513.
- o*-Toluoïntrile from formo-*o*-toluidide (GASIOROWSKI and MERZ), 1884, A., 734.
- heats of combustion and formation of (BERTHELOT and PETIT), 1889, A., 812.
- $\omega$ -bromo- (DRORY), 1891, A., 1461.
- 5-bromo- (NOURNISON), 1887, A., 668; (CLAUS and KUNATH), 1889, A., 987.
- 3:5-dibromo- (CLAUS and BECK), 1892, A., 1207.
- $\omega$ -chloro- (GABRIEL and OTTO), 1887, A., 1035; (DRORY), 1891, A., 1460.
- di*- $\omega$ -chloro- (GABRIEL and WEISE), 1888, A., 261.
- p*-Toluoïntrile from formo-*p*-toluidide (GASIOROWSKI and MERZ), 1884, A., 734.
- 3-amido- (NIEMENTOWSKI), 1888, A., 837; (GLOCK), 1888, A., 1291.
- 2-bromo- (CLAUS and KUNATH), 1889, A., 987.
- 2:6-dibromo- (CLAUS and SEIBERT), 1892, A., 176.
- 3:5-dibromo- (CLAUS and HERBANY), 1892, A., 175.
- 3:5- and 3:6-bromonitro- (CLAUS and HERBANY), 1892, A., 175.
- 2- and 3-chloro- (CLAUS and DAVIDSEN), 1889, A., 988.
- di*- $\omega$ -chloro- (GABRIEL and WEISE), 1888, A., 261; (REINGLASS), 1891, A., 1344.
- 2:5-chloronitro- (CLAUS and BOCHER), 1892, A., 173.
- 3:6-chloronitro- (CLAUS and DAVIDSEN), 1892, A., 172.
- 3-nitro- (LEUCKART), 1886, A., 351; (NIEMENTOWSKI), 1888, A., 837; (WEISE), 1890, A., 47.

(*Toluene compounds*  $M_e=1$ .)

- p*-Toluoïntrile, 3 5-dinitro- (CLAUS and BEYSEN), 1892, A., 177.
- Toluoïnylazimide (NIEMENTOWSKI), 1888, A., 837.
- p*-Toluoïnyl-*o*-benzoic acid (FRIEDEL and CRAFTS), 1889, A., 242.
- trichloro*- (LE ROYER), 1887, A., 832.
- o*-Toluoïnylcyanocamphor (HALLER), 1891, A., 1499.
- p*-Toluoïnyl-ethylamide and -methylamide (GATTERMANN and SCHMIDT), 1887, A., 358.
- p*-Toluoïnyl- $\beta$ -propionic acid (CLAUS and SCHLARN), 1887, A., 827; (DURCKER), 1888, A., 951.
- o*-Toluoïnyl-*o*-tolenylamidoxime (STIFGLITZ), 1890, A., 255.
- p*-Toluoïnyl-*p*-toluidide (LEUCKART), 1890, A., 759.
- o*-Toluoïnylxylide (SMITH), 1892, A., 491.
- Toluphenanthrazine, bromo- (HARTMANN), 1890, A., 976.
- $\alpha$ -Toluphosphinic acid and its derivatives (WEILER), 1887, A., 825.
- p*-Toluphosphonic acid (WEILER), 1888, A., 836.
- Toluphosphonic acids,  $\alpha$ - and  $\beta$ -, derivatives of (WEILER), 1888, A., 835.
- Toluoïnaldine. See Dimethylquinoline.
- 2:5-Toluoïnol (*hydrotoluoïnone*) (SCHNITER), 1887, A., 1036.
- compounds of, with amines (HEBERBRAND), 1883, A., 60.
- and methyl ethers of, and their condensation products (NIETZKI), 1883, A., 467.
- 4:6-diamido- (KEHRMANN and BRASCH), 1889, A., 970.
- 4-bromo- (SCHNITER), 1887, A., 1036.
- tri*bromo- (CANZONERI and SPICA), 1883, A., 331.
- $\beta$ -chloro- (SCHNITER), 1887, A., 1036.
- tri*chloro- (CLAUS and RUHMANN), 1883, A., 1112.
- $\alpha$ - and  $\beta$ -chlorobromo- (SCHNITER), 1887, A., 1036.
- 3-iodo- (KEHRMANN), 1889, A., 993.
- di*nitro- (WENDER), 1890, A., 752.
- 4:6-dinitro- (KEHRMANN and BRASCH), 1889, A., 969.
- nitramido- (KEHRMANN and BRASCH), 1889, A., 970.
- Toluoïnoline. See Methylquinoline.
- 2 5-Toluoïnone (SCHNITER), 1887, A., 1036.
- compound of, with *o*-nitraniline (HEBERBRAND), 1883, A., 61.
- 3-bromo- (CLAUS and JACKSON), 1889, A., 128.
- 4-bromo- (SCHNITER), 1887, A., 1036.

(Toluene compounds  $Me=1$ .)

2:5-Toluquinone, *di-* and *tri-*bromo- (CANZONERI and SPICA), 1883, A., 330.

*tribromo-*, action of potassium hydroxide on (SPICA and MAGNANIMI), 1884, A., 175.

$\alpha$ -chloro- (CLAUS and SCHWEITZER), 1886, A., 614.

$\beta$ -chloro- (SCHNITZER), 1887, A., 1036.

3:4:6-trichloro- (CLAUS and RIMMANN), 1883, A., 1112.

$\alpha$ - and  $\beta$ -chlorobromo- (SCHNITZER), 1887, A., 1036.

3-iodo-, and 4:6-di-iodo- (KEHRMANN), 1889, A., 993.

Toluquinonechlorimide [m.p. 88°] and its derivatives (HIRSCH), 1885, A., 892.

[m.p. 75°] (STAEDEL and KOLD), 1891, A., 187.

Toluquinoneoxime. See Nitroso-cresol.

Toluquinone-2:5-dioxime (MEHNE), 1888, A., 463; (NIETZKI and GUTERMANN), 1888, A., 471.

Toluquinone/tetroxime and its anhydride (GOLDSCHMIDT and STRAUSS), 1887, A., 809.

Toluquinoxaline. See Methylquinoxaline.

Toluric acids, *o*-, *m*- and *p*- (GLIEDTSCH and MOELLER), 1889, A., 708.

Toluthiamides, *o*- and *p*- (GABRIEL and HEYMANN), 1891, A., 701.

Tolylene. See Stilbene.

*p*-Tolyl benzyl ketone (STRASSMANN), 1889, A., 883.

oxidation of (BUCHER), 1890, A., 260.

bromo-derivatives of (BUCHER), 1890, A., 260.

*p*-Tolyl benzyl oxide (STAEDEL), 1883, A., 585.

nitro-derivatives (FRISCHE), 1881, A., 1337.

*p*-Tolyl *d*/bromomethyl ketone (CLAUS), 1890, A., 769.

Tolyl ether, preparation of, from *p*-cresol (BUCH), 1885, A., 117.

Tolyl ethers, heat equivalent of (STOHMANN, RODAIZ and HERZBERG), 1887, A., 428.

Tolyl ethyl ether. See Ethoxytoluene.

*p*-Tolyl ethyl ketone, and its nitro-derivatives (ERRERA), 1891, A., 1052.

*p*-Tolyl glycidyl ether (LINDEMANN), 1891, A., 1199.

*p*-Tolyl heptadecyl ketone (KRAFFT), 1888, A., 1087.

(Tolyl compounds  $Me=1$ .)

Tolyl methyl ether. See Methoxytoluene.

Tolyl methyl and ethyl ethylene di-oxides (SCHREFFER), 1891, A., 553.

*o*-Tolyl methyl ketone, 5-bromo- and 5-chloro- (CLAUS), 1891, A., 911.

*m*-Tolyl methyl ketone (ESSENER and GOSSIN), 1885, A., 252; (v. BUCHKA and IRISH), 1887, A., 826.

6-amido- (KLINGEL), 1884, A., 1313; 1886, A., 60.

4-bromo- (SCHÖFF), 1892, A., 338; (CLAUS), 1892, A., 1200.

6-bromo- (CLAUS), 1891, A., 911.

4-chloro- (CLAUS), 1892, A., 1201.

6-chloro- (CLAUS), 1891, A., 911.

*p*-Tolyl methyl ketone (CLAUS and RIEDEL), 1886, A., 462; (CLAUS), 1890, A., 769.

oxidation of (CLAUS and NEUKRANZ), 1891, A., 1364.

derivatives of (ERRERA), 1891, A., 1021.

*m*-Tolyl methyl ketoxime, 4-bromo- and 4-chloro- (CLAUS), 1892, A., 1201.

*p*-Tolyl methyl ketoxime (CLAUS), 1890, A., 769.

*p*-Tolyl methyl pinacone (*ditolylbutylene glycol*) (CLAUS), 1890, A., 769.

*p*-Tolyl nitrosomethyl ketone (MÜLLER and v. PECHMANN), 1890, A., 52.

*o*-Tolyl oxide (GLADSTONE and TREBE), 1886, T., 28.

*p*-Tolyl pentadecyl ketone (KRAFFT), 1888, A., 1087.

*p*-Tolyl disulphoxide (OTTO and ROSSING), 1885, A., 1232.

*o*-Tolyl xylol ketone (SMITH), 1892, A., 491.

*o*-Tolylacetamide, trichloro- (CLOEZ), 1887, A., 1098.

*m*-Tolylacetic acid (*m-methylphenylacetic acid*), dinitro- (SLKOWSKI), 1889, A., 255.

*p*-Tolylacetic acid (RADZISZEWSKI and WISPEK), 1885, A., 889; (CLAUS and KROSENBERG), 1887, A., 919; (STRASSMANN), 1889, A., 883.

preparation of (CLAUS and WEHR), 1891, A., 1365.

2-mononitro-, and 2:6-dinitro- (CLAUS and WEHR), 1891, A., 1365.

Tolylacetic acids (RADZISZEWSKI and WISPEK), 1885, A., 889.

*m*-Tolylacetylene (*methylcinnamene*; *methylstyrene*), and its bromo-derivative (MÜLLER), 1887, A., 725.

- (*Tolyl compounds Mc=1.*)
- p*-Tolylacetylene dibromide (SCHRAMM), 1891, A., 898.
- o*-Tolylacrylic acid (*methylcinnamic acid*) (KROBER), 1890, A., 969.
- m*-amido- (v. MILLER and ROHDE), 1890, A., 1140.
- m*-Tolylacrylic acid (BORNEMANN), 1884, A., 1163; 1887, A., 829; (MÜLLER), 1887, A., 724.
- derivatives of (MÜLLER), 1887, A., 724.
- salts of (BORNEMANN), 1884, A., 1163.
- p*-Tolylacrylic acid (KRÖBER), 1890, A., 969; (v. MILLER and ROHDE), 1890, A., 1140.
- Tolylaniline. See Tolylamidopropionic acid.
- Tolylallylsemithiocarbazides, *o*- and *p*- (AVENARIUS), 1891, A., 550.
- p*-Tolylallylsulphone (OTTO), 1891, A., 1067.
- Tolylallylthiocarbamide (DIXON), 1889, T., 622; (PRAGER), 1890, A., 160.
- m*-Tolylamidoacetic acid ( $C_7H_7CH(NH_2)COOH$ ) (BORNEMANN), 1884, A., 1163.
- o*-Tolylamidoacetic acid (*tolylglycine*; *tolylglycin*) and its derivatives (EHRlich), 1883, A., 594; (BISCHOFF and HAUSDORFER), 1890, A., 1285; 1892, A., 1333.
- calcium salt of (MAUTHNER and SUDA), 1891, A., 39.
- m*-Tolylamidoacetic acid, and its derivatives (EHRlich), 1883, A., 54.
- p*-Tolylamidoacetic acid, and its derivatives (BISCHOFF and HAUSDORFER), 1890, A., 1284; 1892, A., 1335.
- fusion of, with alkalis (HEUMANN), 1891, A., 928.
- o*-nitro- (PLOCHL), 1886, A., 351.
- salts of (LEUCKART and HERMANN), 1887, A., 383.
- p*-Tolylamidoacetimide (BISCHOFF and HAUSDORFER), 1890, A., 1284.
- o*-Tolylamidoacetotoluidide (EHRlich), 1883, A., 593.
- o*-Tolylamidoaceto-*o*-tolylamidoacetic acid (ABENTUS and WIDMAN), 1888, A., 824.
- p*-(*o*)-Tolylamidobenzoic acid, *m*-amido-, and *m*-nitro- (HEIDENSLEREN), 1891, A., 306.
- p*-(*p*)-Tolylamidobenzoic acid, *m*-amido- (HEIDENSLEREN), 1891, A., 306.
- m*-nitro- (SCHÖPF), 1890, A., 374; (HEIDENSLEREN), 1891, A., 306.
- α*-Tolylamidobutyric acids, *o*- and *p*- (BISCHOFF and MINTZ), 1892, A., 1338.
- (*Tolyl compounds Mc=1.*)
- Tolylamidoisobutyric acids, *α*- and *β*- *o*- and *p*- (BISCHOFF and MINTZ), 1892, A., 1339.
- p*-Tolylamidocinnoline (BUSCH and KLETT), 1892, A., 1494.
- Tolylamidoethylphthalimide, *o*- and *p*- (NEWMAN), 1891, A., 1207.
- p*-Tolylamido-*p*-methyloxindole, and its salts (DÜSBERG), 1885, A., 543.
- p*-Tolylamidonaphthaquinone, *m*-nitro- (LEICESTER), 1890, A., 1447.
- Tolylamidonaphthaquinoneditoluidide (FISCHER and HEPP), 1890, A., 910.
- p*-Tolylamido-*β*-naphthaquinone-*p*-toluidide (MELDOLA), 1884, T., 159; (BROMME), 1888, A., 491.
- Tolylamidoperezone, *o*- and *p*- (MYLIUS), 1885, A., 778; (ANNSCHUTZ and LEATHER), 1886, T., 718.
- Tolylamidophenol. See Hydroxyphenyltolylamine.
- o*-*α*-Tolylamidopropionic acid (TIEMANN and STEPHAN), 1883, A., 199; (GERSON), 1887, A., 260.
- p*-*α*-Tolylamidopropionic acid (TIEMANN and STEPHAN), 1883, A., 199; (BISCHOFF and HAUSDORFER), 1892, A., 1337.
- 3-nitro- (HINSBERG), 1892, A., 1359.
- α*-Tolylamidopropionic acids and amides, *o*- and *p*-, and their *tribromo*-derivatives (TIEMANN and STEPHAN), 1883, A., 199; (STEPHAN), 1887, A., 143.
- p*-*β*-Tolylamidopropionic acid (*p*-tolyl-*β*-alanine) (BISCHOFF and MINTZ), 1892, A., 1343.
- α*-Tolylamidopropionitriles, *o*- and *p*-, *dibromo*- (STEPHAN), 1887, A., 143.
- and their *tribromo*-derivatives (TIEMANN and STEPHAN), 1883, A., 199; (STEPHAN), 1887, A., 143.
- o*-Tolylamidopyrotartarimide (SCHILLER-WECHSLER), 1885, A., 901.
- p*-Tolylamidotoluquinone, *m*-nitro- (LEICESTER), 1890, A., 1446.
- o*-Tolylamidotricarballylic acid (EMERY), 1891, A., 680.
- Tolylamine. See Toluidine.
- Tolylammelins (OTTO), 1887, A., 1034.
- Tolylanilido-. See Anilidotolyl-.
- Tolylaniline, 2:4:6-*trinitro*- (*trinitro-3 anilidotoluene*) (BENTLEY and WARREN), 1890, A., 486; (JACKSON and BENTLEY), 1892, A., 1218.
- Tolylanraminesalts (FEHRMANN), 1888, A., 157.
- p*-Tolylazimidobenzene, amido- (WILLGERODT), 1892, A., 1322.

(*Tolyl compounds*  $Me=1$ .)

**Tolylazo-*m*- and -*p*-cresols**, sulpho-*o*- and -*p*- (*sulphotoluencresols*), and salts (NÖLTING and KOHN), 1884, A., 901.

***m*-Tolylbenzene**. See 1:3-Methyldi-phenyl.

***p*-Tolylbenzene** (*phenyltoluene*), derivatives of (CARNELLEY and THOMSON), 1886, P., 258; 1887, T., 87.  **$\alpha$ -bromo-** (CARNELLEY and THOMSON), 1885, T., 586; P., 88; 1887, T., 87.

**$\alpha$ - and  $\beta$ -dibromo-** (CARNELLEY and THOMSON), 1887, T., 89.

***p*-Tolylbenzenylimidoximecarbonyl** (MULLER), 1890, A., 43.

***p*-Tolylbenzenylthiouramidoxime** (TIEMANN), 1891, A., 558; (Koch), 1891, A., 561.

***m*-Tolylbenzoic acid** (PERRIER), 1892, A., 851.

**Tolylbenzylacetic acid**, *o*-, *m*- and *p*- (PAPCKE), 1888, A., 701.

***p*-Tolylbenzylisobutylcarbamide** (HAMMERICH), 1892, A., 1084.

***p*-Tolylbenzylcarbamie chloride** (HAMMERICH), 1892, A., 1083.

***p*-Tolyl-*o*-benzylenediamine** (SODERBAUM and WIDMAN), 1890, A., 1258.

**Tolylbenzyl cyanides**, *o*-, *m*- and *p*- (PAPCKE), 1888, A., 701.

***o*-Tolylbenzylideneamine** (EFARD), 1883, A., 179.

**Tolylbenzylisophosphine** (MICHAELIS and GLEICHMANN), 1883, A., 186.

***p*-Tolylbenzylsemithiocarbazide** (DIXON), 1892, T., 1022.

**Tolylbenzylthiocarbamides**, *o*-, *m*- and *p*- (DIXON), 1891, T., 555.

***p*-Tolylbromacetic acid** (CHAS and WEHR), 1891, A., 1366.

***p*-Tolylbromomethyl disulphone** (OILIO), 1890, A., 381.

**Tolylbutane**. See *isobutyltoluene*.

**Tolylisobutyric acid**, 6-nitro- (EIERONI), 1885, A., 152.

***m*-Tolylcarbamide**, *di-o*-chloro- (KOCK), 1887, A., 810.

***p*-Tolylcarbamide**, and its derivatives (PINNOW), 1892, A., 460.

**dithio-** (TRUHLAR), 1887, A., 473.

**Tolylcarbinols**, *o*- and *m*- (COISON), 1885, A., 654.

**Tolylcarbiny-acetamide and -carbamide** (KROPP), 1890, A., 969.

***p*-Tolyl- $\omega$ -chlorobenzylsulphone** (OTTO), 1890, A., 380.

**Tolyl-dichloromethyldimethylcarbinol** (WILLGERODT and GRUNISER), 1888, A., 811.

(*Tolyl compounds*  $Me=1$ .)

***p*-Tolylcumylcarbamide** (GOLDSCHMIDT and GESSNER), 1889, A., 774.

***p*-Tolyl- $\psi$ -cumylcarbamide** (GOLDSCHMIDT and BARDACH), 1892, A., 979.

***o*-Tolyleyanamide** (TIEMANN), 1889, A., 1165; 1890, A., 1127; (VOLTMER), 1891, A., 558.

***p*-Tolyldibenzylcarbamide** (HAMMERICH), 1892, A., 1083.

***p*-Tolyldiethylphosphine** (CZIMATIS), 1883, A., 58.

***o*-Tolyldiethylthiocarbamide** (GEHARDT), 1885, A., 333.

***p*-Tolyldihydro- $\beta$ -phenotriazine** (BUSCH), 1892, A., 734.

**Tolyldihydroquinazolines**, *o*- and *p*- (PAAL and BUSCH), 1890, A., 73.

**Tolyldimethyl- $\delta$ -amidodiphenylmethane**, *p*-nitro- (NÖLTING), 1892, A., 189.

**Tolyldimethyl- $\delta$ -amidophenylmethane and -diethyl- $\delta$ -amidodiphenylmethane**, *p*-nitro- (NÖLTING), 1891, A., 727.

***m*-Tolyldimethylethylmethane** (*tolyl-pentane*) (ESSNER and GOSSEN), 1885, A., 517.

***p*-Tolyldimethylphosphine** and its derivatives (CZIMATIS), 1883, A., 57.

***p*-Tolyldimethylpyrrolone** and its dicarboxylic acid (KNORR), 1885, A., 555.

**1:2-Tolyl-2 3-dimethylpyrazolone** (KNORR), 1884, A., 1153.

**Tolyldimethylthiohydantoins**, *o*- and *p*- (MARCKWALD, NEUMARK and STELZNER), 1892, A., 150.

**Tolyl- $\beta$ -dimethyl- $\mu$ -thiomethoxyglyoxalines**, *o*- and *p*- (MARCKWALD, NEUMARK and STELZNER), 1892, A., 153.

**Tolyldioxamide** (SCHIFF and VANNI), 1891, A., 908; 1892, A., 603.

**Tolylene blue and red** (BRENTNAN and SCHWITZER), 1887, A., 139; (NIEZKI and ERNST), 1890, A., 1111.

**Tolylenealdehydenitrodimeethoxybenz-enyl-*o*-carboxylic acid** (BISIRZYCKI and CHUBSKI), 1892, A., 1249.

**Tolylene- $\delta$ -amidocyanuric chloride** (FRIES), 1886, T., 711.

**Tolyleneauramine** (FEHRMANN), 1888, A., 157.

**Tolylenebenzenylamidine**, nitro- (BISIRZYCKI and ULFFERS), 1892, A., 1197.

**Tolylene-carbamide** (LEUCKART), 1890, A., 760.

**bromo-** (HAFTMANN), 1890, A., 975. **Tolylene-diallyl- $\delta$ -thiocarbamide** (TIELLMANN), 1885, A., 977.

(*Tolyl compounds Me=1.*)

- Tolylenediamine** (*diamidtoluene*), action of ethylic chloracetate on (ZIMMERMANN and KNIRIM), 1883, A., 797.  
 physiological action of (GIBBS and REICHERT), 1891, A., 1281.  
 ferruginous pigment formed in poisoning by (ENGEL and KIENER), 1888, A., 81.  
*α*- and *β*-trichloro- (SEELIG), 1885, A., 770.  
**2:3-Tolylenediamine** and its derivatives (LELLMANN), 1885, A., 976.  
 4-bromo- (HUBNER and SCHUPPHAUS), 1884, A., 1143.  
**2:4-Tolylenediamine** and its salts (NÖLTING and COLLIN), 1884, A., 1007.  
 conversion of, into an amidocresol and *γ*-orcinol (WALLACH), 1883, A., 329.  
 citrate (SCHNEIDER), 1888, A., 465.  
*d*initro- (NIETZKI and ROSEI), 1891, A., 192.  
 3:5:6-*tr*initro- (PALMER), 1889, A., 390.  
**2:6-Tolylenediamine** (ULLMANN), 1884, A., 1316.  
**3:4-Tolylenediamine** (SNAPR), 1886, T., 259.  
 action of monatomic aldehydes of the fatty series on (HINSBERG), 1887, A., 816.  
 action of cyanogen on (BLADIN), 1885, A., 784.  
 action of ethylic acetoacetate on (WITT), 1887, A., 247.  
 action of ethylic chloracetate on (HINSBERG), 1886, A., 83.  
 action of formaldehyde on (FISCHER and WRESZINSKI), 1892, A., 1496.  
 derivatives of (AUTENRIETH and HINSBERG), 1892, A., 709.  
 oxalic acid derivatives of (HINSBERG), 1883, A., 323.  
 5-bromo- (BISTRZYCKI), 1890, A., 970.  
*di*cyno-, and its derivatives (BLADIN), 1885, A., 257.  
**3:5-Tolylenediamine** (STAEDER), 1883, A., 865.  
**Tolylenediamineazobenzeneazobenzenesulphonic acid** (*azosulphobenzene-toluenediamine*) (GRIESS), 1883, A., 1103.  
**3:4-Tolylenediaminebenzylidenesulphonic acid**, sodium salt of (KAFKA), 1891, A., 721.  
**2:3-Tolylenediamine-5-sulphonic acid** (NIETZKI and POLLINI), 1890, A., 502.

(*Tolyl compounds Me=1.*)

- 2:4-Tolylenediamine-5-sulphonic acid** (LIMPRICHT), 1885, A., 1234;  
 (FOTH), 1886, A., 153.  
 derivatives (LIMPRICHT), 1885, A., 1234.  
**Tolylenediamine-*p*-thiosulphonic acid** (PERL), 1885, A., 391.  
**2:4-Tolylenedioxamethane** (*ethylic tolyldioxamate*) (SCHIFF and VANNI), 1891, A., 907; 1892, A., 603.  
**Tolylenedioxamic acid** (SCHIFF and VANNI), 1891, A., 908; 1892, A., 604.  
**Tolylenediurethane** (SCHIFF and VANNI), 1890, A., 1124.  
**Tolylene-ethenylamidine** (*ethenyltolylenediamine*) (NIEMENTOWSKI), 1886, A., 545; 1892, A., 837; (WITT), 1887, A., 247.  
 bromo- (HARTMANN), 1890, A., 976.  
 nitro- (BANKIEWICZ), 1888, A., 1184.  
*mono*- and *di*-nitro- (BISTRZYCKI and ULFFERS), 1892, A., 1197.  
**Tolyleneisoethenylamidine** (*isoethenyltolylenediamine*) and its derivatives (NIEMENTOWSKI), 1892, A., 838.  
**Tolylene-ethenylethylamidine** (*ethenyltolyltolylenediamine*) (HINSBERG), 1887, A., 817.  
***o*-Tolylene-ethyldiamine** (KOCK), 1888, A., 469.  
***m*-Tolylene-ethyldiamine** (NÖLTING and STRICKER), 1886, A., 544.  
**Tolylenemalonamide** (SCHIFF and VANNI), 1892, A., 600.  
**Tolylenemethenylamidine** (*formanhydrosodiumidolene*) and its bromo-derivative (HUBNER and SCHUPPHAUS), 1884, A., 1143.  
**Tolylenemethyldiamine** (**o*-amidomethyl-*p*-toluidine*) (BAMBERGER and WULZ), 1891, A., 1203.  
**Tolylenemethylethenylamidine** (*methylethenyltolylenediamine*) and its methiodide (NIEMENTOWSKI), 1887, A., 937.  
**Tolyleneopiamine** (BISTRZYCKI), 1888, A., 1210.  
**Tolylenoxamide** (SCHIFF and VANNI), 1892, A., 599, 1208.  
**Tolylenephthalamidone** (BISTRZYCKI and CYBULSKI), 1892, A., 1248.  
**Tolylenepropenylamidine** (BISTRZYCKI and ULFFERS), 1890, A., 1115.  
**Tolylene-semiurethane and -urethane** (SCHIFF and VANNI), 1890, A., 1124.  
***m*-Tolylenedithiocarbamide**, and its preparation (BILLETER and STEINER), 1886, A., 234.  
**Tolylenethiocarbamides**, *o*- and *m*- (BILLETER and STEINER), 1887, A., 367.

(Tolyl compounds Me=1.)

- m-p*-Tolylene-*mono*- and -*di*-thiocarbamides and their derivatives (LELLMANN), 1881, A., 49.
- Tolylene-*mono*- and -*di*-thiocarbimides (BILLETER and STEINER), 1886, A., 234.
- m*-Tolylene*di*thiourethane (BILLETER and STEINER), 1887, A., 367.
- Tolylenic diazophosphide (JACOBSON and NEY), 1889, A., 772.
- m*-Tolylenic diisocyanate (SNAPE), 1886, T., 257.
- Tolylethénylamidine (WALLACH), 1883, A., 48.
- Tolylethylene*di*amines, *o*- and *p*- (NEWMAN), 1891, A., 1207.
- p*-Tolylethylhydrazidopyruvic acid (HÜGEL), 1886, A., 552.
- p*-Tolylethyl*nitrosamine* (GASTIGER), 1885, A., 381.
- o*-Tolylethyl*semithiocarbazide* (DIXON), 1890, T., 262.
- p*-Tolylethylsulphone (OTTO), 1885, A., 537.
- Tolylethylthiobiuret (TURSINI), 1884, A., 1141.
- p*-Tolylethylthiourethane, *o*-nitro- (STEUDEMANN), 1884, A., 307.
- p*-Tolylformamidine, cyano- (COMSROCK and WHEELER), 1892, A., 707.
- Tolylfurfuryl-carbamide and -thiocarbamide (DEUTZMANN), 1892, A., 43.
- Tolylglycocine (*tolylglycine*). See Toly-amidoacetic acid.
- o*-Tolylglycollic acid (OGLIALORO-TODARO and CANNONE), 1890, A., 375.
- m*-Tolylglycollic acid (OGLIALORO-TODARO and FORTE), 1891, A., 320.
- p*-Tolylglycollic acid, derivatives of (NAPOLITANO), 1883, A., 1126.
- p*-Tolylglyoxal hydrate (MÜLLER and v. RECHMANN), 1890, A., 52.
- v-p*-Tolylglyoxaline (MARCKWALD), 1892, A., 1329.
- v-p*-Tolylglyoxalyl methyl sulphide (MARCKWALD), 1892, A., 1329.
- v-p*-Tolylglyoxalyl-*μ*-mercaptan (MARCKWALD), 1892, A., 1328.
- p*-Tolylglyoxylic acid (v. BUCHKA and IRNH), 1887, A., 826; (CLAUS and KROSEBERG), 1887, A., 948; (v. BUCHKA), 1887, A., 949.
- Tolylglyoxylic aldehyde (CLAUS), 1890, A., 769.
- p*-Tolylhexyldihydro*tolutrazine* (GOLDSCHMIDT and POLTZER), 1891, A., 842.
- o*-Tolylhydantoin (EHRICH), 1883, A., 1106.

(Tolyl compounds Me=1.)

- γ*-Tolylhydantoin (QUENDA), 1892, A., 828.
- p*-Tolylhydrazidoacetone (RASCHEN), 1887, A., 956.
- p*-Tolylhydrazidocamphoric acid (CHAPLIN), 1892, A., 1481.
- Tolylhydrazidopyruvic acids, *o*- and *p*- (RASCHEN), 1887, A., 956.
- m*-Tolylhydrazine (v. BUCHKA and SCHACHTERBECK), 1889, A., 702.
- p*-Tolylhydrazine, action of chloroform and alcoholic potash on (RUHEMANN), 1889, T., 247.
- sulphonation of (GALLINEK and v. RICHTER), 1886, A., 237.
- phosphinite (MICHAELIS and OSTER), 1892, A., 1325.
- Tolylhydrazinedisulphonic acid (RICHTER), 1886, A., 152.
- Tolylhydrazine-*o* sulphonic acid (BRACKETT and HAYES), 1888, A., 279.
- p*-Tolylhydrazine-5-sulphonic acid, 2-nitro- (LIMPRICHT), 1885, A., 1216; (FOTH), 1886, A., 153.
- Tolylhydrazinesulphonic acids, *o*- and *p*- (LIMPRICHT), 1885, A., 1216.
- action of concentrated sulphuric acid on (SCHNEIDER), 1887, A., 146.
- p*-Tolylhydrazo-*p*-cresotol (NOLTING and WERNER), 1891, A., 214.
- o*-Tolylhydrazo-*p*-cresol and *p*-tolylhydrazo-*o*-cresol (NOLTING and WERNER), 1891, A., 213.
- p*-Tolylhydrazone (JAPP and KLINGEMANN), 1888, T., 514.
- thionyl- (MICHAELIS and RUHL), 1890, A., 617; 1892, A., 1324.
- p*-Tolylhydrazophenotol (NOLTING and WERNER), 1891, A., 212.
- Tolylhydrazonopyruvic acids, action of heat on (JAPP and KLINGEMANN), 1888, T., 543.
- p*-Tolylhydrazotolyl-*mono*- and -*di*-thiobiazolone (FREUND), 1892, A., 512.
- p*-Tolylhydroxyethylamine (SCHREIBER), 1891, A., 552.
- p*-Tolyllic acetate, *di*iodo- (SCHALL and DRALLE), 1885, A., 146.
- Tolyllic *o*-acetates, *o*-, *m*- and *p*- (HEIBER), 1892, A., 308.
- p*-Tolyllic benzoate, *di*bromo- and *di*iodo- (SCHALL and DRALLE), 1885, A., 146.
- Tolyllic dichlorides, *isocyno*-, *o*- and *p*- (NEF), 1892, A., 1441.
- mercuric chlorides, *o*-, *m*- and *p*- (MICHAELIS and GENZKEN), 1884, A., 146.

- (*Tolyl compounds Me=1.*)
- p*-Tolyllic cinnamate, and the action of heat on (ANSCHUTZ), 1885, T., 898; A., 1061.
- Tolyllic cyanate, nitro- (GATTERMANN and CANTZLER), 1892, A., 833.
- cyanates, polymerisation products of (FRENTZEL), 1888, A., 454.
- m*-Tolyllic isocyanate (HEILMANN), 1891, A., 201.
- Tolyllic isocyanides, *o*- and *p*- (NEF), 1892, A., 1441.
- cyanurates, *o*- and *p*- (FRENTZEL), 1888, A., 454.
- p*-Tolyllic diphenylcarbamate (LELLMANN and BENZ), 1891, A., 1215.
- Tolyllic ethylxanthates, *o*-, *m*- and *p*- (LEUCKART), 1890, A., 603.
- p*-Tolyllic fumarate and action of heat on (ANSCHUTZ and WIRTZ), 1885, T., 901; A., 1064.
- laurate, myristate, palmitate and stearate (KRAFFT and BURGER), 1884, A., 1125.
- Tolyllic phenylcarbamates, *o*- and *p*- (LEUCKART), 1890, A., 760.
- p*-Tolyllic phenylmethylcarbamate (LELLMANN and BENZ), 1891, A., 1215.
- o*-Tolyllic phosphate, dichloro- (STUART), 1888, T., 403; P., 24.
- p*-Tolyllic phosphate (RAPP), 1884, A., 1338.
- Tolyllic phosphates, nitration of (RAPP), 1884, A., 1337.
- sulphide (PUNGOTTI), 1890, A., 1420.
- disulphide, sulpho- (OTTO and TRÖGER), 1891, A., 924.
- tetrasulphide (OTTO), 1887, A., 923.
- p*-Tolyllic *s*-dithiocarbonate (LEUCKART), 1890, A., 603.
- Tolyllic thiocyanates, *o*- and *p*- (THURNAUER), 1890, A., 749.
- o*-Tolyllic *o*-tolylcarbamate (GATTERMANN and CANTZLER), 1892, A., 832.
- o*-Tolyl- $\beta$ -imidobutyric acid (PAWLEWSKI), 1889, A., 1171.
- Tolyl- $\beta$ -imidobutyric acids, *o*- and *p*-, synthesis of (KNORR), 1884, A., 1198.
- Tolylimidocarbonyl chloride (NEF), 1892, A., 1441.
- o*-Tolylimidodiacetamide (BISCHOFF and HAUSDÖRFER), 1892, A., 1335.
- o*-Tolylimidodiacetic acid (BISCHOFF and HAUSDÖRFER), 1890, A., 1285.
- ammonium salt of (BISCHOFF and HAUSDÖRFER), 1892, A., 1335.
- p*-Tolylimidodiacetic acid (BISCHOFF and HAUSDÖRFER), 1890, A., 1285; 1892, A., 1336.
- (*Tolyl compounds Me=1.*)
- p*-Tolylimidodiacetic ditoluidide (BISCHOFF and HAUSDÖRFER), 1892, A., 1336.
- o*-Tolylimidodiacetamide (BISCHOFF and HAUSDÖRFER), 1892, A., 1335.
- Tolylimidodiphenylethylalcohols (*o*- and *p*-tolylbenzoins) (BANDROWSKI), 1889, A., 147.
- p*-Tolylimidomethylene ethylenic disulphide (MIOLATI), 1891, A., 895.
- o*-Tolylindigo (HEUMANN), 1891, A., 837.
- p*-Tolylidomethylsulphone (OTTO), 1888, A., 482.
- p*-Tolylketodihydroquinazoline (PAAL and BUSCH), 1890, A., 73.
- Tolylketone aldehyde (*tolylglyoxylic aldehyde*) (CLAUS), 1890, A., 769.
- p*-Tolylketotetrahydroquinazoline (BUSCH), 1892, A., 1496.
- Tolylmethyl-dihydrophenotriazine (GOLDSCHMIDT and POLTZER), 1891, A., 841.
- 2'-*p*-Tolylmethyl-3'-ethyl-dihydrophenotriazine (GOLDSCHMIDT and POLTZER), 1891, A., 842.
- p*-Tolyl-*p*-methyl- $\psi$ -isatin, derivatives of (DUISBERG), 1885, A., 544.
- Tolylmethylmethenyl-diamine (FISCHER), 1889, A., 731.
- 1-*m*-Tolyl-2-*m*-methylphenyl-3-methylpyrazolone (1:2-*di-m*-tolyl-3-methylpyrazolone) (v. PERGER), 1886, A., 1046.
- p*-Tolyl- $\alpha$ -methylphthalimide (NIEMEN-TOWSKI), 1892, A., 608.
- o*-Tolylmethylpropylene- $\psi$ -thiocarbamide (PRAGER), 1890, A., 160.
- 1-*o*- and *p*-Tolyl-3-methylpyrazolone (KNORR), 1884, A., 1153.
- 1-*p*-Tolyl-3-methylpyrazolone-keto-4-*p*-tolylhydrazone (v. BUCHKA and SPRAGUE), 1890, A., 29; (SPRAGUE), 1891, T., 340.
- p*-Tolylmethylsulphone (OTTO), 1885, A., 537.
- mono- and di-chloro- (OTTO), 1890, A., 380.
- Tolylmethylthiocarbamides, *o*- and *p*- (DIXON), 1889, T., 620.
- o*-Tolylmethylthiohydantoin (MARCKWALD, NEUMARK and STELZNER), 1892, A., 150.
- o*-Tolyl- $\alpha$ - and - $\beta$ -naphthylamines (FRIEDLÄNDER), 1884, A., 80.
- p*-Tolyl- $\alpha$ -naphthylamine (FRIEDLÄNDER), 1884, A., 80.
- p*-Tolyl- $\beta$ -naphthylamine (FRIEDLÄNDER), 1884, A., 80; (WITT), 1887, A., 592.

(Tolyl compounds  $Me=1$ .)

- Tolynaphthylenediamine** (FISCHER), 1892, A., 1476.
- p*-Tolyl-*o*-naphthylenediamine and its anhydro- and thio-derivatives (FISCHER), 1892, A., 1173.
- Tolynaphthylsulphides** (BOURGEON), 1891, A., 1238.
- m*-Tolynitromethane (HEILMANN), 1891, A., 201.
- Tolynitrotoluenesulphazide**, nitro- (LIMPRICHT), 1887, A., 723.
- Tolyoctane**, amido- (*tolobylamine*) and its derivatives (DERAN), 1885, A., 524.
- p*-Tolylsazoneglyoxalcarboxylic acid (NASTVOGEL), 1889, A., 238.
- Tolyloxamethane**, amido-, and nitro-. See Ethylic amido- and nitro-tolyl-oxamates.
- o*-Tolylloxamic acid (MAUTHNER and SUIDA), 1886, A., 886.
- p*-Tolylloxamic acid, 2-amido- (SCHIFF and VANNI), 1890, A., 1125; 1891, A., 833; 1892, A., 599, 601, 1208.
- 3-nitro-, and its derivatives (HINSBERG), 1883, A., 323; (SCHIFF and VANNI), 1892, A., 601.
- p*-Tolylloxamide, nitro- (SCHIFF and VANNI), 1892, A., 601.
- p*-Tolyl-oxamide and -oxanilide, 2-amido- (SCHIFF and VANNI), 1891, A., 834; 1892, A., 602.
- Tolylloxamides**, *o*-, *m*- and *p*- (BLADIN), 1884, A., 1142.
- Tolyl-oxy-ethylamine**, -ethylaniline, -ethylcarbamide and -ethylphthalamic acid (SCHREIBER), 1891, A., 552.
- p*-Tolyl-oxyethylphthalimide, and its dinitro-derivative (SCHREIBER), 1891, A., 552.
- Tolylpentane** (ESSENER and GOSSIN), 1885, A., 517.
- Tolylphenyl-**. See Phenyltolyl-.
- o*-Tolylphthalamic acid and its methyl derivatives (KUNARA), 1887, A., 586.
- p*-Tolylphthalide (GRESLEY), 1886, A., 1028.
- o*-Tolylphthalimide (PIUTTI), 1884, A., 453; (KUNARA), 1887, A., 586.
- preparation of (HALLER), 1892, A., 1204.
- 1-*p*-Tolylpiperidine (LELLMANN and JUST), 1891, A., 1244.
- p*-Tolylpropaldehyde and its derivatives (v. RICHTER and SCHÜCHNER), 1884, A., 1342.
- α-p*-Tolylpropaldehyde (v. MILLER and ROHDE), 1890, A., 898; (ERRERA), 1891, A., 1020.

(Tolyl compounds  $Me=1$ .)

- m*-Tolylpropionic acid (MULLER), 1887, A., 725.
- o*-Tolylpropionic acid (*o*-methylhydrocinnamic acid) (YOUNG), 1892, A., 1221.
- m*-Tolylpropionic acid [m.p. 125°] (EFFRONT), 1885, A., 152.
- nitro- (EFFRONT), 1885, A., 152.
- m*-Tolylpropionic acid (*m*-methylhydrocinnamic acid) [m.p. 40°] (MULLER), 1887, A., 724.
- p*-Tolylpropionic acid (*p*-methylhydrocinnamic acid) (KRÜBER), 1890, A., 969.
- α-p*-Tolylpropionic acid (*methylhydrocinnamic acid*) (v. MILLER and ROHDE), 1890, A., 978, 1140; (ERRERA), 1891, A., 1021; (ERRERA and BALDRACCO), 1892, A., 605.
- m*-diamido- and *m*-dinitro- (ERRERA and BALDRACCO), 1892, A., 606.
- Tolylpropionic acid**. See also Methylhydrocinnamic acid.
- α-p*-Tolylpropionitrile (ERRERA), 1891, A., 1021.
- α-p*-Tolylpropylene (ERRERA), 1885, A., 772.
- β-p*-Tolylpropylene (ERRERA), 1891, A., 1021.
- Tolylpropylene-ψ-semithiocarbazides**, *o*- and *p*- (AVENARIUS), 1891, A., 550.
- o*-Tolylpropylene-ψ-thiocarbamide (PRAGER), 1890, A., 160.
- α-p*-Tolylpropylic alcohol (ERRERA), 1891, A., 1021.
- p*-Tolyl-*n*- and -*iso*-propylnitrosamines (HORI and MORLEY), 1891, T., 34.
- 1-Tolylpyrazoles, *o*- and *p*- (BALBIANO), 1889, A., 1216.
- 1-Tolylpyrazolethylammonium iodides, *o*- and *p*- (BALBIANO), 1889, A., 1216.
- 1-Tolylpyrazolines, *o*- and *p*- (BALBIANO), 1889, A., 1216.
- p*-Tolylpyrrolinedibenzoic acid (BAUMANN), 1887, A., 736.
- 3'-*m*-Tolylisoquinoline (HEILMANN), 1891, A., 202.
- 1'-chloro- (HEILMANN), 1890, A., 625; 1891, A., 202.
- 3'-*p*-Tolylisoquinoline and 1'-chloro- (RUEHMANN), 1892, A., 174.
- p*-Tolylrosinduline and *iso-p*-tolylrosinduline (FISCHER and HERR), 1890, A., 909.
- Tolylsemicarbazides**, *o*- and *p*- (PINNER), 1888, A., 687.
- Tolylstibine**, and its derivatives (MICHAELIS and GRNZKEH), 1884, A., 1135.

(Tolyl compounds Me=1.)

- Tolylsulphone** (TURGOTT), 1890, A., 1420.
- p*-Tolylsulphoneacetic acid (OTTO), 1885, A., 537.
- p*-Tolylsulphoneacetone (R. and W. OTTO), 1888, A., 282.
- p*-Tolylsulphone-ethyl and -ethylamine derivatives (OTTO and DAMKÖHLER), 1885, A., 538.
- α-p*-Tolylsulphonepropionic acid (OTTO), 1890, A., 382.
- preparation of the ethyl salts of (OTTO), 1885, A., 537.
- Tolylsulphophenylbenzenylamidine** (WALLACH), 1883, A., 48.
- p*-Tolyltetrahydroquinazoline (PAAL and BUSCH), 1890, A., 78.
- p*-Tolyltetrahydrothioquinazoline (BUSCH), 1892, A., 1496.
- Tolylthiazolines**, *μ-o*-, and *μ-p*- (GABRIEL and HEYMAN), 1891, A., 701.
- Tolylthiobiuret**, and its acetyl-derivative (TURSINI), 1884, A., 1140.
- Tolylthiocarbamic acids**, salts of (LOSANITSCH), 1892, A., 56.
- m*-Tolylthiocarbamide, *di-o*-chloro- (KOCK), 1887, A., 810.
- p*-Tolylthiocarbamide, action of acetic anhydride on (WERNER), 1891, T., 403.
- 2-nitro- (STEUEDEMAN), 1884, A., 307.
- thio- (TRUHLAR), 1887, A., 473.
- Tolylthiocarbazinic** *o*- and *p*-tolylhydrazides, *o*- and *p*- (FREUND), 1892, A., 511.
- o*-Tolylthiocarbimide, preparation of (WERNER), 1891, T., 402.
- action of aldehyde-ammonia on (DIXON), 1888, T., 418.
- action of, on thialdine (DIXON), 1889, T., 626.
- m*-Tolylthiocarbimide, preparation of (WERNER), 1891, T., 403.
- p*-Tolylthiocarbimide, preparation of (WERNER), 1891, T., 404.
- oxide (HELMERS), 1887, A., 581.
- nitro- (STEUEDEMAN), 1884, A., 307.
- Tolylthiocarbimide** (HOBBS), 1888, A., 708.
- o*-Tolylthiocarbimide-aldehyde-ammonia (DIXON), 1892, T., 520.
- o*-Tolylthiohydantoin (MARCKWALD, NEUMARK and STELZNER), 1892, A., 150.
- p*-Tolylthiourethane, *o*-nitro- (STEUEDEMAN), 1884, A., 307.
- o* Tolytoluenesulphazide (LIMPRICHT), 1887, A., 723.

(Tolyl compounds Me=1.)

- 1:4-*o*-Tolyl-*p*-tolylidiketopyrazine, 3:6-dichloro- (ABENIUS), 1890, A., 526.
- p*-Tolyl-2:4-tolylenediamine (*amido-ditolylamine*) (FISCHER and SIEDER), 1891, A., 434.
- p* Toly1-3:4-tolylenediamine, formation of, from *p*-ditolylhydrazine, and its derivatives (TAUBER), 1892, A., 853.
- p*-Tolyl-*o*-tolyleneguanidine- (KELLER), 1891, A., 1470.
- Tolyl-*p*- and -*o*-tolylsemithiocarbazides, *o*- and *p*- (DIXON), 1892, T., 1015.
- Tolyltrimethylphosphonium periodide (CZIMATIS), 1883, A., 57.
- Tolylurazoles**, *o*- and *p*- (PINNER), 1888, A., 687.
- Tolylurethane**, amido- (SCHIFF and VANNI), 1892, A., 600; (SCHIFF), 1892, A., 1203.
- 4-nitro- (SCHIFF and VANNI), 1892, A., 601.
- Tomato**, cooked, composition of (WILLIAMS), 1892, T., 227.
- Tomatoes**, composition and anatomical structure of the fruit of (BRIONI and GIGLI), 1891, A., 955; (PASSERINI), 1891, A., 956.
- Tonometer**, differential (BREMER), 1888, A., 402.
- Topaz**, Brazilian, liquid inclusions in (v. NORDENSKIÖLD), 1886, A., 674.
- from Maine, U.S. (BRADBURY), 1884, A., 27; (CLARKE and DILLER), 1886, A., 213.
- from Pike's Peak, Colorado (CROSS and HILLEBRAND), 1883, A., 1065.
- from Tasmania (v. GROENDECK), 1886, A., 603.
- from the Thomas range, Utah (ALING), 1887, A., 453.
- in rhyolite (CROSS), 1886, A., 991.
- pyroelectricity of (FRIEDEL and CURIE), 1885, A., 469.
- See also Aluminium silicofluorides.
- Torpedo**, chemical studies on (WEYL), 1887, A., 1128.
- Torpedo-mucin** (WEYL), 1887, A., 1128.
- Tortoise**, urine of the (MILLS), 1887, A., 170.
- Tourmaline** from Bohemia (KATZER), 1888, A., 923.
- blue, from Chapay (MICHEL-LÉVY), 1886, A., 211.
- from Japan (WADA), 1885, A., 222.
- from New South Wales (LIVERSIDGE), 1886, A., 774.
- black, from North Carolina (HIDDEN and DES CLOIZEAUX), 1887, A., 118.

- Tourmaline** from Schittenhofen, constitution and colour of (SCHARTZER), 1889, A., 761.  
 red, from Siberia (PRINDEL), 1892, A., 573.  
 from Tasmania (v. GRODDECK), 1886, A., 603.  
 chromic, in the Uials (COSSA and ARZRONI), 1883, A., 444.  
 composition of (RIGGS), 1888, A., 659; (JANNASCH and KALB), 1889, A., 472; (RAMMELSBURG; KALB), 1891, A., 24.  
 formula of (WULFING), 1889, A., 765; (KENNGOIT), 1892, A., 1110.  
 effect of heat on the optical properties of (DOLLER), 1885, A., 26.  
 thermal conductivity of (STENGER), 1885, A., 5.
- Tourmaline-bearing copper ores** from Chili (v. GRODDECK), 1890, A., 114.
- Tourmalinic-pegmatite** from Rižan (KATZER), 1889, A., 357.
- Toxalbumin** secreted by the microbe of blennorrhagic pus (HUGOUNENQ and ERAUD), 1891, A., 1521.
- Toxicological investigations** (HESS and LUCHSINGER), 1885, A., 578; (LECCO), 1886, A., 743; 1891, A., 864; (MARINO-ZUCO), 1889, A., 653; (TORIO and SPICA), 1891, A., 772.  
 See also Physiological action and Poisoning.  
 and chemical relations of some fungi (BOHM), 1885, A., 1008.
- Trachyte** of Glöichenberg, action of water containing carbonic acid on (CLAR), 1881, A., 569.
- Trachytes** of the Epeires-Tokay mountains (ROVIN), 1886, A., 131.
- Trachyte-dolerites** of the Vogelsberg (LEDROIT), 1887, A., 901.
- Trachyte-region** of the Rhodope (PLAZ and HUSSAK), 1884, A., 111.
- Transfusion** of mixture of blood and salt solution (MARSHALL), 1891, A., 317.
- Transition point** (ROOZLBOOM), 1888, A., 1117.  
 and point of fusion (VAN'T HOFF), 1888, A., 404.  
 points, triple and multiple points regarded as (ROOZLBOOM), 1888, A., 1151.
- Translocation, diastase** of (BROWN and MORRIS), 1890, T., 509.
- Transpiration** (CHABRIE), 1892, A., 1267.  
 and assimilation, relation between the, produced by chlorophyll (JUMELLE), 1890, A., 190.
- Transportation** of solids in a vacuum by the vapours of metals (MORSE and WHITE), 1892, A., 1386.
- Trees.** See Agricultural Chemistry.
- Trehalose.** See Carbohydrates.
- Tremolite** (*gremmatite*) from Nordmarken (FLINK), 1889, A., 221.  
 chemical composition of (BERWERTH), 1886, A., 28.  
 crystallographical examination of (PRIMIC), 1885, A., 733.
- Triacetic acid**,  $\delta$ -lactone of, and its reactions (COLLIE), 1891, T., 607; P., 111.  
 preparation of pyridine derivatives from (COLLIE and MYERS), 1892, T., 721; P., 131.
- Triacetin** (*triacetyl glycerol*) (SEELIG), 1892, A., 289.  
 preparation of (BOELLINGER), 1891, A., 1183.
- Triacetonealkamine** (*hydroxytetramethylhexahydropyridine*) (FISCHER), 1883, A., 1153.  
 preparation of (FISCHER), 1884, A., 1290.
- $\psi$ -**Triacetonealkamine** (FISCHER), 1884, A., 1290.
- Triacetoneamine** (FISCHER), 1884, A., 1290.  
 action of phosphorus pentachloride and oxychloride on (FISCHER), 1883, A., 790.  
 homologues of (FISCHER), 1884, A., 1290.
- Triacetone-methylalkamine** and its salts (FISCHER), 1883, A., 1153.
- Triacetone-trisulphone** (BAUMANN and FROMM), 1890, A., 26.
- Triacetone** (*tetramethyltrichydropyridine*) and its salts (FISCHER), 1883, A., 1153; 1884, A., 1290.  
 nitroso- (FISCHER), 1884, A., 1290.
- $\psi$  **Triacetone** (FISCHER), 1884, A., 1291.
- Triacetoxypentane** (PRUNIER), 1884, A., 1284.
- Triacetyl/iamidohydroxynaphthyl phenyl** (MELDOLA and MORGAN), 1889, T., 121.
- Triacetyl/iamido  $\alpha$ -naphthol** and its nitro-derivative (MERSON), 1888, A., 713.
- Triacetyl/iamido- $\beta$ -naphthol** (LOEWE), 1890, A., 1421.
- Triacetyl/iamidophenol** (HAMBERGER), 1884, A., 304.
- Triacetyl/iamidothymol** (MAZZARA), 1891, A., 188.
- 1,3,5-Triacetylbenzene** (CLAISIN and STILES), 1888, A., 671.

- Triacetyl-*7*-bromobrazilein** (SCHALL and DRALLE), 1890, A., 997.
- Triacetyl-*ethenyl*-*4*-amidotoluene** (NIEZKI and ROSEL), 1891, A., 192.
- Triacetylformamidil** (PINNER), 1884, A., 723.
- Triacetyl-gallamide** (MARX), 1891, A., 1220.
- Triacetyl-gentisein** (v. KOSTANECKI), 1891, A., 1244, 1386.
- Triacetyl-glycerol**. See **Triacetin**.
- Triacetylic cyanurate** (PONOMAREFF), 1886, A., 217.
- Triacetyl-leucaniline and -*para*-leucaniline** (RENOUF), 1883, A., 981.
- Triacetyl-moradin** (ARATA and CANZONERI), 1890, A., 405.
- Triacetyl- and -isotriacetyl-quinide** (ERWIG and KOENIGS), 1889, A., 991.
- s-Trialkylpyridines**, oxidation of (ALTAR), 1887, A., 378.
- Triallylamine**, action of sulphuric acid on (LIEBERMANN and HAGEN), 1883, A., 1086.
- Triallyloxymethane**, preparation of (BEILSTEIN and WIEGAND), 1885, A., 740.
- Triammonium salts**. See under **Ammonium**.
- Triisobutylbismuthine** (MARQUARDT), 1888, A., 1067.
- Trianhydropyruvic acid**, phosphorus salt of (MESSINGER and ENGELS), 1889, A., 36.
- Trianilidobenzene**, bromo-*di*-nitro- (JACKSON and BANCROFT), 1890, A., 982.
- di*-nitro-** (PALMER and JACKSON), 1890, A., 248.
- tri*-nitro-** (JACKSON and WING), 1888, A., 1276.
- Trianilidonaphthalene** (FISCHER and HEPP), 1890, A., 911.
- Trianiline disilicotetrafluoride** (COMBY and JACKSON), 1888, A., 942.
- Trianisil** (FRITSCH), 1891, A., 708.
- Trianisylarsine** (MICHAELIS and WEITZ), 1887, A., 367.
- Triarabinan-tri- and -tetra-galactan-geddic acids** (O'SULLIVAN), 1891, T., 1037, 1071.
- Triauramine** (RASCHIO), 1887, A., 112.
- Triazimidoacetamide** (CURTIUS and LANG), 1889, A., 370.
- Triazine derivatives**, synthesis of (MELDOLA), 1890, T., 323; P., 37.
- nomenclature of (MELDOLA and FORSTER), 1891, T., 679.
- substituted, preparation of (MELDOLA and FORSTER), 1891, T., 679.
- nitro-, reduction of (MELDOLA and FORSTER), 1891, T., 701.
- Triazine-series** (MELDOLA and FORSTER), 1891, T., 678; P., 123.
- Triazo-compounds**. See under **Azo**.
- Triazole** (ANDREOCCHI), 1892, A., 636; (BLADIN), 1892, A., 735.
- derivatives of (BLADIN), 1892, A., 637.
- Triazoles**, nomenclature of (KEHRMANN and MESSINGER), 1892, A., 889.
- Triazolecarboxylic acid** (ANDREOCCHI), 1892, A., 636; (BLADIN), 1892, A., 735.
- Triazole-series**, amidoximes and azoximes of (BLADIN), 1889, A., 977.
- Tribenzamide** (CURTIUS), 1891, A., 58.
- Tribenzamidophloroglucinol**, synthesis of (RÜGHEIMER), 1889, A., 249.
- Tribenzoicin** (VAN ROMBURGH), 1883, A., 63.
- Tribenzoin** (FRITSCH), 1891, A., 708.
- Tribenzoyl-*tri*-amidobenzene** (HINSBERG and v. UDRANSZKY), 1890, A., 370.
- Tribenzoyl-*di*-amido- $\beta$ -naphthol** (LOEW), 1890, A., 1424.
- o-Tribenzoylbenzene** (HAUSMANN), 1889, A., 1172.
- Tribenzoyl-*iso*-dulcitol** (RAYMAN), 1887, A., 907.
- Tribenzoyl-glycerol** (SKRAUP), 1889, A., 1152.
- Tribenzoyl- $\beta$ -hydrojuglone** (MYLIUS), 1886, A., 69.
- Tribenzoylmesitylene** (LOUISE), 1884, A., 1000.
- Tribenzoylmethane** (v. BAeyer and PERKIN), 1884, A., 64.
- preparation and properties of (PERKIN), 1885, T., 252.
- 1:2:3-Tribenzoylpropane** (EMERY), 1891, A., 680.
- Tribenzoylpyrogallol** (SKRAUP), 1889, A., 1152.
- Tribenzylamine** (LEUCKART), 1885, A., 1215.
- boiling point of (SCHWETZER), 1891, A., 1240.
- action of bromine on (WALLACH), 1891, A., 159.
- action of sodium on (JACKSON and WING), 1886, A., 616.
- derivatives of (MARQUARDT), 1886, A., 615.
- Tribenzylarsine**, and its derivatives (MICHAELIS and PARTOW), 1885, A., 527.
- Tribenzylcarbamide** (HAMMERICH), 1892, A., 1083.
- Tribenzylethenyltrisulphone** (LAVES), 1892, A., 613.
- Tribenzylethylammonium iodide** (MARQUARDT), 1886, A., 615.

- Tribenzylethylphosphonium chloride**, action of heat on (COLLIE), 1888, T., 725.
- Tribenzylhomo-*o*-phthalimide** (PULVERMACHER), 1887, A., 1112.
- $\alpha$ -Tribenzylhydroxylamine** (WALDER), 1886, A., 796.
- $\beta$ -Tribenzylhydroxylamine** (BECKMANN), 1889, A., 608; (BEHREND and LEUCHS), 1889, A., 703.
- Tribenzyl phosphate** (LOWEN and KOHLER), 1891, A., 1015.
- Tribenzyl *o*-thioacetate** (LAVES), 1892, A., 612.
- Tribenzylidenediamine**. See Dihydrobenzamide.
- Tribenzylidenemannitol** (MEUNIER), 1888, A., 1049.
- Tribenzylmethyllammonium iodide and hydroxide** (MARQUARDT), 1886, A., 615.
- Tribenzylphosphine** (LETTS and BLAKE), 1890, A., 767.  
oxide, identity of, with Hofmann's dibenzylphosphine (LETTS and BLAKE), 1890, A., 492.  
action of chlorine, of nitric acid and of sulphuric acid on (COLLIE), 1889, T., 225.  
some compounds of, and trinitro- (COLLIE), 1889, T., 223; P., 45.
- Tribenzylisopropylammonium iodide** (MARQUARDT), 1886, A., 615.
- Tribenzylpyridine** (RUGHEIMER), 1892, A., 1365.
- Tribenzyltriphenylguanidine** (MANNS), 1889, A., 261.
- Tribenzyltrisulphonephenylmethane** (LAVES), 1892, A., 613.
- Tribrassidin** (REIMER), 1887, A., 233.  
heats of combustion and formation of (STOHMANN and LANGBEIN), 1891, A., 11.
- Tribromhydrin** (1:2:3-*l*-thiomopropane), formation of (KRONSTEIN), 1892, A., 577.
- Triisobutoxytribenzaldehyde** (BAUMANN and FROMM), 1891, A., 1051.
- Triisobutylamine**, preparation of (MALBOT), 1887, A., 356.  
platinochloride (MALBOT), 1887, A., 461.
- tert.-Tributylbenzene** (SZÉKOWSKI), 1890, A., 1297.
- Triisobutylbismuthine** (MARQUARDT), 1888, A., 1066.
- Triisobutylene** (PUCHOT), 1884, A., 167.  
heat of combustion of (MALBOT), 1890, A., 320.  
dichloride, dichloro- (MALBOT and GENTIL), 1889, A., 843.
- "Triisobutylphenylguanidine"** (PAHL), 1884, A., 1010.
- Tricalcium phosphate**. See under Calcium phosphate.
- Tricaprylamine**. See Trioctylamine.
- Tricarballylamide** [m.p. 205—207°] (EMERY), 1890, A., 133.  
[m.p. 218°] (DAUMICHEN), 1889, A., 239.
- Tricarballyl-amidimide and -anilic acid** (DAUMICHEN), 1889, A., 238.
- Tricarballylanilide** (EMERY), 1890, A., 133.
- Tricarballyl-*p*-ditolyl and -*p*-ditoluidic acid** (DAUMICHEN), 1889, A., 238.
- Tricarballylic acid and its derivatives** (BISCHOFF), 1883, A., 46; (DAUMICHEN), 1889, A., 238; (EMERY), 1890, A., 133; 1891, A., 680.  
synthesis of (EMERY), 1891, A., 423.  
heat of combustion of (LUGININ), 1889, A., 668.  
dissociation constant of (WALKER), 1892, T., 707.  
salts of (GUINOCHET), 1890, A., 480.  
potassium salts of, and their heats of formation (MASSOL), 1892, A., 762.  
*di*bromo- (GUINOCHET), 1890, A., 594.
- Tricarballylic acids**, attempts to prepare alkyl-substituted (BISCHOFF and v. KUHMBERG), 1890, A., 747.
- Tricarballylic chloride** (EMERY), 1890, A., 133.
- Tricarballyl-phenylhydrazidic acid and -*o*-toluic acid** (EMERY), 1891, A., 680.
- Tricarballyl-*p*-toluic acid and -*p*-toluidide** (DAUMICHEN), 1889, A., 238.
- Tricarbanilidohydroxyhydrazobenzene** (GOLDSCHMIDT and ROSELL), 1890, A., 615.
- Tricarbanilidophloroglucinol** (GOLDSCHMIDT and MEISSNER), 1890, A., 500.
- Tricarbopyridinic acid**. See Pyridine-2:4:6-tricarboxylic acid.
- Trichlorhydrin** (1:2:3-*trichloropropane*), action of triethylamine on (REBOUL), 1883, A., 307.
- Tricinnametetracide** (BIGINELLI), 1892, A., 57.
- Tri-*p*-cresotin** (FRITSCH), 1891, A., 708.
- Tricresyl-**. See Tritolyl-.
- Tricyanides** (KRAFFT and HANSEN), 1889, A., 696; (OTTO), 1889, A., 951; (KRAFFT and KONIG), 1890, A., 1252.  
formation of, from nitriles and acid chlorides (ERTNER and KRAFFT), 1892, A., 1183.
- Tricyanuramide** (SCHNEIDER), 1885, A., 1193.

- Tricyclic systems**, reduction of (BAMBERGER), 1891, A., 1258.
- Tridecylundecylcarbamide**, **tridecylamide** and **tridecylamine** and its salts and **tridecylnitrile** (LUTZ), 1886, A., 685.
- Tridecylutidine** and **tridecylutidine-dicarboxylic acid hydrochloride** (KRAFFT and MAI), 1889, A., 1017.
- 2'-Tridecylquinoline** (KRAFFT), 1890, A., 1234.
- Tri-*p*-diphenylmethaneguanidine** (*tribenzyltriphenylguanidine*) (MANNS), 1889, A., 261.
- Trimite** (MAILLARD), 1890, A., 1070. preparation of (MEUNIER), 1891, A., 22. artificial production of (v. CHRUSTSCHOFF), 1887, A., 559; (BRUNN), 1890, A., 112. expansion of (LE CHATELIER), 1890, A., 1371. See also **Silicon dioxide**.
- Trierucin** (REIMER and WILL), 1887, A., 1030. heats of combustion and formation of (STOHMANN and LANGBEIN), 1891, A., 11.
- Triethoxybenzaldehyde** (WILL), 1884, A., 68.
- 1:3:5-Triethoxybenzene** (WILL and ALBRECHT), 1884, A., 1336.
- Triethoxybenzoic acid** [m.p. 100.5°] (WILL and JUNG), 1884, A., 1043; (WILL and ALBRECHT), 1884, A., 1335; (JUNG), 1886, A., 558. [m.p. 134°] (WILL), 1884, A., 68.
- Triethoxybutane** (NEWBURY and CALKIN), 1891, A., 285.
- Triethoxyphenylpropionic acid** [m.p. 77°] (WILL), 1884, A., 68. [m.p. 85°] (WILL and JUNG), 1884, A., 1043; (JUNG), 1886, A., 558.
- Triethoxypropane** (NEWBURY and CHAMOT), 1891, A., 285.
- Triethoxytriphennodioxazine** (KINZEL), 1892, A., 158.
- Triethylsuccinic acids**,  $\alpha$ - and  $\beta$ -, and their ethyl salts (WILL), 1884, A., 68.
- Triethylallylammonium chlorides**,  $\alpha$ - and  $\beta$ -chloro- (REBOUL), 1883, A., 307.
- Triethylamine**, properties of (v. HOFMANN), 1889, A., 688. magnetic rotatory power of (PERKIN), 1889, T., 692, 729. molecular refraction and dispersion of (GLADSTONE), 1891, T., 295. action of, on  $\alpha$ -bromobutyric acid (DUVILLIER), 1888, A., 249.
- Triethylamine**, action of, on *diisobutylamine oxalate* (COLSON), 1891, A., 377. action of, on *s*-trichlorhydrin and on the two *dichloropropylenes* (REBOUL), 1883, A., 307. and ethylic iodide, effect of various solvents on the velocity of reaction between (MENSCHUTKIN), 1890, A., 1366. arsenious bromide (LANDAU), 1889, A., 211. hydrochloride, magnetic rotatory power of (PERKIN), 1889, T., 715. platinothiocyanate (GUARENCHI), 1892, A., 286.
- Triethylammonium bromide**, compound of thiocarbanide with (REYNOLDS), 1891, T., 390.
- Triethylisoamylphosphonium chloride**, action of heat on (COLLIE), 1888, T., 721.
- Triethylbenzenes**, chlorinated (ISTRATI), 1886, A., 231, 343.
- Triethylcarbinol** (*tert.-heptylic alcohol*) (BARATAEFF and SAYTZEFF), 1887, A., 353.
- $\beta$ -Triethyldaphnetic acid**, and its ethylic salt (WILL and JUNG), 1884, A., 1042.
- Triethyldaphnetic acids**,  $\alpha$ - and  $\beta$ - (JUNG), 1886, A., 558.
- 2:4:5-Triethyl-*m*-diazine**, 6-amido- (WACHE), 1889, A., 684.
- Triethylenetetramine** (v. HOFMANN), 1891, A., 414.
- Triethylethyltrisulphone** (LAVES), 1892, A., 154.
- Triethylgallic acid**, and its salts (WILL and ALBRECHT), 1884, A., 1335. amido-, *di*bromo-, and nitro- (SCHIFFER), 1892, A., 715.
- Triethylhexadecylammonium iodide** (KRAFFT and MOYE), 1889, A., 689.
- Triethylhomo-*o*-phthalimide** (PULVERMACHER), 1887, A., 1111.
- Triethylhydroxylamine** (DEWAD), 1889, A., 112.
- Triethyllic aconitoxalate** (CLAISEN and HORI), 1891, A., 424. telluride, chloride and bromide (MARQUARDT and MICHAELIS), 1888, A., 1066. chloraurophosphite (LINDET), 1887, A., 227. tricyanide (OTTO and TRÜGER), 1890, A., 726. *n*- and *iso*-cyanurates (v. HOFMANN), 1886, A., 930. cyanuride (OTTO and VOIGT), 1887, A., 1024.

- Triethylic formate (ARNHOLD), 1887, A., 911.  
*o*-thioacetate (LAVEN), 1892, A., 612.  
 Triethylidenecinchonine (CLAUS), 1892, A., 1252.  
 Triethylmelamine (KLASON), 1886, A., 522.  
 Triethylisomelamine (V. HOFMANN), 1886, A., 42.  
 Triethylrescinol, and its ethyl ether (HERZIG and ZEISEL), 1890, A., 1405.  
 Triethylisooxazole (DUNSTAN and DYMOND), 1891, T., 432.  
 Triethylphenylammonium *tri*- and *pent*-iodides (DAFERT), 1883, A., 979.  
 Triethylphosphine arsenious bromide (LANDAU), 1889, A., 211.  
 Triethylpropylphosphonium chloride, action of heat on (COLLIE), 1888, T., 720.  
 Triethylpyrogallocarboxylic acid (WILL and JUNG), 1884, A., 1043; (WILL and ALBRECHT), 1884, A., 1335; (JUNG), 1886, A., 558.  
 Triethylpyrogallol, amido- and nitro- (SCHIFFER), 1892, A., 716.  
 Triethylrescinol, action of nitrous acid on (KNAUS), 1892, A., 44. and its ethyl ether (HERZIG and ZEISEL), 1890, A., 1404.  
 Triethylsulphine salts, preparation of (MASSON and KIRKLAND), 1889, T., 135; P., 20. molecular refractive energy of (NASSINI and COSTA), 1891, A., 1305. bromide, formation of (OTTO and ROSSING), 1886, A., 861. iodide, conversion of, into trimethylsulphino iodide (KLINGER and MAASSEN), 1889, A., 1135.  
 Triethylsulphonemethylmethane (LAVEN), 1892, A., 151.  
 Triethylthiocarbamide salts (NOAH), 1890, A., 1211.  
 Triengeryl cyanurate (OTTO), 1887, A., 1033.  
 Trifolium, analyses of (NILSON), 1892, A., 522.  
 Trigalaotangeddic acid (O'SULLIVAN), 1891, T., 1043.  
 Triglycerides of aromatic acids (FRITSCH), 1891, A., 708.  
*Trigonella Fœnum-græcum*, alkaloids of the seeds of (JAIRNS), 1886, A., 85.  
 Trigonelline and its salts (JAIRNS), 1886, A., 85; 1888, A., 166.  
 Trihydraurylamine (RASCHIG), 1887, A., 112.  
 Trihydrazine dihydriodide (CURTIUS and SCHULZ), 1891, A., 264.  
 Trihydromethylenefurfuran (LIPP), 1889, A., 845.  
 Trihydroxypruvic acid dianilide and hydrazide, phosphorus derivatives of (MESSINGER and ENGELS), 1889, A., 36.  
 Trihydroxyadipic acid and its salts (KILIANI), 1885, A., 967. from *metusaccharin* (KILIANI), 1885, A., 745.  
 Trihydroxyalizarin-blue (SCHMIDT and GATTERMANN), 1891, A., 1382.  
 Trihydroxyanthraquinoline (GRABBE and PHILLIPS), 1891, A., 1240.  
 1:2:3-Trihydroxyanthraquinone. See Anthragallol.  
 1:2:4-Trihydroxyanthraquinone. See Purpurin.  
 1:2:2'-Trihydroxyanthraquinone. See Anthrapurpurin.  
 1:2:3'-Trihydroxyanthraquinone. See Flavopurpurin.  
 Trihydroxyaurindicarboxylic acid (CARO), 1892, A., 1169.  
 1:2:3-Trihydroxybenzene. See Pyrogallol.  
 1:2:4-Trihydroxybenzene. See Hydroxyquinol.  
 1:3:5-Trihydroxybenzene. See Phloroglucinol.  
 Trihydroxybenzenes, three, constitution of (BARTH and SCHREDER), 1883, A., 987. formation of tannins from (NICKEI), 1891, A., 1395.  
 2:4:6-Trihydroxybenzoic acid (*phloroglucinolcarboxylic acid*) (WILL and ALBRECHT), 1884, A., 1335.  
 3:4:5-Trihydroxybenzoic acid. See Gallic acid.  
 Trihydroxybenzophenone (*salicylresorcinol*) (MICHAEL), 1884, A., 311. derivatives of (MICHAEL), 1884, A., 311; (GRABBE and EICHENGRUN), 1892, A., 1221. bromo- (GRABBE and EICHENGRUN), 1892, A., 1225. nitro-derivatives of (GRABBE and EICHENGRUN), 1892, A., 1225. anhydride (*salicylresorcinol ether; hydroxyzanthone*) and its acetyl-derivative (MICHAEL), 1884, A., 311; (GRABBE), 1890, A., 505. See also Hydroxyzanthones.  
 Trihydroxybutane (*butenylglycerin*), chloro- (ZIKES), 1885, A., 1046.  
 Trihydroxybutyric acid (BÜRNSTEIN and HERZFELD), 1886, A., 328.  
 Trihydroxyisobutyric acid (FISCHER and TAFEL), 1889, A., 478.

- Trihydroxydimethylbenzophenone** (HARBE and EICHENGRUN), 1892, A., 1225.
- Trihydroxydimethylpurin** (FISCHER), 1881, A., 997, 998.
- Trihydroxydiphenyl** (HODGKINSON and MATTHEWS), 1883, T., 167.
- Trihydroxyethylbenzene**, dinitro- (NIETZKI and KAUFMANN), 1892, A., 315.
- Trihydroxyglutaric acid** (KILIANI), 1889, A., 33.  
inactive (FISCHER), 1891, A., 1177, 1446.  
second inactive (FISCHER and PILOTY), 1892, A., 437.
- Trihydroxyhexane** (*heptylic glycerol*; *methylbutylglycarbinol oxide, hydrated*) (LIEBEN and ZEISEL), 1883, A., 570.  
from allyldimethylcarbinol (ORLOFF), 1886, A., 681; (REFORMATSKY), 1890, A., 121.  
preparation of (ORLOFF), 1886, A., 138.  
behaviour of, with hydriodic acid (ORLOFF), 1886, A., 681.  
derivatives of (KABLUKOFF), 1888, A., 1171.  
glycide of (KABLUKOFF), 1885, A., 647.  
ketone of (KABLUKOFF), 1888, A., 1171.
- Trihydroxyketopentamethylenecarboxylic acid, tetrachloro-** (HANTZSCH), 1890, A., 130.
- Trihydroxymesitylene** (*mesitylenic glycerol*) and its tribromhydrin (COLSON), 1883, A., 731; 1884, A., 57.
- "Trihydroxymethylanthraquinone"** from *Drosera Whitakeri* (KENNIE), 1887, T., 373.
- 2:3:4-Trihydroxymethylanthraquinones.** See Methylanthragallols.
- Trihydroxymethylbenzophenone** (GRAEBE and EICHENGRUN), 1892, A., 1225.
- Trihydroxy- $\beta$ -naphthylamine** (KEHRMANN), 1888, A., 940; (KEHRMANN and WEICHARDT), 1889, A., 1197.
- Trihydroxyoctane** [b. p. 204°] from allyldiethylcarbinol (REFORMATSKY), 1890, A., 121.  
[b. p. 210°] from allylmethylpropylcarbinol (REFORMATSKY), 1890, A., 121.
- Trihydroxyoctolactone** (HJELT), 1883, A., 456.
- Trihydroxyoleic acid** and its salts (LIECHTI and SUDA), 1884, A., 239.
- Trihydroxypentanes** (*pentenylglycerol*) (LIEBEN and ZEISEL), 1886, A., 781; (WAGNER), 1889, A., 231.
- Trihydroxyphenyl hydroxynaphthyl ketone** and its derivatives (GRAEBE and EICHENGRUN), 1892, A., 1226.
- Trihydroxyphenyl-butyric acid** and -butyrolactone (FISCHER and STEWART), 1892, A., 1447.
- Trihydroxypicolinic acid** (*hydroxy-comenic acid*) and its bromo-derivative (OST), 1883, A., 792.
- 2:4:6-Trihydroxypyridine** and its derivatives (STOKES and v. PECHMANN), 1887, A., 155.  
anhydride of (STOKES and v. PECHMANN), 1887, A., 156.
- 3:4:6-Trihydroxypyridine.** See Pyromecazonic acid.
- Trihydroxyquinoxaline** (AUTENRIETH and HINSBERG), 1892, A., 734.
- Trihydroxystearic acid** (*ricinolic acid*) (HAZURA and GRUSSNER), 1888, A., 1270.
- $\alpha$ -isoTrihydroxystearic acid** (HAZURA and GRUSSNER), 1888, A., 1270.
- $\beta$ -isoTrihydroxystearic acid** (GRUSSNER and HAZURA), 1889, A., 956.
- Trihydroxystearic acids** (DIEFF), 1889, A., 1147.  
prepared from ricinolic and ricinelaiddic acids, stereochemistry of (MANGOLD), 1892, A., 1301.
- Trihydroxytetrahydrobenzoic acid** (EIJKMAN), 1891, A., 920.
- Trihydroxytriphenylcarbinol anhydride.** See Rosolic acid (*aurin*).
- Trihydroxytritolylethanes** (BRUCKNER), 1890, A., 1140.
- Trihydroxyxanthogallol** (HANTZSCH and SCHNITZER), 1887, A., 925; (THEUNER), 1888, A., 1085.
- Triketohexamethylene**, hexabromo- (ZINCKE and KEGEL), 1890, A., 1109.  
hexachloro- (ZINCKE and KEGEL), 1889, A., 967.
- Triketohydronaphthalene hydrate, dibromo-** (ZINCKE and GERLAND), 1888, A., 291.
- Triketopentamethylene hydrate, dibromo-** (LANDOLT), 1892, A., 836.  
tribromo- and trichloro- (HANTZSCH), 1888, A., 1190; (LANDOLT), 1892, A., 835.
- Triketopiperazines**, attempts to prepare (BISCHOFF and NASTVOGEL), 1890, A., 1164.
- Triketovaleric acid**, trichloro- (HANTZSCH), 1888, A., 1192.
- Trilaurin**, heats of combustion and formation of (STOHMANN and LANGBEIN), 1891, A., 11.

- Trimellitic acid** (*benzene-1,2:1-tricarboxylic acid*) (GRAEBE and REE), 1886, T., 531.  
amidodulpho- and sulpho-, salts of (JACOBSEN and MEYER), 1883, A., 590.
- Trimerite** from Sweden (FLINK), 1891, A., 404.
- Trimesic acid** (*benzene-1,3,5-tricarboxylic acid*), thermochemistry of (STOHMANN, KLEBER and LANGBEIN), 1889, A., 1096.  
synthesis of ethereal salts of (PIUTTI), 1887, A., 491.
- Trimesitinic acid**. See Pyridine-2:4:6-tricarboxylic acid.
- Trimethintriazimide** (CURTIUS and LANG), 1889, A., 370.
- 1:2:3-Trimethoxybenzene** (WILL), 1888, A., 458, 1089.
- 1:2:4-Trimethoxybenzene** (WILL), 1888, A., 458; (SCHWEITZER), 1889, A., 390.  
dinitro- (SCHWEITZER), 1889, A., 390.
- 1:3:5-Trimethoxybenzene** (WILL), 1888, A., 457; (MARGULIES), 1889, A., 497.
- Trimethoxyphenylpropionic acid** (TAKAHASHI), 1889, A., 256.
- Trimethylacetaldehyde** [b.p. 74°—75°] (TISLER), 1891, A., 998.
- Trimethylacetaldehyde** [b.p. 92°—94°] (GLUCKSMANN), 1892, A., 39.
- Trimethylacetamidoxime** (FREUND and LENZE), 1890, A., 1388.
- Trimethylacetenylammonium salts** (BODE), 1892, A., 807.
- Trimethylacetenylammonium hydroxide** (SCHMIDT), 1892, A., 905.
- Trimethylacetethylamide** (FRANCHIMONT and KLOBBE), 1888, A., 1062.
- Trimethylacetic acid**. See Valeric acid.
- Trimethylaceto-diethylamide, -diethylamide and -methylamide** (FRANCHIMONT and KLOBBE), 1888, A., 1062.
- Trimethylacetoneitrile**, polymeride of (FREUND and LENZE), 1891, A., 1170.
- Trimethylalloxazine** (KUHLING), 1891, A., 1342.
- Trimethylallylammonium compounds** (PARTHEIL), 1890, A., 356.  
salts (SCHMIDT and WEISS), 1892, A., 949.  
chloride and hydroxide, action of heat on (COLLIE and SCHRYVER), 1890, T., 776.  
hydroxide (SCHMIDT), 1892, A., 905.  
derivatives of (SCHMIDT and PARTHEIL), 1892, A., 950.  
iodide (H. and A. MALBOT), 1892, A., 1295.
- Trimethylamidobenzophenone** [m.p. 156°] (WICHELHAUS), 1886, A., 362.
- Trimethylamidobenzophenone** [m.p. 203—204°] and its nitrosamine (HERZBERG and POLONOWSKY), 1892, A., 185.
- Trimethyl- $\alpha$ -amidobutyrobetaine and its derivatives** (DUVILLIER), 1887, A., 792.
- Trimethylamidomethylthiazole** (HANTZSCH and WEBER), 1888, A., 257.
- Trimethylamine** from coal-gas (WILLIAMS), 1885, A., 369.  
source of, in ergot of rye (BRIEGHB), 1887, A., 394.  
pure, preparation of (SCHMIDT), 1892, A., 805.  
properties of (v. HOFMANN), 1889, A., 688.  
heat of formation of (MULLER), 1889, A., 811.  
action of *isoamyl*, *isobutyl* and *caprylic* iodides on (H. and A. MALBOT), 1892, A., 805, 806.  
action of, on ethylic bromo*isovalerate* (DUVILLIER), 1890, A., 956.  
compound of, with acetic acid (GARDNER), 1890, A., 1156.  
arsenious bromide (LANDAU), 1889, A., 211.  
aurichloride (ZAY), 1884, A., 286; (HENST), 1884, A., 577.  
carbonyl iodoplatinite hydriodide (MYLIUS and FOERSTER), 1891, A., 1161.  
chloriodide (PICTET and KRAFFT), 1892, A., 1357.  
chlororhodate (VINCENT), 1886, A., 311.  
ethylenic bromide (BODE), 1892, A., 806.  
ethylenic iodide (SCHMIDT), 1892, A., 808.  
hydrogen diaminechromium thiocyanate (CHRISTENSEN), 1892, A., 1000.  
platiniothiocyanate (GUARESCHI), 1892, A., 286.  
vanadates (BAILEY), 1881, T., 693, 694.  
physiological action of (COMBEMALE and BRUNELLE), 1892, A., 366.
- Trimethyl*isoamyl*ammonium chloride and hydroxide**, action of heat on (COLLIE and SCHRYVER), 1890, T., 774.
- 1:4:3'-Trimethylantracene** (ELBS), 1887, A., 941; 1890, A., 512.
- Trimethylantracenes**, 1:3:3'- and 1:2:1- (ELBS), 1890, A., 513.

- Trimethylantracylene** (ELBS), 1890, A., 512.
- Trimethylantragallol** (WENDE), 1887, A., 593.
- Trimethylantrammonium compounds** (BOLLEKT), 1883, A., 1139.
- 1:2:4-Trimethylantraquinone** (GREENLY), 1886, A., 1029; (ELBS), 1890, A., 512.
- $\alpha$ - and  $\beta$ -nitro-, and dinitro- (ELBS), 1890, A., 513.
- 1:3:3'- and 1:4:3'-Trimethylantraquinones** (ELBS), 1890, A., 513.
- Trimethylazobenzeneammonium iodide** (BERJU), 1884, A., 1149.
- 1:3:5-Trimethylbenzaldehyde** (FEITH), 1892, A., 329.
- 1:2:3-Trimethylbenzene**. See Hemimellitene.
- 1:2:4-Trimethylbenzene**. See  $\psi$ -Cumene.
- 1:3:5-Trimethylbenzene**. See Mesitylene.
- 1:2:3-Trimethyl-4-benzoic acid** (*prehnitic acid*) (JACOBSEN), 1886, A., 695.
- 1:2:3-Trimethyl-5-benzoic acid** ( *$\alpha$ -cuminic acid;  $\alpha$ -isodurylic acid*) (JACOBSEN), 1883, A., 52.
- 1:2:4-Trimethyl-5-benzoic acid** ( *$\psi$ -cuminic acid; durylic acid*) (GISSMANN), 1883, A., 333; (CLAUS), 1890, A., 981.
- derivatives of (NEF), 1886, A., 64, 241.
- diamido- (NEF), 1888, T., 433.
- dinitro- (GISSMANN), 1883, A., 334.
- 1:2:1-Trimethyl-6-benzoic acid** ( *$\gamma$ -cuminic acid;  $\gamma$ -isodurylic acid*) (JACOBSEN), 1883, A., 52.
- 1:3:5-Trimethylbenzoic acid** ( *$\beta$ -cuminic acid;  $\beta$ -isodurylic acid*) (JACOBSEN), 1883, A., 52.
- Trimethylbenzophenone** (*benzoylmesitylene*) (LOUISE), 1883, A., 577.
- 1:2:1-Trimethylbenzoyl- $\beta$ -propionic acid** ( *$\psi$ -cumyl- $\gamma$ -ketonacetoxylic acid*) (CLAUS and SCHLARB), 1887, A., 827.
- Trimethyl-*o*-benzylbenzoic acids**, 1:2:4- and 1:3:5- (GREENLY), 1886, A., 1029.
- Trimethylbismuthine** (MARQUARDT), 1887, A., 802.
- Trimethylbrazilin** (SCHALL and DRALLE), 1889, A., 56.
- Trimethylbutallylcarbinylamine** (MERLING), 1891, A., 1507.
- Trimethylisobutylammonium chloride and hydroxide**, action of heat on (COLLIE and SCHRYVER), 1890, T., 773.
- Trimethylbutylactic acid**, amido- (WEIL), 1886, A., 528, 1009.
- Trimethylbutylactic anhydride**, amido-. See Dioxymethylpyrrolidine.
- Trimethylcarbinol**. See *tert*.-Butylic alcohol.
- Trimethylcarbonylcarbinol** (*amylic alcohol*) (TINSIER), 1891, A., 998.
- Trimethylchlorethylammonium platinochloride** (BODE), 1892, A., 807.
- Trimethylcolechicinic acid** (ZEISEL), 1888, A., 613; (JOHANNY and ZEISEL), 1889, A., 283.
- Trimethylcolchidimethinic acid** (JOHANNY and ZEISEL), 1889, A., 283.
- Trimethylcopellidinium iodide** (DURKOPF), 1885, A., 817.
- Trimethyldiethylamidobenzene** (RUTAN), 1886, T., 813.
- Trimethyldihydroindole methiodide** (ZATTI and FERRATINI), 1892, A., 614.
- Trimethyldihydropyridine** (*dihydrocollutine*), and its salts (HANTZSCH), 1883, A., 84.
- 2:4:6-Trimethyldihydropyridinedicarboxylic acid**, ethyl salt of (COLLIE), 1885, A., 374.
- 1':3':4'-Trimethyldihydroquinoline** (FISCHER and STACHE), 1888, A., 299; (ZATTI and FERRATINI), 1890, A., 1292; 1892, A., 614; (FISCHER and MEYER), 1890, A., 1421.
- Trimethyldihydroxyethylammonium salts** (BODE), 1892, A., 807.
- Trimethyldipiperidyl** (LIEBRECHT), 1887, A., 162.
- Trimethylene** (TORNÖE), 1888, A., 665.
- preparation of (LELLMANN and WÜRTNER), 1885, A., 978; (GUSTAVSON), 1888, A., 240.
- constitution of (BRUHL), 1892, A., 1163.
- relation between the spectrometrical constant and chemical constitution of (BRUHL), 1891, A., 631.
- liquefaction of (MOLTSCHANOWSKI), 1889, A., 1126.
- action of chlorine on (GUSTAVSON), 1891, A., 159.
- bases (NIEDERIST), 1883, A., 450.
- derivatives (PERKIN), 1884, A., 1154; 1885, T., 801.
- bromhydrin (FRÜHLING), 1883, A., 42.
- diphenyl ether (LOHMANN), 1891, A., 1468.
- glycol. See 1:3-Propylene glycol.
- mercaptan (HAGELBERG), 1890, A., 949.
- methyl ketone (PERKIN), 1885, T., 835.

- Trimethylene**, *mono-* and *di-chloro-*, action of bromine on (GUSTAVSON), 1891, A., 888.  
*chloro-*, and some allied compounds, reaction capacity of (GUSTAVSON), 1891, A., 888.  
*di-chloro-* and its *di-bromide* (GUSTAVSON), 1891, A., 159, 888.
- Trimethylenebenzylamidine** (v. HOFMANN), 1888, A., 1051.
- Trimethylenecarbamide** (FISCHER and KOCH), 1886, A., 527.
- Trimethylene- $\psi$ -carbamide** (GABRIEL and LAUER), 1890, A., 473; (LAUER), 1890, A., 1090.
- Trimethylenecarboxylic acid**, and its derivatives (PERKIN), 1884, A., 832; 1885, T., 815.
- Trimethylenediamine** (FISCHER and KOCH), 1884, A., 1289; 1886, A., 527.  
 condensation products from (STRACHE), 1888, A., 1174.  
 derivatives (FISCHER and KOCH), 1884, A., 1289; 1886, A., 527; (STRACHE), 1888, A., 1172; (GABRIEL), 1889, A., 486; (GOLDENRING), 1890, A., 976.  
 thiocyanate (LELLMANN and WURTLNER), 1885, A., 978.
- Trimethylenedicarbamide** (FISCHER and KOCH), 1886, A., 528.
- Trimethylenedicarbanilic chloride and anilide** (HANSEN), 1887, A., 578.
- $\alpha$ -Trimethylene-1:1-dicarboxylic acid** (*ethylenemalononic acid*; *malonic acid*; *vinylmalonic acid*) (FITTIG and ROEDER), 1883, A., 730; 1884, A., 295; (PERKIN), 1884, A., 832, 992; 1885, T., 810; A., 1019; 1886, A., 688; 1887, T., 819; (ROEDER; FITTIG), 1885, A., 653; (BUCHNER), 1890, A., 736.  
 constitution of (ROEDER; FITTIG), 1885, A., 653.  
 action of bromine on (FITTIG and MARBURG), 1886, A., 221.  
 action of hydrobromic acid on (PERKIN), 1885, T., 814.  
 salts of (PERKIN), 1885, T., 810.  
 ethyl salt of (PERKIN), 1884, A., 832; 1885, T., 807.
- $\beta$ -Trimethylene-1:2-dicarboxylic acid** (*alloitaconic acid*) (CONRAD and GUTHZEIT), 1884, A., 992; (BUCHNER), 1890, A., 736.  
 anhydride of (CONRAD and GUTHZEIT), 1884, A., 992.
- Trimethylenedicarboxylic acids**, melting points of (STOHMANN and KLEBER), 1892, A., 1040.
- Trimethylenediethylalkine** (*hydroxypropyldiethylamine*) (BEREND), 1881, A., 1115.
- Trimethylenediethyldisulphone** (STUMPFER), 1891, A., 181.
- Trimethylenedinitramine** (FRANCHIMONT and KLOBBER), 1889, A., 492.
- Trimethylenediphenylcarbamide** (HANSEN), 1887, A., 577.
- Trimethylenediphenyldiamine** and its derivatives (HANSEN), 1887, A., 577.
- Trimethylene-diphthalamic acid and diphthalimide** (GABRIEL and WEINER), 1888, A., 1292.
- Trimethylenedisulphonesulphide** (CAMPS), 1892, A., 592.  
*di-* and *hexa-bromo-* (CAMPS), 1892, A., 593.
- Trimethylenedisulphonic acid**. See 1:3-Propanedisulphonic acid.
- Trimethyleneditolyldisulphone** (OTTO), 1891, A., 1229.
- Trimethylenediurethane** (FISCHER and KOCH), 1886, A., 527.
- Trimethylene-ethenyldiamine** (v. HOFMANN), 1888, A., 1050.
- Trimethyleineimine** (GABRIEL and WEINER), 1888, A., 1293; (LADENBURG and STEBER), 1890, A., 1394.
- Trimethylenecoxamide** (STRACHE), 1888, A., 1174.
- Trimethylenephenyl-carbamide and -thiocarbamide** (GOLDENRING), 1890, A., 977.
- Trimethylenephenyldiamine** (BALBIANO), 1889, A., 1215; 1890, A., 1211; (GOLDENRING), 1890, A., 977.  
 trimethylenophenylthiocarbamate (BALBIANO), 1890, A., 1241.
- Trimethylenepolycarboxylic acids**, thermochemistry of (STOHMANN and KLEBER), 1892, A., 1041.
- Trimethylene-ring**, existence of (PERKIN), 1884, A., 992.
- Trimethylene- $\psi$ -selenocarbamide hydrobromide** (BARINGER), 1890, A., 880.
- Trimethylene-1:1:2:2-tetracarboxylic acid** (GUTHZEIT and DRESSER), 1890, A., 879.  
 thermochemistry of (STOHMANN and KLEBER), 1892, A., 1011.
- Trimethylene-1:1:2:3-tetracarboxylic acid and its salts** (PERKIN), 1884, A., 1300; 1885, T., 823.
- Trimethylene-1:2:1:3-tetracarboxylic acid**. See Propargylene-tetracarboxylic acid.
- Trimethylene- $\alpha$ -tetramethylenedipyrroline** (PAAL and SCHNEIDER), 1887, A., 278.

- Trimethylenethiocarbamide** (JELL-MANN and WURTHNER), 1885, A., 978.
- Trimethylene- $\psi$ -thiocarbamide** (GABRIEL and LAUER), 1890, A., 473; (LAUER), 1890, A., 1090.
- Trimethylene-o- and -p-tolyldiamines** (BALBIANO), 1889, A., 1216.
- Trimethylene-1:1:2-tricarboxylic acid** (CONRAD and GUTHZEIT), 1884, A., 992; (PERKIN), 1884, A., 1300. constitution of (MICHAEL), 1887, A., 468.
- Trimethylene-1:2:3-tricarboxylic acid and its salts** (PERKIN), 1885, T., 823, 826.
- s-Trimethylene-1:2:3-tricarboxylic acid ( $\psi$ -aconitic acid)** (SCHACHERL), 1885, A., 1125; (BUCHNER), 1888, A., 1274; (BUCHNER and WITTER), 1890, A., 1397.
- s-Trimethylene-1:2:3-tricarboxylic anhydride** (BUCHNER), 1888, A., 1274.
- Trimethylenetrinitrosamine** (MAYER), 1889, A., 33.
- Trimethylenetrithiulphone** (BAUMANN and CAMPS), 1890, A., 478; (CAMPS), 1892, A., 591. *hexabromo-* and *hexachloro-* (CAMPS), 1892, A., 592.
- Trimethylenic bromide** (1:3-*di*bromo-*propene*), action of ammonia on (NIEDERIST), 1883, A., 450. action of, on ethylic sodacetate (PERKIN), 1886, A., 689. action of, on ethylic sodethylacetate (KIPPING and PERKIN), 1890, T., 30. action of, on the sodium compounds of ethylic acetate, benzoylacetate, *p*-nitrobenzoylacetate and acetonedicarboxylate (PERKIN), 1887, T., 702; P., 55; A., 32. conversion of, into propylene bromide (GUSTAVSON), 1888, A., 240. chlorobromide, action of aromatic amines and amides on (PINKUS), 1892, A., 1491. cyanide (*glutaronitrile*), magnetic rotatory power of (PERKIN), 1889, T., 702. molecular refraction and dispersion of (GLADSTONE), 1891, T., 295. heats of combustion and formation of (BERTHELOT and PIETT), 1889, A., 812. boiling points of (KRAFFT and NOERDLINGER), 1889, A., 690. imido-ethers from (PINNER), 1891, A., 61.
- Trimethylenic iodide** (PERKIN), 1885, A., 495; 1887, T., 12; (HENRY), 1885, A., 736. preparation of (KESSLER and MEYER), 1892, A., 1062. molecular refraction and dispersion of (GLADSTONE), 1891, T., 295. reaction of, with aniline (BISCHOFF and NASTOGEL), 1890, A., 1164. phenylimidophenylthiocarbamate (FOERSTER), 1888, A., 946. selenide and selenocyanate (HAGELBERG), 1890, A., 950. sulphide (HAGELBERG), 1890, A., 949. tetrasulphide (BAUMANN), 1890, A., 1093. thiocyanate (HAGELBERG), 1890, A., 919.
- Trimethylethylammonium salts**, *di-* and *tri-*bromo- (BODE), 1892, A., 806. salts,  $\beta$ -iodo- (SCHMIDT), 1892, A., 808. chloride, action of heat on (COLLIE and SCHREYER), 1890, T., 768. *hep*iodide (GEUTHER), 1887, A., 910.
- Trimethylethylbenzenesulphonic acids** (TÖHL and V. KAM'HOWSKI), 1892, A., 990.
- Trimethylethylene**. See  $\beta$ -*iso*Amylene.
- Trimethylethyl alcohol** (*amylic alcohol*) (TINSNER), 1891, A., 998.
- Trimethylethyl trimethylacetate** (TINSNER), 1891, A., 998.
- Trimethylethylphosphonium chloride**, action of heat on (COLLIE), 1888, T., 717.
- 1:3:3'-Trimethyl-2'-ethylquinoline** (V. MILLER), 1890, A., 1326.
- Trimethylethyltetrahydroquinoline** (V. MILLER), 1890, A., 1327.
- Trimethylgallamide**, and its reduction (MARX), 1891, A., 1213.
- Trimethylgallic acid** (WILL), 1888, A., 1090. nitration of (SCHIFFER), 1892, A., 716.
- Trimethylgallyl alcohol** (MARX), 1891, A., 1219.
- Trimethylglutaric acid** (AUWERS and MEYER), 1890, A., 480.
- Trimethylglutaric anhydride** and its  $\alpha$ -bromo-derivative (AUWERS and MEYER), 1890, A., 480.
- Trimethylglyoxaline** (V. PECHMANN), 1888, A., 812.
- Trimethylguanicoil** (CURATOLO), 1891, A., 539.

- Trimethylhexadecylbenzene** (KRAFFT and GOTTIG), 1889, A., 130.
- Trimethylhexahydropyridine.** See Trimethylpiperidine.
- Trimethylhexenylammonium iodide** (MELLING), 1891, A., 1507.
- Trimethylhomophthalimide** and its derivatives (GABRIEL), 1887, A., 726.
- Trimethylhydrastylammonium iodide** (FREUND), 1889, A., 1221.
- Trimethylhydroamarine** (CLAUS), 1883, A., 203.
- Trimethylhydroxy-.** See Hydroxy-trimethyl-.
- Trimethyl chloraurousphosphite** (LANDET), 1887, A., 227.
- 1:2':3'-Trimethylindole** (WOLFF), 1889, A., 259.
- 3:2':3'-Trimethylindole** (WOLFF), 1889, A., 259.
- 1':2':3'-Trimethylindole** (FISCHER), 1886, A., 806; (DEGEN), 1887, A., 149.
- Trimethylacetic acid** (GLUCKSMANN), 1890, A., 237; 1892, A., 38.
- Trimethyl-leucine, peroxide of**, and the action of silver hydroxide on (KORNER and MENOZZI), 1884, A., 425.
- Trimethylmelamine** (KLASON), 1886, A., 522.
- Trimethylisomelamine** (v. HOFMANN), 1886, A., 42.
- Trimethylnaphthalene** (MASCHKE), 1887, A., 841.
- Trimethylisoxazole** (DUNSTAN and DYMOND), 1891, T., 413, 429.
- o-Trimethylphenolammonium iodide** (HANTZSCH), 1883, A., 1111.
- Trimethylphenylethyl ketone.** See Propionylmesitylene.
- Trimethylphenylacetic acids, 2:4:5-, and 2:4:6-, and their amides** (CLAUS), 1890, A., 981.
- Trimethyl-*p*-phenylenediamine** (GUIMAUX and LEFEBVRE), 1891, A., 1032.
- 2:4:5-Trimethylphenylglyoxylic acid** (CLAUS), 1890, A., 981.
- Trimethylphenylmethane.** See *tert*-Butylbenzene.
- Trimethylphloroglucinol.** See 1:3:5-Trimethoxybenzene.
- Trimethylphosphobenzo-betaine, and its salts** (MICHAELIS and CZIMATIS), 1883, A., 55.
- 2:4:6-Trimethylpiperidine (copellidine)** (JAECKLE), 1888, A., 1101.
- iodo-** (FISCHER), 1884, A., 1291.
- Trimethylpropylammonium salts** (SCHMIDT and WEISS), 1892, A., 949.
- bromide, dibromo-** (SCHMIDT and PARFHEIL), 1892, A., 950.
- Trimethylpropylammonium chloride** and hydroxide, action of heat on (COLLIE and SCHRYVER), 1890, T., 771.
- hydroxide** (LANGELI), 1887, A., 461.
- iodide** (LANGELI), 1887, A., 461; (H. and A. MALBOT), 1892, A., 1294.
- $\gamma$ -iodo-** (PARFHEIL), 1890, A., 357; (SCHMIDT and PARFHEIL), 1892, A., 950.
- Trimethylisopropylammonium chloride** and hydroxide, action of heat on (COLLIE and SCHRYVER), 1890, T., 772.
- iodide** (H. and A. MALBOT), 1892, A., 1295.
- Trimethylpropylphenylammonium iodide** (CLAUS and HOWITZ), 1884, A., 1006.
- Trimethylpropylpyrogallol** (WILL), 1888, A., 1090.
- 2:4:6-Trimethylpyridine ( $\gamma$ -collidine)** (HANTZSCH), 1883, A., 83.
- from coal-tar** (MOULIER), 1888, A., 727.
- 3:5-dibromo-** (PFEIFFER), 1887, A., 844.
- 2:4:6-Trimethylpyridine-3-carboxylic acid (collidinecarboxylic acid)** (MICHAEL), 1885, A., 62.
- betaine of** (HANTZSCH), 1886, A., 369.
- oxidation products of** (MICHAEL), 1885, A., 60.
- 2:4:6-Trimethylpyridinedicarboxylic acid (collidinecarboxylic acid)** (HANTZSCH), 1883, A., 83.
- oxidation-products of** (HANTZSCH), 1883, A., 81.
- 1:2:1-Trimethylpyridone (methyl- $\psi$ -lutidostyrene)** and its derivatives (HANTZSCH), 1884, A., 1016.
- hydrochloride, decomposition product of** (HANTZSCH), 1885, A., 397.
- 1:2:6-Trimethylpyridone (methyl-lutidone)** (CONRAD and GUTZERT), 1887, A., 500; (CONRAD and ECKHARDT), 1889, A., 519.
- 1:2:6-Trimethylpyridone-3:5-dicarboxylic acid** (CONRAD and GUTZERT), 1887, A., 500.
- Trimethylpyrogallalocarboxylic acid** (WILL), 1888, A., 1090.
- Trimethylpyrogallol.** See 1:2:3-Trimethoxybenzene.
- Trimethylpyrrolidine** (WEIT), 1886, A., 529.
- 1:2:5-Trimethylpyrrolidine** (TAFFEL and NEUGEBAUER), 1890, A., 1001.
- 1:1:2-Trimethylpyrrolidyl salts** (MERLING), 1891, A., 1506.

- Trimethylpyrrolidyl iodide** (CIAMICIAN and MAGNAGHI), 1885, A., 1243.
- Trimethylpyrroline**, [b. p. 150°—165°] (CIAMICIAN and ANDERLINI), 1889, A., 728.
- 1:2:5-Trimethylpyrroline** [b. p. 173°] (KNORR), 1887, A., 275.
- 1:2:5-Trimethylpyrroline-3:4-dicarboxylic acid** (KNORR), 1885, A., 555.
- Trimethylpyruvic acid** (GLÜCKSMANN), 1890, A., 237.
- 1:3:4-Trimethylquinoline and its salts** (BEREND), 1885, A., 558.
- 1:3:2'-Trimethylquinoline and its derivatives** (PANAJOTOW), 1887, A., 381.
- 2:3:2'-Trimethylquinoline** (BEREND; MERZ), 1884, A., 1053.
- 2':3':4'-Trimethylquinoline** (COMBEN), 1888, A., 505.
- 3:2':3'-Trimethylquinoline** (V. MILLER), 1890, A., 1326; 1891, A., 1095.
- 3:2':4'-Trimethylquinoline and its derivatives** (PFITZINGER), 1885, A., 1246; 1888, A., 1207; (COMDER), 1888, A., 505.
- derivatives of (PFITZINGER), 1885, A., 1246.
- Trimethylquinolinealdehyde** (EINHORN), 1886, A., 264.
- 1:3:2'-Trimethylquinolinesulphonic acid** (PANAJOTOW), 1887, A., 381.
- Trimethylquinoxaline** (*dimethylfoluquinoraline*) (V. PECHMANN), 1888, A., 812.
- Trimethylsuccinic acid** (BISCHOFF and MINTZ), 1890, A., 743; (BISCHOFF), 1890, A., 1099; 1891, A., 828; (AUWERS and KÜBNER), 1891, A., 1016.
- relative properties of dimethylglutaric acid and (ZELINSKY and BESREDEKA), 1891, A., 669.
- Trimethylsuccinic acids, stereoisomeric** (ZELINSKY and BESREDEKA), 1891, A., 669.
- Trimethylsulphine**, preparation of ('ARRARA), 1892, A., 1422.
- haloid-derivatives of (DORBIN and MASSON), 1885, T., 56.
- salts, action of the halogens on (DORBIN and MASSON), 1885, T., 56.
- cyanide (PATEIN), 1890, A., 881.
- iodide (KLINGER and MAASSEN), 1889, A., 1135; (DAVIES), 1892, A., 300.
- Trimethyltaurine**, preparation of (JAMES), 1885, T., 372.
- decomposition of, by alkali (JAMES), 1886, T., 486.
- 1:3:2'-Trimethyltetrahydroquinoline** (PANAJOTOW), 1887, A., 381.
- Trimethylthiazole** (HANTZSCH), 1890, A., 1238; (RUBLEFF), 1891, A., 223.
- Trimethylthiohydantoin** (MARCKWALD, NEUMARK and STELZNER), 1892, A., 151.
- 2:3-Trimethyl- $\mu$ -thiomethoxyglyoxalane** (MARCKWALD, NEUMARK and STELZNER), 1892, A., 153.
- 2:3:4-Trimethylthiophen** (ZELINSKY), 1887, A., 921.
- 2:3:4-Trimethylthiophen-5-carboxylic acid** (GATFERMANN), 1888, A., 575.
- Trimethyl-tricoumaric acid and -tricoumarin** (HANTZSCH and ZURCHER), 1887, A., 830.
- Trimethyltrimethyleneammonium bromide** (PARIHEIL), 1890, A., 357.
- Tri-2'-methyltritetrahydroquinolylmethane** (V. MILLER), 1891, A., 1103.
- Trimethyluracil** (BEHREND), 1886, A., 339; 1890, A., 31; (HAGEN), 1888, A., 582; (HOFFMANN), 1890, A., 31.
- amido- and chloro- (HAGEN), 1888, A., 582.
- Trimethyluric acid** (FISCHER), 1884, A., 1309.
- Trimethylvinylammonium salts** (BODE), 1892, A., 806.
- salts, bromo- (BODE), 1892, A., 807.
- hydroxide, physiological action of (BRIEGER), 1884, A., 1202; (CERVELLO), 1885, A., 925; 1888, A., 309.
- Trimethylxylylidine iodide** (MENTON), 1891, A., 1205.
- Trimyristin** (REIMER and WILL), 1885, A., 1197.
- heats of combustion and formation of (STOHMANN and LANGBEIN), 1891, A., 11.
- Trinaphthylcarbinol**, synthesis of (ELBS), 1883, A., 1000.
- Tri- $\alpha$ -naphthylguanidine** (EVERS), 1888, A., 601.
- Trinaphthyl phosphates,  $\alpha$ - and  $\beta$ -** (HEIM), 1883, A., 1108.
- Tri- $\alpha$ -naphthylmelamine** (FRIES), 1886, T., 315.
- Tri- $\beta$ -naphthylpararosaniline** (MELDOLA), 1883, A., 807.
- Trioctylamine** (*tricaprylamine*) (MERZ and GASTROWSKI), 1884, A., 984.
- Triolein**, distillation of, under pressure (ENGLER), 1889, A., 586.
- action of strong sulphuric acid on (HETTEL), 1888, A., 578.
- Trional** (BAUMANN and KAST), 1889, A., 1233.
- Triopianide**, and the action of bromine and of nitric acid on (WEGSCHEIDER), 1883, A., 997.

- Trioxymethylene.** See Paraformaldehyde under Formaldehyde.
- Triphenetylsarsine** (*trichlorophenetylsarsine*) (MICHAELIS and WEITZ), 1887, A., 367.
- Triphenodioxazine**, formation of (SEIDEL), 1890, A., 490.
- Triphenol-aluminium chloride** (CLAUS and MERKLIN), 1886, A., 113.
- Triphenylacetamidine** (LUCKENBACH), 1884, A., 1135.
- Triphenylacetic acid**, and its sulpho-derivative (ELBS and TOLLER), 1886, A., 352.
- Triphenyllalpyrrolone**, crystallography of (TUTTON), 1890, T., 718.
- Triphenylamidobenzene** (MOHR), 1890, A., 611.
- Triphenyltriamidobenzene** (MINUNNI), 1888, A., 1081.
- nitroso- (MINUNNI), 1891, A., 190.
- Triphenylamidomethane** and its derivatives (ELBS), 1881, A., 1031; (v. HEMILIAN and SILBERSTEIN), 1884, A., 1032.
- action of halogens on (v. HEMILIAN and SILBERSTEIN), 1884, A., 1033.
- Triphenylamine** (HEYDRICH), 1885, A., 1213.
- derivatives of (HEYDRICH), 1886, A., 553.
- mono- and di-amido- (HERZ), 1890, A., 1409.
- tri-amido- (HEYDRICH), 1885, A., 1213.
- mono-, and di-nitro- (HERZ), 1890, A., 1409.
- tri-nitro- (HEYDRICH), 1885, A., 1213.
- Triphenylaminetrisulphonic acid** (HERZ), 1890, A., 1410.
- Triphenylarsine** and the corresponding antimony-compound, preparation of (MICHAELIS and RITSE), 1883, A., 327.
- hydroxytoluate (BECKMANN), 1886, A., 615.
- oxide (PHILLIPS), 1886, A., 615.
- tri-amido- (PHILLIPS), 1886, A., 618.
- s-Triphenylbenzene** (MELLEN), 1890, A., 1423.
- synthesis of (DELAURE), 1892, A., 993.
- tetramido-, and tetranitro- (MELLEN), 1890, A., 1423.
- Triphenylbenzenedisulphonic acid** (MELLEN), 1890, A., 1424.
- Triphenylbenzoylpropionic acid** (*oxy-lepidenic acid*) (JAPP and KLINGEMANN), 1889, P., 139; 1890, T., 690.
- crystallography of (TUTTON), 1890, T., 747.
- Triphenylbismuthine**, and its di-bromide and dichloride (MICHAELIS and POLIS), 1887, A., 368; (MICHAELIS and MARQUARDT), 1889, A., 1061.
- Triphenylbutyrolactone** (JAPP and KLINGEMANN), 1889, P., 138; 1890, T., 680.
- Triphenylcarbamide**, *m*- and *p*-nitro- (LELMANN and BONHOFFER), 1887, A., 936.
- thio- (PASCHEWETZKY), 1892, A., 164.
- Triphenylcarbinol**, synthesis of (ELBS), 1883, A., 1000.
- p*-amido- (v. BAEYER and LOHR), 1890, A., 1141, 1142.
- tri-amido-. See *para*-Rosaniline.
- m*-nitro- (TSCHACHER), 1888, A., 373.
- p*-nitro- (v. BAEYER and LOHR), 1890, A., 1141.
- Triphenylcarbinolcarboxylic acids** (v. HEMILIAN), 1884, A., 323.
- Triphenylcarbindicarboxylic acids** (v. HEMILIAN), 1887, A., 267.
- Triphenylcarbiny bromide**. See Triphenylmethane, bromo-.
- Triphenylcarbinyldimethylcarbinol** (WILLGROD and GENIESER), 1888, A., 811.
- Triphenylcarbinyldi-mono- and -di-methylamine** and their iodine-compounds (v. HEMILIAN and SILBERSTEIN), 1884, A., 1033.
- Triphenylcrotonolactone**, oxidation, reduction and chemical reactions of (JAPP and KLINGEMANN), 1889, P., 137; 1890, T., 678.
- crystallography of (TUTTON), 1890, T., 716.
- 2:1 5-Triphenyl-*m*-diazine**, 6-amido- (WACH), 1889, A., 684.
- Triphenyldicarbimide** (RAIBKE and OPPENHEIM), 1890, A., 1125.
- Triphenyldiethyl-di-thiobiuret** (BILLETER and SROD), 1888, A., 365.
- Triphenyldignanide** (RAIBKE and OPPENHEIM), 1890, A., 1126.
- Triphenyldimethylamidophosphine** (SCHINK and MICHAELIS), 1888, A., 835.
- Triphenyldimethylethyl ether** (WILLGROD and SCHIFF), 1890, A., 959.
- Triphenyl-dimethyl- and -dipropyl-di-thiobiurets** (BILLETER and SROD), 1888, A., 365.
- Triphenylethane** (COMBES), 1881, A., 837.
- Triphenylethyltrisulphone** (LAVES), 1892, A., 612.
- Triphenylethophenazonium hydroxide**, amido- (KLIERMANN and MESSINGER), 1892, A., 1109.

- Triphenylethylamine**, and its hydrochloride (ELBS), 1884, A., 1031.
- Triphenylethylenesemithiocarbazide** (BURCHARD), 1890, A., 251.
- Triphenylethylpropyl*dithiobiuret*** (BILLETER and STROHL), 1888, A., 365.
- 3:3:5-Triphenyl-1-ethylpyrroline** (JAPP and KLINGEMANN), 1890, T., 704.  
crystallography of (TUTTON), 1890, T., 730.  
action of bromine on (JAPP and KLINGEMANN), 1890, T., 705.  
bromo-, crystallography of (TUTTON), 1890, T., 736.
- Triphenylfurfuran** (*lipiden*) (SMITH), 1890, T., 645.  
oxidation and reduction of (JAPP and KLINGEMANN), 1890, T., 675.  
*tribromo-* (JAPP and KLINGEMANN), 1890, T., 713.  
chloro-, reduction of (JAPP and KLINGEMANN), 1890, T., 674.
- Triphenylglyoxaline** (*lophin*), constitution of (JAPP), 1883, T., 9.  
oxidation of (JAPP), 1883, T., 15.  
reduction of (ZAUNSCHIRM), 1888, A., 1078.
- $\alpha$ -Triphenylguanidine** (HENTSCHEL), 1883, A., 1107.  
a physical peculiarity of (GIRAUD), 1887, A., 366.  
action of ethoxalyl chloride on (v. STOJENTIN), 1884, A., 1159.  
picrate (PRELINGER), 1892, A., 950.
- $\alpha$ -Triphenylguanidine**, *m*-nitro- and *m*-*tribromo-*, and its hydriodide (LOSANITZCH), 1883, A., 582.  
 *$\beta$ -nitro-*, *di*cyanide (HIRSCH), 1888, A., 947.
- Triphenylguanythiocarbamide and dicyanodiamide** (RATKE and OPPENHEIM), 1890, A., 1125.
- 1:2:3-Triphenyl-1:2-hydronaphthazonium hydroxide** (FISCHER and BUSCH), 1891, A., 1109.
- Triphenyl- $\gamma$ -hydroxybutyric acid** (JAPP and KLINGEMANN), 1889, P., 138; 1890, T., 680.
- $\alpha\beta$ -Triphenyl- $\gamma$ -hydroxypropylideneacetethylamide and -acetic acid** (COHN), 1892, A., 481.
- Triphenylic phosphate**, *tribromo-* (RAPP), 1884, A., 1338.  
phosphite (NOACK), 1883, A., 735; (ANSCHÜTZ and EMERY), 1890, A., 34.  
thiophosphate (ANSCHÜTZ and EMERY), 1890, A., 35.
- 1-*ortho*-Triphenylmelamine** (RATKE), 1888, A., 591.
- 2-*ortho*-Triphenylmelamine** and its derivatives (v. HOFMANN), 1886, A., 233.
- 3-*ortho*-Triphenylisomelamine** (v. HOFMANN), 1886, A., 233; (RATKE), 1887, A., 663.  
derivatives of (v. HOFMANN), 1886, A., 233.
- n*-Triphenylmelamine** (v. HOFMANN), 1886, A., 41, 233; (KLASON), 1886, A., 522.
- $\psi$ -Triphenylmelamine**, nature of (BUDÉUS), 1890, A., 1254.
- Triphenylmelamines**, formula of (RATKE), 1887, A., 650.
- Triphenylmethane**, preparation of (LINEBARGER), 1892, A., 719.  
synthesis of (ELBS), 1883, A., 1000; (GRIEPENTROG), 1886, A., 887.  
spectrum of (HARTLEY), 1887, T., 162.  
action of bromine on (KOLLIKER), 1885, A., 990.  
action of potassium on (HANRIOT), 1889, A., 882.  
condensation of, with chloroform (LINEBARGER), 1892, A., 722.  
hydrogenation of (GOLENKIN), 1888, A., 483.  
oxidation of (HANRIOT and SAINT-PIERRE), 1890, A., 168.  
derivatives of (RENOUF), 1883, A., 981; (ULLMANN), 1885, A., 1236; 1888, A., 288; (KOCK), 1887, A., 836.  
violet derivatives of (FISCHER and GERMAN), 1883, A., 1097; (FISCHER and KÖRNER), 1884, A., 606, 749.  
and its homologues, hydroxynitro-derivatives of (BERTONI), 1891, A., 1378.
- Triphenylmethane**, 1-amido- (*triphenylmethylamine*) (ELBS), 1883, A., 1000; 1881, A., 1031; (NAVEN), 1881, A., 899.  
*o* amido- (FISCHER and FRÄNKEL), 1888, A., 56.  
*p* amido- (v. BAEVER and LOHR), 1890, A., 1111.  
*d* amido-, preparation of (MAZZARA), 1885, A., 901; (ULLMANN), 1885, A., 1236.  
action of phenols on (MAZZARA), 1885, A., 800.  
action of potassium nitrite on (MAZZARA), 1885, A., 800, 901.  
*tri*amido-. See *para*-Leucaniline.  
bromo-, action of, on ethylic sodio-malonate (HENDERSON), 1886, P., 251; 1887, T., 224.  
reactions of (ELBS), 1883, A., 1000; 1884, A., 1030.

- Triphenylmethane**, bromo-, derivatives of (ALLEN and KOLLIKER), 1885, A., 655; (KOLLIKER), 1885, A., 990.
- o-cyano-** (DRORY), 1891, A., 1461.
- m-nitro-** (TSCHACHER), 1887, A., 44; 1888, A., 373.
- p-nitro-** (V. BAYER and LÖHR), 1890, A., 1141.
- thiocyano-** (ELBS), 1884, A., 1030.
- Triphenylmethaneanhydrocarboxylic acid** (V. HEMILIAN), 1884, A., 323.
- Triphenylmethane-o-carboxylic acid** (GIESLY), 1886, A., 1035; (FISCHER and FRANKEL), 1888, A., 56; (DRORY), 1891, A., 1462.
- Triphenylmethane-2:4-dicarboxylic acid** (V. HEMILIAN), 1887, A., 267.
- Triphenylmethane-3:4-dicarboxylic acid** (V. HEMILIAN), 1884, A., 323.
- Triphenylmethane-group**, dyes of the (NOLTING), 1891, A., 727; 1892, A., 187.
- Triphenylmethylaniline** (ELBS), 1884, A., 1031; (V. HEMILIAN and SILBERSTEIN), 1884, A., 1033.
- nitroso-** (ELBS), 1884, A., 1031.
- Triphenylmethylanilinesulphonic acid** (ELBS), 1884, A., 1032.
- Triphenylmethylazimethylene** (CURTIUS and RAUTERBERG), 1891, A., 1360.
- Triphenylmethylbenzylamine** and its hydrochloride (ELBS), 1884, A., 1031.
- Triphenylmethylpropyl-dithiobiuret** (BILLETER and STROHL), 1888, A., 365.
- Triphenylmethylpyrazine** (KNORR and LAUBMANN), 1888, A., 725.
- 3:3:5-Triphenyl-1-methylpyrrolidone** (JAPP and KLINGEMANN), 1889, P., 140; 1890, T., 701.
- 3:3:5-Triphenyl-1-methylpyrrolone** (JAPP and KLINGEMANN), 1889, P., 140; 1890, T., 698.
- crystallography of** (TUTTON), 1890, T., 721.
- action of bromine on** (JAPP and KLINGEMANN), 1890, T., 699.
- oxidation of** (JAPP and KLINGEMANN), 1890, T., 701.
- bromo-, crystallography of** (TUTTON), 1890, T., 728.
- Triphenylmethyl-p-toluidine**, nitroso- (WITTICH), 1884, A., 1032.
- Triphenylmethyltoluidines** (WITTICH), 1884, A., 1032.
- Triphenyl-8-naphthyl-carbamide** and -thiocarbamide (PASCHOWETZKY), 1892, A., 165, 167.
- Triphenyltrinitrophenylglucinel** (JACKSON and WARREN), 1891, A., 1026.
- Triphenylosotriazone** (AUWERS and MEYER), 1889, A., 51.
- Triphenylphloroglucinel** (HODGKINSON), 1886, P., 189.
- Triphenylphosphine** and its derivatives (MICHAELIS and V. SODEN), 1885, A., 1134.
- Triphenylphosphine oxide**, nitro- and amido- (MICHAELIS and V. SODEN), 1884, A., 1180.
- Triphenylphosphoryl dibromide** (NOACK), 1883, A., 736.
- Triphenylphosphoryl dichloride** (ANSCHUTZ and EMERY), 1890, A., 35.
- 1:2:3-Triphenylpropane** (CLAUS and MERCKLIN), 1886, A., 143.
- Triphenylpropenyldisulphone sulphide** (OTTO and ROSSING), 1891, A., 568.
- Triphenylpropenyltrisulphone** (STUFFER), 1890, A., 988.
- $\beta$ -Triphenylpropionic acid** and its salts (HENDERSON), 1887, T., 226; A., 671.
- Triphenylpropylpyrrolone**, crystallography of (TUTTON), 1890, T., 738.
- 1:3:5-Triphenylpyrazole** and its derivatives (KNORR and LAUBMANN), 1888, A., 725.
- methiodide** (KNORR and LAUBMANN), 1888, A., 725.
- 1:4:5-Triphenylpyrazole** (JAPP and KLINGEMANN), 1889, P., 141; 1890, T., 710.
- 1:3:5-Triphenylpyrazoline** and its derivatives (KNORR and LAUBMANN), 1888, A., 725.
- 2:4:6-Triphenylpyridine** (RIEHN), 1887, A., 599.
- 3:3:5-Triphenylpyrrolidone** (JAPP and KLINGEMANN), 1889, P., 140; 1890, T., 683, 696.
- 1:2:5-Triphenylpyrroline** (BAUMANN), 1887, A., 736; (KAPP and PAUL), 1889, A., 149.
- 2:3:5-Triphenylpyrroline** (SMITH), 1890, T., 615.
- 1:1:5-Triphenylpyrrolone** (KLINGEMANN), 1892, A., 1003.
- 3:3:5-Triphenylpyrrolone** and its reduction (JAPP and KLINGEMANN), 1889, P., 140; 1890, T., 694.
- and its derivatives**, crystallography of (TUTTON), 1890, T., 720.
- Triphenylrosanilines**, trichloro- (HEIMANN and HEIDBERG), 1886, A., 943.
- Triphenyl-silicic acid** and -silicon chloride (POLIS), 1886, A., 619.
- Triphenylstibine** and its derivatives (MICHAELIS and REINE), 1886, A., 885.
- Triphenylsulphone-bromo- and -chloro-methanes** (LAVES), 1892, A., 611.

- Triphenylsulphonemethylmethane** (LAVEN), 1892, A., 612.
- Triphenylsulphonopropane** (STUEFFER), 1890, A., 988.
- thio- (OTTO and RÖSSING), 1891, A., 568.
- Triphenyltetrahydropyrazine** (GARZINO), 1892, A., 631.
- Triphenylthiammeline** (RATHEKE), 1887, A., 662; (RATHEKE and OPPENHEIM), 1890, A., 1126.
- Triphenylthiazole** (HUBACHER), 1891, A., 222.
- Triphenylthiocarbamide** (GEBHARDT), 1884, A., 1321.
- Triphenylthiophen** (SMITH), 1890, T., 647.
- Triphenylisotriazone** (LAVEN and SIEGFELD), 1892, A., 1471.
- Triphenyltrisodiophloroglucinol** (HODGKINSON), 1886, P., 189.
- Triperidylmelamine** (V. HOFMANN), 1886, A., 41.
- Triplite** from South Dakota (EAKINS), 1892, A., 1106.
- See also Manganese phosphate.
- Tripropylamine** (VINCENT), 1886, A., 1005.
- magnetic rotatory power of (PERKIN), 1889, T., 694.
- molecular refraction and dispersion of (GLADSTONE), 1891, T., 298.
- Triisopropylidenetrissulphone** (BAUMANN and FROMM), 1890, A., 26.
- Tripyridine disilicotetrafluoride** (COMBY and SMITH), 1888, A., 1283.
- "**Triquinaldylcarbinol**" (GATTERMANN and WICHMANN), 1889, A., 504.
- Triquinoyl** (NIETZKI and BENCKISER), 1885, A., 781.
- Triquinoylmothane** and its derivatives (NÖLTING and SCHWARTZ), 1891, A., 1106; (RHODSOPOLLOS), 1891, A., 1261.
- hydriodide (RHODSOPOLLOS), 1883, A., 600.
- Triquinylcarbinol** (NÖLTING and SCHWARTZ), 1891, A., 1106.
- Trisalicylin** (FRITSCH), 1891, A., 708.
- Trisilicobenzoysillicic acid** (POLIS), 1886, A., 618.
- Trisulphones** (FROMM), 1890, A., 55; (LAVEN), 1892, A., 153.
- formation of, from disulphones (LAVEN), 1892, A., 613, 850.
- Trithienyl** and its hexabromide, *tribromotrithienyl* and *trithienyltrisulphonic acid* (RENNARD), 1891, A., 427.
- Trithionates.** See under Sulphur.
- Triticin**, molecular weight of (EKSTRAND and MAUZELIUS), 1890, A., 227.
- Trithymyl cyanurate** (OTTO), 1887, A., 1034.
- Tritochlorite** (PENFIELD), 1884, A., 24.
- Tri-*p*-tolyltriamidobenzene** (MINUNNI), 1888, A., 1081.
- nitroso- (MINUNNI), 1891, A., 190.
- Tri-*p*-tolyltriamidonaphthalene** (FISCHER and HEPP), 1890, A., 910.
- Tri-*p*-tolylbenzene** and *tribromo-* and *trinitro-* (CLAUS), 1890, A., 769.
- Tri-*p*-tolylbismuthine**, and its derivatives (MICHAELIS and MARQUARDT), 1889, A., 1061.
- Tri-*p*-tolylbiuret** (KÜHN and HENSCHKE), 1888, A., 471.
- Tri-*p*-tolylearbamide** (HAMMERICH), 1892, A., 1083.
- Tri-*p*-tolylguanidine**, *dicyano-*, and its salts (BLADIN), 1884, A., 1141.
- Tritolyl cyanurates**, *o*-, *m*- and *p*- (OTTO), 1887, A., 1033.
- Tri-*o*-tolyl phosphite** (HEIM), 1883, A., 1108.
- Tri-*p*-tolyl phosphite** (RAPP), 1884, A., 1338.
- Tri-*p*-tolylmelamine** (KLASON), 1886, A., 523.
- Tritolylstibines**, *o*-, *m*- and *p*-, and their derivatives (MICHAELIS and GENZKEN), 1884, A., 1136; 1888, A., 146.
- Tritolylstibinemeric chlorides**, *o*-, *m*- and *p*- (MICHAELIS and GENZKEN), 1888, A., 146.
- Tritopine** (KAUDER), 1891, A., 227.
- Trivaleric mannitoid** (MEUNIER), 1888, A., 1049.
- Trixylylbismuthine** and its derivatives (MICHAELIS and MARQUARDT), 1889, A., 1062.
- Tri-*p*-xylylcarbinyl dimethylcarbinol** (*tri-*tert*-butyl alcohol*) (WILLGERODT and GENIESER), 1888, A., 811.
- Tri-*p*-xylylmethane** (ELIS), 1887, A., 942.
- Trollite**, synthesis of (LORENZ), 1891, A., 990.
- Trona** (*arao*) (v. ZEPHAROVICH), 1887, A., 1021; (CHATAUD), 1890, A., 340.
- artificial production of (DEMONDESIR), 1887, A., 771.
- See also Sodium carbonate.
- Tropæolins** (0, and 000), spectrum of (HARPLEY), 1887, T., 182, 184.
- Tropeines** (LADENBURG), 1883, A., 671.
- ψ-Tropeines** (LIEBERMANN and LIMBACH), 1892, A., 591.

- Tropic acids**, *α*- and *γ*- (LADENBURG and HUNDT), 1890, A., 71.  
 formation of (LADENBURG and HUNDT), 1890, A., 71.
- Tropidine** (*1-methyl-2-ethylenetetrahydroxyridine*), and its derivatives (LADENBURG), 1883, A., 672; (EINHORN), 1891, A., 90.  
 action of bromine on (LADENBURG), 1883, A., 672.  
 conversion of, into tropine (LADENBURG), 1890, A., 1167, 1333.
- Tropilidene** and **tropilene**, and its oxidation (LADENBURG), 1883, A., 672.
- Tropine** and its compounds. See under Alkaloids.
- ψ-Tropine**. See Oscine.
- Tropic acid** (LIEBERMANN), 1891, A., 749.  
 properties and salts of (LIEBERMANN), 1890, A., 1449.
- Tropyl-ψ-tropeine** (LIEBERMANN and LIMPACH), 1892, A., 891.
- Truffles**, chemistry of (CHATIN), 1890, A., 659, 821.  
 of Europe, relation between the Terfäs or Kamés of Africa and Western Asia and the (CHATIN), 1892, A., 654.
- Truxene** and its derivatives (LIEBERMANN and BERGAMI), 1889, A., 699; 1890, A., 514.
- Truxenequinone** (LIEBERMANN and BERGAMI), 1889, A., 699.
- α-Truxillie acid** (*γ-isotropic acid*) (LIEBERMANN), 1888, A., 1211; (HENSE), 1889, A., 732.  
 action of sulphuric acid on (LIEBERMANN and BERGAMI), 1889, A., 698.
- β-Truxillie acid** (*δ-isotropic acid*) (LIEBERMANN), 1888, A., 1211.  
 action of sulphuric acid on (LIEBERMANN and BERGAMI), 1889, A., 698.
- δ-Truxillie acid** (LIEBERMANN), 1889, A., 1195.
- Truxillie acids** (LIEBERMANN, DRORY and BERGAMI), 1889, A., 395; (LIEBERMANN), 1889, A., 1191.  
 constitution of (LIEBERMANN), 1889, A., 1196.  
 theory of the (LIEBERMANN), 1890, A., 1421.  
 salts and derivatives of (DRORY), 1889, A., 1196.
- Truxillie acids**, amido- (HOMANS, SIELTZNER and SUKOW), 1891, A., 1496.  
 nitro-derivatives of (HOMANS, SIELTZNER and SUKOW), 1891, A., 1495.
- α-Truxillie anhydride** (LIEBERMANN and DRORY), 1889, A., 733.
- Truxillie anhydrides** (LIEBERMANN, DRORY and BERGAMI), 1889, A., 395.  
 intramolecular changes in (LIEBERMANN), 1889, A., 1195.  
 chlorides (LIEBERMANN and DRORY), 1889, A., 733.
- Truxillo-piperidic acids** and **-piperidides** (HERSTEIN), 1889, A., 1213.
- Truxone** and its derivatives (LIEBERMANN and BERGAMI), 1889, A., 699; 1890, A., 514.
- Trypsin**. See Enzymes.
- Tryptophan** (NEUMEISTER), 1890, A., 804.
- Tscheffkinite** (PRICE), 1888, A., 661.  
 analysis of (EAKINS), 1892, A., 23.
- Tubes**, block support for (GAWLOWSKI), 1892, A., 9.  
 graduation of, for gasometric purposes (BERTHELOT), 1889, A., 301.  
 coloured, for Nesslerising (BRENE-MAN), 1884, A., 1072.  
 pressure (WARREN), 1888, A., 646.  
 sealed, experiments on the small scale in (DRECHSEL), 1883, A., 1167.  
 sealing, under pressure (RICHARDSON), 1890, A., 911.
- Tuberculin**, proximate analysis of (HUNTER), 1891, A., 1283.
- Tuberculosis**, udder, changes in milk by (STORCH), 1890, A., 652.
- Tufas** from the Lugano district (HARADA), 1883, A., 168.
- Tumbeki**, analyses of (EASTES and INCE), 1886, A., 611.
- Tungsten** (KNILSCHE), 1887, A., 11.  
 atomic weight of (WADDELL), 1887, A., 111.  
 influence of, on steel (OSMOND), 1890, A., 567.  
 compounds (v. KNORR), 1883, A., 650.  
 reduction of (v. DER FLOEDIN), 1883, A., 551, 785; 1881, A., 559.  
 sulphur compounds of (CORLEIS), 1886, A., 510.
- Tungsten pentachloride** (HAMPE), 1888, A., 888.  
*hexachloride* (HAMPE), 1888, A., 888.  
 action of ammonia on (RIDGAL), 1889, T., 41.  
 oxychlorides, action of ammonia on (RIDGAL), 1889, T., 43.  
 dioxide, action of nitric oxide on (SARATHI and SENDELLANS), 1892, A., 1152.

- Tungsten trioxide** (*tungstic anhydride*), action of ammonia and ammonium chloride on (RIDEAL), 1889, T., 42.  
influence of, on potassium chlorate (FOWLER and GRANT), 1890, T., 276.
- Tungstic acid**, preparation of (HUNTINGTON), 1885, A., 1272.  
action of hydrogen peroxide on (CAMMERER), 1892, A., 944.  
sodium salts of (V. KNORRE), 1883, A., 651.  
estimation of (SMITH and BRADBURY), 1892, A., 241.  
separation of, from phosphoric acid (KEHRMANN), 1887, A., 866.  
separation of, from tin oxide (DONATH and MULLNER), 1888, A., 531.  
separation of, from vanadic acid (FRIEDHEIM), 1890, A., 666.
- Tungstic acid**, colloidal, molecular weight of (SABANEEFF), 1890, A., 1215.
- Metatungstic acid** (PÉCHARD), 1889, A., 832.
- Hypertungstic** (*pertungstic*) **acid and sodium hypertungstate** (PÉCHARD), 1891, A., 988.
- Silicotungstic acid** (DRECHSEL), 1887, A., 703.
- Tungstates** (FEIT), 1888, A., 344.  
action of platinic hydroxide on (ROSENHEIM), 1891, A., 1323.  
acid, titration of (SCHMIDT), 1886, A., 597.  
double, of rare metals (HÖGBOM), 1885, A., 25.
- para*-**Tungstates** (V. KNORRE), 1885, A., 1184; 1886, A., 597; (GONZALEZ), 1887, A., 895.  
action of tellurous and telluric acids on (KLEIN), 1885, A., 218.
- Hypophosphotungstates** (GIBBS), 1884, A., 560.
- Tungsten trisulphide**, colloidal state of (WINSINGER), 1888, A., 912.
- Tungsten, estimation and separation**:—  
estimation of (V. DER FORDTEN), 1883, A., 785; 1884, A., 1429.  
estimation of, in its alloys (PREUSSNER), 1889, A., 798.  
estimation of, in rich alloys and in steel (NAMIAS), 1892, A., 539.  
estimation of, in metallic tungsten (ZIEGLER), 1890, A., 420.  
separation, electrolytic, of gold from (SMITH and WALLACE), 1892, A., 920.
- Tungsten-bronzes** (V. KNORRE), 1883, A., 650.
- Tungsten-iron**, composition of (ANON.), 1884, A., 1231.  
analysis of (SCHNEIDER and LIPP), 1885, A., 840.
- Tungsten-steel** (ANON.), 1883, A., 533; (MÜLLER), 1885, A., 1167.  
composition of (ANON.), 1884, A., 1231.  
analysis of (SCHNEIDER and LIPP), 1885, A., 840.
- Tungstic anhydride**. See *Tungsten trioxide*.
- Tungstoborates** (KLEIN), 1883, A., 23, 786; 1884, A., 559, 1266.
- Tungstovanadates**. See *Vanadotungstates*.
- Tunicin**, heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.
- Turanose** (ALECHIN), 1890, A., 733.
- Turf**. See *Agricultural Chemistry*.
- Turbine** for laboratory purposes (RABE), 1888, A., 647.
- Turkey-red**, bleaching, by electrochemical means (GOPPELSROEDER), 1885, A., 108.  
dyeing, injurious action of a cupriferosus oil used in (SCHAAAL), 1883, A., 256.  
oiling and the operations connected therewith (SCHATZ), 1883, A., 635.  
and printing with alizarin, abridged process for (MULLER-JACOBS), 1884, A., 1236.  
oil. See under *Oils*.
- Turmeric**, certain substances obtained from (JACKSON and MENKE), 1883, A., 480; 1885, A., 271.
- Turmeric acid**, and its salts (JACKSON and MENKE), 1885, A., 271.
- apo*-**Turmeric acid** (JACKSON and MENKE), 1885, A., 271.
- Turnerol** (JACKSON and MENKE), 1883, A., 482.  
oxidation of (JACKSON and MENKE), 1883, A., 483; 1885, A., 271.
- Turmeryl chloride** (JACKSON and MENKE), 1883, A., 482.
- Turnbull's blue** (*ferrous ferricyanide*), composition of (REYNOLDS), 1887, T., 644; P., 86.
- Turnips**, cooked, composition of (WILLIAMS), 1892, T., 227.  
See also *Agricultural Chemistry*.
- Turpentine** (MAISH and GARDNER), 1891, T., 725; P., 123.  
constitution of (COLLIE), 1892, A., 864.  
specific rotatory power of (DUNWODY), 1891, A., 217.

**Turpentine**, Russian, specific rotatory and refractive powers of (KANONNIKOFF), 1889, A., 453.  
 increase of rotatory power of, on keeping (MARSH and GARDNER), 1891, T., 726.  
 anomalous dispersion of (v. WYSS), 1888, A., 542.  
 behaviour of, in mixtures of two solvents (RIMBACH), 1892, A., 1137.  
 specific gravity of (DUNWODY), 1891, A., 217.  
 action of benzoic acid on (BOUCHARDAT), 1892, A., 199.  
 action of hydrogen chloride on (MARSH and GARDNER), 1891, T., 728.  
 reaction of, with manganoous salts (CRISMER), 1892, A., 386.  
 atmospheric oxidation of (KINGZERT), 1888, A., 605.  
 oxidation of, in sunlight (ARMSTRONG), 1890, P., 99.  
 production of camphor from (MARSH and STOCKDALE), 1890, T., 961; P., 140.  
 hydrochloride, conversion of, into camphene hydrochloride (MARSH and GARDNER), 1891, T., 730.  
**Turpentine, detection and estimation** :—  
 detection of, in essences (CRISMER), 1892, A., 386.  
 detection of, in Venice turpentine (HIRSCHSOHN), 1890, A., 307.  
 detection of petroleum in (DUNWODY), 1891, A., 217.  
 estimation of, in paint and varnishes (PHILLIPS), 1891, A., 1302.  
 estimation of petroleum in (BURTON), 1890, A., 669.  
 French essence of, estimation of resin oil in (AIGNAN), 1890, A., 122.  
 See also Resins and Balsams.  
**Turpentine oil**, heat conductivity of (CHERR), 1888, A., 612.  
 American, action of heat on (TILDEN), 1884, T., 411.  
 oxidation of, in sunlight (ARMSTRONG), 1891, T., 311; (ARMSTRONG and POPE), 1891, T., 315.  
 spontaneous oxidation of (PAPASOGU), 1889, A., 615.  
 detection of, in essence of lemons (OLIVIERI), 1891, A., 1497.  
 detection of resin oil in (BAUDIN), 1891, A., 870.  
**Turpentine oils** (ARMSTRONG), 1891, T., 311.  
**Turpentineglycuronic acid** (KULZ), 1890, A., 1287.  
**Turquoise**. See Calaité.

**Tylophorine**, an alkaloid from *Tylophora asthmatica* (HOOPER), 1891, A., 1266.  
**Type metal**, analysis of (WEIL), 1884, A., 1429.  
**Typhoid fever**, reduction of oxyhaemoglobin in (HENOCQUE and BAUDIN), 1888, A., 865.  
**Typhotoxine**, Biieger's (DE BLASI), 1890, A., 391.  
**Tyrolite** from Utah (HILLEBRAND and WASHINGTON), 1888, A., 1043; (HILLEBRAND and DANA), 1890, A., 853.  
**Tyrosine** (*p-hydroxyphenyl- $\alpha$ -amidopropionic acid*) in dahlia tubers (LEITGEB), 1889, A., 433.  
 formation of (BLENDERMANN), 1883, A., 818, 876.  
 synthesis of (ERLENMEYER and LIPP), 1883, A., 991.  
 heats of combustion and formation of (BERNHELOT and ANDRÉ), 1890, A., 936.  
 relation of, to hippuric acid (BAAS), 1887, A., 1133.  
 action of benzoic chloride on (BAUM), 1885, A., 982.  
 condensation of, with benzenesulphonic chloride (HEDIN), 1891, A., 203.  
 decomposition of (BLENDERMANN), 1888, A., 818, 876.  
 administration of, in the food (BLENDERMANN), 1883, A., 879.  
 detection of, in urine (BLENDERMANN), 1883, A., 879.  
 ethyl ether, behaviour of, in animal metabolism (COHN), 1890, A., 187.  
**Tyrosine-hydantoin** (BLENDERMANN), 1883, A., 818.  
**Tyrotroicon** (VAUGHAN), 1886, A., 373.  
 relation of, to diazobenzene (VAUGHAN), 1888, A., 197.

## U.

**Uigite** from Skye (HILLIARD), 1886, A., 130.  
*Uler europæus*, composition of (TROSCHEK), 1885, A., 684.  
**Ulexine** (*cylistine*) and its derivatives (GERRARD), 1886, A., 1018; (GERRARD and SYMONS), 1890, A., 780; 1891, A., 331; (PARRHILL), 1891, A., 231, 750; (v. BUCHKA and MAGALHAES), 1891, A., 587, 750; (VAN DE MOER), 1891, A., 946.  
 physiological action of (BRADFORD), 1888, A., 1325.  
 detection of (VAN DE MOER), 1891, A., 947.

**Ulexite** (*borocalcite*; *boronatrocalcite*; *hayesine*) (DARTON), 1883, A., 162, 1062; (RAMMELSBERG), 1885, A., 28; (WHITFIELD), 1888, A., 347.  
**Chilian** (WITTING), 1885, A., 846.  
 analysis of (BRUN), 1884, A., 403.  
**Ullmannite** from Lolling and from Sarrabus (KLEIN and JANNACH), 1888, A., 31.  
 from Siegen (LASPEYRES), 1892, A., 124.  
**Ulmic acid.** See Humic acid.  
**Ulm**, natural and artificial, morphology and chemistry of (FRUH), 1881, A., 923.  
**Ultramarine** (GUCKELBERGER), 1883, A., 714; (KNAPP), 1888, A., 1163.  
 artificial, discovery and early manufacture of (HEINTZE), 1891, A., 400.  
 Japanese materials for the manufacture of (IWABUCHI), 1885, A., 460.  
 formation of, in the wet way (KNAPP), 1886, A., 306; 1887, A., 110.  
 preparation of, from silica (KNAPP), 1885, A., 847.  
 action of carbonic anhydride on (BUCHNER), 1887, A., 774.  
 in a fine state of division, similarity of the behaviour of, to that of metallic sulphides in the colloidal state (EBELT), 1884, A., 147.  
 green (GUCKELBERGER), 1883, A., 715; (SZILASI), 1889, A., 758.  
 analyses of (GUCKELBERGER), 1883, A., 714.  
**Umagite** from the Argentine (KLOCKMANN), 1891, A., 1435.  
**Umbelliferone** (v. PECHMANN), 1884, A., 1174.  
 4-ethyl and methyl ethers and *mono-* and *di-*bromo- (WILL and BECK), 1886, A., 881.  
 4-methyl ether, oxime and thio-derivative of (ALDRINGEN), 1890, A., 624.  
 **$\beta$ -Umbelliferonesacetic acids** (MICHAEL), 1888, A., 956; (BURTON and v. PECHMANN), 1891, A., 672.  
**Umbers** (HURST), 1889, A., 678.  
**Undecylacetylraffinose** (SCHEIBLER and MITTELMEIER), 1890, A., 1085.  
**Undecylenic acid** (*hendecenoic acid*), constitution of (PERKIN), 1886, T., 205; P., 153.  
 magnetic rotation of (PERKIN), 1886, T., 206; P., 153.  
 oxidation of (HAZURA and GRÜSSNER), 1889, A., 375.  
 bromo- and iodo- (BRUNNER), 1886, A., 1011.

**Union**, interchangeable, hypothesis of (LAAR), 1886, A., 504.  
 physical, and crystallisation (BRUGELMANN), 1889, A., 817.  
**Unit**, Siemens' mercury, reproduction of (STRECKER), 1885, A., 1027, 1099.  
**Units**, electrical (CLAUSIUS), 1883, A., 764; (ANON.), 1885, A., 2.  
**Uracil** (*dioxy-m-diazine*), nitro- (KOHLEK), 1887, A., 128.  
 alkyl derivatives of (BEHREND), 1890, A., 31; (LEHMANN), 1890, A., 32.  
 metallic derivatives of (BEHREND), 1887, A., 920.  
**Uracilcarbamide**, nitro- (BEHREND), 1887, A., 920.  
**Uracilcarboxylic acid**, amido- (KOHLEK), 1887, A., 128; (BEHREND), 1887, A., 920.  
 bromo- (BEHREND), 1887, A., 920.  
 nitro- (KOHLEK), 1887, A., 128; (BEHREND), 1887, A., 919.  
**Uramido-**. See also Carbamido-  
**Uramido-acids** (GUARESCHI), 1892, A., 827.  
***p*-Uramidobenzenesulphonic acid** (VILLE), 1891, A., 1066; 1892, A., 904.  
***m*-Uramidobenzoic acid** (TRAUBE), 1883, A., 193, 194.  
 5-nitro- (GRIESS), 1885, A., 54.  
 6-, 4- and 2-nitro-, action of potash on (GRIESS), 1883, A., 57.  
 thio- (TRAUBE), 1883, A., 193.  
**Uramidobenzoyl**. See 2':4'-Diketodihydroquinazoline.  
***o*-Uramidocinnamic acid** and thio- (ROTHSCHILD), 1890, A., 1123; 1891, A., 198.  
***p*-Uramidocinnamic acid**, thio- (ROTHSCHILD), 1891, A., 199.  
***p*-Uramidodiphenylmethane** (MANN), 1889, A., 261.  
***p*-Uramidophenylacetic acid** (TRAUBE), 1883, A., 193.  
 **$\alpha$ -Uramido-propionamide and -propionitrile** (FRANCHIMONT and KLOBID), 1888, A., 1180.  
**Uramidotolyloxamic acid** (SCHIFF and VANNI), 1891, A., 834; 1892, A., 602.  
**Uramidotolyloxamide** (SCHIFF and VANNI), 1891, A., 908; 1892, A., 603.  
**Uramidoximes**, thio-, condensation products from (KOCH), 1891, A., 560.  
**Uranates**, crystallised, formation of, in the dry way (DITTE), 1883, A., 296.  
 of ammonium and of amines (CARSON and NORTON), 1888, A., 918.

**Uraninite** (*pitchblende*) from Mitchell Co. (HIDDEN), 1883, A., 163.  
 from Norway (BROGGER), 1881, A., 1101.  
 products of the alteration of (v. FOULON), 1885, A., 222.  
 nitrogen from (HILLEBRAND), 1890, A., 456; 1891, A., 527.  
 analyses of (HILLEBRAND), 1892, A., 283.

See also Uranoso-uranic oxide.

**Uranite.** See Cupro-uranite.

**Uranium** mineral from Moss and on the occurrence of uranates generally (BLOMSTRAND), 1884, A., 1102.  
 atomic weight of (ZIMMERMANN), 1886, A., 598.  
 specific heat of (BLÜMCKE), 1885, A., 8, 625.  
 isomorphism of thorium and (RAMMELSBURG), 1890, A., 15.  
 compounds (DITTE), 1884, A., 825.  
 relation between the absorption and the phosphorescence of (BECQUEREL), 1886, A., 189.  
 analysis of (RAMMELSBURG), 1885, A., 690.  
 fluorine compounds of (SMITHELLS), 1883, T., 125.  
 salts, action of, on digestive ferments (CHITTENDEN and HUTCHINSON), 1888, A., 78.  
 physiological action of (CHITTENDEN and LAMBERT), 1889, A., 537.

**Uranium tribromide** (ALIBEGOFF), 1886, A., 855.  
 chlorides, electrolytic conductivity of (HAMPE), 1888, A., 889.  
 oxychloride. See Uranyl chloride.  
*tetrafluoride* (*uranous fluoride*) (SMITHELLS), 1883, T., 127.  
 oxyfluoride. See Uranyl fluoride.  
 nitrate from residues (SAVERY), 1884, A., 397.  
 oxides (ZIMMERMANN), 1886, A., 598; (RAMMELSBURG), 1888, A., 232.

action of nitric oxide on (SABATIER and SENDRENS), 1892, A., 1152.

**Uranoso-uranic oxide** ( $U_3O_8$ ), action of hydrofluoric acid on (SMITHELLS), 1883, T., 126.  
 influence of, on potassium chlorate (FOWLER and GRANT), 1890, T., 276.

See also Uraninite.

**Uranium phosphate** (JOHNSON), 1889, A., 757.

See also Cupro-uranite.

phosphates (OUVRARD), 1890, A., 1056.

**Uranium selenides** (BOUTZOUREAU), 1891, A., 202.

silicate from Gaita (v. NORDENSKIÖLD), 1885, A., 1119.

sulphate (RAMMELSBURG), 1890, A., 15.

and thorium sulphate, isomorphous (HILLEBRAND and MELVILLE), 1892, A., 571.

*sesquisulphide* (ALIBEGOFF), 1886, A., 855.

*dithionates* (KLUS), 1888, A., 1156.

**Uranyl acetates**, double (RAMMELSBURG), 1885, A., 648.

carbonylferrocyanide (MULLER), 1890, A., 117.

chloride (*uranium oxychloride*), ammoniacal compounds of (REGELBERGER), 1885, A., 638.

fluorides,  $\alpha$ - and  $\beta$ - (*uranium oxyfluorides*) (SMITHELLS), 1883, T., 128.

chromate and its double salts (FORMÁNEK), 1890, A., 852.

potassium chromate (WIENNER), 1883, A., 425.

sulphates, basic (ATHANASESCU), 1886, A., 982.

**Uranium, detection, estimation and separation:—**

detection of minute quantities of (FAIRLEY), 1891, A., 360.

estimation, electrolytic, of (CLASSEN), 1885, A., 192.

separation of, from the alkalis and alkaline earths (ALIBEGOFF), 1886, A., 922.

separation of, from chromium (FORMÁNEK), 1888, A., 531.

separation of, from other metals (RAMMELSBURG), 1885, A., 619.

**Uranium ochre**, from Johanngeorgensstadt (WEISBACH), 1883, A., 433.

**Uranophane**, analyses of (v. FOULON), 1885, A., 223.

**Uranothallite** (SCHRAUF), 1883, A., 956.

from Joachimsthal (BREZINA), 1886, A., 24.

**Uranothorite** (NILSON), 1883, A., 299.

**Urao.** See Trona.

**Urea**, origin of, in the animal economy (COPPOLA), 1890, A., 181.

formation of, in the animal body (SALOMON), 1885, A., 921.

mechanism of the production of, in the animal organism (POPOFF), 1892, A., 89.

formation of, in the dog fish (v. SCHROEDER), 1890, A., 1451.

formation of, from sarcosine (SALKOWSKI), 1884, A., 1394.

**Urea**, heats of formation and combustion of (BERTHELOT and PETIT), 1890, A., 206.  
 thermal equivalent of a solution of (RUBNER), 1885, A., 328.  
 solutions, dilute, cryoscopy of (PICKERING), 1892, A., 1045.  
 action of *hexobromacetone* on (SENIER), 1886, T., 693, 713.  
 action of chromyl dichloride on (SELL), 1883, A., 178.  
 action of nitrous acid on (EMMERLING), 1886, A., 747.  
 and some of its derivatives, action of phenylhydrazine on (SKINNER and RUEHMANN), 1888, T., 550; P., 54.  
 behaviour of quinol with (ANRAEFF), 1887, A., 514.  
 hydrolysis of, by micro-organisms (WARINGTON), 1888, T., 732.  
 nitrification of (MUNRO), 1886, T., 639.  
 behaviour of, in soils (KELLNER), 1887, A., 524.  
 amount of, in blood and muscle (GRÉHANT and QUINQUAUD), 1889, A., 914.  
 excretion of (HERRINGHAM and DAVIES), 1892, A., 365.  
 excretion of, by the human subject (GENTU), 1885, A., 830; (MAREŠ), 1887, A., 856.  
 influence of the muscular work on the output of (BLEIBTREU), 1891, A., 350.  
 excretion of, in fever (WOOD and MARSHALL), 1891, A., 1530.  
 excretion of, in liver diseases (MÜLLNER and SJOQUIST), 1891, A., 758.  
 hourly excretion of, in urine (ETARD and RICHET), 1883, A., 751; (GLEY and RICHET), 1888, A., 179.  
 and inorganic salts, excretion of, with the urine under the influence of an artificially increased temperature (KOCH), 1884, A., 1394.  
 poisonous action of (GRÉHANT and QUINQUAUD), 1884, A., 1398.  
 acetate (MATIGNON), 1891, A., 1448.  
 oxalate (KIRKALDY), 1892, A., 1421.  
 picrate (SMOLKA), 1886, A., 453.  
 thio-. See Thiourea.  
**Urea, detection and estimation:—**  
 titration of (PFEIFFER), 1885, A., 450; 1888, A., 539; (PFLÜGER and SCHENCK), 1886, A., 396.  
 titration of, with mercuric nitrate (BRAUN), 1885, A., 702; (PFLÜGER), 1888, A., 201.  
 detection of (LUDY), 1889, A., 1059.

**Urea, detection and estimation:—**

detection of, in an aqueous solution (BLOXAM), 1883, A., 1036.  
 estimation of, in urine (HUGOUENQ), 1884, A., 122; (GREENE), 1884, A., 507; (HAMBURGER), 1885, A., 450; (GERRARD; LUZZATTO), 1885, A., 610; (JACOB), 1886, A., 104; (ALLEN), 1886, A., 279; (MALLERBA), 1886, A., 593; (GREEN), 1886, A., 717; (PFLÜGER and BOHLAND), 1887, A., 90; (MÉHU), 1887, A., 1001; (CAMPARI), 1887, A., 1145; (CAZENEUVE and HUGOUENQ), 1888, A., 328; (CAMERON), 1888, A., 518; (LUTHER), 1889, A., 1039; (PFLÜGER and BLEIBTREU), 1890, A., 308; (DOTT), 1890, A., 931; (MIQUEL), 1891, A., 132; (HEATON and VANEY; WARDEN), 1891, A., 133; (SMITH), 1891, A., 512; (MORNER and SJOQUIST), 1891, A., 759, 1561.  
 See also Carbamide.  
**Urea bacillus**, action of, on urea (FRANKLAND), 1885, T., 179.  
**Urea ferment**, soluble (MIQUEL), 1891, A., 100.  
 soluble, from the *Torula Uree* (LEA), 1886, A., 641.  
**Ureides** and their derivatives (FRANCHIMONT), 1888, A., 1064; (FRANCHIMONT and KLOBBIE), 1889, A., 125.  
 condensed (LEEDS), 1883, A., 664.  
 from normal acids (MATIGNON), 1891, A., 1448.  
**"Ureines"** (FRANCHIMONT and KLOBBIE), 1889, A., 125.  
**Ureometer** (LUNGE), 1886, A., 396; (MARSHALL), 1887, A., 310.  
**Urethane**. See Ethylic carbamate.  
**Urethanes** of the paraffin series (ARTH), 1886, A., 692.  
**1:2:4-Urethanotolyloxamic acid** (SCHIFF and VANNI), 1891, A., 831; 1892, A., 599, 602, 1208.  
**1:2:4-Urethanotolyloxamide** (SCHIFF and VANNI), 1892, A., 601.  
**Uribilinuria** (ENGEL and KIENER), 1889, A., 637.  
**Uric acid** from the green glands of *Astacus fluviatilis* (GRIFFITHS), 1885, A., 680.  
 in insects and molluscs (MACMUNN), 1886, A., 1056.  
 in urine (ROBERTS), 1890, A., 540.  
 absence of, in urine of Carnivora (SANARELLI), 1888, A., 178.  
 in the urine of Herbivora (MITTELBACH), 1888, A., 1215.

**Uric acid**, place of origin of, in the animal organism (GARROD), 1887, A., 388.  
 origin of, in mammals (HORBACZEWSKI), 1890, A., 181.  
 formation of, in the animal organism (GARROD), 1883, A., 876; (HORBACZEWSKI), 1891, A., 1340.  
 formation of, in the blood of mammals (MAREŠ), 1892, A., 1257.  
 formation of, from cyanacetic acid and carbamide (FORMÁNEK), 1892, A., 149.  
 formation of, from nuclein (HORBACZEWSKI), 1892, A., 616.  
 synthesis of (HORBACZEWSKI), 1883, A., 179; 1885, A., 1050; 1887, A., 918.  
 constitution of (MICHAEL), 1884, A., 426; (FISCHER), 1884, A., 1310; (HORBACZEWSKI), 1887, A., 918; 1888, A., 256.  
 heat of formation of (MATIGNON), 1890, A., 1040.  
 action of nitrous acid on (EMMERLING), 1886, A., 747.  
 products of oxidation of (MATIGNON), 1891, A., 1448.  
 decomposition of, by hippurates and benzoates (GARROD), 1883, A., 876.  
 solubility of (BLAREZ and DENIGÈS), 1887, A., 919.  
 solubility of, at the temperature of the healthy human body (GARROD), 1883, A., 876.  
 ammoniacal fermentation of (F. and L. SESTINI), 1890, A., 1399.  
 physiology of (GARROD), 1885, A., 414.  
 influence of glycerol, sugar and fat on the secretion of, in man (HORBACZEWSKI and KANĀRA), 1886, A., 822.  
 excretion of (MAREŠ), 1887, A., 856; (HAIG), 1888, A., 1322; (HERRINGHAM and DAVIES), 1892, A., 365.  
 excretion of, in cases of leucæmia (BOHLAND and SCHURZ), 1891, A., 483.  
 influence of hot baths on the excretion of, from the human system (FORMÁNEK), 1892, A., 1503.  
 influence of sodium phosphate on the excretion of (HAIG), 1890, A., 397.  
 influence of drinking large quantities of water on the excretion of (SCHÖNDORFF), 1891, A., 348.  
 derivatives of (FISCHER), 1884, A., 996, 1308; (MYLIUS), 1884, A., 1128.

**Uric acid**, salts of, artificial formation of sphaerulites of (EISEN and NICOLAÏER), 1891, A., 760.  
 solubility of, at the temperature of the healthy human body (GARROD), 1883, A., 876.  
 ammonium, potassium and sodium salts of, thermochemistry of (MATIGNON), 1890, A., 1011.  
 calcium salt of (DELÉPINE), 1887, A., 469.  
 test for (DENIGÈS), 1888, A., 1347.  
 estimation of, in mine (LUDWIG), 1886, A., 102; (HAYCRAFT), 1886, A., 748; 1891, A., 1297; (BLAREZ and DENIGÈS), 1887, A., 621; (CZAPEK), 1888, A., 1225; (GONSAGER), 1889, A., 450; (CAMBERER), 1889, A., 1040; 1890, A., 1345; (SALKOWSKI), 1889, A., 1250; (POTR), 1890, A., 304; (BAYRAC), 1890, A., 670; (GROVES), 1892, A., 546; (GHELMUTDEN), 1892, A., 1032; (HAIG), 1892, A., 1133.  
*ψ-Uric acid*, thio- (*thiouramidobarbituric acid*) (TRZCIŃSKI), 1883, A., 914.  
**Uric acid-group**, azides of (KUHNING), 1891, A., 1311; 1892, A., 70.  
 synthesis of compounds of (BEHREND), 1887, A., 919; (BEHREND and ROOSEN), 1888, A., 581.  
**Urimidosuccinic acids**, molecular weights of (PATERNO and NASINI), 1890, A., 725.  
**Urinary fermentation** (MULLER), 1886, A., 276.  
**Urine**, secretion of, when pressure is exerted on the urinary canals (LÉPINE and PORRERET), 1888, A., 1321.  
 mean composition of (YVON and BERNIOZ), 1888, A., 1320.  
 reaction of (ADUCCO), 1888, A., 621.  
 is free acid contained in? (V. BRUCKE), 1887, A., 986.  
 influence of the administration of acids and alkalis on the reaction of (FREUDBERG), 1891, A., 1528.  
 nitrification of (MUNRO), 1886, T., 642.  
 healthy, absence of acetone in (WEST), 1890, A., 399.  
 volatile fatty acids in (V. JAKSCH), 1886, A., 381.  
 formation of volatile fatty acids in the ammoniacal fermentation of (SALKOWSKI), 1889, A., 431.  
 pathological, alkaloids in (VILLIERS), 1885, A., 1084; 1886, A., 88.  
 alkaloids in (THURDUNUM), 1888, A., 1119.

**Urine**, ammonium magnesium phosphate crystals in (WEISKE), 1883, A., 609.  
 febrile, aromatic substances in (HALDAN), 1889, A., 65.  
 aromatic compounds in (BAUMANN), 1886, A., 384.  
 excretion of balsams in (STOCKMAN), 1891, A., 600.  
 biliary acids in, during jaundice (BÆLDE and LAVRAND), 1889, A., 637.  
 benzamide in, after administration of benzaldehyde (COHN), 1890, A., 188.  
 calcium salts in (HOPPE-SEYLER), 1891, A., 484.  
 carbohydrates in (v. UDRÁNSZKY), 1888, A., 863; (WEDENSKI), 1889, A., 293; (ROOK), 1891, A., 1392.  
 putrefying, carbohydrates of (TREPPEL), 1892, A., 226.  
 sugar in albuminous (MÉHU), 1887, A., 1060.  
 substances likely to be mistaken for sugar in (ASHDOWN), 1890, A., 279.  
 sugar in, on a diet of cane-sugar (SEEGEN), 1886, A., 383.  
 carbonic anhydride in (VAN NUYS and LYONS), 1892, A., 649.  
 influence of the secretion of gastric juice on the quantity of chlorine in (STICKER), 1888, A., 620.  
 creatinine in (GROCCO), 1887, A., 513.  
 diabetic,  $\alpha$ -crotonic acid in (STADELMANN), 1885, A., 924.  
 cystin not present in (STADTHAGEN), 1885, A., 880.  
 cystin in the (GOLDMANN and BAUMANN), 1888, A., 519; (DELEPINE), 1890, A., 1018.  
 pathological, diamines in (v. UDRÁNSZKY and BAUMANN), 1888, A., 1207.  
 ethylic carbamate in the alcoholic extract of (JAFFÉ and COHN), 1890, A., 654.  
 diabetic, glycogen in (v. LEUBE), 1889, A., 65, 293.  
 glycerophosphoric acid in (EYMONNET), 1884, A., 1058.  
 glycuronic acid compounds in (FLUCKIGER), 1885, A., 924; (HAGEMANN), 1889, A., 535; (ASHDOWN), 1890, A., 279.  
 pathological, reduction products of hematin in (LE NOBEL), 1887, A., 1127.  
 hæmatoporphyrin in (SALKOWSKI), 1891, A., 601, 1130; (HALLIBURTON), 1891, A., 1279; (HAMMARSTEN), 1892, A., 649.

**Urine**, source of hippuric acid in (SCHOTTEN), 1884, A., 1057.  
 diabetic,  $\beta$ -hydroxybutyric acid (active) in (MINKOWSKI), 1885, A., 413; (WORM-MÜLLER), 1885, A., 702; (DEICHMÜLLER, SZYMANSKI and TOLLEN), 1885, A., 830; (KÜLZ), 1887, A., 290; (STADELMANN), 1887, A., 464; (WOLPE), 1887, A., 857.  
 indigo-red (*indirubin*) in (ROSENBACH), 1890, A., 1032; (ROBIN), 1891, A., 850.  
 extraction of indigotin and indirubin from (MÉHU), 1884, A., 1059.  
 iodine in, after the external application of iodoform (GRÜNDLER), 1885, A., 413.  
 lactic acid and lactose in (GAUBE), 1890, A., 188.  
 nitrates in (WEYL), 1885, A., 413.  
 nitrogenous constituents of (BOHLAND), 1889, A., 536; (SCHULTZE), 1890, A., 280; (CAMERER), 1891, A., 1277.  
 excretion of nitrogen in (GUMMICH), 1892, A., 1503.  
 of soldiers after a forced march, paracetic acid in (COLASANTI and MOSCATELLI), 1888, A., 1321.  
 elimination of phosphoric acid in, in insanity and epilepsy (LAILLER), 1885, A., 78.  
 phosphates in, in different diseases (VANNI and PONS), 1888, A., 621.  
 influence of intellectual activity on the elimination of phosphoric acid in (MAIRER), 1884, A., 1394.  
 phosphoric acid in (CARLES), 1892, A., 1115.  
 relation of phosphoric acid to nitrogen in (POLITIS), 1885, A., 283.  
 relations of the phosphates in (OTT), 1886, A., 167.  
 proportion of incompletely oxidised phosphorus contained in (LÉPINE), 1884, A., 913.  
 elimination of hypophosphites by (EYMONNET), 1884, A., 1058.  
 precipitate produced by picric acid in (JAFFÉ), 1886, A., 1056.  
 pigments of (PLÖSZ), 1883, A., 814; 1884, A., 1059; (MACMUNN), 1884, A., 194; 1889, A., 531; (v. UDRÁNSZKY), 1887, A., 1133; 1888, A., 180.  
 pigments, unusual, colouring matter of (MACMUNN), 1883, A., 1159.  
 pigment, unusual, in (HARLEY and TORUP), 1891, A., 601.

**Urine**, new pathological colouring matter in (V. LEUBE), 1888, A., 179.  
 reactions for distinguishing between chrysophanic acid and santonin colouring matters in (HOPPE-SEYLER), 1887, A., 106.  
 albumin in (POSNER), 1887, A., 390.  
 albumin from, coagulated by nitric acid and soluble in alcohol (GARNIER), 1883, A., 247.  
 albuminous, turbidity of, on heating (STOKVIS), 1885, A., 680; (SMITH), 1885, A., 681; (CARLES), 1886, A., 384.  
 albuminous, toxic effects of (TEISSIER and ROQUE), 1888, A., 1326.  
 hemialbumose in (KUHN), 1884, A., 854.  
 peptones in (GEORGES), 1887, A., 188.  
 proteid substance in (MÜLLER), 1886, A., 87.  
 proteids in (NOEL-PATON), 1890, A., 1174; (WINTERNITZ), 1891, A., 1130.  
 mucin in (CITRON), 1887, A., 390.  
 normal and pathological, pepsin in (STADELMANN), 1889, A., 430.  
 ferments in (STADELMANN), 1888, A., 308.  
 diastatic ferment in (ROSENBERG), 1891, A., 760.  
 diastatic and other ferments in (ILOLOVOKSCHNER), 1886, A., 902.  
 diabetic, reducing substance in (LEO), 1887, A., 513.  
 reducing agents in (JOHNSON), 1892, A., 1501.  
 rennet in (HELVES), 1889, A., 536.  
 sulphur in (GOLDMANN), 1885, A., 922.  
 partially oxidised sulphur in (LÉPINE and GUÉRIN), 1881, A., 317.  
 ethereal hydrogen sulphates in (MORAY), 1886, A., 729; (HOPPE-SEYLER), 1888, A., 179; (ROVIGT), 1892, A., 226.  
 sulphates and ethereal hydrogen sulphates in, during diarrhoea (BARTOSCHWITSCH), 1892, A., 1505.  
 relation between the total sulphuric acid of the, and that as ethereal sulphates in rest and work (SHER), 1889, A., 430.  
 hydrogen sulphide in (MÜLLER), 1888, A., 178.  
 evolution of hydrogen sulphide in the (SALKOWSKI), 1889, A., 432.  
 trypsin in (LEO), 1887, A., 69.

**Urine**, excretion of urea and inorganic salts with, under the influence of an artificially increased temperature (KOCH), 1881, A., 1391.  
 uric acid in (ROBERTS), 1890, A., 540.  
 puraxanthine in (SALOMON), 1883, A., 601; 1885, A., 403; 1886, A., 266.  
 xanthine-derivatives in (SALOMON), 1887, A., 739; 1891, A., 1528.  
 xanthocreatinine in the (COLASANTI), 1892, A., 361.  
 behaviour of Congo-red with (V. BRÜCKE), 1888, A., 381.  
 behaviour of, after ingestion of naphthalene (EDLEFSEN), 1888, A., 1322.  
 passage of naphthol into (DESERQUELLE), 1891, A., 98.  
 behaviour of, with quinol (ANRAEFF), 1887, A., 514.  
 relative toxic effect of the organic and saline constituents of (LÉPINE and AUBERT), 1885, A., 1085.  
 of fever patients (V. JAKSON), 1883, A., 1162.  
 in melanuria (V. JAKSON), 1889, A., 637.  
 in a case of melanotic sarcoma (HOPPE-SEYLER), 1891, A., 484.  
 in a case of phosphorus poisoning (STARLING and HOPKINS), 1892, A., 650.  
 of cold blooded animals, lactic acid in, after the extirpation of the liver (NEBELTHAUF), 1888, A., 1323.  
 of animals, occurrence of acetyl derivatives in, after the ingestion of aldehydes (COHN), 1892, A., 1504.  
 of Carnivora, absence of uric acid and alkaline reaction in (SANARELLI), 1888, A., 178.  
 of Herbivora, uric acid in (MITTELBAUGH), 1888, A., 1215.  
 of cows and sheep (ZACHAREWICZ), 1884, A., 1204.  
 of dogs, nitrogenous constituents of (BLEIBTREU), 1890, A., 279.  
 of horses, phenacetic acid in (SALKOWSKI), 1885, A., 413.  
 composition of (SALKOWSKI), 1885, A., 921; (HAGEMANN), 1889, A., 535.  
 chemistry of (SMITH), 1890, A., 914.  
 of pigs, chemical composition of (SALOMON), 1885, A., 413.  
 of hydrophobic rabbits, catechol in (MOSCATELLI), 1892, A., 1115.  
 of the tortoise (MILLS), 1887, A., 170.  
**Urine**, analytical methods relating to:—  
 analysis of (TANIGUTI), 1890, A., 1199.

**Urine, analytical methods relating to:—**

- detection of acetone in (LEGAL), 1888, A., 1346; (SALKOWSKI and TANIGUTI), 1891, A., 624.  
 detection of alkaloids in, by means of iodine solution (CHIBRET and IZARN), 1886, A., 748.  
 detection of bile constituents in (JOLLES), 1891, A., 135.  
 detection of blood in (WOLFF), 1888, A., 880.  
 detection of creatinine in (CAMPARI), 1885, A., 702.  
 detection of ethylic acetoacetate in (SPIEHOFF), 1885, A., 703; (LEGAL), 1888, A., 1346.  
 detection of hæmatoporphyrin in (HAMMARSTEN), 1892, A., 1136.  
 detection of hæmoglobin in (ROSENTHAL), 1886, A., 956.  
 detection of indican and its homologues in (MICHAÏLOFF), 1888, A., 880.  
 detection of indigo-red in (ROSENBACH), 1890, A., 1032.  
 detection of iodine in (SCHWARZ), 1888, A., 626.  
 detection of mercapturic acid in (BAUMANN), 1884, A., 1395.  
 detection of mercury in (ALT), 1888, A., 680.  
 detection of morphia in (NOTTA and LUGAN), 1885, A., 447.  
 detection of oxalic acid in (SALKOWSKI), 1886, A., 395.  
 detection of phenols and hydroxy-acids in (BAUMANN), 1883, A., 885.  
 detection of albumin in (HASLAM), 1883, A., 885; (JOHNSON), 1885, A., 845; (BLUM), 1887, A., 1003; (LIEBERMANN), 1887, A., 1150; (GROUCCO), 1892, A., 607; (SPIEGLER), 1892, A., 928.  
 detection of albumin in bacterial (JOLLES), 1891, A., 136.  
 Tanret's reaction for albumin, peptone and alkaloids in (BRASSE), 1888, A., 201.  
 examination of, for albumose and peptone (MEHU), 1885, A., 451.  
 detection of proteids in (MARTIN), 1888, A., 763; (BOYMOND), 1890, A., 273.  
 detection of quinine and phenacetin in (SESTINI and CAMPANI), 1892, A., 665.  
 detection of sugar in (CAMPARI), 1885, A., 702; (BUCHNER), 1885, A., 843; (SCHWARZ), 1889, A.,

**Urine, analytical methods relating to:—**

- 85; (CRISMER), 1889, A., 552; (WERNER), 1890, A., 427.  
 clinical examination of, by means of Fehling's solution (JOLLY), 1886, A., 744.  
 phenylhydrazine as a test for sugar in (V. JAKSCH), 1886, A., 744; (HIRSCHL), 1890, A., 835.  
 picric acid as a test for sugar to (JOHNSON), 1883, A., 1176.  
 alkaline bismuth solution as a test for glucose in (NYLANDER), 1884, A., 1433.  
 value of Brucke's method for the removal of interfering substances from, in testing for glucose (GREEN), 1886, A., 745.  
 detection of tannin in (KATHEIN), 1891, A., 964.  
 detection of thiosulphuric acid in (PRESCH), 1890, A., 812.  
 detection of tyrosine in (BLENDERMANN), 1883, A., 879.  
 detection of urobilin in (GRIMBERT), 1889, A., 324.  
 detection of urochloralic acid in (WAGNER), 1891, A., 624.  
 estimation of acetone in (HUPPERT), 1891, A., 370.  
 estimation of alkalis in (LEHMANN), 1885, A., 609.  
 estimation of ammonia in (WURSTER), 1888, A., 991.  
 estimation of chlorides in (GRUBER), 1884, A., 1424; (ZUTELZER), 1885, A., 608; (ARNOLD), 1885, A., 835; (BRIGNONE), 1888, A., 990; (CORVI), 1891, A., 495.  
 of dogs, estimation of chlorides and chlorates in (V. MERING), 1884, A., 1423.  
 estimation of creatinine in (SALKOWSKI), 1886, A., 397; (MOITESSIER), 1892, A., 1135.  
 estimation of gallic acid in (MÖRNER), 1892, A., 924.  
 estimation of hippuric acid in (VÖLKER), 1887, A., 535, 1001.  
 estimation of homogentisic acid in (BAUMANN), 1892, A., 925.  
 estimation of hydroxy-acids in (BAUMANN), 1883, A., 885.  
 estimation of indican and its homologues in (MICHAÏLOFF), 1888, A., 880.  
 estimation of iodine in (BAUMANN), 1884, A., 1423; (HARNACK), 1885, A., 296; (GRUNDLER), 1885, A., 113; (JOLLES), 1891, A., 1288.

**Urine, analysis of:—**

- estimation of mercury in (BRASSI), 1888, A., 196.
- estimation of nitrogen in (PLERI and LUDMANN), 1881, A., 1110; (CAMERER), 1885, A., 303; 1888, A., 518; (PFLUGER and BOHLAND), 1885, A., 608; (BOHLAND), 1885, A., 609; (GARNIER), 1887, A., 563; (OECHSLE DE CONINCK), 1889, A., 619.
- of Herbivora, estimation of nitrogen in (WIMSKIE), 1886, A., 1072.
- estimation, quantitative, of oxalic acid in (NICKEL), 1887, A., 101.
- estimation of phenols in (BAUMANN), 1883, A., 885; (RUMPF), 1892, A., 544.
- estimation of total phosphorus in (CHAPPELLE), 1890, A., 825.
- estimation of phosphoric acid in (GUILLAUME-GENAIL), 1891, A., 619.
- estimation of the potassium in, as hydrogen potassium tartrate (ROBIN), 1890, A., 187.
- estimation of albumin in (ZACHAR), 1888, A., 1227; (SCHAUHMANN), 1889, A., 88; (CHRISTENSEN), 1889, A., 452; (VAN NUY and LYON), 1890, A., 1199; (VENTURONI), 1891, A., 627.
- estimation, optical, of albumin in (ELLINGER), 1891, A., 1403.
- estimation, volumetric, of peptones in (ROUX), 1892, A., 1261.
- estimation of proteids in (ORI), 1885, A., 451.
- estimation of sugar in (WORM-MÜLLER), 1883, A., 829; (POLITSCHUK), 1888, A., 995; (HAGEMANN), 1889, A., 535; (GUPMANN), 1890, A., 836; (LUDLER), 1891, A., 1559.
- estimation of dextrose in (BUDDL), 1888, A., 195; (WILL), 1888, A., 535.
- estimation of dextrose in, by means of the Soleil-Ventzke polarimeter (WORM-MÜLLER), 1885, A., 702.
- estimation of dextrose in, by means of the percentage glucometer (GERRARD), 1890, A., 300.
- estimation, volumetric, of sulphuric acid in (FREUND), 1892, A., 1377.
- estimation of sulphuric acid and ethereal hydrogen sulphates in (SALKOWSKI), 1886, A., 739.
- estimation of urea in (HUGOUNENQ), 1884, A., 122; (GREENE), 1881, A., 507; (HAMBURGER), 1885, A.,

**Urine, analysis of: -**

- 150; (GERRARD; LUZZATTO), 1885, A., 610; (JACOB), 1886, A., 104; (AIIIN), 1886, A., 279; (MALLER), 1886, A., 553; (GREEN), 1886, A., 747; (PFLUGER and BOHLAND), 1887, A., 90; (MINT), 1887, A., 1001; (CAMFARI), 1887, A., 1145; (CAZENOVE and HUGOUNENQ), 1888, A., 328; (CAMERER), 1888, A., 518; (LUTHER), 1889, A., 1039; (PFLUGER and BLEINTREU), 1890, A., 308; (DOIT), 1890, A., 931; (MIQUEL), 1891, A., 132; (HALLON and VASEY; WARDEN), 1891, A., 133; (SMITH), 1891, A., 512; (MORNIER and SJOQUIST), 1891, A., 759, 1561.
- estimation of urea and total nitrogen excreted hourly in (ETARD and RICHET), 1883, A., 751; (GLEY and RICHET), 1888, A., 179.
- estimation of uric acid in (LUDWIG), 1886, A., 102; (HAYCRAFT), 1886, A., 748; 1891, A., 1297; (BLANZ and DENIGS), 1887, A., 621; (CZAPPEK), 1888, A., 1225; (GOSPAGE), 1889, A., 450; (CAMERER), 1889, A., 1040; 1890, A., 1345; (SALKOWSKI), 1889, A., 1250; (POTI), 1890, A., 304; (BAYRAO), 1890, A., 670; (GROVES), 1892, A., 516; (GELMUTZEN), 1892, A., 1032; (HATG), 1892, A., 1133.
- estimation of urethane in (JACQUEMIN), 1888, A., 878.
- estimation of urobilin in (HOPPE-SEYLER), 1891, A., 1278.
- separation of globulin from albumin in (OIT), 1887, A., 406.
- Uras, ancient, analyses of** (JENSON), 1887, A., 218.
- Urobilin** (MICHAHOFF), 1885, A., 677
- peculiar modification of (SALKOWSKI), 1884, A., 73.
- in the bile (WINTER), 1890, A., 187.
- in various diseases (HOPPE-SEYLER), 1891, A., 1278.
- febrile (MACMUN), 1884, A., 197.
- detection of, in urine (GRIMMERI), 1889, A., 324.
- estimation of, in urine (HOPPE-SEYLER), 1891, A., 1278.
- See also Hydrobilirubin.
- Urobilinoidin** (LE NOBEL), 1887, A., 1127.
- Urochloralic acid**, detection of, in urine (WAGNER), 1891, A., 624.
- Urochrome** (THUDICHUM), 1888, A., 1119.
- Uroerythrin** (MACMUN), 1884, A., 198.

- Urohæmatin**, Harley's (MACMUNN), 1884, A., 197.
- Urohæmatoporphyrin** (GARROD), 1892, A., 744.  
and allied pigments (MACMUNN), 1888, A., 614.
- Uroleucic acid** (KIRK), 1888, A., 1121.  
and alcaptonuria (KIRK), 1890, A., 188.
- Uromelanin** (PLÓSZ), 1884, A., 1060;  
(THUDICHUM), 1888, A., 1120.
- Uropepsin and uroptyalin** (BENDERSKY), 1891, A., 483.
- Uro-phosphates** (GAUDE), 1891, A., 98.
- Uropittin and metauropittin** (THUDICHUM), 1888, A., 1119.
- Urorosein** (NENCKI and SIEBER), 1883, A., 101.
- Urorubin** (PLÓSZ), 1884, A., 1059;  
(THUDICHUM), 1888, A., 1119.
- Urotheobromine** (THUDICHUM), 1888, A., 1120.
- Urotrypsin** (BENDERSKY), 1891, A., 483.
- Urtica urens*, *U. dioica* and *U. pilulifera*, constituents of (REUTER), 1890, A., 545.
- Urushi** (*lacquer*), chemistry of (YOSHIDA), 1883, T., 472.  
diastatic matter of, and its action on urushic acid (YOSHIDA), 1883, T., 483.
- Urushic acid and its compounds** (YOSHIDA), 1883, T., 475.  
*d*-nitro- (YOSHIDA), 1883, T., 480.
- β*-**Urushic acid** (YOSHIDA), 1883, T., 480.
- Urvölgyte**. See Herregrundite.
- Utahite** from New Mexico (GENTH and PENFIELD), 1891, A., 274.
- Uterus**, peptones in fibromata of the (FISCHER), 1886, A., 167.
- Uvic acid**. See Pyrotartaric acid.
- Uvinone** (DIETRICH and PAVI), 1887, A., 658.
- Uvinuric acid**, thio- (STEUDÉ), 1891, A., 742.
- Uvitic acid**, thermochemistry of (STONMANN, KLEBER and LANGHEIN), 1889, A., 1096.
- iso***Uvitic acid**. See *o*-Carboxyphenyl-acetic acid.
- Uvionic acid**. See 2-Methylpyridine-4:6-dicarboxylic acid.
- V.**
- Vaccinium Vitis-Idæa** (*cowberry*), bitter principle of (CLAASSEN), 1885, A., 1251.
- Vacuum**, transportation of solids in, by the vapours of metals (MORSE and WHITE), 1892, A., 1386.  
apparatus for operations in a (v. KLOBUKOFF), 1886, A., 178.
- Vacuum-discharges**, movement of gas in (SPOTTISWOODE and MOULTON), 1888, A., 5.
- Valency** (ARMSTRONG), 1888, A., 550.  
and the carbon atom (MEYER and RIECKE), 1888, A., 549.  
atomic (PICKERING), 1885, P., 122.  
change of (TRAUBE), 1886, A., 661.  
lecture experiment for the demonstration of (LEPSIUS), 1888, A., 410; 1890, A., 1050.  
of elements of the aluminium group (NILSON and PETTERSSON), 1888, T., 825.
- Valeraldehyde**, condensation of, with ethylic acetacetate (MATTHEWS), 1883, T., 202.  
action of glycol on (LOCHERT), 1888, A., 670.  
condensation of, with pyrotartaric acid (FITZIG and FEIST), 1890, A., 591.  
condensation of, with succinic acid (FITZIG and SCHNEEGANS), 1890, A., 590.  
action of zinc methyl on (KUN-SCHINOFF), 1888, A., 125.  
*5*-amido- (WOLFFENSTEIN), 1892, A., 1484.  
*di*bromo- (*dibromomethylethylacetaldehyde*) (LIEBEN and ZEISEL), 1886, A., 783.
- iso***Valeraldehyde**, polymeride of (PERKIN), 1883, T., 86.  
*tri*thio- (BARRAGLIA), 1885, A., 136; 1887, A., 162.
- Valeraldehydeaniline** (v. MILLER and PRÜHL), 1892, A., 1193.
- Valeriana officinalis. var. angustifolia* (BERGEM and GILDEMEISTER), 1891, A., 239.
- Valerian**, camphol from (HALBER), 1886, A., 1040.  
extract, effect of, on the destruction of sugar in the blood (BURTE), 1891, A., 754.
- n*-**Valeric acid**, preparation of (DUCLAUX), 1887, A., 1028.  
preparation of, from ethylic malonate (FURTH), 1888, A., 1053.
- γ*-amido- (TAFEL), 1886, A., 1008; 1887, A., 463; 1889, A., 961.
- δ*-amido- (SCHOTTEN), 1888, A., 1105.  
from the putrefaction of proteids (GABRIEL and ASCHAS), 1891, A., 918.

- n-Valeric acid**,  $\delta$ -amido-, synthesis of (GABRIEL), 1890, A., 1129.
- $\gamma$ -mono- and  $\beta$ - $\gamma$ -di-bromo- (FITTIG and FRANKEL), 1890, A., 585.
- $\gamma\delta$ -dibromo- (*dibromallylvaleric acid*) (OTT), 1891, A., 1453.
- decomposition of (FITTIG and URBAN), 1892, A., 960.
- $\gamma$ -cyano- (WISLICIENUS), 1886, A., 880.
- $\alpha$ -oxime of (FURTH), 1884, A., 42.
- $\gamma$ -oxime of, and its salts (MULLER), 1883, A., 1129; (RISCHBIETH), 1888, A., 44.
- $\gamma\delta$ -dioxime of (WOLFF), 1891, A., 417.
- Valeric acid** (*methylthylvaleric acid*), zinc salt of (SCHMIDT), 1886, A., 867.
- silver and calcium salts of, solubility of (SEDLITZKY), 1888, A., 250.
- Valeric acid** (*trimethylvaleric acid*), action of bromine on (REFORMATSKY), 1890, A., 1096.
- solubility of salts of (STIASNY), 1892, A., 581.
- iso***Valeric acid** (*isopropylvaleric acid*), vapour pressures of (RICHARDSON), 1886, T., 767, 774, 776.
- action of nitric acid on (BREIT), 1883, A., 176.
- silver and calcium salts of, solubility of (SEDLITZKY), 1888, A., 250.
- $\beta$ -amido- and  $\beta$  nitro- (BREIT), 1883, A., 176.
- $\alpha$ -bromo- (VOLHARD), 1888, A., 129; (SCHLEICHER), 1892, A., 427.
- sulpho- (DE VARDA), 1889, A., 35.
- Valeric anhydride**,  $\gamma$ -amido- (TAFEL), 1889, A., 961.
- iso***Valeric-creatinine** (DUVILLIER), 1883, A., 221.
- iso***Valeridenetoluidine** (v. MILLER and PLOCH), 1892, A., 1194.
- Valero-betaine**, derivatives of (KORNER and MENOZZI), 1884, A., 125.
- iso***Valerodiacetoneamine** (ANTHICK), 1885, A., 502.
- Valeroine** (KLINGER and SCHMITZ), 1891, A., 891.
- Valerolactone** in pyroligneous acid (GRODZKI), 1884, A., 1118.
- hydrolysis of (HENRY), 1892, A., 1303.
- action of phenylhydrazine on (WISLICIENUS), 1887, A., 490.
- action of sodium ethoxide on (FITTIG), 1890, A., 867.
- action of water, hydriodic acid and sodium ethylate on (FITTIG and RUHMANN), 1885, A., 375.
- Valerolactone**, bromo- (FITTIG and URBAN), 1892, A., 960.
- Valerolactone**, *d*/bromo-, and chloro- (WOLFF), 1885, A., 1124.
- $\gamma$ -cyano- (BLOCK and TOLLENS), 1886, A., 533.
- Valero- $\beta$ -naphthalide** (BAMBERGER and MULLER), 1888, A., 713.
- Valerophenylhydrazide** (AUTENRIETH), 1888, A., 251.
- iso***Valero-quinhydrone** and -quinol (KLINGER and STANDKE), 1891, A., 900.
- $\gamma$ -**Valeroximidolactone** (RISCHBIETH), 1888, A., 44; (BREIT and BOEDINGHAUS), 1889, A., 1061.
- iso***Valeryl- $\alpha$ -eogonine** (EINHORN and KLEIN), 1889, A., 283; (DECKERS and EINHORN), 1891, A., 476.
- Valerylene**, Reboul's. See Dimethylallylene.
- Vanadic acid** and **vanadates**. See under Vanadium.
- Vanadic anhydride**. See Vanadium pentoxide.
- Vanadicovanadates** (GIBBS), 1886, A., 205.
- Vanadinite** (GENTH), 1888, A., 564.
- from Arizona (BLAKE), 1885, A., 489.
- crystallised, from Arizona and New Mexico (PENFIELD), 1887, A., 347.
- from New Mexico (GENTH and VOM RATH), 1886, A., 26.
- from Leadhills (COLLIE), 1889, T., 94.
- Vanadinites**, bromo- (DITTE), 1883, A., 783.
- Vanadious sulphate**. See under Vanadium.
- Vanadium** in the Leadville ores (ILES), 1883, A., 562.
- in potassium hydroxide (SMITH), 1890, A., 706.
- diffusion of, in the mineral and vegetable kingdoms (RICCIARDI), 1884, A., 159.
- extraction of, from iron ores (CLAASSEN), 1886, A., 128; 1887, A., 419.
- compounds (BRIGGLEY), 1885, P., 111; 1886, T., 30; (CLAASSEN), 1886, A., 428.
- fluorine compounds of (PICCINI and GEORGI), 1889, A., 214; 1892, A., 785; (PETERSÉN), 1889, A., 107, 1123; 1890, A., 15; 1891, A., 884.
- Vanadium** arsenate (FRIEDHEIM and SCHMITZ-DUMONT), 1890, A., 1380.
- t*/oxide, compound of, with sulphur (BRIGGLEY), 1886, T., 822; P., 230.
- pentoxide* (*vanadic anhydride*) (DITTE), 1886, A., 18.
- preparation of (PETERSEN), 1890, A., 16.

**Vanadium pentoxide** (*vanadic anhydride*), action of, on alkaline fluorides (DITTE), 1888, A., 114, 558.

action of, on ammonium salts (DITTE), 1886, A., 672.

action of hydracids on (DITTE), 1886, A., 772.

action of, on haloid salts of the alkalis (DITTE), 1886, A., 855.

action of hydrogen peroxide on (CAMMERER), 1892, A., 944.

action of reducing agents on (DITTE), 1886, A., 307.

influence of, on potassium chlorate (FOWLER and GRANT), 1890, T., 276.

colour reactions of (LÉVY), 1887, A., 305.

combinations of, with oxy-acids (DITTE), 1886, A., 599.

sulphur-derivatives of (KRÜSS), 1884, A., 1269; (MUNZING), 1890, A., 336.

**Vanadates** (CARNOT), 1887, A., 1018; (RADAU), 1889, A., 351.

from the Argentine Republic (DÖRING), 1885, A., 641.

from New Mexico (GENTH and VOM RATH), 1886, A., 26.

arsenates and phosphates, analogous (HALL), 1886, P., 259; 1887, T., 94.

alkali, preparation of (RAMMELSBURG), 1884, A., 395; (DITTE), 1887, A., 639, 705, 899.

metallic (MANASSE), 1887, A., 339; (DITTE), 1887, A., 898.

of the fatty amines, some (BAILEY), 1884, T., 690.

crystallised, production of, in the dry way (DITTE), 1883, A., 784.

fluoro- (DITTE), 1855, A., 225.

organic (HALL), 1887, T., 751.

thio- (KRÜSS and OHNMEIN), 1890, A., 1381; 1891, A., 899.

**Vanadious sulphate**, electrolytic preparation of (BRIERLEY), 1886, T., 322; P., 230.

**Vanadyl chloride**, preparation of (L'HÔTE), 1886, A., 204.

**Vanadium, detection and estimation:**—detection of (WITZ and OSMOND), 1886, A., 923.

detection of, in minerals (L'HÔTE), 1887, A., 690.

estimation of (WITZ and OSMOND), 1886, A., 923; (DITTE), 1887, A., 691; (CARNOT), 1887, A., 896;

(HOLVERSCHUIT), 1890, A., 1343.

**Vanadium, estimation:**—

estimation of, in the presence of aluminium, chromium and phosphorus (RIDSDALE), 1888, A., 628.

estimation of, in minerals (L'HÔTE), 1887, A., 690.

estimation of, in vanadotungstates (ROSENHEIM), 1891, A., 247.

separation of, from metals (HALBERSTADT), 1888, A., 513.

separation of, from phosphoric acid (HOLVERSCHUIT), 1890, A., 1343.

separation of, from tungstic acid (FRIEDHEIM), 1890, A., 666.

**Vanadoarsenates** (FRIEDHEIM and SCHMITZ-DUMONT), 1890, A., 1380.

**Vanadomolybdates** (GIBBS), 1884, A., 561; (FRIEDHEIM), 1891, A., 884.

**Vanadotungstic acid** and its salts (ROSENHEIM), 1889, A., 762.

**Vanadotungstates** (GIBBS), 1884, A., 562; (FRIEDHEIM), 1890, A., 1066; (ROTHENBAUGH), 1891, A., 18.

estimation of vanadic acid in (ROSENHEIM), 1891, A., 247.

**Vanadovanadico-molybdates and -tungstates** (GIBBS), 1884, A., 714.

**Vanillylamidoxime** (MAROT), 1892, A., 318.

**Vanillin** in asafetida (SCHMIDT), 1886, A., 906.

in asparagus (v. LIPPMANN), 1886, A., 387.

in the seeds of *Lupinus albus* (CAMPANI and GRIMALDI), 1888, A., 983.

from *Rosa canina* (SCHNEEGANS), 1890, A., 1270.

preparation of (HAARMANN and REIMER), 1884, A., 1343.

preparation of, from *m*-chloro-*p*-nitrobenzaldehyde (LANDSBERG), 1887, A., 483.

preparation of, from the gum of the olive tree (SCHEIDEL), 1886, A., 238.

synthesis of (ULRICH), 1886, A., 60.

condensation product of dimethylaniline and (FISCHER and SCHMIDT), 1884, A., 1316.

phenylhydrazine-derivatives of (TIEMANN and KEES), 1885, A., 1072.

compounds of, with pyrogallol and with phloroglucinol (ETTI), 1883, A., 61.

*iso* **Vanillin** (WEGSCHEIDER), 1883, A., 190.

**Vanillinaldoxime** (LACH), 1883, A., 1104; (TIEMANN and KEES), 1885, A., 1073.

**Vanillinooxyacetic acid** (ELKAN), 1887, A., 259.

**Vanillonitrile** (MARCUS), 1892, A., 318.

**Vanilloylcarboxylic acid** (TIEMANN), 1892, A., 61.

**Vapour density** determinations (MEYER), 1883, A., 618; 1886, A., 842; (PAWLEWSKI), 1883, A., 951; (NILSON and PETTERSSON), 1886, A., 298; (SCHALL), 1888, A., 335; 1890, A., 681, 1042; 1892, A., 934; (JAEGER; RICHARDSON), 1889, A., 460; (KRATSE and MEYER), 1890, A., 1365; (PERMAN), 1891, A., 253; (LUNGE and NEUBERG), 1891, A., 635.

at all temperatures and pressures (BOTT), 1888, P., 110.

apparatus for, at low temperatures (v. KLOBUKOFF), 1885, A., 9.

at low pressure (MALFATTI and SCHÖP), 1888, A., 336; (SCHALL), 1889, A., 331; 1892, A., 553; (EIJKMAN), 1890, A., 101.

by gaseous displacement under low and variable pressures (MEUNIER), 1884, A., 886.

apparatus (SCHWARZ), 1883, A., 899; (MEYER), 1884, A., 956; (SCHALL), 1885, A., 1179; 1887, A., 695, 882; (KAHLBAUM), 1887, A., 207; (DYSON), 1887, A., 431; (BOTT and MACNAIR), 1887, A., 632; (WARREN), 1887, A., 695; (MACNAB), 1887, A., 765; (EASTFIELD), 1890, A., 681; (LOBRY DE BRUYN), 1892, A., 679.

source of error in (ALEXEEFF), 1886, A., 116.

influence of the shape of the bulb in (BILTZ), 1888, A., 1210.

catalytic action of glass in (ALEXEEFF), 1886, A., 591.

dissociation in (KONOWITZ), 1886, A., 9.

of elements and compounds at a white heat (BILTZ and MEYER), 1889, A., 673.

of liquids of high boiling point (v. KLOBUKOFF), 1885, A., 9.

of high boiling substances, determination of, at a diminished pressure (LA COQUE), 1885, A., 1180; (SCHALL), 1887, A., 882.

of substances below their boiling points, determination of (DEMUTH and MEYER), 1890, A., 110.

of aluminium chloride (NILSON and PETTERSSON), 1888, A., 788; 1889, A., 1113; (FRIEDEL and CRAFTS), 1888, A., 1040.

**Vapour-density** of ammonium chloride (PULLINGER and GARDNER), 1891, P., 2; (NEUBERG), 1891, A., 1107.

of antimony at a white heat (MENSCHING and MEYER), 1887, A., 888; (BILTZ and MEYER), 1889, A., 673.

of antimony pentachloride (ANSCHUTZ and EVANS), 1890, A., 16.

of arsenic at a white heat (MENSCHING and MEYER), 1887, A., 888; (BILTZ and MEYER), 1889, A., 671.

of beryllium bromide (HUMPIDGE), 1886, A., 506.

of beryllium chloride (NILSON and PETTERSSON), 1884, A., 820; (HUMPIDGE), 1886, A., 506.

of ferric chloride (NILSON and PETTERSSON), 1888, T., 814; (GRUNEWALD and MEYER), 1888, A., 422; (FRIEDEL and CRAFTS), 1888, A., 1251.

of ferrous chloride (MEYER), 1884, A., 965; (NILSON and PETTERSSON), 1888, T., 827.

of gallium chlorides (NILSON and PETTERSSON), 1888, T., 814; (FRIEDEL and CRAFTS), 1888, A., 1250.

of hydrogen fluoride (THORPE and HAMBLY), 1888, T., 765; P., 87; 1889, T., 163; P., 27.

of indium and chromium chlorides (NILSON and PETTERSSON), 1888, T., 814.

of iodine (BILTZ and MEYER), 1889, A., 673; (KRAUSE and MEYER), 1890, A., 1365.

of phosphorus at a white heat (MENSCHING and MEYER), 1887, A., 888; (BILTZ and MEYER), 1889, A., 673.

of potassium iodide (MENSCHING and MEYER), 1887, A., 550.

of selenium chlorides (CHABRIE), 1890, A., 558.

of sulphur (BOTT), 1891, A., 381.

of sulphuric monochloride (HEUMANN and KÖCHLIN), 1883, A., 781.

of pyrosulphuric chloride (OGIER), 1883, A., 123, 616; (HEUMANN and KÖCHLIN), 1883, A., 710.

of tellurium tetrachloride (MICHAELIS), 1887, A., 770.

of thiophosphoryl fluoride (THORPE and RÖDGLER), 1889, T., 308.

of thionium chloride (TROOST), 1885, A., 1113; (KRÜSS and NILSON), 1887, A., 701.

**Vapour-density** of zinc (MENSCHING and MEYER), 1887, A., 218.  
 of acetic acid (KRAUNE and MEYER), 1890, A., 1305.  
 of aluminium ethyl (ROUX and LOUÏSE), 1888, A., 453.  
 of aluminium methyl (LOUÏSE and ROUX), 1888, A., 533; (QUINCKE), 1889, A., 695.  
 of tertiary amyl compounds (MENSCHUTKIN and KONOWALOFF), 1884, A., 1119.  
 of benzene  $\beta$ -hexachloride (MEUNIER), 1884, A., 886.  
 of chloral ethylic alcoholate (RAMSAY and YOUNG), 1886, T., 685; P., 225.  
 of cyanogen iodide (SEUBERT and POLLARD), 1890, A., 949.  
 of ethereal salts (MENSCHUTKIN and KONOWALOFF), 1886, A., 299.  
 of ethylic isocyanurate at different temperatures (KRAPPE and ZELINSKY), 1889, A., 1128.  
 of ethylic racemate (ANSCHÜTZ), 1885, A., 966.  
 See also Density and Specific gravity.  
**Vapour pressure**, conditions of (BRAUN), 1888, A., 1015.  
 method of determining, at low temperatures (WALKER), 1889, A., 6.  
 apparatus for measuring (KAHLBAUM), 1887, A., 207.  
 apparatus for the indirect determination of (LOBRY DE BRUYN), 1892, A., 679.  
 dynamical method of determining (TAMMANN), 1888, A., 403.  
 the statical and dynamical methods of determining (RAMSAY and YOUNG), 1886, A., 5, 410, 965.  
 do the statical and the dynamical methods of measuring, give different results? (KAHLBAUM), 1886, A., 193.  
 determination of, from the rate of evaporation (MÜLLER-ERZBACH), 1888, A., 1016.  
 differential tonometer for measuring relative (BREMER), 1888, A., 402.  
 and rate of dissociation (MÜLLER-ERZBACH), 1887, A., 696.  
 compounds which have a, equal to the dissociation tension of their saturated solutions (LESCEUR), 1890, A., 553.  
 as measure of the chemical attraction of water of crystallisation (MÜLLER-ERZBACH), 1887, A., 436.

**Vapour pressure**, influence of change from liquid to the solid state on (RAMSAY and YOUNG), 1885, A., 629; 1887, A., 430.  
 reductions, determination of molecular weight from (BECKMANN), 1890, A., 323.  
 of homologous compounds (SCHMIDT), 1891, A., 969; 1892, A., 396.  
 of liquids (RAMSAY and YOUNG), 1885, T., 641.  
 influence of small amounts of impurities on (TAMMANN), 1888, A., 213.  
 of a mixture of two volatile liquids (DÜHEM), 1891, A., 1407.  
 of solids and liquids, new method of determining (RAMSAY and YOUNG), 1885, T., 42.  
 of hydrated salts (MÜLLER-ERZBACH), 1885, A., 213.  
 constant, of crystalline hydrated salts (ANDREAE), 1891, A., 781.  
 of hydrated salts, rate of dissociation as a measure of (SCHULZE), 1888, A., 104.  
 of solutions (RAOULT), 1891, A., 386.  
 determination of (CHARPY), 1890, A., 1364.  
 measurement of (EWAN and ORMANDY), 1892, T., 769; P., 141.  
 of aqueous solutions (TAMMANN), 1889, A., 668; (EMDEN), 1890, A., 323.  
 of solutions in acetic acid (RAOULT and RECUERA), 1890, A., 554.  
 of ethereal solutions (RAOULT), 1887, A., 207; 1888, A., 1145.  
 influence of concentration on (RAOULT), 1887, A., 631.  
 of alcoholic solutions (RAOULT), 1889, A., 7.  
 of saline solutions (EMDEN), 1887, A., 764.  
 of some aqueous saline solutions at 0° (DIETERICH), 1891, A., 783.  
 of saturated solutions of salts, relations to efflorescence and deliquescence (LESCEUR), 1887, A., 208.  
 of dilute solutions of volatile substances (PLANCK), 1888, A., 1146.  
 of water (HINNICH), 1892, A., 396.  
 up to 200 atmospheres (ANTOINE), 1891, A., 1407.  
 from salt solutions (TAMMANN), 1885, A., 862; (NICOL), 1887, A., 321.  
 of chemically combined and absorbed water, statical and dynamical methods of measuring (MÜLLER-ERZBACH), 1889, A., 1045.

**Vapour pressure** of bromine (RAMSAY and YOUNG), 1886, T., 453; P., 181.  
 of carbon tetrachloride (YOUNG), 1891, T., 911; P., 124.  
 of aqueous solutions of cobalt chloride (CHARPY), 1892, A., 263.  
 of copper potassium chloride and its solutions (VRIENS), 1891, A., 788.  
 of the hydrate of hydrogen sulphide (DE FORCERAND and VILLARD), 1888, A., 644.  
 of iodine (RAMSAY and YOUNG), 1886, T., 453; P., 181.  
 of mercury (MCLEOD), 1884, A., 385; (RAMSAY and YOUNG), 1885, T., 656; P., 115; 1886, T., 37; (VAN DER PLAATS), 1886, A., 963; (YOUNG), 1891, T., 629; P., 120.  
 of potassium hydroxide solutions (ERRERA), 1889, A., 205.  
 of sodium carbonate (ANDREA), 1891, A., 782.  
 of stannic chloride (YOUNG), 1891, T., 911; P., 124.  
 of mixtures of sulphurous and carbonic anhydrides (BLÜMCKE), 1888, A., 775; (PICTET), 1888, A., 1015.  
 of acetic acid (RAMSAY and YOUNG), 1885, T., 42; 1886, T., 790; P., 225; (RICHARDSON), 1886, T., 765, 774, 776; (YOUNG), 1891, T., 903; P., 124.  
 of sodium acetate solutions (LESCOUR), 1887, A., 322.  
 of alcohols and organic acids and the relations between them (RICHARDSON), 1886, T., 761; P., 229.  
 of benzene (YOUNG), 1889, T., 488, 492, 501, 508; P., 103.  
 of halogen derivatives of benzene (RAMSAY and YOUNG), 1885, T., 640; (YOUNG), 1889, T., 486; P., 103.  
 of liquid cyanogen (CHAPPUIS and RIVIERE), 1887, A., 764.  
 of dibenzyl ketone (YOUNG), 1891, T., 626; P., 119.  
 of ethyl ether (RAMSAY and YOUNG), 1887, A., 320.  
 of ethylamine and diethylamine hydrosulphides (ISAMBERT), 1883, A., 727.  
 of mixtures of ethylic alcohol and ethyliodide (RAMSAY and YOUNG), 1887, T., 755; P., 91.  
 of aqueous solutions of glycerol (GERLACH), 1885, A., 499.  
 of methylic alcohol (DITTMAR and FAWSITT), 1889, A., 579.

**Vapour pressure** of mixtures of propylic alcohol and water (RAMSAY and YOUNG), 1888, P., 101.  
 of quinoline (YOUNG), 1889, T., 483; P., 104.  
 See also Weight, molecular.  
**Vapour tension.** See Vapour-pressure.  
**Vapours**, metallic, infra-red radiation spectra of (BECQUEREL), 1884, A., 1237.  
 evolved on heating iron, etc., at atmospheric pressure, spectroscopic examination of (PARRY), 1884, A., 801; 1885, A., 318.  
 glowing, anomalous dispersion produced by (WINKELMANN), 1888, A., 207.  
 refraction and chemical constitution of (BRUHL), 1891, A., 629.  
 an arrangement of the electric arc for the study of radiation of (LIVING and DEWAR), 1883, A., 262.  
 electrical conductivity of (LUVINI), 1887, A., 4.  
 arising from electrified surfaces of liquids, electrical neutrality of (BLAKE), 1884, A., 243.  
 dissociation of, by the silent discharge (v. HOFMANN), 1891, A., 143.  
 determination of the vapour density by means of the velocity of sound in (JAEGER), 1889, A., 460.  
 critical temperatures and pressures of (VINCENT and CHAPPUIS), 1885, A., 861, 1104; 1886, A., 968.  
 diffusion of gases and (WINKELMANN), 1885, A., 10.  
 influence of temperature on the diffusion of (WINKELMANN), 1889, A., 461.  
 organic, chlorinated, properties of (BERTHELOT), 1883, A., 394.  
 saturated, of various liquids under the same pressure, temperatures of (COLOT), 1892, A., 1143.  
 pressure of, over liquid and solid substances (FISCHER), 1886, A., 846.  
 relation between the pressure and temperature of (JAROLIMEK), 1883, A., 951.  
 relations of pressure, temperature and volume in (UNWIN), 1886, A., 764.  
 pressure and specific volume of (DEL LUNGO), 1892, A., 263.  
 method of determining the specific volumes of (YOUNG), 1890, P., 157; 1891, T., 37.  
**Variolite**, at Haudsorf, in Silesia (DATHE), 1884, A., 408.

- Varnish**, polychrome, for white metal (PUSCHNER), 1883, A., 596.
- Varnishes**, estimation of turpentine in (PHILLIPS), 1891, A., 1302.
- Varvacite** (WALKER), 1888, A., 658.
- Vasculose** (URBAIN), 1884, A., 858.
- Vaseline** (ENGLER and BOEHM), 1887, A., 456.  
estimation of fats in (VIZERN and NICOLAS), 1891, A., 1401.
- Vateria indica**, fat of the fruit of (v. HÖHNEL and WOLFBauer), 1886, A., 223.
- Vaugnerite** at Irigny, Rhone (GONNARD), 1884, A., 405.
- Vegetable extracts**, detection of asparagine and glutamine in (SCHULZE), 1884, A., 373.  
estimation of amides in (SCHULZE), 1884, A., 1438.  
estimation of ammonia in (BOSSHARD), 1884, A., 373; (SCHULZE), 1884, A., 493.  
families, existence of glycyrrhizin in several (GUIGNET), 1885, A., 395.  
fats. See Fats.  
fibre. See Fibre.  
kingdom, distribution of hydrocyanic acid in (GRESHOFF), 1891, A., 338.  
diffusion of vanadium in the (RICCIARDI), 1884, A., 159.  
matter, incineration of (LECHARTIER), 1890, A., 196.  
oils. See Oils, vegetable.  
organisms. See Organism.  
products, detection of mannose and of pentoses in (TOLLENS), 1892, A., 250.  
estimation of glucose and of raffinose in (TOLLENS), 1892, A., 249.  
substances, bleaching of, with chlorides of lime (LUNGE), 1886, A., 188.  
See also Agricultural Chemistry.
- Vegetable-marrow**, cooked, composition of (WILLIAMS), 1892, T., 227.
- Vegetables**, cooked, composition of (WILLIAMS), 1891, P., 174; 1892, T., 226.
- "Vegetaline"** (BELLMER), 1884, A., 1088.
- Vegetarianism** from a physiological standpoint (CHAMER), 1883, A., 928.
- Vegetation**. See Agricultural Chemistry.
- Velocity of reaction** in gelatin (REFORMATSKY), 1891, A., 639.  
See also Affinity.
- Venom**. See Poison.
- Veratrine**. See Alkaloids.
- Veratroidine** (PEKESCHEN), 1891, A., 87.
- Veratroil, dinitro-** (ROSSIN), 1892, A., 180.
- Veratronitrile** (GARELLI), 1891, A., 712.
- Veratrum album**, alkaloids of (PEKESCHEN), 1891, A., 87.  
alkaloids of the rhizome of (SALZBERGER), 1891, A., 230.
- Verdigris**, adulteration of (ASTRE), 1884, A., 1236.
- Vermiculites**, constitution of (CLARKE and SCHNEIDER), 1892, A., 125.
- Vermilion**, wet process for the manufacture of (DIRTE), 1884, A., 964.  
See also Mercuric sulphide.
- Vernine**, preparation of (SCHULZE and BOSSHARD), 1886, A., 157.
- Vernonin** (HECKEL and SCHLAGDENHAUFFEN), 1888, A., 964.
- Vertebrates**, relative alkalinity of blood of (DROUIN), 1891, A., 348.
- Vesuvian**. See Idociase.
- Vesuvius**, new sublimates from the crater of (SACCUR), 1883, A., 1064.
- Vetch**. See Agricultural Chemistry.
- Vibrios** and microzymas, origin of, in air, water, soil, etc. (BÉCHAMP), 1885, A., 417.
- Vicia**. See Agricultural Chemistry.
- Vicine** in broad beans (*Vicia Faba*) (RITTHAUSEN), 1884, A., 1405.  
in seeds (SCHULZE), 1891, A., 490.
- Victoria blue** (*tetramethylnaphthylpararosaniline*) (NATHANSON and MÜLLER), 1889, A., 1190.
- Victoria yellow** (*dinitro-p-cresol*), colour reactions of (FLECK), 1887, A., 624.  
physiological action of (WEYL), 1888, A., 520, 1122.
- Villarsite** from Traverselle (LACROIX), 1887, A., 351.
- Vinaconic acid**. See Trimethylene-1:1-dicarboxylic acid.
- Vincetoxinum officinale**, active principles of (GRAM), 1887, A., 377.
- Vincetoxin** (TANRET), 1885, A., 552.
- Vine**. See Agricultural Chemistry.
- Vinegar**, testing for free sulphuric acid in (POLLACCI), 1884, A., 215; (KOHNSTEIN), 1885, A., 933.  
examination of (SYKES), 1892, A., 251.  
estimation of the strength of (ANON.), 1885, A., 1267.  
estimation of tartaric acid in (JOLLES), 1890, A., 428.
- "Vinegar-plant,"** nature of (BROWN), 1886, T., 433; P., 194.
- Vinicolore** (JAY), 1885, A., 711.
- Vinoline**, detection of (POLLACCI), 1888, A., 877.

- Vinylamino**, preparation of, from bromoethylamine hydrobromide (GABRIEL), 1888, A., 1267.  
 derivatives of (GABRIEL), 1888, A., 668.
- o*-Vinylbenzoic acid**, tribromo- (ROSER and HASSELHOFF), 1888, A., 1301.  
 dichloro- (ZINCKE and FRÖHLICH), 1887, A., 955; (ZINCKE), 1888, A., 159.  
 trichloro- (ZINCKE and FRÖHLICH), 1887, A., 955; (ZINCKE), 1888, A., 490.
- o*-Vinylbenzoylcarboxylic acid**. See *o*-Vinylphenylglyoxylic acid.
- Vinyl- $\alpha$ -chlorophenylacetic acids** (*vinyl-dichlorobenzylcarboxylic acids*), *o*-dichloro- and *o*-trichloro- (ZINCKE and KEGEL), 1889, A., 270.
- Vinyl-diacetonalkamine**, -diacetonamine and -diacetone (FISCHER), 1884, A., 1291.
- Vinylethylene**. See Butinene.
- Vinyl alcohol**, a constant constituent of ethyl ether (POLECK and THÜMMEL), 1890, A., 118.  
 heat of combustion of (BRÜHL), 1891, A., 633.  
 bromide (*bromethylene*) and tribromide, action of benzene on, in presence of aluminium chloride (ANGELBIS and ANSCHÜTZ), 1884, A., 753; (ANSCHÜTZ), 1884, A., 754.  
 action of iodine monochloride on (HENRY), 1884, A., 830.  
 tribromide, action of sodium ethoxide on (MICHAEL), 1884, A., 418.  
 chloride (*chloroethylene*), action of ammonia on (ENGEL), 1887, A., 793.  
 action of iodine chloride on (HENRY), 1884, A., 719.  
 oxymercurochloride (POLECK and THÜMMEL), 1890, A., 118.  
 oxide and sulphide (SEMMLER), 1887, A., 1089.
- Vinylmalonic acid**. See Trimethylene-1:1-dicarboxylic acid.
- p*-Vinylphenol**  *$\beta$* -bromide, bromo- (EIGEL), 1887, A., 1110.
- o*-Vinylphenylglyoxylic acid** (*o*-vinylbenzoylcarboxylic acid), dichloro- (ZINCKE and KEGEL), 1889, A., 270.  
 trichloro- (ZINCKE), 1888, A., 490.
- Vinylpiperidine** (LADENBURG), 1890, A., 68.  
 bromo-, hydrobromide of (*piperethyle alkaline bromide*) (LADENBURG), 1884, A., 780.
- 2-Vinylpyridine** (*pyridylethylene*) (LADENBURG), 1887, A., 737; 1890, A., 67; (EINHORN), 1892, A., 77.
- Violane** from Piedmont (SCHLÜTTIG), 1887, A., 784.  
 from Sweden (IGELSTRÖM), 1890, A., 114.  
 and anthochroite, identity of (IGELSTRÖM), 1891, A., 407.
- Viola-quercitrin**, a glucoside (MANDLIN), 1884, A., 1191.
- Violuric acid**. See Nitrosobarbituric acid.
- Viper**, Indian, venom of (WOLFENDEN), 1886, A., 1058.
- Virginia creeper** (*Cissus quinquefolia*), caffeotannic acid, citric acid, and quercitrin in (PIMPSON), 1885, A., 1255.
- Viscid substances**, determination of the specific gravity of (BRÜHL), 1891, A., 520, 1147.
- Viscosity**, pyrometric use of the principle of (BARUS), 1888, A., 1014.  
 of gases at high temperatures (BARUS), 1888, A., 1014.  
 of liquid carbon compounds, and its relation to chemical constitution (GARTENMEISTER), 1891, A., 380.  
 of liquids (GRAETZ), 1888, A., 776; (WAGNER), 1890, A., 441; (HANDL and PRIBRAM), 1892, A., 1143.  
 of liquids, relation between the density and (WARBURG and SACHS), 1885, A., 9.  
 specific, of organic liquids and their aqueous solutions (TRAUBE), 1886, A., 657.  
 of dilute aqueous solutions (ARRHENIUS), 1888, A., 336.  
 of aqueous salt solutions (LAUENSTEIN), 1892, A., 1044.
- Visual purple** (DRESER), 1886, A., 375.
- Vitellin**, crystalline (CHITTENDEN and HARTWELL), 1891, A., 342.  
 heat of combustion of (BERTHELOT and ANDRÉ), 1890, A., 938.  
 products of digestion of (NEUMEISTER), 1887, A., 286.
- Vitelloses** (NEUMEISTER), 1887, A., 286; (CHITTENDEN and HARTWELL), 1891, A., 342.
- Vitoglycol** and **vitol** (ETARD), 1892, A., 746.
- Vitriol**, oil of. See Sulphuric acid.
- Vivianite**, curious occurrence of (DUNLEY), 1891, A., 156.  
 new locality for (Koch), 1885, A., 731.  
 from the Szentes artesian well (v. MURAKÖZY), 1890, A., 714.  
 from Tamnáj (TELUSCHKIN), 1892, A., 690.

- Voucanga* (*Orchipeda*) *foetida*, alkaloid from (GRESHOFF), 1891, A., 337.
- Volatilisation** (ROOZBOOM), 1888, A., 1148.  
of dissolved substances during the evaporation of the solvent (MARGUERITE-DELACHARLONNY), 1887, A., 211.
- Volcanic ash**, silver in (MALLET), 1887, A., 454; 1891, A., 277.  
from the eruption of Krakatoa (REUSCH), 1884, A., 415.  
minerals from (REUTERS), 1886, A., 602.  
analysis of (v. LASAULX; OERBEKE), 1884, A., 974; (DE LOON), 1884, A., 975.
- Volcanic rocks.** See Rocks.
- Volcanoes** of Northern California, Oregon, and Washington (HAGUE and INDINGS), 1884, A., 28.  
origin of hydrogen chloride, sulphurous anhydride and iodine in the gases of (RICCIARDI), 1887, A., 643.
- Volt and voltaic.** See Electrochemistry.
- Voltaite**, and metavoltine (BLAAS), 1884, A., 1103.
- Voltzite** (*voltzine*), crystallised (CESARO), 1884, A., 1101.
- Volume**, change in, attending the mixture of salt solutions (NICOL), 1883, T., 135.  
change in, accompanying solution (BRAUN), 1887, A., 436.  
change in, during the formation of metallic oxides (BEKETOFF), 1887, A., 1073.  
change in, on dissolving salts in water (SCHMIDT), 1890, A., 844.  
change in, on melting (SCHIFF), 1884, A., 1089.  
in gases, change of, on mixture (BRAUN), 1888, A., 1015.  
change of, on mixing electrolytes (GORE), 1892, A., 930.  
pressure and temperature, relation of, in the case of liquids (BARUS), 1890, A., 321.
- Volume lag** and its bearing on molecular constitution (BARUS), 1892, A., 1043.
- Volumes**, Gay Lussac's law of (LEDUC), 1892, A., 1271.  
law of, in chemistry (HUNT), 1887, A., 99.  
law of smallest (MÜLLER-ERZBACH), 1884, A., 12.  
of liquid and gaseous mixtures (WANKLYN and COOPER), 1891, A., 1412; (WANKLYN, JOHNSTONE and COOPER), 1892, A., 264; (WANKLYN), 1892, A., 935.
- Volume**, atomic, and specific volume (LOSSEN), 1886, A., 972.  
of elements, relation between the allotropic modifications of iron and the (OSMOND), 1890, A., 567.
- Volume**, critical, determination of (NADESCHDIN), 1888, A., 775.  
of liquids (DEWAR), 1885, A., 331.
- Volume**, molecular, law of (GUILDBERG), 1890, A., 1043.  
calculation of (HINRICHS), 1891, A., 1408.  
formula for calculating the, at the boiling point (GROSHANS), 1889, A., 100.  
boiling points and chemical characters of liquids, relations between (MANSON; YOUNG), 1891, A., 379.  
influence of double and ring linking on (HORSTMANN), 1887, A., 545.  
and refraction, new theory of (KETTLER), 1889, A., 326.  
of acetic acid (YOUNG), 1891, T., 903.  
of aromatic compounds (NEUBECK), 1888, A., 895; (FEITLER), 1889, A., 1047; (SAKURAI), 1890, A., 683.  
of benzene, naphthalene, anthracene etc. (GROSHANS), 1889, A., 336.  
of the saturated vapours of benzene and its halogen derivatives (YOUNG), 1890, P., 177; 1891, T., 125.  
of carbon tetrachloride and stannic chloride (YOUNG), 1891, T., 911.  
of liquids (BLASERNA and CANNIZZARO), 1883, A., 279; (SCHIEFF), 1883, A., 1044; 1884, A., 386; (KOPP), 1889, A., 566.  
of organic compounds, formulae for calculating (LOSSEN), 1890, A., 323.  
of saline solutions (NICOL), 1884, A., 658; 1885, A., 334.  
of salts combined with water, relation of their dissociation to (MÜLLER-ERZBACH), 1884, A., 952.  
of dissolved substances (TRAUBE), 1892, A., 1383.  
See also Volume, specific.
- Volume**, specific (LOSSEN), 1888, A., 335.  
and atomic volumes (LOSSEN), 1886, A., 972.  
at the boiling point, etc. (HORSTMANN), 1886, A., 759.  
and boiling points, relation between (STAEDTEL), 1883, A., 302.  
of normal fatty acids and alcohols (ZANDER), 1884, A., 1278.

**Volume, specific, of the alkyl salts of fatty acids** (EISSÄSSER), 1883, A., 967; (GARTENMEISER), 1886, A., 966.

**of ethereal salts of the oxalic acid series** (WIENS), 1890, A., 102.

**of saturated and unsaturated alkyl salts and hydrocarbons** (WIEGER), 1884, A., 8.

**of allyl and propyl compounds** (ZANDER), 1883, A., 13.

**of benzene** (YOUNG), 1889, T., 488, 504; P., 103; 1891, T., 44.

**of halogen derivatives of benzene** (YOUNG), 1889, T., 486; P., 103.

**of camphor and borneol** (KUHARA), 1889, A., 785; 1890, A., 169.

**of carbon tetrachloride** (YOUNG), 1891, T., 43, 45.

**of some double chlorides** (ROMANIS), 1884, A., 956.

**of chlorine, bromine, and iodine in carbon compounds** (SCHALFÉEFF), 1885, A., 717.

**of the normal fatty ethers and iodides** (DOBRINER), 1888, A., 334.

**of hydrocarbons from Pennsylvanian petroleum** (BARTOLI and STRACCIATI), 1885, A., 859.

**of liquids** (LOSSEN; ZANDER), 1883, A., 13; (KOPP), 1884, A., 117; (LOSSEN and ZANDER), 1884, A., 1252.

**and absolute boiling points, relation between** (GROSHANS), 1886, A., 590.

**and their saturated vapours, new method of determining** (YOUNG), 1890, P., 157; 1891, T., 37.

**of phenols and their ethers** (PINETTER), 1888, A., 335.

**of phosphorus oxide** (THORPE and TUTTON), 1890, T., 558.

**of phosphorus** (THORPE and TUTTON), 1890, T., 562.

**of aqueous vapour** (DIETERICI), 1890, A., 207.

**and pressure of saturated vapours** (DEL LUNGO), 1892, A., 263.

See also **Volume, molecular.**

**Volumeometer, an instrument for taking the specific gravity of minerals** (GISEVIUS), 1883, A., 1032.

**Volumetric system, arrangement of** (WINKLER), 1886, A., 96.

**Vulpic acid, derivatives and constitutional formula of** (SPRIENGL), 1884, A., 841.

## W.

**Wackenroder's solution, investigation of, and explanation of the formation of its constituents** (DEBUS), 1888, T., 278; P., 18.

**preparation of** (DEBUS), 1888, T., 281.

**preparation of tetrathionates from** (HIRTIS and HENKEI), 1888, A., 552.

**spontaneous decomposition of** (DEBUS), 1888, T., 317.

**bleaching power of** (SMITH), 1883, T., 355.

See also **the Thionic acids under Sulphur.**

**Wads** (GORGOU), 1890, A., 570.

**Wagnerites, bromarsenio-manganese** (DITTE), 1883, A., 784.

**bromo-** (DITTE), 1883, A., 648.

**Walnut oil** (MAEEN), 1886, A., 644.

**Walthersite from Joachimsthal** (BERTRAND), 1883, A., 36.

**Waluwite from the Ural** (SCHLAEFFER), 1891, A., 531.

**chemical composition of** (NIKOLAEFF), 1883, A., 1068.

**Wash-bottle, improved** (SOBIECZKY and HÖBLING), 1888, A., 900.

**Watches, non-magnetisable alloys of palladium for** (PAILLARD), 1889, A., 573.

**WATER:—**

**composition of, by volume** (SCOTT), 1888, A., 411; (MORLEY), 1891, A., 976.

**composition of, by weight** (RAYLEIGH), 1890, A., 330; (LEDUC), 1892, A., 1271.

**synthesis of, by weight, a lecture experiment** (LADENBURG), 1883, A., 1048.

**simultaneous synthesis of hydrogen chloride and** (HAUTEFEUILLE and MARGOTTE), 1890, A., 8.

**molecular weight of** (THOMSEN), 1885, A., 870.

**evidence of a change in the constitution of** (ARMSTRONG), 1887, P., 127; 1888, T., 125.

**colour of** (SPRING), 1884, A., 259.

**spectrum of** (LIVEING and DEWAR), 1883, A., 140; (JANSEN), 1888, A., 261.

**absorption spectrum of** (SORET and SARASIN), 1884, A., 701.

**relation between the ultra-violet spectrum of the vapour of, and the telluric bands, A, B,  $\alpha$  in the solar spectrum** (DESLANDRE), 1885, A., 713.

## WATER:—

- atmospheric absorption by the vapour of (ABNEY and FENTING), 1884, A., 211.
- absorption of heat by the vapour of (RONTGEN), 1885, A., 5.
- refractive power of, at different temperatures (PERKIN), 1892, T., 293.
- refractive indices of (BRÜHL), 1891, A., 629.
- and quartz, variation of the indices of refraction of, with the temperature (DUFET), 1888, A., 762.
- influence of pressure on the index of refraction of, for sodium light (ZEHNDER), 1888, A., 765.
- cooled below 0°, refraction of light by (PULFRICH), 1888, A., 881.
- measurement of the quantity of light that enters (REGNARD), 1891, A., 2.
- electrical conductivity of (FOUSSEREAU), 1884, A., 1241; (KOHLE-RAUSCH), 1885, A., 323; (OSTWALD), 1890, A., 1857.
- electrical conductivity of, and its temperature coefficients (PFEIFFER), 1888, A., 11.
- electrolysis of (BARTOLI and PARASOGLI), 1883, A., 540; (TOMMASI), 1885, A., 1029; (v. HELMHOLTZ), 1888, A., 100; (DUTER), 1889, A., 1094.
- specific inductive capacity of (COHN), 1890, A., 203.
- and carbon disulphide and water and ether, under the action of electromotive force, variation of the constant of capillarity of the surfaces (KROUCHKOLI), 1883, A., 1047.
- molecule, heat of, dissociation of, and the electric luminosity of gases (WIEDEMANN), 1883, A., 547.
- heat conductivity of (CHRIE), 1888, A., 641.
- specific heat of (NEESEN), 1883, A., 541.
- superfused, specific heat of (CARDANI and TOMASINI), 1888, A., 102.
- thermal relationship between certain salts and (ILLINGWORTH and HOWARD), 1885, A., 339.
- expansion of (AMAGAT), 1887, A., 695; (PICKERING), 1889, P., 89; 1891, A., 8; (SCHEEL), 1892, A., 7; (MAREK), 1892, A., 106; (PUSCHL), 1892, A., 1382.
- maximum density of (VERNON), 1892, A., 7.
- maximum density of, a lecture experiment (v. HOFMANN), 1883, A., 280.

## WATER:—

- influence of hygroscopic condensation in glass vessels on the determination of the density of the vapour of (MACALUSO and GRIMALDI), 1883, A., 507.
- condensation of the vapour of, by solid substances (IHMORI), 1888, A., 24.
- variation of temperature of maximum density of, with pressure (GRIMALDI), 1886, A., 9.
- determination of the critical temperature and pressure of (CAILLETET and COLARDEAU), 1891, A., 779.
- and carbonic anhydride vapour, saturated, relation between pressure and temperature in (JAROLIMEK), 1883, A., 417.
- saturated vapour of, pressure of (HINRICHS), 1892, A., 396.
- vapour pressure of, up to 200 atmospheres (ANTOINE), 1891, A., 1407.
- chemically combined and absorbed, statical and dynamical methods of measuring the vapour pressure of (MULLER-ERZBACH), 1889, A., 1045.
- specific volume of the vapour of (DIETERICI), 1890, A., 207.
- relative volumes of, in the liquid and gaseous state, a lecture experiment (v. HOFMANN), 1883, A., 280.
- hot, compressibility of (BARUS), 1891, A., 634.
- compressibility of (AMAGAT), 1887, A., 695; (RONTGEN), 1888, A., 548.
- decomposition of, by metalloids (CROSS and HIGGIN), 1888, A., 900.
- decomposition of, by sodium, a lecture experiment (v. HOFMANN), 1883, A., 280.
- alternate decomposition and reproduction of, a lecture experiment (v. HOFMANN), 1883, A., 280.
- absorptive power of, for atmospheric gases (PETTERSSON and SONDÉN), 1889, A., 935.
- extraction of the dissolved gases in (HOPPE-STYLER), 1892, A., 1526.
- solubility of calcium carbonate in (ANDERSON), 1890, A., 450.
- solubility of gases in (BOHR and BOCK), 1892, A., 107.
- solubility of oxygen in (WINKLER), 1889, A., 936.
- attraction between soluble substances in dilute solutions and (DE VRIES), 1884, A., 1065.

## WATER:—

and alcohol, solubility of some substances in mixtures of (BODLANDER), 1891, A., 791.

hot, solvent action of, on glass (BARUS), 1891, A., 634.

penetrability of glass by (BERTHELOT; SCHUTZENBERGER), 1890, A., 691, 692.

oxidation of ammonia in (UFFELMANN), 1886, A., 917.

influence of, in promoting the interaction of hydrogen chloride and oxygen on exposure to light (ARMSTRONG), 1887, T., 806.

action of chlorine on, in the light (FEDLER), 1890, T., 613; P., 65.

changes induced in, by the development of bacteria (LEONE), 1887, A., 615.

recognition of the neutrality of (MYLIUS and FOERSTER), 1891, A., 1136.

equilibrium in the retention of, by dilute sulphuric acid and hydrated salts (MÜLLER-ERZBACH), 1888, A., 1024.

**Water of crystallisation** (SALZER), 1884, A., 584, 806; 1892, A., 581; (TICKERING), 1886, T., 280, 411; P., 163; (NICOL), 1886, T., 690; P., 220; A., 972; (PERKIN), 1886, T., 788; (SCHNEIDER), 1890, A., 1209.

dissociation and constitution of salts containing (MÜLLER-ERZBACH), 1884, A., 952; 1886, A., 10; 1887, A., 207; 1890, A., 206.

measure of the chemical attraction of, derived from the vapour pressures (MÜLLER-ERZBACH), 1887, A., 436.

influence of, on the electrical conductivity of salt solutions (TROTSCH), 1891, A., 111.

of dissolved cobalt salts (KALLER), 1888, A., 23.

of alums (JURKE), 1888, A., 112.

of morphine (HESSE), 1889, A., 417.

amount of, in certain salts (SCHULZE), 1887, A., 766.

estimation of, in organic compounds (OSTERMAYER), 1886, A., 96.

## NATURAL WATER:—

**Rain Water**, composition of (LÉVY), 1889, A., 299.

ammonia in (HOUZEAU), 1883, A., 753; 1884, A., 104; (MARCANO and MÜNTZ; LÉVY), 1892, A., 381; (MÜNTZ), 1892, A., 909.

at Quincester, amount of chlorine in (KINCH), 1886, P., 258; 1887, T., 92.

## NATURAL WATER.

**Rain Water** at Rothamsted, chlorine, sulphuric anhydride and ammonia in (WARINGTON), 1887, T., 501.

of tropical districts, nitrates in the (MÜNTZ and MARCANO), 1889, A., 923.

at Rothamsted, amount of nitric acid in (WARINGTON), 1889, T., 537; P., 102.

nitrogen compounds in (BERTHELOT and ANDRÉ), 1886, A., 737.

salt in (BELLUOT), 1889, A., 299.

analysis of (WARINGTON), 1889, T., 543; P., 102.

See also Agricultural Chemistry.

**River Water**, turbid, clarification of (LUEGER), 1885, A., 198.

destruction and formation of nitrates in (MUNRO), 1886, T., 632, 656, 664; P., 218.

diffusion of, into sea-water (THOULER), 1891, A., 970.

of the Danube above Vienna in the year 1878, chemical composition of (WOLFFBAUER), 1884, A., 122.

of La Plata rivers (SCHÖELTER), 1887, A., 786.

of the Nile, fertilising properties of (MÜNTZ), 1888, A., 1261; 1889, A., 646.

of some black equatorial rivers (MÜNTZ and MARCANO), 1889, A., 226.

**Lake Water** of Aiguebelette, Paladru, Nantua and Sylans (DUPARC and DELERQUE), 1892, A., 1061.

of some American alkali lakes (CHATARD), 1889, A., 29.

of a saline lake near the Stolipin mineral springs (BULITSCH), 1887, A., 648.

**Spring and Mineral Water**, destruction and formation of nitrates in (MUNRO), 1886, T., 632, 658, 661; P., 218.

decrease of dissolved oxygen in, and a simple method for taking samples in deep borings. (LEPSIUS), 1885, A., 1266.

of Acquarossa (BERTONI), 1885, A., 494.

of the Admirals-gartenbad, Berlin (FRESSENIUS), 1889, A., 27.

from springs in Aegina and Andros (DAMBERGIS), 1887, A., 23.

from Aruba (DE LOOS), 1884, A., 978.

of Bagnères de Luchon, Haute Garonne (WILM), 1886, A., 997.

of Barèges, arsenic in (SCHLAGDENHAUFFEN), 1883, A., 302.

## NATURAL WATER :—

**Spring and Mineral Water** of Borhegyer, composition of (BALLÓ), 1884, A., 978.  
 from Artesian wells near Brussels (KLEMENT), 1888, A., 239.  
 at Brucourt, analysis of (CLOEZ), 1884, A., 895.  
 deposit from a spring at Carmaux (MEUNIER), 1885, A., 644.  
 deposit from a spring at Chabetout (THAUVIN), 1886, A., 215.  
 from collieries, composition of (ARCHE and HASSACK), 1884, A., 782; (BEDSON), 1888, A., 354.  
 from the Roundwood Colliery (CLEEVES and PIATTS), 1890, A., 220.  
 of Contrexeville and Schinznach, Switzerland, lithium, strontium and boric acid in (DIEULAFAIT), 1883, A., 301.  
 of Crausac (CARNOT), 1890, A., 1385.  
 from the spring "Romerbrunnen," at Echzell, Wetterau (PISTOR), 1885, A., 362.  
 from the springs of Edepos (DAMBERGIS), 1892, A., 418.  
 of Eilsen (FRESSENIUS), 1892, A., 796.  
 from hot springs in Ferguson Island (LIVESIDGE), 1891, A., 280.  
 from hot springs at Finca Huracato, Salta, Argentine Republic (CANZONERI), 1892, A., 574.  
 from Flitwick (JOHNSONE), 1887, A., 1087.  
 from the springs at Freyersbach, composition of (BIENBAUM), 1884, A., 1274.  
 from hot springs of Hammam el Lif, Tunis (BARILLE), 1886, A., 322.  
 from hot springs of Hammam Salahine (GIRARD), 1886, A., 996.  
 from hot springs of Leuk (LUNGE and SCHMIDT), 1886, A., 996.  
 from the brine spring at Lautenthal (LATTERMANN), 1891, A., 652.  
 from Java (MEUNIER), 1887, A., 224.  
 of Malaisie (MEUNIER), 1890, A., 1081.  
 from springs in the peninsula of Menthana (DEMDEGIS), 1888, A., 238.  
 of Monte de Malo (SPICA), 1892, A., 1287.  
 at Montroud, Loire (TERRILL), 1883, A., 1071.  
 accompanying petroleum and those ejected by mud volcanoes (POTILIZIN), 1883, A., 171.

## NATURAL WATER :—

**Spring and Mineral Water**, sulphuretted, of Olette, Pyrénées orientales (WILLM), 1887, A., 710.  
 of the Orchard Alum Spring (THREHN), 1883, A., 171.  
 of the Ottili Spring, Suhl, Thuringia (REICHARDT), 1889, A., 1054.  
 from the spring at Oued Ref (DE LESSEPS), 1887, A., 455.  
 from a hot spring in the Island of Pantellaria (BRIGNONE), 1884, A., 1105.  
 of Penon de los Banos, Mexico (L'HÔRE), 1891, A., 279.  
 subterranean, near Port-Vendres (ESSNER), 1892, A., 285.  
 chalybeate, of Raffanelo (MAUGLIN), 1888, A., 1261.  
 from a spring at Rindö, near Stockholm (CRONQUIST), 1883, A., 449.  
 from Roncigno (GLASER and KALMANN), 1888, A., 796; 1889, A., 28.  
 of St. Nectaire, Puy-de-Dôme (BOUDET), 1886, A., 858.  
 of Salies-du-Salat (SABATIER), 1885, A., 231.  
 from a spring at Salzbrunn, analysis of (POLECK), 1883, A., 563.  
 at Selafani (P'ATERNÒ), 1892, A., 25.  
 from Servia (LOSANITCH), 1887, A., 648.  
 from Shotley Bridge Spa (PEILE), 1888, A., 569.  
 of the brine spring at Stoke Prior, Worcestershire (GRIFFITHS), 1884, A., 165.  
 from the Tonnissteiner Spring (LEPSIUS), 1888, A., 435.  
 from an Artesian well in the Tunisian Chotts (DE LESSEPS), 1887, A., 455.  
 from Uriage, Isère, composition of (PELIGOT), 1886, A., 37.  
 of Warmbrunn, Silesia (POLECK), 1886, A., 997.  
 from springs at Wiesbaden (R. FRESSENIUS), 1887, A., 352; 1888, A., 928; (H. FRESSENIUS), 1887, A., 647.  
 of Woodhall Spa (WRIGHT and BURTON), 1884, T., 163; (WANKLYN), 1887, A., 221.  
 of the Yellowstone National Park (LEFFMANN), 1884, A., 30; (HAGUE), 1883, A., 122; (GOOCH and WHITFIELD), 1889, A., 682.  
 from the Red Spring at Zacaune, Tarn, France (SOUBEIRAN and MASSOL), 1885, A., 232.

## NATURAL WATER :—

- Spring and Mineral Water** from the wells of Zemzen (VAN ROMBURGH), 1887, A., 455.  
 preservation of (PARMENTIER), 1892, A., 1162.  
 aluminium in (PARMENTIER), 1892, A., 1287.  
 arsenic in (LEFORT), 1885, A., 232.  
 containing calcium sulphate, origin of arsenic and lithium in (SCHLAGDENHAUFFEN), 1883, A., 302.  
 chalybeate, alteration of (RIBAN), 1892, A., 1288; (PARMENTIER), 1892, A., 1289.  
 containing free sulphuric acid (WILLM), 1891, A., 1410.  
 manganiferous spring (MASON), 1890, A., 854.  
 phosphatic (BOURGOIN and CHASTAING), 1888, A., 354.  
 sulphurous (VITALI), 1891, A., 116.  
 estimation of arsenic and boric acids in (FRESSENTUS), 1886, A., 649.  
 estimation of carbonic anhydride in (BORCHERS), 1888, A., 533; (BRETER), 1891, A., 862.  
 estimation of lithium in (CARNOT), 1888, A., 1342; (WALLER), 1891, A., 1292.  
**Sea Water** from the Arctic Ocean (THOULET), 1892, A., 1287.  
 composing the Clyde sea area, chemical composition of (DICKIE), 1888, A., 569; 1889, A., 359.  
 of the Firth of Forth, salinity of (MILL), 1886, A., 322.  
 of the North Sea on the coasts of Holland (ROOZEBOOM), 1892, A., 419.  
 chemistry of (HAMBERG), 1886, A., 322, 679.  
 solid and gaseous constituents of (TORNÖR and SCHMELCK), 1884, A., 31.  
 physical properties of (PETTERSSON), 1884, A., 889.  
 specific heat of, of different densities (THOULET and CHEVALLIER), 1889, A., 666.  
 action of, on cast iron (DRAPER), 1888, A., 421.  
 diffusion of fresh water into (THOULET), 1891, A., 970.  
 solubility of calcium carbonate in (IRVINE and YOUNG), 1889, A., 314; (ANDERSON), 1890, A., 150.  
 solubility of minerals in (THOULET), 1889, A., 682.  
 solubility of some substances in (THOULET), 1890, A., 719.

## NATURAL WATER :—

- Sea Water**, manganese in, and in certain marine deposits (DIRULA-FAT), 1883, A., 725.  
 influence of the salts of, on fresh water animals (BERT; DE VARTIGNY), 1884, A., 620; (PLATEAU), 1884, A., 621.  
 estimation of bromine in (BERGLUND), 1886, A., 134; (GUTZKOW), 1889, A., 74.  
**Potable or Drinking Water** supplies (REICHARDT), 1885, A., 612.  
 of Moscow, composition of (GRIGORIEFF), 1883, A., 622.  
 of Rangoon (ROMANIS), 1883, A., 128.  
 at Royat, Puy-de-Dôme (BOUTET), 1886, A., 859.  
 of Oderzo (SPICA and MALAGIAN), 1888, A., 35.  
 natural purification of (EMICH), 1885, A., 846.  
 self-purification of peaty (HARTLEY), 1884, A., 781.  
 purification of, by alum (AUSTEN and WILBER), 1885, A., 936.  
 purification of, by irrigation (KONIG and BOHMER), 1886, A., 287.  
 purification of, by soda and lime (BINDER), 1888, A., 758.  
 influence of filters on (SNIJDERS), 1888, A., 866.  
 action of, on lead pipes (ALLEN), 1883, A., 128; (REICHARDT), 1888, A., 344, 554; (CARNELLEY and FREW), 1888, A., 555.  
 action of, on zinc, and effects of drinking water contaminated with zinc (STEVENSON), 1884, A., 878.  
 zinc in (HEATON), 1884, A., 697; (VENABLE), 1885, A., 453.  
 copper precipitate formed in (GRIMBERT and BARRÉ), 1890, A., 851.  
 ammonia, nitrous and nitric acids in (GREINERT), 1885, A., 297; (ENKLAAR), 1889, A., 1234.  
 alleged formation of nitric and nitrous acid in the evaporation of (BAYMANN), 1889, A., 183.  
 nitrates in (BRÉAL), 1883, A., 384.  
 a reducing agent in (RAMSAY), 1886, P., 225.  
 micro-organisms in (LEONE), 1886, A., 286.  
 removal of, from (FRANKLAND), 1886, A., 573.  
**Water analysis** :—  
 examination of (TICHBORNE), 1883, A., 382; (ANON.), 1883, A., 883; 1887, A., 1141; 1890, A., 196;

**Water analysis :—**

- (BACHMEYER), 1884, A., 1431;  
(SMITH), 1885, A., 86; (GUNNING),  
1885, A., 841; (BYNDER), 1888, A.,  
197; (VIGNON), 1890, A., 667.  
colour standard for (HAZEN), 1892,  
A., 1527.  
ammonia process for (MARSH), 1883,  
A., 514; (DARTON), 1884, A., 696.  
for technical purposes (ALLEN), 1890,  
A., 298.  
by rapid method prior to its softening  
for technical purposes (VIGNON),  
1889, A., 1035.  
for contamination by gas works (DICK-  
MANN), 1891, A., 117.  
loss on ignition in (DROWN), 1889,  
A., 551.  
influence of temperature on Griess'  
reaction for nitrites in (BOSIO),  
1892, A., 657.  
for sanitary purposes, with remarks  
on disinfection (HITCHCOCK), 1883,  
A., 514.  
for organisms (MAGGI), 1884, A., 369;  
(CARPENTER and NICHOLSON), 1885,  
A., 442; (WARDEN), 1885, A., 1266;  
(FOLKARD), 1887, A., 619.  
detection of organic matter by Heisch's  
method (LOTT), 1888, A., 533.  
microscopic, for organic impurities  
(BRAUTLEIGH), 1884, A., 221.  
permanganate test for organic matter  
in (STAPLETON), 1883, A., 516;  
(MCCAY), 1883, A., 829; (PETIT),  
1885, A., 841; (DUPRE), 1886, A.,  
581.  
detection of traces of copper in  
(THOMAS), 1891, A., 620.  
detection of organic matter in, ap-  
plication of diazo-compounds to  
the (GRIENS), 1888, A., 993.  
detection of nitrates in (BYNDER),  
1888, A., 197.  
detection of thiosulphates in (NEU-  
HÖFFER), 1886, A., 99.  
estimation of the hardness of (v.  
COCHENHAUSEN), 1888, A., 874;  
(WALLER), 1890, A., 86; (NEUGE-  
BAUER), 1891, A., 116; (LEPIERRE),  
1891, A., 1554.  
estimation of the hardness of, pre-  
paration of a volumetric solution  
for (TICHBORNE), 1883, A., 516.  
estimation of the hardness of, by  
(Clark's soap test (NELSON), 1890,  
A., 198; (TIEB), 1890, A., 421.  
estimation of the hardness of, by  
standard soap solution (GARNIER),  
1884, A., 1072; (ELLIS), 1886, A.,  
1076.

**Water analysis :—**

- estimation of alkalis in (MUCK), 1890,  
A., 299.  
estimation of ammonia in (TICHBORNE),  
1883, A., 382; (GORE),  
1885, A., 191.  
estimation of carbon in the organic  
constituents of (HERZFELD), 1887,  
A., 184; (BURGHARDT), 1887, A.,  
619.  
estimation of dissolved carbonic an-  
hydride in (VIGNON), 1888, A., 325.  
containing magnesium, estimation of  
carbonic anhydride in (TRILLICH),  
1890, A., 197.  
estimation of chlorine in (HAZEN),  
1890, A., 86.  
estimation of formic acid in (KLEIN),  
1887, A., 100.  
estimation, volumetric, of gases dis-  
solved in (PETTERSSON), 1889, A.,  
1034.  
estimation of iron in (BELL), 1890,  
A., 119.  
estimation of nitric acid in (MAYR-  
HOFER), 1885, A., 691; (HARVEY),  
1887, A., 181; (SPIEGEL), 1887, A.,  
691; 1889, A., 138; (HOOKER),  
1889, A., 312; (ORMANDY and  
COHEN), 1890, T., 811; P., 139;  
(RIDEAL), 1890, A., 831; (JOHN-  
SON), 1890, A., 882; (HAR-  
ROW), 1891, T., 320; P., 67;  
(ROSENFELD), 1891, A., 496;  
(HAZEN and CLARK), 1892, A.,  
243.  
estimation of nitrous acid in (ZAM-  
BELLI), 1887, A., 533; (ORMANDY  
and COHEN), 1890, T., 811; P.,  
139; (ROSENFELD), 1891, A., 496.  
estimation of nitrogen in, by the  
Kjeldahl process (LEFFMANN and  
BEAM), 1889, A., 786; (DROWN  
and MARTIN), 1889, A., 1035.  
estimation of organic nitrogen in  
(BURGHARDT), 1887, A., 619.  
estimation of organic matter in  
(MALLET), 1883, A., 1171; (LEEDS),  
1884, A., 369, 499; (PETIT), 1885,  
A., 811; (KOBRIKH), 1887, A., 533;  
(KLEIN), 1887, A., 1000; (YOUNG),  
1892, A., 921.  
estimation, direct, of oxygen and  
nitrogen in (JALIEU), 1889, A., 551.  
estimation of dissolved oxygen in  
(DUPRE), 1886, A., 579; (ROSCOE  
and LUNT), 1889, T., 552; P., 124;  
(WINKLER), 1889, A., 79; (TILNESH),  
1890, T., 185; P., 1; (LIXOSSIER),  
1891, A., 616; (ADAMS), 1892, T.,  
310; P., 1; (KISCH), 1892, A., 98,

**Water analysis :—**

estimation of free oxygen in (WILLIAMS and RAMSAY), 1886, T., 751; P., 223; (BLAREZ), 1888, A., 874; (LALIEU), 1888, A., 1844; (MULLER), 1890, A., 112.

estimation of phosphoric acid in (PHIPSON), 1888, A., 533.

estimation of dissolved substances in (HAZEN), 1892, A., 920.

estimation of sulphuric acid in (FRICKE), 1887, A., 862.

estimation of suspended matter in (MARCHANT), 1884, A., 117.

**Water.** See also Agricultural Chemistry, Ice and Steam.

**Water-baths,** draught arrangement for (WINKLER), 1889, A., 437.

**Water-gas.** See Gas.

**Waterproof materials,** preparation of (ANON.), 1884, A., 379.

**Waterproof paint** for stones, etc. (ANON.), 1883, A., 760.

**Wavellite** of Ouro Preto, Brazil (GORTZ), 1885, A., 31.

**Wax,** specific gravity and other properties of (ALLEN), 1887, A., 186.

complete chlorination of (HARTMANN), 1891, A., 812.

bees' (ZATZEK), 1883, A., 39.

bleaching of (A. and P. BUTSINE), 1891, A., 625.

acids contained in (NAFZGER), 1884, A., 1297.

non-acid constituents of (SCHWALB), 1885, A., 962; 1887, A., 124.

analysis of (v. HUBL), 1884, A., 506; (HEINER), 1884, A., 779;

(A. and P. BUTSINE), 1891, A., 131; 1892, A., 251; (MANGOLD), 1892, A., 1034.

assay of, for vegetable wax (ROTTGER), 1892, A., 551.

detection of ceresin, ozokerite and paraffin in (HAGER), 1890, A., 421.

detection of paraffin in (HAGER), 1891, A., 122.

detection of resin in (ROTTGER), 1892, A., 923.

carnauba, chemical composition of (STURCKE), 1884, A., 1280.

from cochineal (LIEBEMANN), 1885, A., 1045; 1886, A., 441; (RAIMANN), 1886, A., 441.

Japanese, specific gravity of (KLEIN-STÜCK), 1892, A., 428.

mineral (DOLLEUS and MEUNIER), 1888, A., 115.

See also Ozokerite.

**Wax,** vegetable, assay of beeswax for (ROTTGER), 1892, A., 551.

white, composition of (A. and P. BUTSINE), 1891, A., 625.

analysis of (BUCHNER), 1892, A., 665.

analysis of (BUCHNER), 1889, A., 322; (RÖTTGER), 1890, A., 429.

See also Oils, fatty and fixed.

**Weatherproof wall paintings,** process for preparing (ANON.), 1883, A., 942.

**Wehrlite** (SIPCOZ), 1886, A., 312.

**Weighing,** rapid, modified balance for (COLLOR), 1892, A., 270.

**Weight** of a body, method of correcting, for the buoyancy of the atmosphere when the volume is unknown (COOKE), 1884, A., 13.

of drops and their relation to the constants of capillarity and the capillary meniscus angle (TRAUBE), 1887, A., 210.

**Weight, molecular,** relation of, to capillary phenomena and constitution (TRAUBE), 1885, A., 116.

diathermanous power, refractive index and density of a substance, relation between (AYMONNET), 1892, A., 1.

of certain atoms or groups, dependence of substitution phenomena on (KEHRMANN), 1890, A., 484.

principle of determining (NERNST), 1890, A., 1368.

determination of, at the critical point (GUYE), 1891, A., 1411.

determination of, from the rise of boiling point (BECKMANN), 1889, A., 933; 1891, A., 389, 1317;

(WILEY), 1890, A., 104; (SAKURAI), 1892, T., 989; P., 151.

determination of, by Raoult's method (RAOULT), 1886, A., 197; (PATERNO and NASINI), 1886, A., 970;

1890, A., 725; (MEYER), 1888, A., 407; (AUWERS), 1888, A., 408;

(HOLLEMAN), 1888, A., 552; (AUWERS and MEYER), 1888, A., 616; (HENTSCHEL), 1888, A., 1143;

(BECKMANN), 1889, A., 11; (MEDOLA and STREATFIELD), 1889, A., 1105; 1890, T., 804; (EIJKMAN),

1890, A., 324; (NERNST), 1891, A., 389.

use of Raoult's method for determining, to distinguish between isomerism and polymerism (ANSCHUTZ), 1889, A., 754.

direct comparison of the physical constants involved in the determination of, by Raoult's method (ADIR), 1891, P., 26.

**Weight, molecular**, determination of, from osmotic pressure (LADENBURG), 1889, A., 820.  
determination of, from the reduction of vapour pressure (BECKMANN), 1890, A., 323.  
of liquids as evinced by their boiling points (VERNON), 1892, A., 107.  
specific gravity of a liquid a function of its (RICHARDSON), 1891, A., 780.  
and rate of evaporation of liquids, relation between (SCHALL), 1884, A., 551, 950; 1885, A., 112; (SCHALL and KOSSAKOWSKY), 1891, A., 1317.  
of liquids and solids (PICKERING), 1886, A., 198.  
of solid substances (VAN'T HOFF), 1890, A., 1041.  
of substances, determination of, from the boiling points of their solutions (WILEY), 1890, A., 104.  
of substances in solution, especially colloids (ARMSTRONG), 1889, P., 109.  
of hydrogen peroxide (TAMMANN), 1890, A., 106.  
of iodine and bromine in solution (LOEB), 1888, T., 805; P., 87; (PATERNO and NASINI), 1888, A., 1027; (BECKMANN), 1890, A., 447; (HERTZ), 1891, A., 260.  
of nitrous anhydride (RAMSAY), 1890, T., 595; P., 7.  
of nitric peroxide and nitrogen trioxide (RAMSAY), 1888, T., 621; P., 59.  
of phosphorous oxide (THORPE and TUTTON), 1890, T., 551.  
of phosphorus in solution (PATERNO and NASINI), 1888, A., 1027; (BECKMANN), 1890, A., 447; (HERTZ), 1891, A., 260.  
of sulphur (PATERNO and NASINI), 1888, A., 1027; (BILTZ), 1888, A., 1027; 1889, A., 340; (BECKMANN), 1890, A., 447; (HERTZ), 1891, A., 260.  
of sulphur dichloride (COSTA), 1891, A., 149.  
of metals (RAMSAY), 1889, T., 521; P., 39; (V. TURIN), 1890, A., 1016; (MEYER), 1891, A., 984.  
of metals in solution (HEYCOCK and NEVILLE), 1890, T., 376, 656; P., 38, 158.  
of aluminium compounds (ROUX and LOUISE), 1889, A., 757.  
of volatile chlorides, method of estimating (BILTZ), 1888, A., 1241.

**Weight, molecular**, of basic ferric sulphate (PICKERING), 1883, T., 182.  
of metaphosphates (JAWEIN), 1889, A., 671.  
of water (THOMSEN), 1885, A., 870.  
of organic compounds, determinations of, by Raoult's method (PATERNO and NASINI), 1886, A., 970; 1890, A., 725.  
of polymeric compounds, determination of, by Raoult's method (MEDOLA and STREATFIELD), 1889, A., 1105.  
of acids of the oleic series (SCHULZ), 1889, A., 1140; (SÜLC), 1890, A., 737.  
of citraconic, itaconic and mesaconic acids (PATERNO and NASINI), 1888, A., 1059.  
of fumaric and maleic acids (PATERNO and NASINI), 1888, A., 1059.  
of gallic and tannic acids (SABANÉEFF), 1891, A., 145.  
of glycocine and its anhydride (CURTIUS and SCHULZ), 1891, A., 38.  
of methylic diacetylacetate (ANSCHUTZ), 1888, A., 1273.  
of pentic acid (MOSCHELES and CORNELIUS), 1889, A., 489.  
and atomicity of fatty alcohols, method for the determination of (HELL), 1884, A., 1433.  
of paral dol (MAGNANINI), 1890, A., 862.  
of formaldehyde (TOLLENS and MAYER), 1888, A., 809.  
of paraformaldehyde (TOLLENS and MAYER), 1889, A., 369.  
of free alkaloids (CHRISTENSEN), 1892, A., 666.  
of the amines (DEWAR and SCOTT), 1884, A., 257.  
of amphiphenacylnitrile (*isoinidole*) (TREADWELL and MEYER), 1883, A., 665.  
of caoutchouc (GLADSTONE and HIBBERT), 1889, A., 1207.  
of amyloextrin (BROWN and MORRIS), 1889, T., 455; P., 95, 96.  
of arabinose (BROWN and MORRIS), 1888, T., 619; (TOLLENS, MAYER and WHEELER), 1889, A., 367.  
of dextrose (BROWN and MORRIS), 1888, T., 614; (TOLLENS, MAYER and WHEELER), 1889, A., 367.  
of formose (V. KLOBUKOFF), 1890, A., 465.  
of maltose (BROWN and MORRIS), 1888, T., 617; (EKSTRAND and MAUZELIUS), 1890, A., 227.

**Weight, molecular, of methose** (v. KLOBUKOFF), 1890, A., 466.  
 of **mallinose** (BROWN and MORRIS), 1888, T., 619; (DE VRIES), 1888, A., 667; (TOLLENS and MAYER), 1888, A., 809.  
 of **xylose** (TOLLENS, MAYER and WHEELER), 1889, A., 367.  
 of **inulin-like substances** (EKSTRAND and MAUZELIUS), 1890, A., 227.  
 of  **$\zeta$ -inverian** (O'SULLIVAN and THOMPSON), 1890, T., 911.  
 of **solid  $\alpha$ -dichloropropionitrile** (OTO), 1890, A., 726.  
 of **some colloids** (ARMSTRONG), 1889, P., 109; (GLADSTONE and HUBBERT), 1889, A., 1207; (PATERNO and NASINI), 1890, A., 725; (SABANÉEFF), 1890, A., 1215; 1891, A., 145.  
 of **desaurins** (MEYER), 1890, A., 1144.  
 of **diazo-compounds** (GOLDSCHMIDT), 1891, A., 193.  
 of **3:6-diphenylpyrazine** (THREADWELL and MEYER), 1883, A., 665.  
 of **hexamethyleneamine** (TOLLENS and MAYER), 1888, A., 809.  
 of **isoidole** (*amphiphenacylnitrile*) (THREADWELL and MEYER), 1883, A., 665.  
 of **nitrosoindole** (ZATTI and FERRATINI), 1892, A., 67.  
 of **oximes** (BECKMANN), 1888, A., 409, 646; (AUWERS and MEYER), 1888, A., 646.  
 of **pyrroline-derivatives** (MAGNANINI), 1890, A., 906.  
 of the **imidoanhydrides of pyrroline-carboxylic and indolecarboxylic acids** (MAGNANINI), 1890, A., 67.  
 of **quecietin** (HERZIG), 1888, A., 1309.  
 of **peptones** (CLAMICIAN and ZANNETTI), 1892, A., 1501.  
 of **choleic acid, cholesterol and hydrobilirubin** (ABEL), 1890, A., 911.  
 of **hematoporphyrin and bilirubin** (NENCKI and ROTSCHY), 1890, A., 76.  
**Weight, specific, of mixtures of sulphurous and carbonic anhydrides** (BLUMCKE), 1888, A., 775; (PIETER), 1888, A., 1015.  
**Weldon mud.** See Manganese.  
**Well waters.** See Water.  
**Wernerite.** See Scapolite.  
**Whale, bottle-nosed, milk of** (FRANKLAND and HAMBLY), 1890, A., 812.  
**Wheat.** See Agricultural Chemistry.  
**White garnet.** See Leucite.

**White lead.** See Lead carbonate, basic.  
**White metal, polychrome varnish for** (PISCHER), 1883, A., 896.  
**White precipitate.** See Mercuric ammonium chloride.  
**Willemite** from Greenland (LORENZEN), 1886, A., 519.  
 from New Jersey (CLARKE), 1892, A., 1411.  
 artificial production of (GORGES), 1887, A., 345.  
 See also Zinc silicate.  
**Wiluite** (PRENDEL), 1890, A., 220.  
**Wine, chemistry of** (ANON.), 1881, A., 131; (KUSNER), 1881, A., 1445.  
 abnormal fermentation under unfavourable circumstances and its influence on the composition of (BARTH), 1885, A., 942.  
 inferior, improvement of, by addition of the marc of superior grapes (NESSLER), 1884, A., 938.  
 statistics of Germany (ANON.), 1890, A., 285.  
 effects of an electric current on (MENGARINI), 1888, A., 188.  
 bouquet of (JACQUEMIN), 1890, A., 1180.  
 influence of yeast on the (ROMMEL), 1890, A., 281.  
 colouring matters of (MONNET), 1890, A., 311.  
 red colouring matter of (TERREIL), 1885, A., 1142.  
 sulpho-conjugate colouring matter in (CARLES), 1886, A., 105.  
 coloured by aromatic sulphonic derivatives, examination of (THOMAS), 1883, A., 625.  
 substance employed to colour (JAY), 1885, A., 309.  
 extraction of the colouring matter of (HUGOUNENQ), 1891, A., 1563.  
 method of distinguishing natural colours from added coal-tar colours (BLARIZ and DENIGES), 1886, A., 1081.  
 solubility of the colouring-matter of, in the various constituents of grape-juice (GANTIER), 1883, A., 1141.  
 and bilberry colouring matters, difference between (VOGEL), 1888, A., 1137.  
 free from artificial colouring matter, presence of arsenic in (BARTHELEMY), 1884, A., 526.  
 decolourisation of (BORNTAGER), 1892, A., 543.  
 clouding of (NESSLER), 1884, A., 233.  
 distillation of (KITISAN), 1883, A., 934.

Wine, fining of (NESSLER), 1884, A., 233.  
 freezing of (MORITZ), 1883, A., 135.  
 souring of (CARLEN), 1884, A., 646.  
 preservation of (HOUART), 1884, A., 130.  
 preservation of, by salicylic acid (DENUCÉ), 1883, A., 535.  
 boric acid in (BAUMERT), 1889, A., 295; (GASSEND), 1892, A., 93.  
 ethylene glycol in (HENNINGER), 1883, A., 631.  
 reduction of extractive matter by clearing of (PORTELE), 1884, A., 938.  
 relation between the glycerol and alcohol in (BOGMANN), 1883, A., 518.  
 influence exerted by salicylic acid on the proportions of glycerol and alcohol formed in (WEIGERT), 1889, A., 433.  
 iron in (SAMBUC), 1888, A., 384.  
 and other vegetable and animal products, presence of manganese in (MAUMENÉ), 1884, A., 879.  
 salicylic acid in (BARREAL), 1884, A., 778.  
 does every, contain tartar? (PETROWITSCH), 1886, A., 652.  
 free tartaric acid in (CLAUS), 1883, A., 935.  
 fig (CARLES), 1891, A., 1135.  
 plastering of (PICHARD), 1883, A., 755; (CARLEN), 1888, A., 759.  
 plastered (NENCKI), 1884, A., 233; (MAGNIER DE LA SOURCE), 1884, A., 646.  
 plastered and natural, sulphuric acid in (VITALI), 1891, A., 1551.  
 and mixed with sulphuric acid, distinction between (ROOS and THOMAS), 1891, A., 123.  
 mode of combination of sulphuric acid in (MAGNIER DE LA SOURCE), 1891, A., 768.  
 condition of the sulphuric acid in (ROOS and THOMAS), 1891, A., 123.  
 potassium tartrate in, and estimation of tartaric acid (PICHARD), 1884, A., 372.  
 behaviour of strontium tartrate with (SPICA), 1892, A., 93.  
 deplastering of (BLAREZ), 1883, A., 252.  
 red, manufacture in Germany (NESSLER), 1884, A., 130.  
 sparkling, inversion of cane sugar in (MORITZ), 1886, A., 608.  
 from sugar (CARLES), 1884, A., 1086.

Wine from raspberries and strawberries (ROMMIER), 1887, A., 292.  
 raisin and grape, method of distinguishing between (CAZENEUVE and DUCHER), 1890, A., 1031.  
 raisin, and its richness in nitrogen (CAZENEUVE and DUCHER), 1890, A., 1031.  
 Tyrolese, extract in (MACH and PORTELE), 1883, A., 245; (HENECKE), 1884, A., 130.  
 1883 vintage, extractive matter in (HENECKE), 1884, A., 130.  
 lime and ash in (MACH), 1888, A., 1332.  
 influence of, on peptic digestion (HUGOUNENQ), 1892, A., 87.

#### Wine analysis:—

analysis (FRESENIUS and BOGMANN), 1883, A., 518; (ANON.), 1884, A., 131, 501; 1885, A., 443; (MORITZ), 1884, A., 645; (NESSLER and BARTH), 1884, A., 1432; (ULBRICHT), 1885, A., 692; (SPICA), 1888, A., 95; (BOSSHARD), 1891, A., 359.

testing the ashes from (CHIAPPE), 1884, A., 642.

red, acidimetry with (TONY-GARCIN), 1888, A., 93.

analysis of, by means of electrolysis (KROHN), 1885, A., 298.

analyses, mode of stating the results of (KÖNIG), 1889, A., 799.

from Anjou, analyses of (BOUCHARD), 1884, A., 646.

from California, analysis of (DE FREMERY), 1885, A., 842.

red Italian, analysis of (KAYSER), 1883, A., 892.

Lorraine, examination of (ANON.), 1884, A., 181.

of Médéah, analyses of (BALLANI), 1884, A., 1086.

from Palestine, etc., analyses of (STUTZER), 1884, A., 646.

detection of alkanna red in (HERZ), 1890, A., 311.

detection of alum in (DE' COLLI), 1892, A., 1523.

detection of aluminium in (L'HÔTE), 1887, A., 690.

detection of archil, cochineal and magenta in (PALMIERI and CASORIA), 1889, A., 655.

detection of Bordeaux red in (THOMAS), 1884, A., 370.

detection of the colouring matter of Campeachy wood in (BONI), 1884, A., 502.

**Wine analysis:-**

- detection of cane sugar in (MEDICUS), 1885, A., 693.
- detection of cane-sugar, glucose and dextrin in (TONY-GARCIN), 1887, A., 692.
- detection of the colouring matter of (WEIGERT), 1889, A., 655.
- detection of artificial colouring matters in (PASTROVICH), 1884, A., 502; (JAY), 1885, A., 298; (GIRARD and PABST), 1885, A., 1098; (STROHMER), 1886, A., 183; (CAZENÈVE), 1886, A., 397; (HERZ), 1887, A., 91; (SAMELSON), 1887, A., 187; (HOLTERMAN DO REGO), 1887, A., 405; (CURTMAN), 1887, A., 1147; (SOSTEGNI), 1889, A., 1091; (PAPASOGHI), 1891, A., 1563.
- detection of copper in (GIGLI), 1888, A., 873.
- detection of "dry extract" in (JAY), 1885, A., 602.
- detection of lactic and butyric acids in (MACH and PORTELE), 1890, A., 1344.
- detection of nitric acid in (BORG-MANN), 1888, A., 753; (ZECCHINI), 1891, A., 961; (VITALI), 1891, A., 1551.
- detection of rosaniline hydrochloride in, by means of stearin (WOLFF), 1883, A., 384.
- detection of salicylic acid in (ROSE), 1886, A., 924; (MEDICUS), 1890, A., 1475.
- detection of sulphuric acid in (POL-LACCI), 1884, A., 215; (FERRARI), 1885, A., 692; (MAGNIER DE LA SOURCE), 1891, A., 768.
- detection of sulphurous acid in (LIEBERMANN), 1883, A., 384; (ANON.), 1884, A., 1440.
- detection of added water in (EGGER), 1885, A., 842.
- estimation of acetic acid in, by distillation with steam (LANDMANN), 1884, A., 641.
- estimation of astringent acids in (JEAN), 1892, A., 246.
- estimation of fixed organic acids in (SCHMITT and HIERPE), 1883, A., 384.
- estimation of alum in (CARLES), 1884, A., 1077.
- estimation of aluminium in (L'HÔTE), 1887, A., 690.
- estimation of butyric acid in (MACH and PORTELE), 1890, A., 1344.
- estimation of colouring matter in (JEAN), 1892, A., 246.

**Wine analysis: -**

- estimation of the extractive matter of (AMAGAT), 1881, A., 1132; (WEIGERT), 1885, A., 602; (EGGER), 1889, A., 1091.
- estimation of glycerol in (BENSE-MANN), 1886, A., 1080; (SAMELSON), 1887, A., 86; (BARTI), 1887, A., 184; (SKALWEIT), 1887, A., 306; (WEIGERT), 1889, A., 446; (V. TORRINO), 1890, A., 426; (OLIVERI and SPICA), 1891, A., 369; (JEAN), 1892, A., 246; (LECO), 1892, A., 1263; (BAUMERT), 1892, A., 1529.
- estimation of lactic acid in (MACH and PORTELE), 1890, A., 1344.
- estimation of magenta in (NESSLER and BARTH), 1884, A., 1482.
- estimation of malic acid in (GANS), 1890, A., 427; (NIEDERHAUSER), 1891, A., 128; (SCHNEIDER), 1891, A., 371.
- estimation of nitrogen in (KULISCH), 1886, A., 652.
- estimation of non-volatile residue in, by evaporation in a vacuum (PETER), 1885, A., 692.
- estimation of phosphoric acid in sweet (FRESSENIUS), 1889, A., 547.
- estimation of salicylic acid in, by rapid method (RÉMONT), 1883, A., 245.
- estimation of mineral salts in (SCHNEIDER), 1891, A., 371.
- estimation of sodium chloride in (GONDOIN), 1891, A., 1398.
- estimation of solid matter in (BOUILLON), 1887, A., 87.
- estimation of dissolved solids in (LÁSZLÓ), 1891, A., 123.
- estimation of sugar in (ANON.), 1884, A., 502; (GIRARD), 1885, A., 1163; (BOENTRAGER), 1890, A., 426; (VOGEL), 1891, A., 1557; (FRESSENIUS), 1892, A., 922.
- estimation of sulphurous acid in (WARTHA), 1883, A., 621.
- estimation of tannin in (NESSLER and BARTH), 1884, A., 1432; (ROOS, CUSON and GIRAUD), 1890, A., 431; (VIGNA), 1891, A., 1399; (VOGEL), 1891, A., 1557.
- estimation of tartaric acid in (PIC-HARD), 1883, A., 755; 1884, A., 372; (CLAUD), 1883, A., 935; (ANON.), 1884, A., 501; (KAYSER), 1884, A., 504; (HAAH), 1888, A., 1347; (GANS), 1890, A., 427; (SCHNEIDER), 1891, A., 371; (VIGNA), 1891, A., 1399; (ACKERMANN), 1892, A., 1531.

- Wine lees**, analysis of (KLEIN), 1886, A., 182; (PHILLIPS), 1891, A., 372. valuation of (BOESSNECK), 1890, A., 303. estimation of cream of tartar in (BALLI), 1892, A., 1033. estimation of tartaric acid in (OLIVERI), 1885, A., 843; (BORN-TRÄGER), 1886, A., 1082; 1888, A., 536.
- Wine must**, fermentation of (BARTH), 1885, A., 942. influence of temperature on the fermentation of (MÜLLER), 1884, A., 647. absence of nitric acid in (POLLAK), 1889, A., 541. estimation of dry substance in (ULBRICHT), 1884, A., 1432.
- Wine yeast**, cultivated (ROMMIER), 1884, A., 1399; 1885, A., 205. preparation of (ROMMIER), 1890, A., 1179.
- Winklerite** from Almeria, South Spain (WEISBACH), 1883, A., 433.
- Winter bark**, true (ARATA and CANZONERI), 1890, A., 405.
- Winter flax**, cultivation of (LEYDHECKER), 1884, A., 921.
- Winterene** (ARATA and CANZONERI), 1890, A., 405.
- Wintergreen oil** (PETTIGREW), 1885, A., 528; (TRIMBLE and SCHROETER), 1890, A., 256. See also Methyllic salicylate.
- Withania coagulans**, "rennet" ferment from the seeds of (LEA), 1884, A., 535.
- Witherite**, artificial production of (BOURGEOIS), 1883, A., 31. See also Barium carbonate.
- Wöhlerite** (BRÜGGER), 1890, A., 1079.
- Wolframite** (*wolfram*) from Felsobánya (SIPÖCZ), 1886, A., 312. analysis of (SCHNEIDER), 1885, A., 1187; (SÉTLAK), 1890, A., 420; (BURGHANIT), 1890, A., 1027.
- Wolfsbergite** from the Harz (LASPEYRES), 1892, A., 124.
- Wollastonite** from Perhienemi, Finland (WIDMAN), 1892, A., 1407. from Rézbánya (LOCZKA), 1885, A., 734. from Sardinia (FUNARO and BUSATTI), 1884, A., 270; (BUSATTI), 1887, A., 709. artificial production of (BOURGEOIS), 1883, A., 560; 1884, A., 564; (GORGEU), 1884, A., 1262; 1890, A., 18; (HUSSAK), 1890, A., 220. See also Calcium silicate.
- Wood**, elementary composition of certain kinds of, with a calorimetric investigation of their combustibility (GOTTLIEB), 1884, A., 477. constituents of (URBAIN), 1884, A., 860. chemical changes in decayed (WAGNER), 1884, A., 477. dry distillation of (SENF), 1885, A., 619. products of the distillation of (MABERY), 1884, A., 788; (VLADESCO), 1890, A., 956. ketones obtained in the dry distillation of (VLADESCO), 1892, A., 424. decaying, blue colouring matter of (RIDEAL), 1886, A., 810. colour mordants for (ANON.), 1884, A., 379.
- Wood ashes**, composition of (WAGNER), 1885, A., 834.
- Wood cellulose** (*Zigose*), manufacture of (ANON.), 1884, A., 1451. constitution of (CROSS and BEVAN), 1883, T., 20. See also Lignocellulose.
- Wood fibre**, the pentosans of (SCHULZE and TOLLENS), 1892, A., 1420. test for (REICHL), 1884, A., 118. estimation of, in paper (WURSTER), 1887, A., 620; (GODEFFROY and COULON), 1890, A., 670.
- Wood gum**. See Xylan.
- Wood naphtha** (*wood spirit*) (FAWSITT), 1886, A., 289. estimation of acetone in (HINTZ), 1888, A., 759. estimation of methyllic alcohol in (HABERMANN), 1889, A., 84. See also Methyllic alcohol.
- Wood oil** from Cochin China (SOUBEIRAN), 1885, A., 391. from *Eluococou cordata* (DAVIES), 1885, A., 1022.
- Wood papers**, different, percentage of water in (LEPSINS), 1886, A., 112.
- Wood stains**, preparation of, in the solid form (ANDÉS), 1885, A., 711.
- Wood sugar**. See Xylose under Carbohydrates.
- Wood sulphite liquor** (WELD, LINDSEY, SCHNELLE and TOLLENS), 1891, A., 43; (LINDSEY and TOLLENS), 1892, A., 802.
- Woody tissues**, chemical composition of (SCHUPPE), 1884, A., 285.
- Wool**, thermochemistry of (VIGNON), 1890, A., 939. heat of combustion of (BERTHELOT and ANDRIE), 1890, A., 938.

- Wool**, bleaching of, with hydrogen peroxide (LOBNER), 1880, A., 292.  
 chemical process which takes place in dyeing, with basic coal-tar dyes (KNECHT), 1888, A., 832.  
 treatment of the washings from (DE-LATRE), 1883, A., 910.  
 utilisation of the washings from (ANON.), 1884, A., 783.  
 absorption of different acids by, from different mixtures of acids (MILLS and TAKAMINE), 1883, T., 119.  
 absorption of weak reagents by (MILLS and TAKAMINE), 1883, T., 142.  
 estimation of, in tissues (LÉMONT), 1885, A., 96.  
 See also *Agricultural Chemistry*.
- Wool dust**, examination of (NESSLER), 1884, A., 637.
- Wool grease**, constituents of (BUISINE), 1885, A., 509.
- Wool keratin**, chemical formula of (WHITBLEY), 1886, P., 142; (MILLS), 1886, P., 147.
- Wool oils**, analysis of (HORWITZ), 1890, A., 305.
- Woollen tissue**, detection of vegetable fibre in (FUBINO), 1892, A., 667.
- Work**, maximum, principle of (BERTHELOT), 1885, A., 868.  
 maximum, Berthelot's law of, and spontaneous endothermic reactions (COLLEY), 1890, A., 681.  
 change of substance in the horse during (ZUNTZ, LEHMANN and HAGEMANN), 1889, A., 911.  
 respiration in the horse during (ZUNTZ and LEHMANN), 1890, A., 1170.  
 muscular, and proteid metabolism (ARGUTINSKY), 1891, A., 350; (KRUMMACHER), 1891, A., 479; (NOËL-PATON), 1891, A., 596; (MUNK), 1891, A., 817.  
 influence of, on the exhalation of carbonic anhydride (GRANDIS), 1890, A., 1331.  
 effect of, on the glycogen of the muscles (MANCHE), 1889, A., 428.
- Worms**, cutaneous, respiration of (BUNGE), 1890, A., 274.
- Wormseed oil** (HELL and STÜRCKE), 1884, A., 1363.  
 action of the halogen acids on (HELL and RITTER), 1884, A., 1363; 1885, A., 172.
- Wort**, nitrogenous constituents of (ÜLLIK), 1883, A., 821; (BUNGENER and FRIES), 1884, A., 1446.  
 analysis of (JONES), 1888, A., 199; (ELTON), 1891, A., 368.
- Wort**, estimation of dextrose, dextrin and maltose in (ELTON), 1892, A., 218.
- Wort centrifugal machine**, Zimmer's, use of, in brewing (ANON.), 1885, A., 1169.
- Wrightine**. See *Conessine*, under *alkaloids*.
- Writing**, estimation of the age of (IRVING), 1888, A., 761.
- Wulfenite** (KOCN), 1883, A., 435; (V. ZEPHAROVICH), 1885, A., 641.  
 from Beaujolais (LACROIX), 1885, A., 226.
- Wurtzite**, synthesis of (LORENZ), 1891, A., 990.

## X.

- X** of Soret or holmium (LECOQ DE BOISBAUDRAN), 1886, A., 667.
- Xanthine** (FISCHER), 1883, A., 357; (KOSSEL), 1883, A., 924.  
 occurrence of (BAGINSKY), 1885, A., 286.  
 in the horse's liver (DRECHSEL), 1892, A., 516.  
 amount of, in various organs and in yeast (SCHINDLER), 1889, A., 791.  
 in urine (SALOMON), 1891, A., 1528.  
 synthesis of (GAUTHIER), 1885, A., 275.  
 formation of, in yeast (SALKOWSKI), 1889, A., 1028.  
 action of hydrochloric acid and of barium hydroxide on (SCHMIDT), 1883, A., 871.  
 reaction of (DRECHSEL), 1892, A., 1531.  
 bases, formation of, in the animal organism (HORBACZEWSKI), 1891, A., 1310.  
 derivatives (FISCHER), 1883, A., 357.  
 in urine (SALOMON), 1887, A., 739.  
 bromo- (FISCHER and REESE), 1884, A., 467.
- Paraxanthine** (SALOMON), 1883, A., 601; 1885, A., 403; 1886, A., 266; 1891, A., 1120, 1528.  
 physiological action of (SALOMON), 1889, A., 293.
- Pseudoxanthine** (GAUTHIER), 1886, A., 634.
- Heteroxanthine** (SALOMON), 1886, A., 266; 1887, A., 740; 1891, A., 1528.
- Xanthoarsenite**, a mineral from Orebro (JÖNSTROM), 1886, A., 25.
- Xanthochelidonic acid** (*chelidhydronic acid*) and its salts (LEICH), 1885, A., 45; (HAITINGER and LIEBEN), 1885, A., 47.
- Xanthocreatinine** (GAUTHIER), 1886, A., 631.

*o*-Xylene, Me:Me=1:2; *m*-xylene, Me:Me=1:3; *p*-xylene, Me:Me=1:4.

**Xanthocreatinine**, formation of, in the organism (MONARI), 1887, A., 613; 1888, A., 174.

in the urine (COLASANTI), 1892, A., 364.

**Xanthogallol** (WEBSTER), 1884, T., 208. derivatives of (THEURER), 1888, A., 1084.

**Xanthone** (*carbonyldiphenyl oxide*; *diphenylene ketone oxide*) (GOLDSCHMIEDT), 1883, A., 664; (RICHTER), 1884, A., 324.

preparation of (PERKIN), 1883, T., 35. constitution of (SPIEGLER), 1884, A., 1182; (GRAEBE), 1888, A., 477.

derivatives of (PERKIN), 1883, T., 187; (RICHTER), 1884, A., 324.

$\beta$ -diamido-, and its hydrochloride and *m*-dibromo- (PERKIN), 1883, T., 191, 194.

*tribromo*- (ARBENZ), 1890, A., 893.

$\beta$ -dinistro-, action of reducing agents on (PERKIN), 1883, T., 190.

thio- (GRAEBE and SCHULTZ), 1891, A., 1058.

preparation of (ZIEGLER), 1890, A., 1292.

**Xanthones** of the naphthalene and quinoline series (v. KOSTANECKI), 1892, A., 1098.

**Xanthonedisulphonic acid** and its barium salt (PERKIN), 1883, T., 193.

**Xanthophyllidrin** (MACCHIATI), 1886, A., 1041; 1889, A., 900.

**Xanthopurpurin** (*m-dihydroxyanthraquinone*), synthesis of (NOAH), 1886, A., 475.

**Xanthoquinic acid**. See 2-Hydroxyquinoline-4(?)-carboxylic acid.

**Xanthorhodium salts**. See under Rhodium.

**Xanthostychnol** (LOEBISCH and SCHROOP), 1886, A., 268, 814.

**Xanthoxalanil** and **xanthoxalotoluidil** (WISLICIENUS and SATTLER), 1891, A., 902.

**Xanthoxylon** (*Xanthoxylum*) *senegalense*, bark of, constituents of the (GIACOSA and MONARI), 1888, A., 167; (GIACOSA and SOAVE), 1890, A., 918.

**Xenotime** (*yttrium phosphate*) (HIDDEN), 1889, A., 355.

from Colorado (HIDDEN), 1885, A., 878.

from Minas Geraes, Brazil (GORCEIX), 1886, A., 676.

from North Carolina (HIDDEN), 1883, A., 435; (HIDDEN and DES CLOIZEAUX), 1887, A., 118.

**Xenotime** (*yttrium phosphate*) from Norway (BRÖGGER), 1884, A., 1101; 1890, A., 1078; (BLOMSTRAND), 1890, A., 111.

as an accessory constituent of rocks (DERBY), 1891, A., 993.

analyses of (BLOMSTRAND), 1889, A., 217.

**Xenyleneppyrazine**. See 2:3-Diphenylpyrazine.

**Xeronic acid** (*diethylmaleic acid*) (ROSER), 1883, A., 98.

synthesis of, from  $\alpha$ -dibromobutyric acid (FROMME and ORTO), 1887, A., 917.

**p-Xylaldiphenylmaleide** (COHEN), 1892, A., 182.

**m-Xylal-phthalide** and **-phthalimidine** and their nitro-derivatives, and *iso*-xylal-phthalide and **-phthalimidine** (HEILMANN), 1890, A., 625; 1891, A., 200.

**p-Xylal-phthalide** and **-phthalimidine** and their nitro-derivatives, and *iso*-p-xylal-phthalide and **-phthalimidine** (RUHMANN), 1892, A., 473.

**Xylalphthalnitronitrite** (HEILMANN), 1890, A., 625.

**Xylan** (*wood-gum*) (HOFFMEISTER), 1886, A., 955; (WHEELER and TOLLENS), 1889, A., 817; (ALLEN and TOLLENS), 1891, A., 659.

from straw, etc. (ALLEN and TOLLENS), 1890, A., 472.

**Xylene tetrahydride** from resin essences (BENARD), 1881, A., 841.

glycols. See Dihydroxyxylenes.

amido-. See Xylidine.

diamido-. See Xylylenediamine.

***o*-Xylene** (*dimethylbenzene*), spectrum of (HARTLEY), 1885, T., 702.

action of bromine on, in presence of aluminium (BLÜMLEIN), 1885, A., 163.

oxidation of (CLAUS and PRZESZCZEK), 1887, A., 240.

derivatives of (v. BAeyer and PAPE), 1884, A., 898; (LESEN), 1884, A., 1313; (CLAUS and GRONEWEG), 1891, A., 921.

***o*-Xylene**, 4-bromo- (JACOBSEN), 1885, A., 142.

$\omega$ -dibromo- (*xylylenic bromide*) (v. BAeyer and PERKIN), 1884, A., 752; (COLSON), 1884, A., 1000.

action of ammonia on (SCHOLTZ), 1891, A., 1353.

4:5- and 3(?) :4-dibromo- (JACOBSEN), 1885, A., 142; (Koch), 1890, A., 1247.

*o*-Xylene, Me:Me 1:2; *m*-xylene, Me:Me 1:3; *p* xylene, Me:Me 1:4.

*o*-Xylene, tetrabromo- (JACOBSEN), 1885, A., 112.

1:5:3 *di*bromonitro- and 4:5:3:6 *di*bromodinitro- (TOHL), 1886, A., 57.

3-chloro- (KRUGER), 1885, A., 1053.

4-chloro- (CLAUS and KAUTZ), 1885, A., 972; (KRUGER), 1885, A., 1053; (CLAUS and GRONWEG), 1891, A., 921.

*ω*-dichloro- (COLSON), 1884, A., 1000.

*β*-*di*-, *tri*- and *tetra*-chloro- (CLAUS and KAUTZ), 1885, A., 972.

*ω*-tetrachloro- (HJELT), 1886, A., 143.

*ω*-*tetra*- and *ω*-*penta*-chloro- (COLSON and GAUTIER), 1886, A., 613.

4:5-chlorobromo-, 4:5:3-*dichloro*-bromo-, 4:5-chlorobromonitro- and 4:5-chloronitro- (CLAUS and GRONWEG), 1891, A., 921.

4:5:3:6-*dichlorodinitro*- (CLAUS, RAPS, HERFELD and BERKEFELD), 1891, A., 1201.

*ω*-*di*iodo- (LESER), 1884, A., 1314.

*m*-Xylene, spectrum of (HARTLEY), 1885, T., 704.

action of methylenic chloride on, in presence of aluminium chloride (FRIEDEL and CRAFTS), 1887, A., 1102.

derivatives of (COLSON), 1884, A., 1313; (AHRENS), 1892, A., 1437.

behaviour of, in the animal system (GLEDITSCH and MOELLER), 1889, A., 708.

*m*-Xylene, 2:4:6-*tri*amido- (GREVINGK), 1885, A., 144.

*ω*-*di*bromo- (COLSON), 1881, A., 1313; (KIPPING), 1888, T., 26.

2:4-*di*bromo-, and its derivatives (JACOBSEN), 1889, A., 39.

4:6-bromonitro- (AHRENS), 1892, A., 1437.

4:2:6-bromodinitro- (LIELLMANN and JUST), 1891, A., 1245.

4-chloro- (JACOBSEN), 1885, A. 1052; (CLAUS and BURSTERT), 1890, A., 1105.

2:4-*dichloro*- (KOCH), 1890, A., 1248.

4:6-*dichloro*- (CLAUS and BURSTERT), 1890, A., 1106; (KOCH), 1890, A., 1248.

orientation of (CLAUS and RUNSCHKE), 1890, A., 1246.

amido-, bromo- and nitro-derivatives of (CLAUS and RUNSCHKE), 1890, A., 1247.

2:4:6-*tri*chloro- (CLAUS and BURSTERT), 1890, A., 1106.

*m* Xylene, 2:1:5:6-*tetrachloro*- (CLAUS and BURSTERT), 1890, A., 1106; (KOCH), 1890, A., 1218.

*ω*-*tetra*- and *hexa*-chloro- (COLSON and GAUTIER), 1886, A., 613.

2:4:5:6-*dichlorodibromo*- (KOCH), 1890, A., 1218.

4:6-chloronitro- (AHRENS), 1892, A., 1437.

4:6:2:5-*dichlorodinitro*- (KOCH), 1890, A., 1218.

4-fluoro- (TOHL), 1892, A., 968.

fluoronitro- (AHRENS), 1892, A., 1437.

4-iodo-, action of sulphuric acid on (HAMMERICH), 1890, A., 1106.

4:6-*di*iodo- (HAMMERICH), 1890, A., 1107.

6:4-iodonitro- (AHRENS), 1892, A., 1437.

2-nitro- and 2 4-*dinitro*- (GREVINGK), 1885, A., 144.

nitrocycano- (AHRENS), 1892, A., 1437.

*p*-Xylene in Galician petroleum (PAWLEWSKI), 1885, A., 1126.

spectrum of (HARTLEY), 1885, T., 707.

commercial, ethylbenzene in (NOLTING and PALMER), 1891, A., 1197.

ethylin, action of phosphoric chloride on (COLSON), 1885, A., 252.

*p*-Xylene, 2-bromo- (JACOBSEN), 1885, A., 144, 518; (JANNASCH), 1885, A., 251.

*ω*-*di*bromo- (KIPPING), 1888, T., 31.

action of fuming nitric acid on (LOW), 1885, A., 1208.

2:5-*di*bromo-, preparation and properties of (MOODY and NICHOLSON), 1890, T., 974.

and its transformation by means of sulphuric acid (KOCH), 1890, A., 1247.

solid, oxidation products of (SCHULTZ), 1885, A., 1053.

2:6-*di*bromo- and *tetrabromo*- (JACOBSEN), 1885, A., 518.

chloro- and 2:5-*dichloro*- (KLUGE), 1885, A., 1208.

*ω*-*tetra*-, *ω*-*penta*- and *ω*-*hexa*-chloro- (COLSON and GAUTIER), 1886, A., 613.

*mono*-, *di*- and *tri*-chlorobromo-, chloro-*di*- and *tri*-bromo- and *dichlorodibromo*-, and their derivatives (WILLGERODT and WOLFIEN), 1889, A., 965.

2:5-*dichlorodinitro*- (KLUGE), 1885, A., 1208.

*o*-Xylene, Me:Me=1:2; *m*-xylene, Me:Me=1:3; *p*-xylene, Me:Me=1:4.

- p*-Xylene**, 2-nitro-, oxidation of (NOYES), 1889, A., 391.  
 2:3- and 2:6-*di*-nitro-, crystallographic examination of (BARNER), 1883, A., 179.  
 2:3-, 2:5- and 2:6-*di*-nitro-, constitution of (LELLMANN), 1885, A., 973.  
 2:3:6-*tri*-nitro- (NOLTING and GEISSMANN), 1886, A., 344.  
 2:5-*di*-nitroso- (PFLUG), 1890, A., 607.  
**Xylenes** (COLSON), 1884, A., 1000.  
 coal-tar, English and Scotch (LEVINSTEIN), 1884, A., 898.  
 preparation of (COLSON), 1885, A., 654.  
 molecular refraction and dispersion of (GLADSTONE), 1891, T., 295.  
 action of aluminium chloride on (HEISE and TOHL), 1892, A., 1309.  
 derivatives of the three isomeric (RADZISZEWSKI and WISPEK), 1885, A., 889.  
 three, in coal-tar, analytical estimation of (REUFER), 1884, A., 1431.  
 separation of the (CRAFTS), 1892, A., 1134.  
**Xyleneazo-**. See under Azo-.  
***m*-Xylenecarboxylic acid**, *di*-nitroso-, and nitronitroso- (CLAUS), 1890, A., 980.  
**Xylenecinnamene**. See Xylenestyrene.  
**Xylenediamine**. See Xylylenediamine.  
***p*-Xylene-*o*-dicarboxylic acid**. See *p*-Phenylenediacetic acid.  
**Xylenedicarboxylic acids**. See Cumidic acids.  
***m*-Xylene-2:4-disulphone-ethylamide** (WISCHIN), 1891, A., 74.  
***o*-Xylene-4:6(?)disulphonic acid** (PFANNENSTILL), 1892, A., 1341.  
***m*-Xylene-2:4-disulphonic acid** (WISCHIN), 1891, A., 73; (PFANNENSTILL), 1892, A., 1340.  
 6-bromo- and 6-chloro- (WISCHIN), 1891, A., 74.  
***m*-Xylene-2:6(?)disulphonic acid** (PFANNENSTILL), 1892, A., 1340.  
***p*-Xylene-2:6(?)disulphonic acid** and its derivatives (HOLMES), 1891, A., 1374; (PFANNENSTILL), 1892, A., 1341.  
***m*-Xylenephthaloylic acid**, ammonium salt of, crystalline form of (SORET), 1886, A., 619.  
**Xylenestyrene** (*xylenecinnamene*). See Phenyltolylpropane.  
***m*-Xylenesulphonamic acid** and its salts (TRAUBE), 1890, A., 1137.  
***o*-Xylene-4-sulphonamide** (JACOBSEN), 1885, A., 143.  
***p*-Xylene-2-sulphonamide**, 5-(?)br mo- (JACOBSEN), 1885, A., 144.  
 3:6-*di*-bromo-, and its reduction (MOODY and NICHOLSON), 1890, T., 977.  
***o*-Xylene-3-sulphonic acid**, 6-chloro- (KRUGER), 1885, A., 1053.  
***o*-Xylene-4-sulphonic acid**, 5-bromo-, and its salts (JACOBSEN), 1885, A., 143.  
 5-chloro- (KRÜGER), 1885, A., 1053.  
***m*-Xylene-2-sulphonic acid** and its derivatives (MOODY), 1888, P., 77; 1891, P., 189.  
***m*-Xylene-4-sulphonic acid** and its derivatives (MOODY), 1888, P., 77; 1891, P., 189.  
 nitration products of (CLAUS and SCHMIDT), 1886, A., 708.  
 oxidation of (LIMPRICHT), 1885, A., 1235.  
*di*amido- and 6-bromonitro- and their salts (LIMPRICHT), 1885, A., 1234.  
 5-bromo- (NOLTING and KOHN), 1886, A., 356.  
 6-iodo- (BAUCH), 1891, A., 73.  
 2-, 5- and 6-*mono*- and 2:6- and 5:6-*di*-nitro- (CLAUS and SCHMIDT), 1886, A., 708.  
***p*-Xylene-2-sulphonic acid**, 5(?)bromo- (JACOBSEN), 1885, A., 144.  
 5-bromo- (NOLTING and KOHN), 1886, A., 356; 1889, A., 611.  
 3:6-*di*-bromo-, and its salts (MOODY and NICHOLSON), 1890, T., 976.  
**Xylenesulphonic acids**, action of bromine on aqueous solutions of (KELBE and STEIN), 1886, A., 1032.  
***p*-Xylene-2-sulphonic chloride**, 3:6-*di*-bromo- (MOODY and NICHOLSON), 1890, T., 977.  
**Xylenol** ethers, heat equivalent of (STOHMANN, RODATZ and HERZBERG), 1887, A., 428.  
 amido-, and its hydrochloride (PFAFF), 1883, A., 918.  
 nitro-, and its derivatives (PFAFF), 1883, A., 802, 918.  
***o*-3-Xylenol** (TÖHL), 1886, A., 57; (NOLTING and FOREL), 1886, A., 58.  
*tribromo*- (TÖHL), 1886, A., 57.  
***o*-4-Xylenol**, 3:5-*di*-nitro- (NOLTING and PICK), 1889, A., 129.  
***m*-2-Xylenol** (JACOBSEN), 1889, A., 41.  
***m*-4-Xylenol** (SMITH, COUTTS and BROTHERS), 1886, T., 23; (JACOBSEN), 1886, A., 345.  
***m*-5-Xylenol** (TÖHL), 1885, A., 522.  
***p*-2-Xylenol**, 5-amido- (SUTKOWSKI), 1887, A., 668.

- o*-Xylene, Me:Me=1:2; *m*-xylene, Me:Me=1:3; *p* xylene, Me:Me=1:4.
- p*-2 **Xylenol**,  $\omega$ -dibromo- (ADAM), 1884, A., 1820.
- 5-nitro-, ethyl salt of (NÖLTING, WITT and FOREL), 1886, A., 58.
- 5-nitroso-. See *p*-Xyloquinoneoxime.
- m*-4 **Xylenol-5-sulphonic acid** (LIMPRICHT), 1885, A., 1234; (SARTIG), 1886, A., 153.
- m*-4 **Xylenol-6-sulphonic acid**, 2- or 5-nitro- (LIMPRICHT), 1885, A., 1234; (SARTIG), 1886, A., 154.
- Xylenyl-amidoxime** and its derivatives, -azoxime-ethonyl, -imidoximecarbonyl and -uramidoxime (OPPENHEIMER), 1890, A., 49.
- Xylic** (*xylic*) acids. See Dimethylbenzoic acids.
- m*-Xylidene-aniline and -phenylhydrazine (BORNEMANN), 1881, A., 1162.
- Xylidine**, commercial (STAEDEL and HOLZ), 1886, A., 145.
- zinc chloride (MARTINI), 1892, A., 1455.
- hydrobromides (STAEDEL), 1883, A., 578.
- hydrochlorides, action of methylic alcohol on (NÖLTING and FOREL), 1886, A., 58.
- naphthate (DYSON), 1883, T., 471.
- cyno- (SENF), 1887, A., 929.
- o*-3 **Xylidine** (*amidorylene*) (TOHL), 1886, A., 57; (NÖLTING and PICK), 1889, A., 131; (MENTON), 1891, A., 1203.
- salts of (TOHL), 1886, A., 57.
- 4:5-dibromo- (TOHL), 1886, A., 57.
- o*-1 **Xylidine** and its derivatives (JACOBSEN), 1881, A., 737; (MÜLLER), 1887, A., 663.
- 5-chloro- (CLAUS), 1892, A., 1202.
- m*-2 **Xylidine**, nitration of (NÖLTING and STOECKLIN), 1891, A., 692.
- m*-4 **Xylidine** (MÜLLER), 1887, A., 663.
- action of benzylic chloride on (JABLON-GONNET), 1892, A., 314, 1320.
- nitration of (NÖLTING and COLLIN), 1884, A., 1013.
- anhydro-bases of (GUDEMAN), 1888, A., 1282.
- compounds of metallic sulphides with (DENIGES), 1891, A., 1031.
- 2-nitro-, and its acetyl derivative (GREYING), 1885, A., 144.
- n*-5 **Xylidine** (TOHL), 1885, A., 522.
- methylation of (LIMPACH), 1888, A., 464.
- carbamate, cyanate and cyanurate (FRANTZEL), 1889, A., 241.
- p*-2 **Xylidino** (NÖLTING, WITT and FOREL), 1886, A., 57; (PELUG), 1890, A., 606.
- preparation and properties of (WITT), 1889, A., 603.
- diamido- (WITT, NÖLTING and FOREL), 1889, A., 601.
- 3:5-dibromo- (NÖLTING and KOHN), 1886, A., 356.
- 5 chloro- (KLUGE), 1885, A., 1208.
- 5-nitro- (NÖLTING, WITT and FOREL), 1886, A., 58; (WITT), 1889, A., 604.
- thio-base from (ANSCHÜTZ and SCHULTZ), 1889, A., 603.
- o*-Xylidines (JACOBSEN), 1884, A., 737; 1886, A., 235.
- nitration of (NÖLTING and STOECKLIN), 1891, A., 692.
- m*-Xylidines, action of diazo-*p*-nitrobenzene salts on (MELDOLA), 1883, T., 428.
- Xylidines**, consecutive (WROBLEWSKI), 1886, A., 145.
- six isomeric and some of their derivatives (NÖLTING and FOREL), 1885, A., 381; 1886, A., 58.
- separation of (WITT), 1886, A., 699.
- m*-4 **Xylidine-5-sulphonic acid** (NÖLTING and KOHN), 1889, A., 611.
- constitution of (PANAJOTOW), 1887, A., 382.
- m*-4 **Xylidine-5(?) -sulphonic acid** and its salts (JACOBSEN and LEDDERBOGE), 1883, A., 593; (SARTIG), 1886, A., 153.
- m*-1 **Xylidine-6-sulphonic acid** and its salts (SARTIG), 1886, A., 153; (NÖLTING and KOHN), 1888, A., 355.
- 2- or 5-nitro- (LIMPRICHT), 1885, A., 1231.
- p*-2 **Xylidine-5- and -6-sulphonic acids** (NÖLTING and KOHN), 1886, A., 355; 1889, A., 611.
- m*-Xylidoethylphthalimide. See Nyllyl-amidoethylphthalimide.
- Xylitol** (FISCHER and STAHEL), 1891, A., 668; (BERTRAND), 1892, A., 28.
- constitution of (BERTRAND), 1892, A., 29.
- pentanitrate (BERTRAND), 1892, A., 29.
- m*-Xylobenzaldehyde (HINRICHSSEN), 1889, A., 131, 391.
- m*-Xylo-benzylamine and -benzylic alcohol (HINRICHSSEN), 1889, A., 131.
- Xylonic acid** (ALLEN and TOLLENS), 1891, A., 668.
- o*-Xylo-3:6-quinol (*dimethylquinol*) (NÖLTING and FOREL), 1886, A., 58.

- o*-Xylene, Me:Me=1:2; *m*-xylene, Me:Me=1:3; *p*-xylene, Me:Me=1:4.
- o*-Xylo-3:6-quinol (*dimethylquinol*) 4:5-dichloro- (CLAUS, RAPS, HERFELD and BERKEFELD), 1891, A., 1201.
- m*-Xylo-2:5-quinol (NÖLTING and FOREL), 1886, A., 58.  
4:6-dichloro- (CLAUS and RUNSCHKE), 1890, A., 1247.
- p*-Xylo-2:5-quinol (NIETZKI), 1883, A., 467.  
oxidation of (HEYMANN and KOENIGS), 1887, A., 1035.
- Xyloquinoline. See Dimethylquinoline.
- o*-Xylo-3:6-quinone (1:2-*dimethyl*-3:6-*quinone*) (NÖLTING and FOREL), 1885, A., 382; 1886, A., 58.  
4:5-dichloro- (CLAUS, RAPS, HERFELD and BERKEFELD), 1891, A., 1201.
- m*-Xylo-2:5-quinone (NÖLTING and FOREL), 1885, A., 382; 1886, A., 58.  
4:6-dichloro- (CLAUS and RUNSCHKE), 1890, A., 1247.
- p*-Xylo-2:5-quinone (*phlorone*) and its derivatives (NIETZKI), 1883, A., 467; (NÖLTING and FOREL), 1885, A., 382; (GOLDSCHMIDT and SCHMID), 1885, A., 775.
- p*-Xylo-2:5-quinonedioxime (SUTKOWSKI), 1887, A., 668; (PFLUG), 1890, A., 607.
- p*-Xylo-2:5-quinoneoxime (5-*nitroso*-*p*-2-*xylenol*) and its derivatives (GOLDSCHMIDT and SCHMID), 1885, A., 775; (SUTKOWSKI), 1887, A., 667; (PFLUG), 1890, A., 607.
- m*-Xyl-4:6-*orcinol* (*dihydroxyxylene*) (PFAFF), 1883, A., 918; (V. KOSTANECKI), 1887, A., 39.
- m*-Xyl-4:6-*orcinol*-5-carboxylic acid (V. KOSTANECKI), 1887, A., 39.
- Xylose. See Carbohydrates.
- Xylosecarboxylic acid (FISCHER), 1890, A., 1399.
- o*-Xylyl *isobutylbenzyl* ketone (WEGE), 1892, A., 338.
- m*-Xylyl ethyl ketone (CLAUS), 1891, A., 564.
- p*-Xylyl ethyl ketone (CLAUS and FICKERT), 1887, A., 253.
- o*-Xylyl methyl ketone (CLAUS and CLAUSSEN), 1886, A., 463; (CLAUS), 1890, A., 770.  
5-chloro-, and derivatives (CLAUS), 1891, A., 912; 1892, A., 1201.
- m*-Xylyl methyl ketone (CLAUS and GÄTTNER), 1886, A., 463.  
6-amido- (CLAUS), 1890, A., 980.
- m*-Xylyl methyl ketone, 2- and 6-nitro- and 2:6-dinitro- (CLAUS), 1890, A., 980.
- p*-Xylyl methyl ketone and its derivatives (CLAUS and WOLLNER), 1885, A., 1136; (ERRERA), 1891, A., 1053.  
5-bromo- (SCHOFFE), 1892, A., 338.
- m*-Xylyl nitrosomethyl ketone, 2:6-dinitro- (CLAUS), 1890, A., 981.
- m*-Xylyl pentadecyl ketone (KRAFFT), 1888, A., 1087.
- o*-Xylylacetamide (STRASSMANN), 1888, A., 474.
- Xylylactic acid (*dimethylphenylacetic acid*), 4-nitro-, and its salts (WISPEK), 1883, A., 1096.
- m*-Xylylactic acid (POPPI), 1890, A., 499.
- o*-Xylylamide (HARRIS), 1890, A., 158.
- m*-Xylylamide (HARRIS), 1890, A., 158; (GÄTTERMAN and ROSOLYMO), 1890, A., 975.
- α-m*-Xylylamidoacetic acid and its ether (EHRlich), 1883, A., 591.
- Xylylamidoacetoxylidide (EHRlich), 1883, A., 594.
- m*-Xylylamidoethylphthalimide (NEWMAN), 1891, A., 1208.
- m*-Xylylamidomethane (HINRICHS), 1889, A., 131, 391.
- Xylylamine. See Methylbenzylamine and Xylidine.
- Xylyl- and *isoxyl*-anilide (LEUCKART), 1890, A., 759.
- Xylylantipyriae (KLAUBER), 1891, A., 1363.
- m*-Xylylbenzamidomethane (HINRICHS), 1889, A., 391.
- Xylylbutane. See *isobutyl*xylene.
- o*-Xylylcarbamide (STRASSMANN), 1888, A., 474.
- m*-Xylylcarbamide (BRÖMME), 1888, A., 1296; (FRENTZEL), 1889, A., 241.
- m*-Xylylcarbinol (HINRICHS), 1889, A., 131.
- p*-Xylyl-*p*-cymylphenylmethane (ELBS), 1887, A., 942.
- Xylyldiethylphosphine (CELMATIS), 1883, A., 58.
- 1-*m*-Xylyl-2:3-dimethylpyrazolone (KLAUBER), 1891, A., 1363.
- Xylyldiphenylamides (LELLMANN and BONHÖFFER), 1887, A., 935.
- o*-Xylylene diethyl ether (LENER), 1884, A., 1313.
- p*-Xylylenebismethylhydroxy-*m*-diazine (GLOCK), 1888, A., 1291.
- o*-Xylylene-3:6-diamine (*diamidoxylene*), 4:5-dichloro- (CLAUS, RAPS, HERFELD and BERKEFELD), 1891, A., 1201.

*o*-Xylene, Me:Me-1:2; *m*-xylene, Me:Me-1:3; *p*-xylene, Me:Me-1:4.

- o*-Xylylene- $\omega$ -diamino and its salts (STRASSMANN), 1888, A., 175.  
*m*-Xylylene-2:1- and -4:6-diamine (GRIEVING), 1885, A., 115.  
*m*-Xylylene-4:6-diamine, reactions of (WITT), 1888, A., 1186.  
*m*-Xylylene-5:6-diamine (JACOBSEN), 1889, A., 39.  
*m*-Xylylene- $\omega$ -diamine (BROMME), 1888, A., 1296.  
*p*-Xylylene-2:5-diamine (NÖLTING, WITT and FOREL), 1886, A., 58; (SUKKOWSKI), 1887, A., 668.  
Xylylenediaminesulphonic acid (LIMPRICHT), 1885, A., 1234.  
*o*-Xylylenedianilide (LESER), 1884, A., 1313.  
Xylylenedimalonic acids, *m*- and *p*- (KIPPING), 1888, T., 31, 38.  
*m*-Xylylenediphtalimide (BROMME), 1888, A., 1296.  
Xylylenemethyldiamine (PEITZ), 1890, A., 607.  
*o*-Xylylenephthalimide and chloro- (STRASSMANN), 1888, A., 475.  
Xylylene bromide. See Xylene,  $\omega$ -di-bromo-.  
*o*-Xylylenic dibromide (PERKIN), 1888, T., 5.  
Xylylenic cyanides, *m*- and *p*- (KIPPING), 1888, T., 11, 11.  
diazosulphide (JACOBSON and NEY), 1889, A., 772.  
oxide, tetrachloro- (GRABBE), 1887, A., 832.  
sulphides (HJELI), 1890, A., 131.  
*o*-Xylylenic sulphide (LESER), 1884, A., 1313.  
*m*-Xylylethylenediamine (NEWMAN), 1891, A., 1208.  
 $\alpha$ -*m*-Xylylethylamidoacetic acid (EHLICH), 1883, A., 591.  
*o*-Xylylethylchlorodimalonic acid, synthesis of (v. BAeyer and PERKIN), 1884, A., 908.  
*m*-Xylylfurfuryl-carbamide and -thio-carbamide (NEWMANN), 1892, A., 13.  
*m*-Xylylglycollic acid (POPPE), 1890, A., 499.  
 $\nu$ -*m*-Xylyl-glyoxaline, -glyoxalyl- $\mu$ -mercaptan and -glyoxalyl- $\mu$ -methylic sulphide (MARCKWALD), 1892, A., 1329.  
*o*-Xylylglyoxylic acid (v. BUCHKA and IRISH), 1887, A., 826.  
*m*-Xylylglyoxylic acid (CLAUS and GARTNER), 1886, A., 463; (CLAUS), 1891, A., 564.  
6-nitro-, 2:6-dinitro- and dinitroso- (CLAUS), 1890, A., 979.  
*p*-Xylylglyoxylic acid and its salts (CLAUS and WOLLNER), 1885, A., 1136.  
*m*-Xylylhydrazine (KLAUBER), 1890, A., 1110; 1891, A., 1362.  
Xylylhydrazinesulphonic acid, sodium salt of (KLAUBER), 1890, A., 1410.  
*m*-Xylylhydroxyacetic acid (CLAUS), 1890, A., 979; 1891, A., 564.  
*p*-Xylylhydroxyacetic acid (CLAUS and WOLLNER), 1885, A., 1137; (CLAUS), 1891, A., 564.  
*o*-Xylylic cyanide (v. BAeyer and PAPE), 1884, A., 898.  
*m*-Xylylic ethylxanthate (LEUCKART), 1890, A., 603.  
*p*-Xylylic phosphorus chlorides (WELLER), 1887, A., 824; 1888, A., 835.  
Xylylidenediamine (OPPENHEIMER), 1886, A., 517.  
Xylylimidazole. See Xylylglyoxaline.  
"*p*-Xylyl- $\beta$ -ketonic acid" (CLAUS and FICKERT), 1887, A., 253.  
"*p*-Xylyl- $\gamma$ -ketonic acid" (CLAUS and MURFIELD), 1887, A., 827.  
*m*-Xylyl-malonanilide and -malonic acid (POPPE), 1890, A., 498.  
*o*-Xylylmethylcarbinol (CLAUS), 1890, A., 770.  
*m*-Xylylmethylcarbinol (CLAUS), 1890, A., 979.  
Xylylmethylnitrosamine (PELUG), 1890, A., 607.  
1 *m*-Xylyl-3-methylpyrazolone (KLAUBER), 1891, A., 1363.  
*o*-Xylylmethylsulphine iodide (HJELI), 1890, A., 135.  
Xylylmethylthiohydantoin (MARCKWALD, NEUMARK and SEELZNER), 1892, A., 150.  
*m*-Xyloxamic acid (*oxalylylidic acid*) and its inner anhydride (MAUHNER and SUIDA), 1889, A., 110.  
Xylylphosphinic acids,  $\alpha$ -*m*- and  $\beta$ -*m*- (WELLER), 1887, A., 825.  
*p*-Xylyl-phosphinous acid and -phosphonic acid and its nitro-derivative (WELLER), 1888, A., 835.  
*o*-Xylyl-phthalamic acid and -phthalimide (STRASSMANN), 1888, A., 474.  
*m*-Xylyl-phthalamic acid and phthalimide (BROMME), 1888, A., 1295.  
*m*-Xylylphthalide (GREENLY), 1886, A., 1029.  
*p*-Xylylphthalimidine (RUHEMANN), 1892, A., 474.  
*m*-Xylyltartronic acid (POPPE), 1890, A., 499.

*o*-Xylene, Me:Me=1:2; *m*-xylene, Me:Me=1:3; *p*-xylene, Me:Me=1:4.

*m*-Xylylthiocarbamide (BROMME), 1888, A., 1296.

*o*-Xylylthiocarbimide (STRASSMANN), 1888, A., 475.

*m*-Xylylthiocarbimide (BROMME), 1888, A., 1296.

preparation of (WERNER), 1891, T., 405.

## Y.

**Ya** of Marnag (CROOKES), 1886, A., 506; (LEMOQ DE BOISBAUDRAN), 1886, A., 667.

**Yarns**, bleaching (THOMPSON and RICKMANN), 1884, A., 1234.

**Yeast**, pure (AMTHOR), 1888, A., 184. manufacture of (ELION), 1891, A., 1532.

apparatus for the manufacture of (FERNBACH), 1891, A., 352.

preparation of (HEINZELMANN), 1884, A., 789.

purification of (EFFRONT), 1892, A., 905.

velocity of the hydrolytic action of (O'SULLIVAN), 1892, T., 928; P., 147.

hydrolytic functions of (O'SULLIVAN), 1892, T., 593, 926.

influence of light on the growth of (KEY), 1886, A., 387.

influence of alcohol on the development of (HAYDUCK), 1883, A., 104.

action of air on (COCHIN), 1883, A., 746; 1884, A., 939.

influence of alcohol, and sulphuric and salicylic acids on (ANON.), 1884, A., 476.

action of hydrogen fluoride and of fluorides on (EFFRONT), 1891, A., 1532.

influence of, on the bouquet of wines (ROMMIER), 1890, A., 281.

action of, on the animal and human organism (NEUMAYER), 1891, A., 237.

chemical reactions of (FRANKLAND), 1885, T., 166.

degeneration of (JACOBSEN), 1885, A., 102; (BUNGNER), 1885, A., 417.

influence of the age of, on alcoholic fermentation (REGNARD), 1888, A., 184.

self-fermentation of (LEHMANN), 1885, A., 1151.

liquefaction of (O'SULLIVAN and TOMPSON), 1890, T., 869.

alcoholic extract of (DE REY-PAILHADE), 1890, A., 905.

**Yeast**, nuclein in (STUTZER), 1883, A., 1166; (LIEBERMANN), 1888, A., 510.

metaphosphoric acid in the nuclein of (LIEBERMANN), 1891, A., 477.

formation of sugar and other substances in (SALKOWSKI), 1889, A., 1027.

method of examining (MEISSI), 1884, A., 931; (MEYER), 1885, A., 452.

abnormal, secretion of nitrogenous substances by (GAYON and DUBOURG), 1886, A., 733.

anaerobic, disengagement of carbonic anhydride by (GRÉHANT and QUINQUAUD), 1889, A., 539.

beer- (MARTINAND), 1889, A., 181.

fermentative strength of, in distillery mash (KRUIS), 1884, A., 939.

glycogen in (ERRERA), 1885, A., 1151.

formation of glycogen in (LAURENT), 1888, A., 981.

degeneration of (BUNGNER), 1885, A., 417.

elliptical, effect of copper salts on (ROMMIER), 1890, A., 814.

products of fermentation of sugar by (CLAUDON and MORIN), 1887, A., 714, 746.

pressed, preparation of (WEHMER), 1883, A., 692; (ANON.), 1884, A., 132.

utilisation of malt combings in the manufacture of (HAYDUCK), 1884, A., 790.

wine, preparation of (ROMMIER), 1890, A., 1179.

cultivated (ROMMIER), 1884, A., 1399; 1885, A., 205.

**Yeast liquor**, composition of (O'SULLIVAN and TOMPSON), 1890, T., 878.

**Yeast sowing**, the favourable temperature for (STENGLEIN), 1884, A., 789.

**Yeast-albuminoid** (O'SULLIVAN and TOMPSON), 1890, T., 886, 893.

**Yeast-cells**, effects of varying environment on (BROWN), 1892, T., 369.

effect of the presence of certain organic substances on the respiratory combustion of (SCHUTZENBERGER), 1884, A., 857.

respiration of, at different temperatures (GRÉHANT and QUINQUAUD), 1888, A., 623.

**Yeast-poisons** (SCHULTZ), 1889, A., 181.

**Yellows**, coal-tar, toxic effect of (CAZENÈVE and LÉPINE), 1886, A., 273.

See also Colouring matters.

**Yew tree**, alkaloid of (HILGER and BRANDE), 1890, A., 65.

**Ytterbium**, spectral researches on (THALLÉN), 1883, A., 951.  
phosphorescence of (CROOKES), 1887, A., 1068.

**Yttria**. See *Yttrium sesquioxide*.

**Yttria minerals** from Llano Co., Texas (HIDDEN and MACKINTOSH), 1890, A., 457.

**Yttrialite** (HIDDEN and MACKINTOSH), 1890, A., 458.

**Yttrium**, atomic weight of (OLEVE), 1883, A., 292.

in the sphere of Biellose syenite (COSSA), 1884, A., 158.

fluorescence spectrum of (LECOQ DE BOISBAUDRAN), 1886, A., 838.

and samarium, mutual extinction of the spectra of (CROOKES), 1885, A., 1025.

compounds (DUBOIN), 1889, A., 1249.

**Yttrium bromide and chloride** (DUBOIN), 1888, A., 1250.

hydride (WINKLER), 1891, A., 1157.  
*sesquioxide (yttria)*, crystallised (DUBOIN), 1888, A., 1219.

spectra of (CROOKES), 1886, A., 853; 1887, A., 1066, 1070; 1889, T., 269; P., 60; (LECOQ DE BOISBAUDRAN), 1889, A., 456; 1890, A., 566.

purification of (LECOQ DE BOISBAUDRAN), 1887, A., 13.

action of magnesium on (WINKLER), 1890, A., 693.

phosphate. See *Xenotime*.

potassium and sodium phosphates (DUBOIN), 1889, A., 18.

pyrophosphate (JOHNSON), 1889, A., 757.

silicates (DUBOIN), 1888, A., 1219.

sodium sulphide (DUBOIN), 1888, A., 1250.

**Yttrium-earths** (BITTENDORFF), 1890, A., 851; 1891, A., 981; 1892, A., 1100.

atomic weight of, in their natural compounds (RAMMELSBERG), 1888, A., 112.

spectra of the (CROOKES), 1889, T., 269; P., 60.

separation of the (KRÜSS), 1891, A., 1425.

## Z.

**Z<sub>a</sub> and Z<sub>β</sub>**, nature of (LECOQ DE BOISBAUDRAN), 1890, A., 566.

fluorescence spectrum of (LECOQ DE BOISBAUDRAN), 1886, A., 666; 1890, A., 435.

**Z<sub>β</sub>**, identity of the reversal spectrum of, with Crookes' fluorescence spectrum (LECOQ DE BOISBAUDRAN), 1886, A., 958.

*Zanthoxylum senegalense*. See *Xanthoxylum senegalense*.

**Zein** (HITTENDEN and OSBORNE), 1892, A., 749.

**Zeolite** from a pyroxenic rock of Brazil (GOREVIX), 1886, A., 519.

**Zeolites** in the dolerites of Chaux-de-Bergonne, Puy-de-Dôme (GONNARD), 1884, A., 829.

from Chili (DARAPSKY), 1888, A., 235.

production of, in the cold (GONNARD), 1884, A., 405.

composition of (DOELTER), 1890, A., 717.

analyses of (LACROIX), 1885, A., 1187; (HERSCH), 1888, A., 924.

**Zero**, absolute, determination to test the validity of Person's (PICKERING), 1891, A., 519.

**Zinc**, atomic weight of (BAUMGART), 1881, A., 256; (MARNAGAC), 1884, A., 515; (VAN DER PLAS), 1885, A., 348; (MORSE and BURTON), 1888, A., 1217; (GLADSTONE and HIBBERT), 1889, T., 443; P., 101.

molecular weight of (RAMSAY), 1889, T., 531, 533.

equivalent of, comparison of, with that of hydrogen (REYNOLDS and RAMSAY), 1887, T., 854; P., 81.

(metal) from pyritic residues (FRUTZ), 1884, A., 788.

from Sagor (ANON.), 1881, A., 1231.

pure, preparation of (L'HÔTE), 1886, A., 201.

free from arsenic, preparation of (SROGA), 1885, A., 461.

extraction of lead from the residues obtained in the manufacture of (PROST), 1888, A., 915.

arseniferous, purification of (L'HÔTE), 1881, A., 962; 1885, A., 307.

some properties of (L'HÔTE), 1886, A., 201.

spectrum of (HARTLEY), 1883, T., 391; (AMPS), 1891, A., 1.

electrical resistance of (LE CHATELIER), 1891, A., 5.

E.M.F. of, property of the alkalis of increasing the (KROSEN), 1888, A., 209.

electrolytical deposition of (FISCHER), 1881, A., 933.

electroplating, with nickel (MEIDINGER), 1884, A., 231.

- Zinc** (metal), specific heat of (NACART), 1888, A., 1236.  
 vapour density of (MENSCHING and MEYER), 1887, A., 218.  
 volatilisation of, from German silver alloys (HANSAM), 1885, A., 707.  
 pure, cause of the slight solubility of, in acids (WEEREN), 1891, A., 983.  
 lowering of the freezing points of bismuth, cadmium and lead by (HEYCOCK and NEVILLE), 1892, T., 893, 899, 905.  
 influence of, on the freezing point of sodium (HEYCOCK and NEVILLE), 1889, T., 674.  
 influence of, on the freezing point of tin (HEYCOCK and NEVILLE), 1890, T., 382.  
 plumbiferous, action of acids on (SPRING and VAN AUBEL), 1887, A., 1074.  
 residues obtained from, by the action of acids (OSMOND and WERTH), 1887, A., 894.  
 and acids, apparent influence of temperature, time, dilution and other conditions on the reaction between (DIVERS and SHIMIDZU), 1885, T., 619.  
 action of bromine on (GAUTIER and CHARPY), 1892, A., 118.  
 action of chlorine on (COWPER), 1883, T., 154; (GAUTIER and CHARPY), 1892, A., 118.  
 action of, on chromic fluoride (EVANS), 1892, A., 20.  
 interaction of the haloid salts of mercury and (VARET), 1890, A., 224.  
 action of nitric acid on (DIVERS and SHIMIDZU), 1885, T., 603; (MONTMARTINI), 1892, A., 1279.  
 action of nitrosyl chloride on (STUBBOROUGH), 1891, T., 656.  
 action of sulphuric acid on (DIVERS and SHIMIDZU), 1885, T., 598; (MUIR and ADIE), 1887, P., 106; 1888, T., 47; (PULLINGER), 1890, T., 815; P., 136.  
 specific action of a mixture of sulphuric and nitric acids on, in the production of hydroxylamine (DIVERS and SHIMIDZU), 1885, T., 597; P., 90.  
 solvent action of water on (HEATON), 1884, A., 697; (STEVENSON), 1884, A., 878; (VENABLE), 1885, A., 453.  
 co-operation of water in the slow oxidation of (TRAUBE), 1885, A., 1105.
- Zinc** (metal), corrosion of, by ammonium chloride and potassium nitrate (FISHER), 1887, A., 889.  
 displacement of copper by (DESTREME), 1883, A., 555.  
 granulating (DIVERS and SHIMIDZU), 1885, T., 617.  
 effect of redistillation on (BIRD), 1887, A., 446.  
 plumbiferous, behaviour of, on remelting (KRAUT), 1886, A., 594.  
 crude, thallium in (KOSMANN), 1886, A., 851.  
 combination of, with sulphur, lecture experiments illustrating (SCHWARZ), 1883, A., 292.
- Zinc alloys** with bismuth, with bismuth and silver, and with bismuth and tin (WRIGHT and THOMPSON), 1891, A., 1158.  
 with calcium (NORTON and TWITCHELI), 1888, A., 651.  
 with copper, constitution of (LATRIE), 1887, P., 117; 1888, T., 104.  
 with lead (LATRIE), 1889, T., 678; P., 147.  
 with lead and silver (WRIGHT and THOMPSON), 1891, A., 267.  
 with lead and tin (WRIGHT and THOMPSON), 1890, A., 336; 1891, A., 267.  
 with mercury, position of, in electro-potential series (ROBB), 1884, A., 382.  
 explosive, with certain platinum metals (SAINT-CLAIRE DEVILLE and DEBRAY), 1883, A., 19.  
 with silver (WRIGHT and THOMPSON), 1891, A., 1158.  
 with tin (LATRIE), 1889, T., 679; P., 147.
- Zinc salts**, behaviour of, with plants and in the soil (BAUMANN), 1884, A., 1408.  
 antimonate (EDEL), 1890, A., 216.  
 arsenate (COLONIANU), 1886, A., 771; (LEFFEVRE), 1890, A., 563.  
 crystalline anhydrous (DE SCHULTEN), 1890, A., 214.  
 potassium and sodium arsenates (LEFFEVRE), 1890, A., 563.  
 o-borate (LE CHATELIER), 1892, A., 404.  
 bromide, boiling point of (FREYER and MEYER), 1892, A., 680.  
 ammoniobromides and oxybromides (ANDRÉ), 1883, A., 713.  
 carbonate, concentration of, in dolomites (DIEULAFAIT), 1885, A., 640; 1886, A., 132.  
 See also Calamine.

**Zinc ammonium carbonate, basic** (KASSNER), 1889, A., 1049; (THOMAS), 1890, A., 452.  
**chloride, boiling point of** (FREYER and MEYER), 1892, A., 680.  
**action of ammonia on** (Kwasnick), 1891, A., 1157.  
**action of metallic oxides on** (ANDRÉ), 1888, A., 651.  
**combination of, with hydrogen chloride** (ENGEL), 1886, A., 665.  
**compounds of, with organic bases** (LACHOWICZ and BANDROWSKI), 1888, A., 1281.  
**hydrates of** (ENGEL), 1886, A., 665.  
**ammoniochlorides** (DIVERS), 1883, A., 272; (THOMAS), 1887, A., 551; 1890, A., 452.  
**oxychlorides** (ANDRÉ), 1888, A., 652.  
**chromites** (VIARD), 1889, A., 1111; 1891, A., 987.  
**ferrite** (GORGET), 1887, A., 557.  
**fluorovanadate, fluoroxhypovanadate, and fluoroxvanadate** (PICCINI and GIORGI), 1892, A., 787.  
**hydrosulphide** (v. ZOTTA), 1890, A., 214; (LINDER and PICTON), 1892, T., 130.  
**hydroxide, crystallised** (VILLE), 1885, A., 1112.  
**action of zinc dust on** (WILLIAMS), 1886, A., 204.  
**ammonium hydroxide, manufacture of, and its technical application** (WRIGHT), 1884, A., 1232.  
**iodide, specific gravity of** (CLARKE and KEBLER), 1884, A., 394.  
**molybdate** (COLORIANU), 1889, A., 760.  
**nitrate, basic** (WELLS), 1887, A., 1080; (RIBAN), 1892, A., 1156.  
**oxide, manufacture of** (GLASER), 1885, A., 1270.  
**dissociation of** (MORSE and BURTON), 1888, A., 652; (MORSE and WHITE), 1889, A., 755.  
**action of hydrogen peroxide on** (KURILOFF), 1892, A., 1278.  
**action of magnesium on** (WINKLER), 1890, A., 452.  
**compound of, with sodium hydroxide** (COMEX and JACKSON), 1888, A., 786.  
**estimation, volumetric, of** (BENEDIKT and CANTON), 1889, A., 309.  
 See also Zincite.  
**sodium oxides** (COMEX and JACKSON), 1889, A., 674.  
**peroxide** (GIBSON and MORRISON), 1886, A., 305.

**Zinc phosphate, crystalline anhydrous** (DE SCHULTEN), 1890, A., 214.  
**potassium and sodium phosphates** (OUVRARD), 1888, A., 1035.  
**selenites** (BOUZZOURBANU), 1891, A., 262.  
**silicate, estimation of, in calamine containing lead** (MINOR), 1891, A., 863.  
 See also Willemite.  
**aluminium silicate, hydrated** (CESARO), 1884, A., 1105.  
**sulphate** (BATLEY), 1887, T., 681; (WHEELER), 1891, A., 992.  
**crystallised anhydrous** (KLOBB), 1892, A., 941.  
**quantity of heat evolved in the electrolysis of** (JAHN), 1883, A., 1043.  
**electrolysis of a mixed solution of copper sulphate and** (HOULLEVIGNE), 1890, A., 678.  
**action of hydrogen sulphide on** (BAUBIGNY), 1889, A., 346.  
**physiological action of** (LERETIT), 1886, A., 641.  
 See also Goslarite.  
**sulphates, basic** (ATHANASESCU), 1886, A., 981.  
**manganese ammonium sulphate** (ROY), 1887, P., 53.  
**sulphide, native** (DIEULAFAIT), 1886, A., 132.  
**a new variety of** (ROBERTSON), 1891, A., 154.  
**hexagonal** (STRAHL), 1889, A., 20.  
**colloidal state of** (WINSINGER), 1888, A., 912.  
**phosphorescence of** (CROOKES), 1887, A., 1068; (VERNEUIL), 1888, A., 791, 1248.  
**behaviour of preparations of** (CRAWLEY), 1891, A., 881.  
**dissociation of, by means of metallic zinc** (MORSE and WHITE), 1889, A., 946.  
**titration of, with iodine** (v. BERG), 1887, A., 301.  
 See also Zinc blende.  
**sulphite, basic** (SEUBERT), 1891, A., 1157.  
**dithionates, double** (KLÜSS), 1888, A., 1157.  
**pentathionate** (DEBVS), 1888, T., 299.  
**thioarsenates** (PREIS), 1890, A., 1053.  
**thiosulphate** (VORTMANN and PADBERG), 1890, A., 12.  
**titanates** (LÉVY), 1888, A., 27, 1254.

**Zinc organic compounds:—**

**Zinc organo-metallic compounds, action of, on aldehydes (WAGNER), 1885, A., 370.**

*isobutyl*, boiling point of (V. GARZAROLI-THURNLACKH and POFER), 1884, A., 1117.

*cyanide*, formation of, from zinc dust (AUFSEHLÄGER), 1892, A., 1164.

action of cupric salts on (VARET), 1890, A., 464.

action of, on metallic chlorides (VARET), 1888, A., 799.

*ammoniocyanides (VARET), 1888, A., 123.*

*mercuric cyanide (DUNSTAN), 1890, A., 855; 1892, T., 666; P., 51.*

*ethoxide. See Ethoxide, zinc.*

*ethyl*, molecular refraction and dispersion of (LADSTONE), 1891, T., 296.

heat of formation of (GURZ), 1888, A., 15.

and zinc methyl, apparatus for distilling (KAUFUSS), 1888, A., 255.

action of, on amides (GAL), 1883, A., 913.

action of, on amines and phosphines (GAL), 1884, A., 985.

action of liquid carbonic anhydride on (SCHMITT), 1891, A., 288.

action of oxygen on (DEMUTH and MEYER), 1890, A., 481.

and iodoethyl, action of, on dipropyl ketone (MENSCHIKOFF), 1888, A., 248.

*mercuric thiocyanate (BEHREN), 1892, A., 10.*

**Zinc, detection, estimation and separation:—**

*microchemical test for (V. HAUSHOFFER), 1887, A., 300.*

detection of, in presence of iron (DEROS), 1881, A., 367.

estimation of (CARNOT), 1886, A., 580, 650; (LÖSEKANN and MEYER), 1886, A., 836; (BRAGARD), 1887, A., 689; (RIBAN), 1888, A., 1343; (LUCKOW), 1892, A., 1129.

estimation, electrolytic, of (MILLOT), 1883, A., 122; (CLANSEN), 1885, A., 192; (MOORE), 1886, A., 921; (SMITH and KNEER), 1886, A., 923; (SHAND), 1887, A., 1000; (BRAND), 1890, A., 294.

estimation, electrolytic, of, as amalgam (VORTMANN), 1891, A., 1553.

estimation, volumetric, of (VOIGT), 1890, A., 196; (BLUM), 1890, A., 1191; 1892, A., 534; (DONATH and HATTENSAUR), 1891, A., 112.

**Zinc, estimation and separation:—**

estimation of, as pyrophosphate (BRAGARD), 1887, A., 398.

estimation of, as sulphide (MACARTHUR), 1883, A., 828.

estimation of, by the ferrocyanide process (MOLLENAUER), 1892, A., 915.

estimation of, in blende containing manganese (STRAHL), 1890, A., 827.

estimation of, in calamine (MINOR), 1890, A., 418; 1891, A., 863.

estimation of, in presence of iron (DEROS), 1884, A., 367.

estimation of, in presence of iron and manganese (RIBAN), 1890, A., 1193.

estimation of, in iron ores (PLATZ), 1890, A., 1192.

estimation of, in the presence of manganese (NEUMANN), 1889, A., 549.

estimation of, in manganiferous flue deposits (JENSCH), 1890, A., 294.

estimation of, in pickled railway sleepers (GRITTEER), 1891, A., 620.

estimation of, in zinc dust (MINOR), 1891, A., 863.

estimation of, in zinc fume (MARQUARDT), 1886, A., 490.

estimation of, in zinc ores (CUD), 1890, A., 1191.

separation of (RIBAN), 1888, A., 1343.

separation of, in ores (OSBORNE), 1885, A., 595.

separation of, from aluminium, cobalt, iron, manganese and nickel (MOORE), 1888, A., 631.

separation of cadmium, copper, nickel, etc. and (CARNOT), 1886, A., 580, 650.

separation, electrolytic, of cadmium from (ELIASBERG), 1886, A., 281; (SMITH and FRANKEL), 1889, A., 1033.

separation of, from cobalt (DAUBIGNY), 1889, A., 653.

separation of, from cobalt, iron and nickel (v. BERG), 1887, A., 182.

separation of, from iron (CARNOT), 1886, A., 650.

separation of, from lead and silver, in galena and blende (AUBIN), 1892, A., 1378.

separation of, from manganese (JANNASCH and MACGREGORY), 1891, A., 963; (DONATH), 1892, A., 384; (JANNASCH and NIEDERHOFHEIM), 1892, A., 537.

separation of, from manganese and nickel (BAYLEY), 1888, A., 388.

**Zinc, separation:—**

separation, electrolytic, of, from mercury and silver (SMITH and FRANKEL), 1890, A., 654.

separation of, from the metals of the same group (HAMPE), 1885, A., 932.

separation of, from nickel (MOORE), 1885, A., 193; (OSBORNE), 1885, A., 595; (BAUMANN), 1889, A., 652; (AIT and SCHULZE), 1890, A., 418.

**Zincaluminite**, a mineral species (BERTRAND and DAMON), 1883, A., 443.

**Zinc blende** from Cornwall, Lebanon Co., Pa. (GENTH), 1881, A., 266.

black, of Freiberg (STELZNER and SCHERBIL), 1887, A., 451.

from Hungary (SIPÖCZ), 1886, A., 313.

modifications of (v. SANDBERGER), 1889, A., 836.

and tetrahedrite, parallel growth of (BECKE), 1886, A., 207.

etching of (BECKE), 1886, A., 207.

roasting of, and neutralisation of the evolved gases with calcium sulphide solution (KOSMANN), 1883, A., 399.

See also Blende and Zinc sulphide.

**Zinc bloom**. See Hydrous zinc.

**Zinc-carbon couples** in electrolysis (TOMMASI), 1883, A., 4.

**Zinc-copper couple**, action of nitric oxide on (GLADSTONE and THIBB), 1883, T., 346.

action of, on organic bodies (GLADSTONE and THIBB), 1885, T., 448; P., 60.

estimation of chlorates by means of the (BOOTHBY and THOMPSON), 1887, P., 111; 1888, T., 161.

**Zinc dust**, preparation of hydrogen and of carbonic oxide by means of (SCHWAB), 1886, A., 660.

action of, on ferric chloride (CARNEGIE), 1888, T., 468.

action of, on zinc hydroxide (WILLIAMS), 1886, A., 204.

properties of cadmium in (ANON.), 1885, A., 461.

valuation of (MOORE), 1885, A., 1012; (WEIL), 1887, A., 301; (KLEMP), 1890, A., 1190.

**Zinc eisen** (WARREN), 1887, A., 550.

**Zinc fume**, estimation of zinc in (MARQUARDT), 1886, A., 490.

**Zinc gasometers**, storage of oxygen in (LOEWE), 1888, A., 619.

containing oxygen, explosion of (PFAUNDLER), 1883, A., 524.

use of lime-water in (LOEWE), 1885, A., 835.

**Zinciferous clays** from South West Missouri (SEAMON), 1890, A., 573.

**Zincite**, crystallised, from Stirling Hill, New Jersey (DANA), 1887, A., 343.

artificial production of (GORDON), 1887, A., 345.

See also Zinc oxide.

**Zinckenite** (DONNARD), 1885, A., 221.

from Arkansas (CHESTER), 1887, A., 782.

**Zinc-magnesium group**, peroxides of (HAAKS), 1885, A., 20.

**Zinc-manganese-serpentine** from Franklin, New Jersey (KÖNIG), 1887, A., 646; 1888, A., 565.

**Zinc mineral** from a blast furnace (CUNDALE), 1889, P., 67.

**Zinc minerals**, origin of, in the older limestones of the secondary series (DIBULAFALT), 1885, A., 644.

**Zinc powder**, valuation of (BARNES), 1887, A., 80.

titration of (KUPFFERSCHLAGER), 1887, A., 865; (WEIL), 1887, A., 1000.

**Zircon** from Australia (SCHMIDT), 1891, A., 1769.

from Burgess, Canada (HIDDEN), 1885, A., 878.

from Colorado (ROSS and HILLENBRAND), 1883, A., 1065.

from a Colorado rock (LACROIX), 1889, A., 1051.

from the itacolumite of Edge Hill, Pa. (GENTH), 1881, A., 270.

from the quarries of Nil St. Vincent (BENARD), 1883, A., 561.

from North Carolina (GENTH), 1891, A., 155.

in stratified rocks (v. SANDBERGER), 1886, A., 21.

artificial production of (HAUTEFENILLE and PERRY), 1889, A., 355.

composition of (LINNEMANN), 1885, A., 1042.

twin crystals of (FOOTE), 1885, A., 222.

absorption phenomena of (LINNEMANN), 1885, A., 1173.

disintegration of (STOLBA), 1884, A., 821.

**Zircon minerals**, distribution of (THÜRBACH), 1886, A., 126.

**Zirconia**. See Zirconium dioxide.

**Zirconic acid and zirconates**. See under Zirconium.

**Zirconic anhydride**. See Zirconium dioxide.

**Zirconium** (HINSBERG), 1887, A., 896.

atomic weight of (BAILEY), 1890, A., 705.

- Zirconium**, crystallised compounds of (WEIBULL), 1887, A., 778.
- Zirconium** chloride, preparation of, from zircon (VENABLE), 1892, A., 412.
- hydride (WINKLER), 1891, A., 802.
- hydroxide, dehydration of, by heat (CARNELLEY and WALKER), 1888, T., 68, 82.
- dioxide (*zirconia*; *zirconic anhydride*), extraction of (LINNEMANN), 1885, A., 1042.
- crystallisation of (HAUTEFVILLE and PÉREY), 1890, A., 1071.
- action of magnesium on (WINKLER), 1890, A., 1375; 1891, A., 802.
- light (LINNEMANN), 1886, A., 417.
- pentoxide (BAILEY), 1886, T., 119, 483.
- Zirconic acid**, combination of phosphoric acid with (HAUTEFVILLE and MARGOTTER), 1886, A., 670.
- Zirconates** of the alkalis and alkaline earths (OUVRARD), 1891, A., 1431.
- Zirconium** potassium phosphate (TROOST and OUVRARD), 1886, A., 853.
- sodium phosphates (TROOST and OUVRARD), 1887, A., 1017.
- Zirconium**, method for the estimation and separation of (BAILEY), 1886, T., 149, 481; P., 138, 205.
- separation of, from aluminium (DAVIS), 1889, A., 550.
- Zirconyl compounds** (WEIBULL), 1887, A., 778.
- Zobtenite** (ROTH), 1888, A., 661.
- Zoisite** (BELL), 1886, A., 319.
- from Orenburg (MELNIROFF), 1892, A., 690.
- Zorgite**, analysis of (HEUSLER and KLINGER), 1886, A., 22.
- Zuiderzee**, composition of the sea mud in the new alluvia of the (VAN BEMMELEN), 1890, A., 822.
- Zunyte**, from Colorado (HILLEBRAND), 1885, A., 878.
- Zygadite** (KRENNER), 1886, A., 518.
- Zymase** of jequirity (BÉCHAMP and DUJARDIN), 1885, A., 1085.
- of human milk (BÉCHAMP), 1883, A., 926.
- Zymases**, observations concerning organisms which produce (BÉCHAMP), 1885, A., 580.
- Zymogluconic acid**. See Gluconic acid.
- Zymolysis** (LEA), 1890, A., 538.



# AGRICULTURAL CHEMISTRY.

## ANIMALS, DAIRY PRODUCTS, AND FEEDING EXPERIMENTS.

**ANIMALS**, certain, digestive tract of, search for a cellulose-dissolving enzyme in (BROWN), 1892, T., 352; P., 30.  
 secretion of calcium carbonate by (IRVINE and WOODHEAD), 1889, A., 429; 1890, A., 653.  
 stony concretions in (SCHUBERG), 1884, A., 348.  
 hydrocyanic acid from (WEBER), 1884, A., 348.  
 nitrates in (GOSSELS), 1887, A., 389.  
 idiosyncrasy of certain, with regard to phenol (ZWAAARDEMAKER), 1891, A., 762.  
 influence of the consumption of water on the alimentation of (HENNEBERG), 1889, A., 287.  
 results of the suppression of perspiration of (ELLENBERGER), 1888, A., 817.  
 respiratory exchanges in (CHAPMAN and BRUBAKER), 1891, A., 592.  
 exhalation of nitrogen during the respiration of (REISER), 1888, A., 675.  
 urine of, occurrence of acetyl derivatives in, after the ingestion of aldehydes (COHN), 1892, A., 1501.  
 starving, amount of iron in (v. ZALESKI), 1888, A., 977.  
 starving and normal, the relation of water and solid constituents in the organs and tissues of (LUKJANOW), 1889, A., 632.  
 diseases of (ROLOFF), 1884, A., 95, 911; (PASTERU), 1884, A., 623.  
 destruction and utilisation of bodies of, which have died from contagious diseases (GILARD), 1884, A., 106.

## ANIMALS—

**Bees**, larval, food of (v. PLANTA), 1888, A., 733; 1889, A., 1022.  
**Calves**, fattening of (v. LANGSDORFF), 1883, A., 815.  
 feeding of (FAORD), 1888, A., 1319.  
 feeding of, with skim-milk (PAUL), 1883, A., 675; (BARTH; HENNINGSEN), 1884, A., 852.  
**Cattle**, use of, for labour (v. BABO), 1884, A., 1396.  
 stall fed, experiments with (VOSSLER), 1884, A., 172.  
 feeding of (FAORD), 1889, A., 1076.  
 value of fodders for (WALTHER), 1883, A., 820; (v. KNIRRIEM), 1890, A., 395.  
 influence of food on the composition of butter (LADD), 1889, A., 1023.  
 exhausted beetroot-pulp as food for (ANDOUARD and DEZAUNAY), 1884, A., 347; 1885, A., 73.  
 beetroot sections as food for (SCHRODT and HANSEN), 1885, A., 833; (STUTZER and WERNER), 1886, A., 953.  
 beet seed as food for (SIMON-LEGRAND), 1884, A., 631; (PELLET), 1885, A., 425.  
 arsenic in the bone phosphate used as food for (FRESSENIUS), 1889, A., 518.  
 cotton-cake as food for (DE LA TRÉHONNAIS), 1884, A., 1111.  
 influence of cotton-cake on the secretion of milk in (ANON.), 1884, A., 623; (SIEBERT), 1884, A., 669.

ANIMALS—

**Cattle**, diffusion residues as food for (MARCKER), 1884, A., 921.  
 earth-nut- and palm-nut-cake as food for (SCHRODT), 1888, A., 174.  
 poisoning of, by earth-nut-cake (ANACKER), 1883, A., 818.  
 earth-nut-meal compared with rye-meal as food for (MEYER), 1885, A., 1252.  
 earth-nut- and rice-meal as food for (WOLDE), 1883, A., 820.  
 dry fodder as food for (ANON.), 1883, A., 816.  
 first grass and aftermath as food for (RUFIN), 1885, A., 586.  
 horse-chestnuts as food for (KAELLER), 1884, A., 1411.  
 basic phosphate of lime as an addition to food for (COHN), 1884, A., 194.  
 lupines as food for (SEELING), 1884, A., 1211.  
 maize silage as food for (ANON.), 1884, A., 355; (ROSE), 1885, A., 1149.  
 influence of oat- and wheat-bran on the secretion of milk in (SCHRODT and HANSEN), 1884, A., 854.  
 silage as food for, in Holland (THEIL), 1887, A., 1062.  
 silage as compared with hay as food for (BROEKM and MAYER), 1886, A., 737.  
 sugar as an addition to food for (MARCKER), 1885, A., 1149; (HOLDEFLEISS), 1886, A., 727; (PFEIFFER and LEHMANN), 1887, A., 511.  
 sunflower-seed-cake as food for (SCHRODT and V. PEFFER), 1881, A., 483.  
 white mustard as food for (BRUMMER), 1884, A., 864.  
 amounts of nitrogen ingested and recovered in manure (MUNTZ and GIRARD), 1887, A., 175.  
 urine of (ZACHAREWICZ), 1884, A., 1204; (MITTELBACH), 1888, A., 1215.  
**Cattle disease**, bacillus of (METZDORF), 1884, A., 1398.  
 and Pasteur's protective inoculation (KOCH), 1884, A., 96; (MULLER), 1884, A., 473.  
 occasioned by town sewage (ANON.), 1884, A., 95.  
 various (EGGELING; PASTEUR), 1885, A., 73.

ANIMALS—

**Dogs**, formation of fat from carbohydrates in (MUNK), 1887, A., 288.  
 glycogen in the liver of new-born (DEMANT), 1887, A., 167.  
 haemoglobin of (JAQUEI), 1888, A., 731; 1890, A., 273.  
 nutrition of (GUIMARÆS), 1884, A., 344.  
 digestion of starch by (ELLENBERGER and HOFMEISTER), 1892, A., 516.  
 urine of, nitrogenous constituents of (BLEIBTREU), 1890, A., 279.  
**Fowl**, tissue waste in the, during starvation (KUCKEIN), 1883, A., 603.  
**Chicken cholera**, infection of eggs by (BARHELEMY), 1884, A., 1398.  
 value of disinfectants in (COLIN), 1885, A., 180.  
**Goats**, amount of volatile acids in the excrement of (WILSING), 1886, A., 87.  
**Horse**, circulation of mineral matter in the (V. WOLFF), 1888, A., 735.  
 absorption in the stomach of the (GOLD-SCHMIDT), 1887, A., 743.  
 sugar contents of the stomach of the (ELLENBERGER and HOFMEISTER), 1889, A., 176.  
 gastric digestion in the (GOLD-SCHMIDT), 1886, A., 952; 1887, A., 610.  
 digestion and digestive secretions in the (ELLENBERGER and HOFMEISTER), 1883, A., 457; 1884, A., 92, 472; 1885, A., 178, 679, 1118; 1887, A., 744.  
 digestion of cellulose by the (HOFMEISTER), 1885, A., 916.  
 foddering of the (V. WOLFF), 1888, A., 735.  
 useful effect of food supplied to the (LEZI), 1890, A., 807.  
 digestibility of substances used as food for the (MUNTZ and GIRARD), 1886, A., 282.  
 dried beer grains as food for the (SATRIG), 1886, A., 1066.  
 cocoanut-meal as food for the (ANON.), 1884, A., 852.  
 earth-nut-meal as food for the (FREYTAG and V. DER BECKE), 1884, A., 100.  
 flesh-meal as food for the (FINDERSEN), 1883, A., 102.  
 digestibility of clover- and meadow-hay by the (V. WOLFF), 1885, A., 410, 411.

# AGRICULTURAL CHEMISTRY.

## ANIMALS—

**Horse**, digestibility of lucerne by the (v. WOLFF), 1885, A., 410.  
 working power of the, when fed with lupines and oats and digestibility of purified lupine seeds (KELLNER), 1883, A., 102.  
 maize as food for the (GERSSDORF), 1884, A., 355.  
 digestibility of potatoes with hay and oats, and of carrots with hay and oats by the (v. WOLFF), 1885, A., 72.  
 alimentary value of oats as food for the (MUNTZ and GIRARD), 1885, A., 281.  
 sweat of the (SMITH), 1891, A., 349.  
 cutaneous excretion of albumin by the (LECLERC), 1888, A., 1820.  
 change of substance in the, at rest and at work (ZUNTZ, LEHMANN and HAGEMANN), 1889, A., 911.  
 respiration in the, during rest and work (SMITH), 1890, A., 392; (ZUNTZ and LEHMANN), 1890, A., 1170.  
 fat of the (LENZ), 1889, A., 1076; (AMTHOR and ZINK), 1892, A., 1533.  
 cystin and xanthine in the liver of the (DRECHSEL), 1892, A., 516.  
 urine of the (MITTELBACH), 1888, A., 1216; (SMITH), 1890, A., 914.  
 composition of (SALKOWSKI), 1885, A., 413, 924.  
**Pigeons**, feeding experiments on (ASSMUN), 1884, A., 473.  
**Pigs**, gastric juices and histology of the gastric mucous membrane of (ELLENBERGER and HOFMEISTER), 1886, A., 271.  
 digestion in (ELLENBERGER and HOFMEISTER), 1887, A., 512, 684; 1890, A., 183.  
 exchange of material in (MEISL), 1886, A., 381.  
 fed on corn cockle, metabolism in (KORNAUTH and ARCHE), 1892, A., 1018.  
 feeding of (FYORD), 1888, A., 1319.  
 influence of fodder on the production of fat and lean in (HENRY), 1888, A., 1319.  
 bile, acids of (JOLIN), 1887, A., 742; 1888, A., 1213; 1889, A., 422; (BERGEAT), 1889, A., 1231.  
 urine of (MITTELBACH), 1888, A., 1216.

## ANIMALS—

**Pigs**, urine of, chemical composition of (SALOMON), 1885, A., 413.  
**Rabbits**, aged, composition of the bones of (GRAFFENBERGER), 1891, A., 1275.  
 hydrophobic, catechol in the urine of (MOSCATELLI), 1892, A., 1115.  
**Sheep**, fattening of (PFEIFFER and LEHMANN), 1888, A., 973.  
 influence of wool on the material exchange in (KERN, WATTENBERG and PFEIFFER), 1891, A., 1392.  
 of different breeds, effect of food on (WEISKE), 1883, A., 226.  
 Scotch hill, composition of the food of (KINCH), 1885, A., 291.  
 digestibility of clover- and meadow-hay by (v. WOLFF), 1885, A., 410, 411.  
 digestibility of lucerne by (v. WOLFF), 1885, A., 410.  
 comparative value of peas, barley and malt as food for (VOELCKER), 1884, A., 206.  
 dry and steeped maize as food for (MÜLLER), 1885, A., 1149.  
 effect of increasing the proteids in food rations of (KERN and WATTENBERG), 1891, A., 753.  
 sugar as food for (HENNEBERG), 1885, A., 1252; (WERNER), 1886, A., 569; (PFEIFFER and LEHMANN), 1887, A., 511.  
 amounts of nitrogen ingested and recovered in manure (MUNTZ and GIRARD), 1887, A., 175.  
 effect of copper on (ELLENBERGER and HOFMEISTER), 1884, A., 474.  
 physiological effect of lead on (ELLENBERGER and HOFMEISTER), 1885, A., 74.  
 lupine sickness in (HARMUTH), 1883, A., 228.  
 urine of (ZACHAREWICZ), 1884, A., 1204; (MITTELBACH), 1888, A., 1216.  
**Silkworm**, Japanese (*Bombyx Mori*), development and feeding of (KELLNER), 1884, A., 667, 1202; 1887, A., 68.  
 chemical changes attending the development of the embryo in the eggs of (TICHOMIROFF), 1885, A., 1000, 1150.  
**DAIRY PRODUCTS—**  
**Butter and Butter-fat** (SCHRODT and HENZOLD), 1891, A., 757.  
 chemistry of (BELL), 1883, A., 1160.

DAIRY PRODUCTS—

- Butter and Butter-fat**, nature of (BLYTH and ROBERTSON), 1889, P., 5.  
 composition of (SCHMITT), 1885, A., 309; (VIETH), 1891, A., 507, 508; (JOHNSTONE), 1891, A., 849.  
 composition of, from various districts (DUCLAUX), 1887, A., 996.  
 melting point and composition of, as affected by nutrition (MAYER), 1889, A., 173.  
 influence of food on the composition of (LADD), 1889, A., 1023.  
 See also Cattle feeding.  
 acids of (KOEFOED), 1892, A., 1113.  
 amount of fatty acids in (REICHARDT), 1884, A., 1219.  
 acids, volatile fatty, of (SPALLANZANI), 1890, A., 186.  
 amount of volatile fatty acids in rancid (CORBETTA), 1891, A., 130.  
 action of alcohol on (COCHRAN), 1888, A., 634.  
**Butter**, artificial and natural, comparative value of, as articles of food (MAYER), 1884, A., 92, 622; (ULDALL), 1884, A., 622.  
 buffaloes' (STROHMER), 1888, A., 976.  
 ewes' and goats', composition of (SCHMITT), 1885, A., 309.  
 goats', insoluble fatty acid in (JEHN), 1884, A., 535.  
 melted (EUGLING), 1885, A., 1171.  
 "oily" (STORCH), 1891, A., 603.  
**Butter making** (FLEISCHMANN and SACHLEBEN), 1883, A., 253; (FJORD OTTO), 1884, A., 135; (SCHMOEGER), 1884, A., 236; (FLEISCHMANN; BLUNCK-SCHILKOWITZ), 1884, A., 534; (KÖHNKE), 1884, A., 1448; (SCHRODT), 1885, A., 105.  
 influence of the concentration of the cream on (SEBELIEN), 1889, A., 300.  
 from fresh and stale cream (BRÜNIG), 1885, A., 620.  
**Butter colourings**, examination of (CORNWALL), 1887, A., 621.  
 artificial (SCHMITT), 1884, A., 236.  
 carrot colour in (MOORE), 1887, A., 310.  
 detection of artificial colouring matters in (MARTIN), 1887, A., 1149.

DAIRY PRODUCTS—

- Butter**, preservation of (HAGEMANN), 1883, A., 254; (FLEISCHMANN), 1884, A., 534; (SCHRODT), 1885, A., 612.  
**Butter analysis** (v. BASTALAER), 1883, A., 246; 1884, A., 120; (MUNIER), 1883, A., 247, 750; (SCHMITT), 1883, A., 521; 1885, A., 197; (BECKURTS), 1884, A., 779; (LEFFMANN), 1885, A., 196; (HANSEN; MCCAY), 1885, A., 197; (MOORE), 1885, A., 300; (FOX and WANKLYN), 1885, A., 446; (SCHMOEGER), 1885, A., 603; (ZAUNI), 1885, A., 695; (HORSLEY), 1885, A., 696; (WAGNER), 1886, A., 103; (ANDOUARD), 1886, A., 283; (MAYER), 1886, A., 395; (ALLEN), 1886, A., 533; 1887, A., 1145; (DUCLAUX), 1886, A., 685; (SKALWEIT), 1887, A., 308; (HAGER; WOLL; CORNWALL and WALLACE), 1887, A., 309; (ANON.), 1888, A., 93; (WARREN), 1888, A., 199, 538; (WOLLNY), 1888, A., 200; (BOCKART), 1888, A., 1133; (MORSE and BURTON), 1888, A., 1347; (MANSFELD), 1889, A., 85; (PAGNOUL and GRENET), 1889, A., 192; (BESANA), 1889, A., 448, 658; (NILSON), 1889, A., 801; (RICHMOND), 1890, A., 93; (JOHNSONE), 1890, A., 93; 1891, A., 868; (SALAFORI), 1890, A., 305; (BONDZYNSKI and RUMI), 1890, A., 838; (VIOLETTE), 1891, A., 130, 869; (BRULLÉ), 1891, A., 506; (FIRTSCH), 1891, A., 868; (LEZE), 1891, A., 1300; (KONIG and HARR), 1891, A., 1301; (ELLINGER), 1891, A., 1401; (ERDFLYI), 1892, A., 1532.  
 detection of coco (*cacao*)-nut fat in (MUTER), 1892, A., 391.  
 detection of margarine in (PLANCHON), 1889, A., 318; (LEZE), 1891, A., 1300; (RODEWALD), 1892, A., 1034.  
 and margarine, discrimination of (VIOLETTE), 1891, A., 130.  
 See also Margarine in Main Index.  
 detection of salicylic acid in (ANON.), 1884, A., 372.  
 estimation of free acids in (BESANA), 1892, A., 924.  
 estimation of fatty acids in (REICHARDT), 1884, A., 1219; (WOLLNY), 1889, A., 1037;

# AGRICULTURAL CHEMISTRY.

## DAIRY PRODUCTS—

### Butter analysis—

(RICHMOND), 1890, A., 93;  
(JOHNSTONE), 1890, A., 93; 1891,  
A., 868; (KOEFOED), 1892, A.,  
1113.

estimation of volatile fatty acids in  
(SCHMITT), 1884, A., 1434.

estimation of dry residue and fat  
in (GANTTER), 1888, A., 537.

estimation of salicylic acid in (RÉ-  
MONT), 1883, A., 522.

estimation of water in (HENZOLD),  
1891, A., 1300.

**Cheese**, chemistry of (BELL), 1883,  
A., 1160.

from skim-milk and foreign fat  
(WILLARD), 1884, A., 536; (HAN-  
SEN), 1884, A., 942.

composition of (VIETH), 1883, A.,  
256

inorganic constituents of (EUGLING  
and MÄHR), 1886, A., 290.

digestibility of varieties of (v.  
KLENZE), 1885, A., 1252.

loss of weight during the ripening  
of (MARTINY; FLEISCHMANN),  
1884, A., 1448.

American, composition of (WIL-  
LARD), 1884, A., 536.

blue (SCHMOEGER), 1884, A., 942.

Emmenthaler, composition and  
ripening of (WEIDMANN), 1883,  
A., 692; (RÖSE and SCHULZE),  
1885, A., 207.

oleomargarine, composition of  
(VIETH), 1883, A., 256.

poisonous, plomaine from  
(VAUGHAN), 1886, A., 373.

Russian, composition of (KALAN-  
TAROFF), 1884, A., 700.

sheep's milk, chemistry of (SAR-  
TORI), 1891, A., 951.

estimation of fat in (LEZÉ and AL-  
LARD), 1892, A., 392.

**Cream**, souring of (KÖHNKE), 1884,  
A., 1448; (SPRUCH), 1891, A., 603.

separation of (GÄBEL), 1883, A.,  
253; (FLEISCHMANN and SACHT-  
LEBEN), 1883, A., 253; 1884,  
A., 135; (SCHMOEGER), 1884, A.,  
236; 1886, A., 290; (FJORD),  
1884, A., 1447; (FLEISCHMANN  
and BERENDES), 1885, A., 944;  
(SREWERT), 1885, A., 1022.

detection and estimation of boric  
acid in (CASSAL), 1891, A., 619.

estimation of fat in (v. T.), 1885,  
A., 844; (SCHMID), 1888, A.,  
1347; (LEZÉ and ALLARD), 1892,  
A., 392.

## DAIRY PRODUCTS—

**Milk**, chemistry of (BELL), 1883, A.,  
1160.

physiology of the formation of  
(THIERFELDER), 1884, A., 914.

secretion of, influence of movement  
on (MUNK), 1884, A., 1205.

alteration in, under the influence  
of drugs (STUMPF), 1883, A.,  
818.

influence of atropine on (HAM-  
MERBACHER), 1884, A., 1396.

influence of pilocarpine on (HAM-  
MERBACHER), 1884, A., 1396;  
(CORNEVIN), 1892, A., 365.

influence of exhausted beetroot  
pulp on (ANDOUARD and DÉ-  
ZAUNAY), 1884, A., 347; 1885,  
A., 73.

influence of oat- and wheat-bran  
on (SCHRODT and HANSEN),  
1884, A., 854.

influence of cotton-cake on  
(ANON.), 1884, A., 623; (SIE-  
WERT), 1884, A., 669.

influence of distillers' waste on  
(SCHMOEGER and NEUBERT),  
1884, A., 194.

influence of malt sprouts and the  
amides contained in them on  
(SCHRODT and HANSEN), 1885,  
A., 929.

See also Cattle feeding.

aphysical property of (RECKNAGEL),  
1884, A., 941.

specific gravity of (VIETH), 1888,  
A., 634; 1889, A., 915.

composition of (JENKINS), 1884,  
A., 533; (FLEISCHMANN), 1885,  
A., 849; (VIETH), 1886, A., 168;  
1888, A., 620.

of abnormal quality (LLOYD),  
1890, T., 201; P., 3.

during early and late periods of  
lactation (KUH), 1891, A., 97.

produced on English dairy farms  
(VIETH), 1889, A., 914.

in Holland (GÄBEL), 1884, A.,  
1396.

at Kiel experimental dairy farm  
(SCHRODT), 1884, A., 1396.

changes in the (FABER), 1888,  
A., 862.

changes in (VIETH), 1883, A., 757.

changes in, during milking  
(SCHMIDT-MÜLHEIM), 1884, A.,  
93.

influence of the frequency of milk-  
ing on (ERLENMEYER), 1883,  
A., 227; (SCHMOEGER), 1885,  
A., 1000.

DAIRY PRODUCTS—

**Milk**, changes in, by freezing (KAISER and SCHMIEDER), 1887, A., 745.  
 composition of the ash of (SCHRODT and HANSEN), 1884, A., 1397.  
 casein in (DUCLAUX), 1884, A., 762; (EUGLING), 1885, A., 1083.  
 digestibility of casein from heated (HOFFMANN), 1883, A., 487, 815.  
 the salts of, and their relation to the behaviour of casein (SOLDNER), 1889, A., 634.  
 citric acid in (SOXHLET), 1889, A., 178; (HENKEL), 1891, A., 1276.  
 origin of (SCHEIBE), 1891, A., 1276.  
 variations of the fat of (NILSON), 1888, A., 861.  
 of hill-bred cows, amount of fat and dry matter in (SIEDEL), 1891, A., 1275.  
 from cows of different breeds, percentage of fat in (ANON.), 1884, A., 94.  
 of shorthorns, composition of (VIETH), 1886, A., 168.  
 amount of nitrogen in (NILSON), 1890, A., 652.  
 variations in the proportion of phosphoric acid in (ANDOUARD), 1887, A., 856.  
 proteids of (v. STRUVE), 1883, A., 1174; (BIEDERT), 1885, A., 922; 1887, A., 388; (SEBELLEN), 1885, A., 1000; 1889, A., 450; 1891, A., 951; (DUGIEL), 1885, A., 1149; (HALLIBURTON), 1891, A., 339.  
 peptonised (HORTON-SMITH), 1891, A., 953.  
 poisonous ptomaine in (FIRTH), 1887, A., 389.  
 buffaloes' (STROHMER), 1888, A., 976.  
 goats', composition of (VIETH), 1886, A., 168.  
 of Herbivora, estimation of nitrogen in the (WEINKE), 1886, A., 1072.  
 mares', composition of (VIETH), 1885, A., 849.  
 sheep's (SARTORI), 1891, A., 951.  
 action of calcium salts on (RINGER), 1891, A., 340.  
 effect of bad odours on (SCHRODT), 1883, A., 254.  
 digestion of, and the substances which increase its digestibility (UFFELMANN), 1884, A., 192.  
 time required for the (JESSEN), 1884, A., 470.

DAIRY PRODUCTS—

**Milk**, boiled, digestibility of (RAUDNITZ), 1889, A., 1225; 1890, A., 650.  
 is alcohol eliminated by the? (KLINGEMANN), 1892, A., 365.  
 coagulation, influence of salts on (RINGER and SAINSBURY), 1890, A., 1176.  
 cause of the, during thunder storms (v. LIEBIG), 1892, A., 1370.  
 thickening of (RECKNAGEL), 1884, A., 941.  
 refrigerator, Oberbockstruck's (WUST and KIRCHNER), 1885, A., 1022.  
 condensed, preparation of (ANON.), 1883, A., 759.  
 preservation of (BARFF), 1883, A., 253; (BUSSE; DIETZELL; FLEISCHMANN), 1883, A., 254; (FLEISCHMANN and MORGEN), 1883, A., 757; (ANON.), 1883, A., 758; (SCHRODT), 1885, A., 612; (HUEPPE and EUGLING), 1885, A., 1170.  
 changes occurring in the (LOEW), 1883, A., 634.  
 by high temperatures (100°) for children's food (BAGINSKY), 1885, A., 679.  
 Thiel's pasteurising apparatus for the (FLEISCHMANN), 1885, A., 105.  
 sterilisation of (STORCH), 1891, A., 603.  
 improvements in Soxhlet's apparatus for the (SOXHLET), 1892, A., 518.  
 alcoholic fermentation of (MARTINAND), 1889, A., 916.  
 chemical action of microbes on (WARINGTON), 1888, T., 734.  
 changes which it undergoes through the agency of microbes (HUEPPE), 1885, A., 416.  
 action of rennet on (EUGLING), 1885, A., 1083.  
 action of Blumenthal's prepared rennet on (SCHMOEDER), 1884, A., 535.  
 action of rennet from the seeds of *Withania coagulans* on (LEA), 1884, A., 535.  
 ferment for making "kephir" (KERN), 1883, A., 229.  
 lactic ferment in (HUEPPE), 1885, A., 1170.  
 putrefaction of (WINTERNITZ), 1892, A., 1116.

DAIRY PRODUCTS—

**Milk**, bitter (LIEBSCHER), 1885, A., 105.

blue (REISSET), 1883, A., 742.

organisms of (HUEPPE), 1885, A., 417.

isolation of the bacterium which produces (HUEPPE and EUGLING), 1885, A., 1171.

blue, and ropy (SCHMOEGER), 1884, A., 942.

changes in, by udder tuberculosis (STORCH), 1890, A., 652.

**Butter-milk**, utilisation of, in bread making (MÜLLER), 1883, A., 1037.

**Skim milk**, nutritive value of (KONIG), 1883, A., 102.

utilisation of (FOLKERN), 1884, A., 534.

feeding calves with (PAUL), 1883, A., 675; (BARTH; HENNINGSEN), 1884, A., 852.

**Milk adulteration and analysis—**

**Milk**, adulteration of (SAMBUC), 1885, A., 299; (PERRON), 1890, A., 428.

presence of nitrites and nitrates in, an evidence of adulteration (SCHRODT), 1887, A., 87.

adulteration of, with goats' milk (GERBER), 1886, A., 924.

analysis of (PFEIFFER), 1883, A., 521; (VOGEL), 1884, A., 1219;

(DECHAN and MAREN), 1885, A., 446; (ADAMS; JOHNSTONE), 1886,

A., 583; (ALLEN and CHATTAWAY), 1887, A., 186; (SHORT),

1887, A., 751; (PALM), 1887, A., 1003; (ANON.), 1888, A., 94;

(BOTRECAIT), 1889, A., 1090; (DAVENPORT), 1890, A., 670;

(WATTS), 1890, A., 929; (BALARIO and REVELLI), 1890, A.,

1472; (SHUTT), 1891, A., 1299; (HILL), 1892, A., 390.

detection of benzoic acid in (MEISSL), 1883, A., 385.

detection of boric acid in (MEISSL), 1883, A., 385; (KRETZSCHMAR),

1887, A., 864; (CASSAL), 1891, A., 619.

detection of sodium carbonate in (RACHMEYER), 1888, A., 385.

detection of sodium hydrogen carbonate in (PADÉ), 1889, A., 1244.

estimation of boric acid in (CASSAL), 1891, A., 619.

estimation of casein in (FRENZEL and WEYL), 1885, A., 936;

(ROUX), 1891, A., 1404.

estimation of casein and lactalbumin in condensed (FABER), 1890, A., 92.

DAIRY PRODUCTS—

**Milk adulteration and analysis—**

**Milk**, estimation of citric acid in (SCHEIBE), 1891, A., 1276.

estimation of dry residue in (GANTTER), 1888, A., 537.

estimation of fat in (EMMERICH), 1883, A., 246; (LIEBERMANN),

1884, A., 372; 1885, A., 695; (GEISSLER), 1885, A., 1014;

(CALDWELL and PARR), 1886, A., 283; (CRONANDER), 1887,

A., 308; (MORSE and PIGGOT), 1887, A., 752; (FABER), 1887,

A., 1144; (GANTTER; MORSE and BURTON), 1888, A., 537;

(SCHREIB), 1888, A., 1135; (SCHMID), 1888, A., 1347;

(SHORT), 1889, A., 1037; (PATRICK), 1889, A., 1250; (RICHMOND),

1890, A., 91; (PARSONS), 1890, A., 92; (STOKES), 1890,

A., 304; 1892, A., 391; (LEZÉ), 1890, A., 837; (LANGKOPF),

1890, A., 1346; (SJUSTRÖM), 1891, A., 508; (BABCOCK), 1891,

A., 509; (GORODETZKY), 1891, A., 625; (MOLINARI), 1891, A.,

1299; (KUHN), 1891, A., 1402; (SHUTT), 1891, A., 1559; (GOTTLIEB),

1892, A., 549; (NILSON), 1892, A., 550; (PINETTE), 1892,

A., 1134; (LEFFMANN and BEAM), 1892, A., 1532.

estimation of fat in the products from (LEZÉ and ALLARD), 18 2,

A., 391.

estimation of fat in skim (FLEISCHMANN), 1884, A., 1435.

estimation of fat in sour (KÜHN), 1890, A., 304.

estimation of glucose, lactose and sucrose in condensed (BIGNAMINI), 1885, A., 443.

estimation of lactose in (STEPHENS), 1886, A., 582; (KUHN), 1891,

A., 127.

estimation of lactose in, by optical methods (WILEY), 1885,

A., 601; (SCHMOEGER), 1885, A., 693; (VIETH), 1889, A.,

315.

estimation of the proteids in (PARR), 1886, A., 272.

estimation of salicylic acid in (RÉMONT), 1883, A., 522.

estimation of sodium hydrogen carbonate in (PADÉ), 1889, A.,

1244.

**Milk-serum**, analyses of (SÖLDNER), 1889, A., 635.

**Honey** composition and adulteration of (SIEBEN), 1885, A., 693.

unfermentable dextro-rotatory constituent of (V. RAUMER), 1890, A., 356.

harvest, correct time for (ZWILLING), 1885, A., 590.

eucalyptus (MAQUENNE), 1890, A., 122.

pine tree (WILEY), 1891, A., 412.

analysis of (HEHNER; BISHOP), 1885, A., 444.

estimation of water in (WILEY and BROADBENT), 1886, A., 282.

# FEEDING EXPERIMENTS—

**Aftermath** and first grass (RÜFFIN), 1885, A., 586.

**Albuminoids.** See Proteids.

**Asparagine**, importance of, for feeding (WEISKE), 1888, A., 80; (KONIG), 1891, A., 1525.

**Barley**, peas and malt, comparative feeding value of (VOELCKER), 1884, A., 206.

**Beans**, digestibility of (LEHMANN and VOGEL), 1891, A., 595.

**Beet diffusion residues**, frozen and unfrozen, composition of (STUTZER), 1892, A., 1512.

preservation of (ANON.), 1883, A., 695.

dried washed, pre-servation of (HELLRIGEL), 1885, A., 685.

preservation of, in silos (LIEBSCHER), 1886, A., 275.

drying of (REINHARDT), 1884, A., 1411; (MÄRCKER), 1885, A., 79.

feeding value of (MORGEN), 1883, A., 680; (MÄRCKER), 1884, A., 921; 1887, A., 521.

exhausted, as food for cows (ANDOUARD and DIZAINAY), 1884, A., 347; 1885, A., 73.

feeding cows with (SCHRODT and HANSEN), 1885, A., 833; (STUTZER and WERNER), 1886, A., 953.

fresh and dried, digestibility of (PFEIFFER and LEHMANN), 1886, A., 1054.

decomposition of (MÄRCKER), 1883, A., 1025.

**Beet-seed** as fodder for cattle (SIMON-LEGRAND), 1884, A., 631; (PELLET), 1885, A., 425.

**Bran**, food value of (RUBNER), 1884, A., 622.

**Brushwood**, food value of (STUTZER), 1892, A., 1511.

# FEEDING EXPERIMENTS—

**Carrots**, digestibility of, with hay and oats by the horse (V. WOLFF), 1885, A., 72.

**Cattle-cake**, estimation of oil in (PICKENING), 1885, A., 844.

**Cattle-foods**, composition of (DIETRICH), 1886, A., 1067.

mildew, etc., in (EMMERLING), 1884, A., 1411.

addition of sugar to (MÄRCKER), 1885, A., 1149; (HOLDEFLEISS), 1886, A., 727; (PFEIFFER and LEHMANN), 1887, A., 511.

basic phosphate of lime as an addition to (COHN), 1884, A., 194.

**Cellulose**, does it economise the decomposition of proteid in the nutrition of Herbivora? (V. KNIERIEM), 1885, A., 916; 1888, A., 515; (WEISKE, SCHULZE and FLEHRSIG), 1886, A., 728; (WEISKE), 1888, A., 616.

digestion of, by Herbivora (BROWN), 1892, T., 352; P., 30.

digestion of, by the horse (HOFMEIER), 1885, A., 916.

**Cider-marc**, use of, as fodder (LECHARTIER), 1885, A., 834.

**Cocoanut-meal** as food for the horse (ANON.), 1884, A., 852.

**Corn-silage**, composition of (RICHARDSON), 1885, T., 82.

**Cotton-cake** (RENOUARD), 1883, A., 111.

undecorticated (DIEBRIKH), 1884, A., 100.

influence of feeding with, on milk secretion (ANON.), 1881, A., 623; (SIEWERT), 1884, A., 669.

as fodder for cows (DE LA TRÉHONNAIS), 1884, A., 1111.

and cotton-meal, feeding values of (WEISKE), 1886, A., 272.

**Cotton-plant**, feeding value of (McBRYDER), 1892, A., 1510.

**Cotton seed-foods**, choline and butaine in (MAXWELL), 1892, A., 330.

**Dari-seeds**, composition of (VOELCKER), 1884, A., 630.

**Earth-nut cake**, fungus spores in (HOLDEFLEISS), 1884, A., 356.

poisoning of cattle by (ANACKER), 1883, A., 813.

feeding cows with (SCHRODT), 1888, A., 174.

**Earth-nut-meal**, feeding value of (EMMERLING), 1892, A., 92.

as food for cows (WOLFE), 1883, A., 820.

FEEDING EXPERIMENTS—

- Earth-nut-meal** compared with rye-meal as food for cows (MEYER), 1885, A., 1252.  
 feeding horses with (FREYTAG and v. DER BECKE), 1884, A., 100.  
**Earth-nut-meal and -cake**, adulteration of (HILTNER), 1892, A., 1535.  
**Flesh-meal**, feeding horses with (FINDEISEN), 1883, A., 102.  
**Fodders**, green, chemical alterations in, during their conversion into silage (KELLNER), 1884, T., 612; (RICHARDSON), 1885, T., 80.  
 valuation of (EMMERLING), 1884, A., 100.  
 relative values of (v. KNIERIEM), 1890, A., 395.  
 production of so-called sweet (MACH), 1890, A., 82.  
 composition of (PETERMANN), 1883, A., 111; (VOELCKER), 1884, A., 630; (MARCKER), 1886, A., 645.  
 composition and relative digestibility of (LADD), 1886, A., 646.  
 composition of the fats of (STELLWAAG), 1890, A., 657.  
 amount of fat and albuminoids in (WAGNER), 1884, A., 631.  
 different, proportion of nitrogen in the form of amides, albumin and nuclein in (KLINKENBERG), 1883, A., 748.  
 acid, loss of nitrogen in (WOLL), 1890, A., 1339.  
 influence of, on the production of fat and lean in pigs (HENRY), 1888, A., 1319.  
 artificial digestion of (NIEBLING), 1890, A., 1451.  
 influence of heat on the digestibility of (STUTZER), 1891, A., 752.  
 action of hydrochloric acid and pepsin on the digestible albumin of (STUTZER), 1890, A., 651.  
 influence of sodium chloride on the digestion of albumin in (SIEWERT), 1888, A., 859.  
 feeding of cattle with dry (ANON.), 1883, A., 816.  
 for cows, value of (WALTHER), 1883, A., 820; (v. KNIERIEM), 1890, A., 395.  
 acid and compressed, analysis of (KONIG), 1890, A., 1477.  
 containing drying oils, apparatus for drying (FOERSTER), 1890, A., 670.

FEEDING EXPERIMENTS—

- Fodders**, estimation of fat in (BUHRING), 1888, A., 633; (PATTERSON), 1890, A., 930.  
 estimation of free fatty acids in (LOGES and CLAESSEN), 1891, A., 770.  
 estimation of starch in (LECLERC), 1890, A., 1197.  
 estimation of sugars and starch in (LADD), 1888, A., 748.  
**Grains**, dried beer, as horse fodder (SATTIG), 1886, A., 1066.  
**Grass**, first, and aftermath (RUFIN), 1883, A., 586.  
**Grasses**, composition and digestibility of the proteids of (EMMERLING and LOGES), 1890, A., 657.  
**Hay**, comparison of, with silage as fodder (BROEKEMA and MAYER), 1886, A., 737.  
 and silage from a poor quality of grass (SUTTON), 1883, A., 1026.  
 grown on marsh lands, nutritive value of (PETERSEN), 1885, A., 929.  
 digestibility of (LEHMANN and VOGEL), 1891, A., 595.  
 clover-, digestibility of, by the horse and sheep (v. WOLFF), 1885, A., 410.  
 clover- and meadow-, digestibility of, by the horse and sheep (v. WOLFF), 1885, A., 411.  
 meadow-, artificial digestion of (KERN), 1883, A., 1025; (v. WOLFF), 1885, A., 410.  
 treated with hot and cold water, digestibility of (KUHN), 1883, A., 816.  
**Hop foliage**, feeding value of (WEIN), 1886, A., 577.  
**Horse-chestnuts** as cattle food (KAEBLER), 1884, A., 1411.  
**Leguminosæ**, straw of, digestibility of (WEINKE), 1884, A., 432.  
**Linseed**, feeding value of (LANGLEBERT), 1884, A., 852.  
**Linseed cake**, adulteration of (KLIEN), 1885, A., 425.  
 estimation of fat in (KLOPSCH), 1888, A., 1349; (WRAMPMEYER), 1889, A., 1251.  
 estimation of oil and water in (BAESSLER), 1889, A., 321.  
**Lucerne**, digestibility of, by the horse and sheep (v. WOLFF), 1885, A., 410.  
**Lupine seeds**, purified, digestibility of, and the working power of the horse when fed with lupines and oats (KELLNER), 1883, A., 102.

FEEDING EXPERIMENTS—

- Lupines**, feeding cattle on (SEELING), 1884, A., 1211.
- Maize fodder**, experiments with, at Grignon, 1883 (DEHERAIN), 1884, A., 1070.  
composition of (RICHARDSON), 1885, T., 85; (SESTINI and DICOCO), 1885, A., 1087.  
hygienic action of (CHATIN), 1883, A., 488.  
dry and steeped, for sheep (MÜLLER), 1885, A., 1149.  
for horses (GERSSDORF), 1884, A., 355.
- Maize silage** (SCHULZE), 1887, A., 521; (JENKINS), 1889, A., 743; (ARMSBY and CALDWELL), 1891, A., 359.  
for cows (ANON.), 1884, A., 355; (ROSE), 1885, A., 1149.  
composition of (RICHARDSON), 1885, T., 85.
- Malt, barley and peas**, comparative feeding value of (VOELCKER), 1884, A., 206.
- Malt sprouts**, influence of, and the amides contained in them on the yield of milk (SCHRODT and HANSEN), 1885, A., 929.
- Mangels**, feeding value of various (MAYER), 1885, A., 1259.
- Oat-bran**, influence of, on the secretion of milk (SCHRODT and HANSEN), 1884, A., 854.
- Oats**, feeding value of (SANSON), 1884, A., 914; (MUNTZ and GIRARD), 1885, A., 281; (MÄCKER), 1889, A., 184.
- Oil-cakes**, examination of (DIRCKS), 1883, A., 245; (ANON.), 1883, A., 751.
- Palm-nut-cake and palm-nut-meal** (HOLDEFLEISS), 1884, A., 631.  
feeding cows with (SCHRODT), 1888, A., 174.
- Palm-nut-meal**, estimation of fat in (v. WILM), 1885, A., 290, 1164.
- Palm-oil residue as fodder** (MÄCKER), 1884, A., 355.
- Peas, barley and malt**, comparative feeding value of (VOELCKER), 1884, A., 206.
- Pentose carbohydrates**, digestibility of (STONE), 1892, A., 645, 653.
- Phosphate, bone**, used for cattle feeding, arsenic in (FRESENTUS), 1889, A., 548.
- Poppy-cake**, estimation of fat in (BAESSLER), 1890, A., 306.
- Potato spirit liquor**, composition of (KÜHN), 1891, A., 105.

FEEDING EXPERIMENTS—

- Potatoes**, digestibility of, with hay and oats by the horse (v. WOLFF), 1885, A., 72.
- Press-cake**, new process for preparing, from maize, etc. (BUROW), 1883, A., 695.
- Proteids of fodders** (WAGNER), 1884, A., 631; (STUTZER), 1891, A., 858.  
in peach kernels and sesame-cake (RITTHAUSEN), 1883, A., 360.  
relation of, to digestive ferments (STUTZER), 1887, A., 1129.  
relative digestibility of (LADD), 1889, A., 734.  
effect of certain organic acids on the digestion of (STUTZER), 1891, A., 751.  
influence of oil or fat on the digestibility of (STUTZER), 1891, A., 752.  
action of "saccharin" on the digestion of (STUTZER), 1890, A., 1450.  
artificial digestion of (STUTZER), 1890, A., 275.  
of grasses, digestibility and composition of the (EMMERLING and LÖHES), 1890, A., 657.  
nutritive value of (GABRIEL), 1890, A., 394.  
animal and vegetable, relative nutritive value of (RUTGERS), 1888, A., 515.  
in food rations of grown animals, effect of an increase in (KERN and WATTENBERG), 1891, A., 753.  
formation of nitrogenous organic bases by the decomposition of, in the vegetable organism (SCHULZE), 1891, A., 856.  
changes of, in silage (SCHULZE), 1888, A., 1329.
- Rape-cake**, adulteration of (KLIEN), 1885, A., 425.
- Rice-meal**, digestibility of (LEHMANN and VOGEL), 1891, A., 595.  
as food for cows (WOLDE), 1883, A., 820.
- Rice-straw**, digestibility of (KELLNER), 1890, A., 546.
- Rye, green**, digestibility of (FREAR), 1889, A., 735.
- Rye-meal** compared with earth-nut-meal as food for cows (MEYER), 1885, A., 1252.
- Serradella** at various ages, composition and digestibility of (WEISKE), 1884, A., 206.

# AGRICULTURAL CHEMISTRY.

## FEEDING EXPERIMENTS—

**Silage and ensilage** (TOMS), 1884, A., 864.  
 preparation of (KELLNER and SAWANO), 1890, A., 546.  
 composition of (SMETHAM), 1884, A., 770; (AITKEN), 1885, A., 1257.  
 experiments with, in Holland (THEIL), 1887, A., 1062.  
 experiments with, at Woburn (VOELCKER), 1890, A., 286.  
 experiments with various fodders (KIRCHNER), 1885, A., 422.  
 processes (CSERHÁTI), 1888, A., 522.  
 in the open air (BARTH), 1888, A., 523.  
 nitrogenous matters in (KINCH), 1884, T., 122.  
 feeding experiments with (LAWES), 1885, A., 1088, 1255.  
 comparison of, with hay as fodder (BROEKEMA and MAYER), 1886, A., 737.  
 and hay from a poor quality of grass (SUTTON), 1883, A., 1026.  
 changes which take place in the conversion of grass into (LLOYD), 1884, A., 772.  
 changes in fodder during (KELLNER and SAWANO), 1885, A., 1087.  
 chemical alterations in green fodder during its conversion into (KELLNER), 1884, T., 612; (RICHARDSON), 1885, T., 80.  
 changes occurring during (KELLNER, KOZAI and MORI), 1891, A., 1287.  
 changes of nitrogenous matter during (SCHULZE), 1888, A., 1329.  
 decomposition of organic ammoniacal compounds during (WOLL), 1889, A., 1030.  
 preservation of sliced beets in (LIEBSCHER), 1886, A., 275.  
 of beet-leaves, loss of weight in the (MÄRCKER), 1885, A., 423.  
 and acidification of green fodder (KÖNIG), 1885, A., 183.

## FEEDING EXPERIMENTS—

**Silage and ensilage** of frozen potatoes (FITTOGEN and FOERSTER), 1885, A., 184.  
 analyses of (KINCH), 1884, T., 124; (WEISKE), 1884, A., 1409; (AITKEN), 1885, A., 1257.  
**Sodium chloride**, influence of, on the digestion of albumin in fodders (SIEWERT), 1888, A., 859.  
**Spurrey silage** (MUNRO) 1886, A., 173.  
**Starch refuse** as fodder (SAARE), 1885, A., 1155.  
**Sugar** as an addition to cattle food (MÄRCKER), 1885, A., 1149; (HOLDEFLEISS), 1886, A., 727; (PFEIFFER and LEHMANN), 1887, A., 511.  
 feeding sheep with (HENNEBERG), 1885, A., 1252; (WERNER), 1886, A., 569.  
**Sunflower-seed-cake** as fodder for cows (SCHRODT and V. PETER), 1884, A., 483.  
**Swedes**, digestibility of (LEHMANN and VOGEL), 1891, A., 595.  
*Symphytum asperum*, comparative feeding value of (WEISKE), 1883, A., 613; (MÄRCKER), 1886, A., 646.  
**Vetches**, feeding value of some (DÖHN; NOBBE), 1883, A., 612.  
**Wheat-bran**, influence of, on the secretion of milk (SCHRODT and HANSEN), 1884, A., 854.  
 treated with hot and cold water, digestibility of (KÜHN), 1883, A., 816.  
**Wheat-chaff**, digestibility of, with different methods of preparation (KÜHN), 1884, A., 772.  
**Wheat-grain**, alimentary value of the different parts of (GIRARD), 1885, A., 678.  
**Wheat-meal**, nutritive value of (BLYTH), 1890, A., 396.  
**White mustard** as fodder (BRÜMMER), 1884, A., 864.  
**Woody fibre** as fodder (MÄRCKER), 1884, A., 864.

## PLANTS.

### PLANT COMPOSITION AND METABOLISM—

**Plants**, chemistry of (BALLÓ), 1884, A., 765.  
 histochemistry of (ROSOLL), 1884, A., 847.  
 chemical processes in (EMMERLING), 1884, A., 670.

### PLANT COMPOSITION AND METABOLISM—

**Plants**, development and absorption of heat by (BONNIER), 1886, A., 483.  
 heat and carbonic anhydride given out by (RODEWALD), 1888, A., 979.

PLANT COMPOSITION AND METABOLISM—

**Plants**, evolution of carbonic anhydride by, in absence of oxygen (WILSON), 1883, A., 105.  
interchange of material in amylaceous (MULLER), 1883, A., 497.  
blood pigment as a gauge of gaseous exchange in (ENGELMANN), 1889, A., 182.  
variations of the internal atmosphere of (PEYRON), 1889, A., 641.  
essential elements of (MUNRO), 1886, A., 389.  
constituents and properties of some aquatic (NIEDERSTADT), 1881, A., 108.  
influence of acids on the evolution of gases by (MANGIN), 1890, A., 190.  
formation of organic acids in (PAL-LADIN), 1888, A., 1126.  
acetic acid in (BORGMANN), 1883, A., 611.  
citric acid in (CLAASSEN), 1891, A., 129.  
formic acid in (BORGMANN), 1883, A., 611.  
oxalic acid in (BERTHELOT and ANDRÉ), 1885, A., 1164; 1886, A., 734; (WAKKER), 1888, A., 1126; (KOHLE), 1889, A., 191; (ACQUA), 1890, A., 1182; (MONTEVERDE), 1891, A., 857.  
aluminium in (YOSHIDA), 1887, T., 748; (RICCIARDI), 1890, A., 818.  
allantoin, asparagine, hypoxanthine and guanine in (SCHULZE and BOSSHARD), 1885, A., 1007.  
influence of carbohydrates on the accumulation of asparagine in (MONTEVERDE), 1892, A., 91.  
boron in (CRAMPON), 1889, A., 794; (BECHI), 1890, A., 636; (HOFFER), 1890, A., 1338.  
carbonates in (BERTHELOT and ANDRÉ), 1885, A., 1086.  
cholesterol in (SCHULZE), 1890, A., 1457.  
closed carbon chains, formation of, in (SEMMLER), 1891, A., 655.  
diastase, function of, in (WORTMANN), 1891, A., 856.  
action of diastase on starch grains within (KRABBE), 1891, A., 605; 1892, A., 92.  
glycogen in (ERRERA), 1884, A., 351.  
guanidine in (SCHULZE), 1892, A., 903.  
gum in, which yields xylose (HILBERT), 1892, A., 1371.  
solid hydrocarbons in (ABBO and TRIMBLE), 1888, A., 1329; (GUTZEL), 1889, A., 68.

PLANT COMPOSITION AND METABOLISM—

**Plants**, hydrochloric acid, formation of, in (DERMER), 1885, A., 683.  
elements of lactose in (MUNZ), 1886, A., 575, 613.  
lecithin in (HECKEL and SCHLAUDENHAUFFEN), 1886, A., 1064; (SCHULZE and FREIGER), 1889, A., 645.  
manganese in (MAUMENÉ), 1885, A., 421; (CAMPANI), 1885, A., 832.  
methyl alcohol from (MAQUENNE), 1886, A., 274.  
nitrogen necessary for (THAER), 1885, A., 75.  
nitrogen, sources of the, of (DIETZEL), 1885, A., 418; (LAWES and GILBERT), 1888, A., 745; 1892, A., 367; (HELLRIEGEL and WILFARTH), 1889, A., 640; (SCHMITTER), 1890, A., 1023.  
rain as a source of nitrogen for (TUXEN), 1892, A., 238.  
nitrogen, absorption of, by (BOUFLÉ-LEAU), 1884, A., 1401; (ARWATER), 1885, A., 1005; 1887, A., 515; (HELLRIEGEL and WILFARTH), 1888, A., 742; (GAUJER and DROUIN), 1888, A., 746, 871, 1127; (CHEVREUL; WILFARTH), 1888, A., 979; (BERTHELOT), 1888, A., 1330; (BRÉAL), 1888, A., 1330; 1890, A., 79, 660; 1892, A., 1508; (LAWES and GILBERT), 1890, A., 814; 1892, A., 367; (PETERMANN), 1890, A., 816; (ARWATER and WOODS), 1891, A., 353, 491; (SCHLESING and LAURENT), 1891, A., 353; 1892, A., 373, 523, 1021; (PRZYMOWSKI), 1891, A., 607; (FRANK), 1891, A., 764; 1892, A., 370, 1507; (FRANK and OIRO), 1891, A., 855; (NOBBE, SCHMID, HILFNER and HOFFER), 1891, A., 1533; (BEYERINCK), 1891, A., 1539; 1892, A., 1019; (IMMENDORFF), 1892, A., 374.  
gain of nitrogen by (DEHRAIN), 1883, A., 373, 749; (LAWES), 1889, A., 922.  
loss of nitrogen by, during germination and growth (ARWATER and ROCKWOOD), 1887, A., 292.  
maintenance and increase of the amount of nitrogen in (KONIG), 1888, A., 523.  
a nitrogenous constituent of (SCHULZE and BOSSHARD), 1886, A., 157.  
nitrogenous compounds in (SCHULZE), 1886, A., 955.

PLANT COMPOSITION AND METABOLISM—

**Plants**, absorption of nitrogenous food-stuffs by (ATWATER), 1884, A., 1401; (MOLISCH), 1887, A., 989.  
 nitrates, formation of, in (BERTHELOT and ANDRÉ), 1885, A., 581; (GOSSELS), 1887, A., 389; (BERTHELOT), 1890, A., 543.  
 are nitrates formed in the organism of? (KREUSLER), 1887, A., 686; (SCHULZE), 1887, A., 859.  
 nitrates, elaboration of, in (LOEW), 1890, A., 1182.  
 nitric acid, origin and fate of, in (FRANK), 1888, A., 979.  
 nitrites in (MOLISCH), 1887, A., 989; (MODDERMAN), 1889, A., 295.  
 evolution of ammonia and volatile nitrogen compounds from (BERTHELOT), 1889, A., 1238.  
 oxidation in (REINKE), 1888, A., 741.  
 rôle of oxygen in (PALLADIN), 1888, A., 1125.  
 exhalation of oxygen by fleshy-leaved, in absence of carbonic anhydride (MAYER), 1887, A., 988.  
 emission of oxygen by, in coloured light (PRINGSHEIM), 1886, A., 642.  
 easily oxidisable constituents of (REINKE), 1888, A., 880.  
 pectic compounds in (MANGIN), 1890, A., 80.  
 phloroglucinol, formation of, in (WAAGE), 1891, A., 605.  
 phloroglucinol, function of, in (WAAGE), 1892, A., 1120.  
 phosphorus in (BERTHELOT and ANDRÉ), 1888, A., 384, 743.  
 potassium in (BERTHELOT and ANDRÉ), 1888, A., 190.  
 proteins, formation of, in (EMMERLING), 1885, A., 289; 1887, A., 615; (MULLER), 1887, A., 70; (CHRAPOWITZKI), 1888, A., 868.  
 proteid substance in the latex of (GREEN), 1886, A., 828.  
 proteins, decomposition of, in, kept in the dark (SCHULZE and KISSER), 1889, A., 642.  
 proteins, products of the decomposition of, in (PALLADIN), 1889, A., 642.  
 protophyllin in etiolated (TIMIRIAZOFF), 1889, A., 1236.  
 sodium chloride in (LESAGE), 1892, A., 651.  
 starch in. See Carbohydrates in Main Index.  
 sucrose, formation of, in etiolated (SCHULZE), 1890, A., 282.

PLANTS—

**Plants**, sulphur in (BERTHELOT and ANDRÉ), 1888, A., 384; 1891, A., 606.  
 substance containing sulphur in cruciferous (SMITH), 1888, A., 869.  
 tannin in (WAAGE), 1891, A., 770.  
 tannin, function of, in (KUTSCHER), 1884, A., 628; (BÜSGEN), 1890, A., 819; 1891, A., 104.  
 distribution of water in heliotropically inclined parts of (THADE), 1884, A., 352.  
 of different species, experiments in grafting between (STRASBURGER), 1886, A., 645.  
**Ash** of bracken (*Pteris aquilina*), of broom (*Genista pilosa*) and of *Erica vulgaris*, composition of (PETERMANN), 1884, A., 207.  
 of the Equisetaceæ (DIEULAFAIT), 1885, A., 583.  
 of flowering plants, aluminium in (YOSHIDA), 1887, T., 748.  
 of leaves grown in the earth and under water culture (COUNCLER), 1884, A., 98.  
 of strawberries (MUNRO), 1885, A., 183.  
 of sugar beet, rare constituents of (V. LIPPMANN), 1889, A., 295.  
 distribution of, in trees (WEBER), 1888, A., 742.  
 of seeds of forest trees (HORNBERGER), 1884, A., 353; 1885, A., 1255.  
 of wheat-grain and wheat-straw grown at Rothamsted under different seasons and manures, composition of (LAWES and GILBERT), 1884, T., 305.  
 estimation of chlorine in (JOLLES), 1889, A., 73.  
 wood-, composition of (WAGNER), 1885, A., 834.  
**Cells**, chemico-microscopical researches on (GRIFFITHS), 1883, T., 195.  
 chemical composition of the membrane of (SCHULZE), 1889, A., 916; 1890, A., 1456; 1891, A., 288, 1178; 1892, A., 907; (SCHULZE, STEIGER and MAXWELL), 1890, A., 283.  
 deprived of starch, behaviour of formose in contact with (WEHMER), 1888, A., 739.  
 action of various gases, especially nitrous oxide, on (DERMER), 1883, A., 105.

PLANTS—

**Cells**, production of oxygen by (PRINGSHEIM), 1888, A., 741.  
 elimination of oxygen from (ENGELMANN), 1883, A., 105.  
 dependence of the assimilation of, on their respiration of oxygen (PRINGSHEIM), 1888, A., 185.  
 oxidation in (PFEFFER), 1889, A., 1028.  
 autoxidation in (REINKE), 1883, A., 819.  
 oxidation in dead (JOHANNSEN), 1883, A., 741.  
 iron sulphate in (GRIFFITHS), 1883, T., 195.  
 behaviour of, with alkaline silver solution (LOEW and BOKORNY), 1890, A., 401.  
 liberation of silver by (BOKORNY), 1888, A., 980.  
 reduction of silver nitrate by (PFEFFER), 1889, A., 1028.  
 absorption of aniline colours by (PFEFFER), 1887, A., 747.  
 part played by vegetable acids in causing the turgescence of (DE VRIES), 1884, A., 1064.  
 epidermis of, structure and functions of the (WESTERMAIER), 1884, A., 1066.  
 sap of. See Sap.  
**Chlorophyll** (MAYER), 1884, A., 1366;  
 (SCHIMPER), 1884, A., 1367;  
 (GUIGNET), 1885, A., 551;  
 (SCHUNCK), 1885, A., 1241;  
 1887, A., 972; 1889, A., 279;  
 (JODIN), 1886, A., 476;  
 (TSCHIRCH), 1887, A., 1116;  
 (WOLLHEIM), 1888, A., 723.  
 in the living cell and assimilation of carbon (REINKE), 1885, A., 182.  
 from the deep sea (HARTLEY), 1886, A., 367.  
 in sponges, etc. (MACMUNN), 1887, A., 613.  
 conditions of the development, and of the activity of (GILBERT), 1886, A., 92.  
 influence of phosphoric acid on the formation of (LOEW), 1892, A., 1261, 1372.  
 pure, preparation of (TSCHIRCH), 1884, T., 57.  
 constitution of (SCHUNCK), 1884, A., 666.  
 a compound of iron with a glucoside (GRIFFITHS), 1884, A., 848.  
 absorption spectrum of (STENGER), 1887, A., 698.

PLANTS—

**Chlorophyll**, spectra of blue and yellow (HARTLEY), 1890, P., 161; 1891, T., 106.  
 chemical and physiological action of light on (TIMIRIAZEFF), 1883, A., 697; 1885, A., 714.  
 activity of, under the ultra-violet rays (BONNIER and MANGIN), 1886, A., 387.  
 solution, destruction of, by light (REINKE), 1885, A., 991.  
 crystals of (MONTEVERDE), 1892, A., 1355.  
 functions of (NAGAMATZ), 1887, A., 516.  
 decomposition of carbonic anhydride by (REGNARD), 1886, A., 254; (TIMIRIAZEFF), 1886, A., 626; (JODIN), 1886, A., 648; (PRINGSHEIM), 1887, A., 685.  
 relation between the assimilation and transpiration produced by (JUMELLE), 1890, A., 190.  
 colouring matters of (BORODIN), 1884, A., 910; (SACHS), 1885, A., 670; (HANSEN), 1890, A., 171; (IMMENDORFF), 1890, A., 641; (MONTEVERDE), 1892, A., 1355.  
 function of the colouring matter of (HANSEN), 1888, A., 867.  
 estimation of (HANSEN), 1886, A., 1083.  
 estimation of, in leaves and in extracts (TSCHIRCH), 1890, A., 672.  
 separation of blue and yellow (HARTLEY), 1891, T., 109.  
 extracts, analysis of (EPARD), 1892, A., 1136.  
 compounds (GUIGNET), 1885, A., 551.  
 granules, formation of starch in (BELLUCI), 1887, A., 1136.  
**Chlorophyll-group**, synonymy of certain bodies of the (TSCHIRCH), 1884, T., 60.  
**Chlorophyllan** (TSCHIRCH), 1884, T., 58; (WOLLHEIM), 1888, A., 723.  
 nature of (ETARD), 1892, A., 1136.  
**Leaves**, composition of (URBAIN), 1884, A., 862.  
 activity of assimilation by (v. SACHS), 1885, A., 289.  
 respiration of, in the dark (BONNIER and MANGIN), 1884, A., 857; (DEHÉRAIN and MAQUENNE), 1886, A., 170, 273.  
 absorption of carbonic anhydride by (DEHÉRAIN and MAQUENNE), 1886, A., 1062; 1887, A., 172.

PLANTS—

- Leaves**, evolution of carbonic anhydride and absorption of oxygen by, in the dark (DEHÉRAIN and MAQUENNE), 1885, A., 927.  
 effect of light on etiolated (PALLADIN), 1892, A., 521.  
 acquisition of green colour and growth of etiolated (PALLADIN), 1892, A., 520.  
 colour of, in relation to the assimilation of carbon (ENGELMANN), 1888, A., 381.  
 colouring matter of (SACHS and ARNAUD), 1885, A., 670.  
 amylase, presence of, in (BRASSE), 1885, A., 182.  
 ash of, grown in the earth and under water culture (COUNCLER), 1884, A., 98.  
 formation and migration of carbohydrates in (SCHIMPER), 1886, A., 826; (SAPOSCHNIKOFF), 1891, A., 763.  
 carotene in (ARNAUD), 1887, A., 859; 1890, A., 285.  
 compounds accompanying chlorophyll in (ETARD), 1892, A., 746.  
 gases, variations in the composition of, in (PEYROU), 1886, A., 273.  
 gas in floating and submerged (GRÉHANT and PEYROU), 1885, A., 1153.  
 calcium oxalate, formation of, in (SCHIMPER), 1888, A., 981.  
 oxalates, absence of, in young (WEHMER), 1892, A., 651.  
 oxygen, variations in the amount of, in (PEYROU), 1889, A., 641.  
 silicic acid, alleged decomposition of, by (DENARO), 1887, A., 70.  
 metastasis in (V. SACHS), 1885, A., 831.  
 starch, solution of, in (BRASSE), 1886, A., 827.  
 influence of internal causes on the presence of starch in (MER), 1891, A., 604.  
 supplied with sugars, mannitol and glycerol, formation of starch in (MEYER), 1886, A., 902.  
 amount of proteids in green and etiolated (PALLADIN), 1892, A., 520.  
 tannin, rôle of, in (KRAUS), 1889, A., 917.  
 reserve materials, especially tannin, in evergreen (SCHULZE), 1889, A., 540.

PLANTS—

- Leaves**, withering of (WIESNER), 1884, A., 918.  
 detection of starch in green (v. SACHS), 1885, A., 831.  
 estimation of chlorophyll in (TSCHIRCH), 1890, A., 672.  
**Protoplasm**, living vegetable (BOKORNY), 1890, A., 283.  
 living, chemical character of (LOEW), 1883, A., 819.  
 morphological and chemical composition of (SCHWARTZ), 1888, A., 983.  
**Roots**, composition of (URBAIN), 1884, A., 861.  
 acid juice excreted by (MOLISCH), 1889, A., 68.  
 secretions of, properties of (MOLISCH), 1890, A., 656.  
 result of the removal of leaves of (GEIBEL), 1883, A., 613.  
 influence of the amount of soil on the development of (HELLRIEGEL), 1884, A., 626.  
 deviation of, from normal growth (*aerotropism*) (MOLISCH), 1885, A., 1153.  
**Sap**, cell (SCHWARTZ), 1888, A., 983.  
 acidity of (KRAUS), 1884, A., 1209; (LANGE), 1888, A., 744.  
 in plants, theory of the circulation of (GODLEWSKI), 1885, A., 927.  
 albumin in (LOEW and BOKORNY), 1888, A., 983.  
 easily oxidisable substances in (KRAUS), 1884, A., 918.  
 from a silver birch tree (ATFIELD), 1883, A., 1164.  
 of the birch and hornbeam (HORNBERGER), 1888, A., 313.  
 estimation of the combined acids in (DE VRIES), 1885, A., 1014.  
**Seeds**, solubility of the constituents of (MAXWELL), 1889, A., 1028.  
 germinative power of, after exclusion of air and drying at high temperatures (WILHELM), 1886, A., 171.  
 ripening of (MUNTZ), 1887, A., 173.  
 for permanent pasture (WILSON), 1889, A., 1084.  
 of various sizes, plants from (HELLRIEGEL), 1884, A., 352.  
 action of hydrocyanic acid on (SCHÄR), 1886, A., 575.  
 valuation of (MAYER), 1884, A., 200.  
 carbohydrates in (MAXWELL), 1889, A., 644; 1890, A., 544, 917; (SCHULZE), 1889, A., 916.

PLANTS—

- Seeds**, lecithin in (SCHULZE and STEIGER), 1889, A., 645; (MAXWELL), 1891, A., 511.  
 ratio of nitrogen to phosphoric acid in (HEIDEN), 1884, A., 1404.  
 nitrogenous bases in (SCHULZE), 1891, A., 490.  
 proteids, micro-chemical detection of, in (SZYMANSKI), 1886, A., 1088.  
 leguminous, composition of (WAGGE), 1887, A., 991; (SCHULZE, STEIGER and MAXWELL), 1891, A., 1541.  
 citric acid in (RITTHAUSEN), 1884, A., 1304.  
**Fibres**, composition of (WEBSTER), 1883, T., 25.  
 See also Main Index.  
**Tissue**, constituents of (URBAIN), 1884, A., 858.  
 albumin in (KRASSER), 1887, A., 407.  
 nature of the gases contained in (BOHM), 1884, A., 670.  
 behaviour of, towards gases (BOHM), 1884, A., 1250.  
 saccharification in (BONDONNEAU and FORER), 1888, A., 41.  
 physiological signification of tannin in (WESTERMAIER), 1888, A., 187.  
 testing for nitric acid in (ARNAUD and PADÉ), 1884, A., 1074.  
**Respiration** (GODLEWSKI), 1883, A., 498; (MOLLER), 1885, A., 832; (KREUSLER), 1888, A., 186, 742; (MANGIN), 1890, A., 190.  
 chemical phenomena of (PHIPSON), 1884, A., 1403; 1885, A., 420.  
 intramolecular (PFEFFER), 1886, A., 170; (JENTYS), 1887, A., 686.  
 molecular (DIKONOFF), 1887, A., 988.  
 under abnormal conditions (JOHANNSEN), 1886, A., 575.  
 method of observing (KREUSLER), 1886, A., 574.  
 evolution of carbonic anhydride and absorption of oxygen by, in the dark (DEHÉRAIN and MAQUENNE), 1885, A., 927.  
 in the dark (BONNIER and MANGIN), 1884, A., 857; (DEHÉRAIN and MAQUENNE), 1886, A., 170, 273.  
 influence of light on (BONNIER and MANGIN), 1884, A., 1066.  
 effects of light on the respiration of oxygen by (REINKE), 1884, A., 916.

PLANTS—

- Respiration** of oxygen by, dependence of the assimilation of green cells on the (PRINGSHEIM), 1888, A., 185.  
 under lessened oxygen tension and when injured (STRICH), 1892, A., 1259.  
 transformation of force and of material in (RODEWALD), 1889, A., 540.  
 of aquatic and submerged aero-aquatic (BARTHÉLEMY), 1888, A., 747.  
 continuation of, in dead vegetable cells (JOHANNSEN), 1888, A., 741.  
 of the cells of yeast (SCHUIZENBERGER), 1884, A., 857.  
 of the cells of yeast, at different temperatures (GRÉHANI and QUINQUAUD), 1888, A., 623.  
**Transpiration** in, in the tropics (MARCANO), 1884, A., 1403.  
**Transpiration** of, relation between the assimilation and, produced by chlorophyll (JUMELLE), 1890, A., 190.  
**Plant-growth** under special conditions (GRIFFITHS), 1883, A., 496.  
 influence of light and heat on (HELLRIEGEL), 1884, A., 855, 1206.  
 influence of rays of the spectrum on (A. B. GRIFFITHS), 1884, T., 74; (A. B. and F. E. GRIFFITHS), 1888, A., 623.  
 influence of the electric light on (DLHLRAIN), 1883, A., 105.  
 influence of radiant heat on (WORMANN), 1884, A., 626.  
 thermic constants in (STAUB), 1884, A., 1067.  
 nitrogen necessary for (THAER), 1885, A., 75.  
 nitrogen, loss of, during (ATWATER and ROCKWOOD), 1887, A., 292.  
 alkaloids, action of, on (MARCACCI), 1887, A., 859.  
 effect of altitude on (ANGOT), 1884, A., 627.  
 effects of atmospheric deposits on (WOLLNY), 1888, A., 316.  
 influence of climate and soil on (WOLLNY), 1884, A., 624.  
 ether, action of, on (BRENTSTEIN), 1888, A., 624.  
 ferrous oxide in basic slag, influence of the, on (MUNRO), 1887, A., 178.  
 ferrous oxide in soil, action of the, on (KELLNER), 1886, A., 480.

PLANTS—

**Plant-growth**, hydroxylamine salts, action of, on (MEYER and SCHULZE), 1884, A., 1210.  
lime, influence of, as a soil constituent on (HILGARD), 1888, A., 318.  
moisture, influence of, in soils on (HELLRIEGEL), 1885, A., 421.  
effect of mowing and feeding-off on (WOLLNY), 1884, A., 625.  
migration of nitrates in (CAPUS), 1886, A., 484.  
compressed oxygen, influence of, on (JENTYN), 1888, A., 1125.  
oxygen, effect of variations in the quantity of, on (WIELEK), 1884, A., 625.  
action of rain, dew and watering on (WIESNER), 1884, A., 766.  
soil, influence of the composition of the, on (VILLE), 1890, A., 81; (RAULIN), 1892, A., 1121.  
influence of constant temperature in the soil on (HELLRIEGEL), 1884, A., 916.  
soil, influence of the sterilisation of, on (TSCHIRCH), 1888, A., 985.  
effect of depth of sowing on (WOLLNY), 1884, A., 1404.  
influence of, on the undergrowth (WOLLNY), 1885, A., 77.  
water, influence of, on (HELLRIEGEL), 1884, A., 1401.  
effects of running water on (JONSSON), 1885, A., 419.  
action of water containing sodium chloride on (STOOD), 1889, A., 795.  
action of water containing sodium chloride and zinc sulphate on (KRAUCH), 1883, A., 1027; (STORF), 1884, A., 856.  
action of zinc salts in the soil on (NOBBE), 1884, A., 1407; (BAUMANN), 1884, A., 1408.  
supply of food constituents at different periods of (LIEBSCHER), 1888, A., 382.  
**Plant-nutrition**, ammonia in (MÜNTZ), 1890, A., 287.  
absorption of ammonium salts by plants (PAGNOUL), 1891, A., 1545; (GRIFFITHS), 1892, A., 229.  
function of ammonium salts in (MÜNTZ), 1890, A., 79.  
assimilation of asparagine by plants (BAESSLER), 1886, A., 1061.  
assimilation and colour (ENGELMANN), 1883, A., 819.  
activity of assimilation by leaves (v. SACHS), 1885, A., 289.  
first product of (MORI), 1883, A., 365.

PLANTS—

**Plant-nutrition**, influence of chemical agents on the assimilative capacity of plants (WEYL), 1883, A., 611.  
calcium and magnesium oxides in plants (v. RAUMER), 1884, A., 917.  
assimilation of carbon by plants (GRIFFITHS), 1884, A., 202.  
colour of leaves in relation to the assimilation of carbon (ENGELMANN), 1883, A., 381.  
assimilation of carbon from certain compounds by plants (ACTON), 1890, A., 818, 1021.  
relation between the intensity of radiation and the decomposition of carbonic anhydride by plants (TIMIRIAZEFF), 1889, A., 1234.  
chlorine, importance of, in (FARKY), 1883, A., 497; (ASCHOFF), 1890, A., 1182.  
plants deprived of chlorophyll, decomposition of carbonic anhydride by (HUTTE), 1883, A., 1125.  
plants free from chlorophyll acting like chlorophyll-containing plants (HUEPPE), 1888, A., 623.  
plants containing chlorophyll, direct assimilation of vegetable remains by (KORH), 1888, A., 739.  
chlorophyll, functions of (NAGAMATZ), 1887, A., 516.  
chlorophyll in the living cell and assimilation of carbon (REINKER), 1885, A., 182.  
chlorophyll, action of, on carbonic anhydride when removed from vegetable cells (REGNARD), 1886, A., 254.  
chlorophyll and the reduction of carbonic anhydride by plants (TIMIRIAZEFF), 1886, A., 626.  
formaldehyde, rôle of, in (LOEW), 1889, A., 640; (BOKORNY), 1892, A., 1259.  
substitution of manganese for iron in (SPAMPANI), 1891, A., 1394.  
metallic oxides, absorption of, by plants (PHILLIPS), 1883, A., 231.  
assimilation of mineral salts by plants (SCHIMPER), 1891, A., 604.  
nitrates as food for ferments and other plants (LAURENT), 1891, A., 1135.  
are nitrates essential to? (PITSCH), 1883, A., 84.  
behaviour of nitric acid in (SERNO), 1890, A., 1021.  
nitrogen necessary for (THAER), 1885, A., 75.  
sulphur, function of, in (BERTHELOT and ANDRÉ), 1891, A., 606.

PLANTS—

**Plant-nutrition**, absorption of the non-alimentary substances in (KNOP), 1886, A., 171.  
concentrated nutritive fluid for (KNOP), 1884, A., 1205.  
absorption and digestion of fat oils in (SCHMIDT), 1892, A., 1118.  
phosphoric acid in (BERTHELOT and ANDRÉ), 1888, A., 743.  
phosphoric acid, assimilation of, by plants (DEHÉRAIN), 1892, A., 223.  
phosphoric acid of basic slag, assimilation of the, by plants (PETERMANN), 1889, A., 647.  
potassium, rôle of, in (LUPEL), 1890, A., 917.  
salts, absorption of, in (BERTHELOT and ANDRÉ), 1888, A., 739.  
sodium in (ATTERBERG), 1892, A., 1508.

**Plant diseases** and their prevention (DANGER), 1883, A., 110; (NIESING), 1883, A., 612.

chlorosis in (v. SACHS), 1887, A., 76.

**Plants**, damage done to, by acid vapours (v. SCHROEDER), 1885, A., 76;  
(JUST and HEINE), 1889, A., 795.

by kiln smoke (PREVOST), 1888, A., 744.

by sulphurous anhydride (JUST), 1888, A., 318; (MACH), 1888, A., 745.

by arsenic, lead and zinc (NOBBE), 1884, A., 1407.

by copper compounds (FORMENTO), 1891, A., 491.

by lithium salts (GAUNERSDORFER), 1887, A., 991.

by poisoning (KRAUCH), 1883, A., 612.

by potassium chloride (MUNRO), 1886, A., 389.

protection of, against frost (GOPPERT), 1884, A., 1067.

function of resins in injury to (DE VRIE), 1883, A., 365.

**Embryos** of ungerminated rye, composition of (NACHBAUR), 1883, A., 107.

of wheat, composition of, and presence of sugar and allantoin in (RICHARDSON and CRAMPTON), 1886, A., 734.

**Enzymes—**

amylase, presence of, in leaves (BRASSE), 1885, A., 182.

diastase, genesis of two varieties of, in resting and germinating seeds (BROWN and MORRIS), 1890, T., 505.

PLANTS—

**Enzymes—**

diastatic ferments, formation of, in the cells of plants (DETMER), 1884, A., 917, 1063, 1403.

diastatic ferment of ungerminated wheat (LINTNER), 1890, A., 650.  
in flour (BALLAND), 1884, A., 236, 532.

existence of a cellulose-dissolving (*cytohydrolust*), in the germinating seed of grasses (BROWN and MORRIS), 1890, T., 497; P., 52.

hydrolytic, of germinated grain, origin of (BROWN and MORRIS), 1890, T., 511; P., 52.

fat-decomposing ferments in plants (SIGMUND), 1890, A., 1455; 1892, A., 1261.

proteolytic and other ferments in oats (ELLENBERGER and HOFMEISTER), 1888, A., 867.

ferments in the latex of (HANSEN), 1886, A., 1059.

**Plant-germination** in soil rich in organic matter, but free from microbes (DUCLAUX), 1885, A., 428.

after exclusion of air and drying at high temperatures (WILHELM), 1886, A., 171.

light, influence of, on (CIENLAR), 1885, A., 419.

intermittent heat, influence of, on (v. LIEBENBERG), 1885, A., 419.

relation between chemical metamorphosis and transformation of forces during (RODEWALD), 1884, A., 1207.

genesis of two varieties of diastase in resting and germinating seeds in (BROWN and MORRIS), 1890, T., 505.

changes in the embryo and endosperm during (BROWN and MORRIS), 1890, T., 466.

choline in (SCHULZE), 1887, A., 747.

nitrogen, loss of, during (ATWATER and ROCKWOOD), 1887, A., 292.

proteids, changes in, during (GREEN), 1887, A., 987.

transformation of alkaloids during (HECKEL), 1890, A., 543.

formation of amides during, in the dark (SCHULZE and FLECHSIG), 1886, A., 90.

sulphates, formation of, in (SCHULZE), 1885, A., 1153.

fate of sulphur in (TAMMANN), 1885, A., 1004.

PLANTS—

**Plant-germination**, conversion of starch during (MARCACCI), 1891, A., 357.

mode of solution of reserve cellulose during (REISS), 1891, A., 356.

action of boric acid on (MOREL), 1892, A., 651.

influence of camphor on (BURGERSTEIN), 1888, A., 742.

influence of carbonic oxide on (LINOSSIER), 1889, A., 645, 739.

effect of depth of sowing on (WOLLNY), 1884, A., 1404.

effect of drying on (VAN TIEGHEM and BONNIER), 1884, A., 629.

behaviour of fatty substances and lecithins during (MAXWELL), 1891, A., 489.

part played by lime in (v. LIEBENBERG), 1883, A., 490.

influence of magnesium and calcium chlorides on (HYNDORF), 1888, A., 1126.

influence of oxygen on the disengagement of carbonic anhydride during (JOHANNSEN), 1886, A., 274.

influence of ozone on (VOGEL), 1887, A., 516.

action of saline solutions on (JARIUS), 1886, A., 90.

effect of steeping and drying on (WILL), 1883, A., 490.

influence of vegetable poisons on (CORNEVIN), 1892, A., 223.

germinator, a new (KONIG), 1885, A., 419.

**Forests** as a protection against hailstorms (GLASER), 1884, A., 632.

comparative meteorological observations in (FANKHAUSEN), 1883, A., 614.

oxygen in the air of (EBERMAYER), 1886, A., 1066.

**Vegetation**, physiological function of soluble starch in (DUFOUR), 1886, A., 903.

action of long days on (SCHUBELMER), 1885, A., 419.

influence of weather on (HILLEBRAND), 1884, A., 856.

PLANTS—

*Agrostemma Githago*. See Corn-cockle.

**Almonds**, sweet, germination of (JORISSEN), 1885, A., 181.

distribution of amygdalin and emulsin in (JOHANNSEN), 1888, A., 869.

PLANTS—

*Alnus glutinosa*, calcium oxalate in the leaves of (WEHMER), 1890, A., 191.

**Anemones**, volatile constituents of (BECKURTS), 1886, A., 365.

**Apple tree leaves**, composition of (SHUTT), 1892, A., 1372.

**Apples**, composition of some cider (LEZÉ), 1884, A., 203.

**Apple-must**, examination of, and of the cider obtained therefrom (KAYNER), 1884, A., 98.

**Artichokes**, inulin in (PISTONE and DE REGIBUS), 1884, A., 284.

Jerusalem, composition and cultivation of (LECHARTIER), 1892, A., 1024.

germination of (GREEN), 1890, A., 656.

**Asparagus**, conifein and vanillin in (v. LIPPMAHN), 1886, A., 387.

**Barley**, continuous cultivation of, at Woburn (VOELCKER), 1884, A., 482.

crop of 1883, experimental (AIKEN), 1885, A., 1259.

growth of, from varieties of seed (MARCKER), 1886, A., 274.

manuring of (KLAWITTER; WATERLING), 1884, A., 1419; (v. LIEBENBERG), 1888, A., 189; (HANAMANN), 1889, A., 743.

manuring of, with nitrogen and phosphates (MARCKER), 1884, A., 925.

manuring of, with sodium nitrate (MARCKER), 1885, A., 1169.

composition of (ANON.), 1884, A., 233; (KLIEN), 1887, A., 73.

influence of manures on the composition of (KRANDAUER), 1888, A., 870.

American, composition of (ANON.), 1884, A., 1405; (RICHARDSON), 1887, A., 616.

mealy and steely, composition of (JOHANNSEN), 1888, A., 748.

Saxon, composition of (MARCKER), 1884, A., 630.

grown at Württemberg in 1887, composition of (BEHREND), 1888, A., 1331.

distribution and condition of iron in (PETIT), 1892, A., 1509.

nitrogenous constituents of (LINTNER), 1884, A., 790; (BUNGENER and FRIES), 1884, A., 1446.

non-nitrogenous extract-substance from (LINTNER), 1891, A., 957.

# AGRICULTURAL CHEMISTRY.

## PLANTS—

- Barley**, raffinose in (O'SULLIVAN), 1885, P., 119; 1886, T., 70.  
sugars of (O'SULLIVAN), 1886, T., 58.  
starch in (O'SULLIVAN), 1881, T., 4; (V. MILKOWSKI), 1890, A., 928.  
influence of calcium sulphide on (FITZBOGEN), 1885, A., 1154.  
change in, during germination (FANKHAUSER), 1886, A., 1061; 1888, A., 867.  
change in the nitrogenous substances of, during germination (HILGER and VAN DER BECKE), 1891, A., 489.  
influence of temperature on germinating (DAY), 1891, T., 664; P., 123.  
culture of excised embryos of, on nutrient solutions and on water (BROWN and MORRIS), 1890, T., 482.  
**Barley-grain**, structure of (BROWN and MORRIS), 1890, T., 461.  
of different countries, comparison of (MARX), 1885, A., 422.  
**Bassia latifolia** (*Mahoea flowers*) (CHURCH), 1886, A., 339; (HECKEL and SCHLAGDENHAUFFEN), 1889, A., 434.  
seeds of, and the fat contained therein (VALENZA), 1884, A., 919.  
**Bean crop** of 1884, experimental (AITKEN), 1885, A., 1258.  
**Beans**, iron sulphate as a manure for (GRIFFITHS), 1887, T., 219.  
composition of varieties of, grown under like conditions (FLECHSIG), 1886, A., 95.  
assimilation of nitrogen by (DEYERINCK), 1891, A., 1539.  
fat from (JACOBSON), 1889, A., 295.  
**Beetroot** (sugar-), cultivation of (RIMPAU; LADUREAU), 1883, A., 114; (V. KOETH), 1883, A., 1026; (CRANE), 1884, A., 203; (NOWOCZEK), 1884, A., 921; (MÄRCKER), 1884, A., 1211; (DEHÉRAIN), 1885, A., 184, 423; (LIEBSCHER), 1885, A., 424; (CORENWINDER), 1885, A., 685.  
cultivation of, at Grignon (DEHÉRAIN), 1884, A., 204, 1070; 1885, A., 423; 1888, A., 333; 1889, A., 542; 1890, A., 820; 1891, A., 493.  
varieties of (MÄRCKER), 1884, A., 865.

## PLANTS—

- Beetroot**, shaded and unshaded (LACH), 1885, A., 1155.  
influence of soil, size of seed, period of sowing, etc., on the quality and yield of (MAREK), 1884, A., 103.  
manuring of (BESLER), 1883, A., 238; (TSCHUSCHKE), 1883, A., 823; (HOLDELEISS), 1884, A., 103, 773; (NANTIER), 1884, A., 635; (DEHÉRAIN), 1884, A., 773; (NOWOCZEK), 1884, A., 921; (PETERMANN), 1884, A., 1420; (PAGNOUL), 1887, A., 748; (KOHLEAUSCH and STROHMEN), 1890, A., 1022.  
with ammonium sulphate (DEHÉRAIN), 1884, A., 491; (ANON.), 1884, A., 637; (MÜLLER), 1884, A., 1418.  
with basic slag (v. PROSKOWITZ), 1888, A., 319.  
with peat compost and sodium nitrate (KUNTZE), 1885, A., 429.  
with phosphates (LADUREAU), 1885, A., 1157; (MÄRCKER), 1891, A., 612.  
with potassium chloride on heavy soil (PETERMANN), 1888, A., 1128.  
with sodium nitrate (DEHÉRAIN), 1884, A., 491; (ANON.), 1884, A., 637; (MÜLLER), 1884, A., 1418.  
with superphosphate (NANTIER), 1886, A., 332; 1887, A., 295.  
valuation of, by its density (v. WACHTEL), 1884, A., 118.  
relations between the density, the richness in sucrose and the purity of the juice of (PAGNOUL), 1886, A., 915.  
estimation of the richness of (MAREK), 1886, A., 283.  
development of (GIRARD), 1886, A., 1063.  
the rôle of sucrose and its development during the growth of (DURIN), 1890, A., 1020.  
formation of sucrose in (GIRARD), 1884, A., 476; 1885, A., 75.  
accumulation of sucrose in the root of the (BRASSE), 1886, A., 1063.  
formation of organic acids, nitrogenous compounds and potassium nitrate in (LEPLAT), 1888, A., 868.

# AGRICULTURAL CHEMISTRY.

## PLANTS—

- Beetroot**, absorption of potash and lime from the soil by, during the first year of vegetation (LEPLAY), 1886, A., 830.  
 vegetation of, in the second year (LEPLAY), 1885, A., 293.  
 composition of (PAGNOUL; MAREK), 1884, A., 356; (HELLRIEGEL), 1881, A., 485.  
 white Silesian, composition of (LEPLAY), 1883, A., 235, 363.  
 rare constituents of the ash of (v. LIPPMANN), 1889, A., 295.  
 ammonia in (BATTUT), 1887, A., 71.  
 coniferin in the woody structures of the (v. LIPPMANN), 1883, A., 611.  
 glutamine in (SCHULZE and BOSSHARD), 1886, A., 105.  
 gummy exudation from the (v. LIPPMANN), 1891, A., 284.  
 distribution of sucrose in (MAREK), 1883, A., 124; 1884, A., 766.  
 percentage of sucrose in (STAMMER and DEGENER), 1884, A., 133.  
 estimation of sucrose in (STAMMER and SOSTMANN), 1884, A., 642; (STROHMER), 1884, A., 1219; (PELLER), 1885, A., 842, 1163; 1889, A., 314; (PETERMANN), 1888, A., 994; (BATTUT; CLERG; SIDERSKY; WEINBERG), 1889, A., 314.  
 biological researches on (CORENWINDER), 1883, A., 613.  
 destruction of the nematoids of (GIRARD), 1887, A., 617.  
 diseases of (KÜHN and JOULIE), 1883, A., 111.  
 preservation of topped and untopped (HANAMANN), 1885, A., 1009.  
 absorption of water by, during preservation (BRIEM), 1885, A., 928.  
 effect of drying, of frost and of winter storage on the constitution of (MAREK), 1884, A., 767.  
 loss of sucrose in (MAREK), 1891, A., 103.  
 loss of sucrose in, when stored (WIETERSHEIM), 1885, A., 102.  
**Beetroot diffusion residues.** See under Feeding experiments.  
**Beet seed**, peculiarities and cultivation of (KNAUER), 1885, A., 587.  
 composition of (LIASKOWSKI), 1891, A., 764.  
 large and small hulled, germination of (KUDELKA and HOLLRUNG), 1885, A., 832.

## PLANTS—

- Bracken** (*Pteris aquilina*), composition of (PETERMANN), 1884, A., 207.  
**Broom** (*Genista pilosa*), composition of (PETERMANN), 1884, A., 207.  
**Cabbage**, composition of different varieties of (DUGAST), 1883, A., 373.  
**Cacao plant**, cultivation of (BOUSSINGAULT), 1883, A., 933.  
 and the composition of its fruit (BOUSSINGAULT), 1884, A., 202.  
*Calycanthus glaucus*, composition of the seed of (WILEY), 1890, A., 403.  
*Camellia oleifera* seeds (MC CALLUM), 1883, A., 1166.  
**Canary seed**, composition of (MAYER), 1889, A., 794.  
*Capsicum annuum*, fruit of (PABST), 1892, A., 1263.  
**Carrot**, white, composition of (KRECHEL), 1885, A., 292.  
 cholesterol in the (ARNAUD), 1886, A., 830.  
*Cataputia minor*, crystalline constituents of the seeds of (TAHARA), 1891, A., 238.  
**Cereals**, cultivation of (STIEBEL), 1883, A., 612; 1885, A., 833; (MUCKER), 1884, A., 482.  
 Swedish and German, cultivation of (LIEBSCHER), 1885, A., 422.  
 development of (HÉBERT), 1892, A., 1119.  
 effect of deep or shallow sowing on (STÖSSNER), 1887, A., 747.  
 levosin, a carbohydrate from (TANRET), 1891, A., 661.  
 estimation of starch in (O'SULLIVAN), 1884, T., 4.  
 sugars of (O'SULLIVAN), 1885, P., 120; 1886, T., 58; P., 142.  
**Cereal grains**, chemistry of (BELL), 1883, A., 1160.  
 specific gravity of (DRECHLER), 1883, A., 111.  
 changes of the albuminoids in, when heated under pressure (BEHREND), 1885, A., 618.  
**Cherries**, ripening of (KEIM), 1891, A., 1539.  
 ripe, composition of (AMTHOR), 1884, A., 766.  
**Cherry juice**, fermentation of (KEIM), 1891, A., 1539.  
**Cherry laurel**, mannitol and sorbitol in the fruit of the (VINCENT and DELACHANAL), 1892, A., 908.  
*Chrysanthemum cinerariifolium*, constituents of the buds of (THOMS), 1892, A., 349.

PLANTS—

- Chrysanthemum cinerariaefolium*, homologue of cholesterol from (MARINO-ZUCO), 1890, A., 757.
- Citrus**, crystalline substances from the fruit of various species of (TILDEN and BECK), 1890, T., 323; P., 30.
- Clover**, American red (HARZ), 1884, A., 920; (NOBBE), 1889, A., 299. American and German (TROSCHE), 1886, A., 646.
- Bokhara (*Melilotus leucantha*) (MUNRO), 1886, A., 823.
- Dutch, composition of (WILSON), 1886, A., 911; 1889, A., 1078.
- manuring of (SAMEK), 1888, A., 1223; (V. KNIERIEM), 1891, A., 492.
- red, yields and composition of a variety of (BAESSLER), 1890, A., 1183.
- examination of, at different stages of growth (KALLEN and STUTZER), 1884, A., 100.
- red, insoluble carbohydrate in (SCHULZE and STEIGER), 1889, A., 643.
- red, assimilation of free nitrogen by (FRANK), 1892, A., 373.
- Clover sickness**, causes of (KUTZLER), 1883, A., 233.
- Clovers**, composition of (WILSON), 1886, A., 909; 1889, A., 1078.
- Coca**. See *Erythroxylon Coca*.
- Cocoanuts**, milk of ripe and unripe (VAN SLYKE), 1891, A., 764.
- Colchicum**, estimation of colchicine in the seeds of (KREMEL), 1891, A., 512.
- Corncockle** (*Agrostemma Githago*), poison of the seeds of (LEHMANN and MORI), 1890, A., 1458.
- sapotoxin from (KRUSKAL; ROBERT), 1892, A., 350.
- Cotton plant**, composition of the (McBRYDE), 1892, A., 1510.
- composition of the seeds of the (SACO), 1885, A., 425.
- Cotton seeds**, composition of (KÖNIG), 1885, A., 425.
- products of (PAPASOGLI), 1892, A., 584.
- betaine in (RITTHAUSEN and WEGER), 1885, A., 50.
- raffinose from (RITTHAUSEN), 1884, A., 1286; (RISCHBIETH and TOLLENS), 1886, A., 138.
- Crataegus Oxyacantha*, calcium oxalate in the leaves of (WEHMER), 1890, A., 191.

PLANTS—

- Crops**, cultivation of various (FITZBOGEN), 1883, A., 235.
- forage, growth of, at Grignon (DEHÉRAIN), 1889, A., 542.
- influence of nitrogenous manures ‡ on the yield of (WAGNER), 1888, A., 525.
- yield of, under steam cultivation (MARCKER), 1884, A., 359.
- influence of the weather on (FERRARI), 1885, A., 80.
- influence of, on the physical properties of a soil (WOLLNY), 1888, A., 1222.
- irrigation of, by waste water from beet sugar factories (TEUCHERT), 1883, A., 500.
- growth of, in soil destitute of nitrates (PITSCH), 1888, A., 84.
- rotation of (DEHÉRAIN), 1885, A., 185.
- rotation of, four year experiments on (VOELCKER), 1884, A., 635; 1885, A., 78.
- Cruciferae**, localisation of active principles in the seeds of (GUIGNARD), 1891, A., 490.
- estimation of mustard oil in the seeds of (DIRCKS), 1883, A., 245; (FOERSTER), 1888, A., 1350.
- Curcas purgans*, oil from the seeds of (HOEN), 1888, A., 674.
- Currants**, ripe, composition of (AMTHOR), 1884, A., 766.
- colouring matters of (KEIM), 1891, A., 1539.
- Cytisus Laburnum*, nitrogen assimilation of (NOBBE, SCHMID, HILTNER and HOFFER), 1891, A., 1533.
- Dahlia tubers**, asparagine and tyrosine in (LEITGER), 1889, A., 433.
- crystalline deposits in (LEITGER), 1887, A., 1136.
- Danais fragrans*, root of (HECKEL and SCHLAUDENHAUFFEN), 1886, A., 173.
- Daphnidium Cubeba*, fruit of (BRAITHWAITE and FARR), 1886, A., 1064.
- Earth-nut** (*por-nut*) (BROWN), 1892, A., 1122.
- fat, alterability of (REITMAIR), 1891, A., 770.
- composition of the inner brown skin of (KÖNIG), 1887, A., 519.
- Erica vulgaris*, composition of (PETERMANN), 1884, A., 207.
- Ericaceae**, andromedotoxin in (PLUGGE), 1889, A., 644.

PLANTS—

- Eriaceae**, presence of cinnamic acid in the (EJIKMAN), 1887, A., 517.
- Erythroxylon Coca* grown in India (WARDEN), 1889, A., 297.
- leaves of (BIGNON), 1886, A., 388.
- Eucalyptus manna**, raffinose from (RISCHBIETH and TOLLENS), 1886, A., 138; (TOLLENS), 1886, A., 527.
- Faba vulgaris*, composition of the seeds of (SCHULZE, STEIGER and MAXWELL), 1891, A., 1543.
- Flax**, constituents of (CROSS and BEVAN), 1889, P., 155; 1890, T., 196.
- influence of germination and growth on the development of hydrocyanic acid in (JONISSEN), 1885, A., 181.
- bleaching of (ANON.), 1884, A., 793.
- winter, cultivation of (LEYDHECKER), 1884, A., 921.
- Flax-fibre**, chemistry of (CROSS and BEVAN), 1889, A., 742.
- discrimination of jute-fibre from (LENZ), 1890, A., 928.
- Flowers**, constituents of (URBAIN), 1884, A., 862.
- withering of (WIESNER), 1884, A., 918.
- Flower petals**, absorption of water by (BURGERSTEIN), 1884, A., 1403.
- Fraxinus excelsior*, constituents of the leaves of (GINTL and REINITZER), 1883, A., 216.
- Fruit**, stone, ratio of flesh to stone in (WILHELM), 1884, A., 477.
- constituents of (URBAIN), 1884, A., 862.
- from the Southern States (PARSONS), 1889, A., 434.
- Fungi**, respiration and transpiration of (BONNIER and MANGIN), 1884, A., 628.
- edible, nutritive value of (MÜLLNER), 1886, A., 1053.
- poisonous properties of (DUPEIT), 1883, A., 611; 1884, A., 204.
- Furze**, composition of (TROSCHKE), 1885, A., 684.
- Gleditschia triacanthos*, nitrogen assimilation of (NOBBE, SCHMID, HILTNER and HOTTER), 1891, A., 1533.
- Goat's rue** (*Galga officinalis*) (MUNRO), 1886, A., 829.
- Gourds**, researches on (ULBRIGHT), 1886, A., 95.

PLANTS—

- Grain**, manuring of (EMMERLING), 1884, A., 1213.
- spectroscopic notes on the carbohydrates and proteids from (HARTLEY), 1886, P., 247; 1887, T., 58.
- estimation of starch in (FRANCKE), 1883, A., 624; (MONHEIM), 1888, A., 1134; (V. MILKOWSKI), 1890, A., 928.
- sugars of (O'SULLIVAN), 1885, P., 120; 1886, T., 58; P., 142; (V. ASBÖTH), 1888, A., 1220.
- chemical changes induced by the sprouting of (MÄCKER and KOBUS), 1884, A., 200.
- germinated, value of, for seed (WILT), 1883, A., 490.
- origin of the hydrolytic enzymes of (BROWN and MORRIS), 1890, T., 511; P., 52.
- Gramineae**, germination of the (BROWN and MORRIS), 1890, T., 458; P., 52.
- Grapes**, ripe, studies on (AMTHOR), 1883, A., 881.
- green, cause of the acidity of (ORDONNEAU), 1892, A., 589.
- so-called sour-rot of (PORTELE), 1885, A., 1153.
- from infected vines, composition of (MACH), 1884, A., 1406.
- chlorophylllic substances of the pericarp of (ETARD), 1892, A., 874.
- organic and inorganic constituents of (LIST), 1887, A., 860.
- glyoxylic acid in (BRUNNER and CHUARD), 1886, A., 576.
- formation of sugar in (MÜLLER), 1887, A., 517.
- detection and estimation of aluminium in (L'HÔTE), 1887, A., 690.
- See also Vines.
- Grass**, composition of (KINCH), 1884, T., 124.
- nitrogenous matters in (KINCH), 1884, T., 122.
- gases evolved during the conversion of, into hay (FRANKLAND and JORDAN), 1883, T., 294.
- decomposition of, under water (FRANKLAND and JORDAN), 1883, T., 298.
- irrigation as a preventive of injury to, from frost (V. NEERGARD), 1884, A., 357.
- Timothy, changes occurring in, during growth (LADD), 1888, A., 1220.

PLANTS—

- Grass**, changes which take place in the conversion of, into silage (LLOYD), 1881, A., 772.
- Grasses**, composition, nutritive value and produce of (WILSON), 1886, A., 906; 1889, A., 1077.
- composition and digestibility of the proteids of (EMMERLING and LOGES), 1890, A., 657.
- existence of a cellulose-dissolving enzyme (*cytolysolys*) in the germinating seed of (BROWN and MORRIS), 1890, T., 497; P., 52.
- Gymnema sylvestre*, drug from, which destroys the sense of taste for sweets and bitters (BERTHOLD), 1889, A., 182.
- Hæmatococcus**, assimilation by (ENGELMANN), 1888, A., 611.
- Hay**, yield of, from irrigated pastures (NANTIER), 1888, A., 1127.
- alpine and valley, composition of (EUGLING), 1885, A., 929.
- heated, composition of (TOMS), 1884, A., 864; (MACH), 1886, A., 275.
- inferior, composition of (MORGEN), 1885, A., 292.
- valuation of (MAYER), 1885, A., 699; (SCHINDLER), 1885, A., 1154.
- effect of rain on the quality of (EUGLING), 1885, A., 1154.
- and silage from a poor quality of grass (STURTON), 1883, A., 102.
- gases evolved during the conversion of grass into (FRANKLAND and JORDAN), 1883, T., 294.
- Holcus Soryhum*, grain of (BORDAS), 1887, A., 519.
- Hop-culture** in peat soils (FLEISCHER), 1885, A., 185.
- Hop-mildew**, nature of, and means of counteracting it (SCHWARZ), 1884, A., 629.
- Hops**, manuring of (POTT), 1884, A., 1422; (KRAUS), 1888, A., 319.
- Horse chestnuts**, composition of (HANAMANN), 1885, A., 928.
- Ipecacuanha root**, dextrose obtained from (MERCK), 1891, A., 1138.
- Lathyrus**, composition of various (NILSON), 1892, A., 522.
- Lacatera arborea*, a fodder plant (v. T.), 1884, A., 100.
- Leguminosæ**, cultivation of (BRIÉAL), 1890, A., 660.
- in acid soils (DE MONDESIN), 1889, A., 434.

PLANTS—

- Leguminosæ**, composition of (WILSON), 1892, A., 521.
- carbohydrates in (MAXWELL), 1889, A., 644; 1890, A., 544, 917.
- root tubercles of (BRIÉAL), 1890, A., 660.
- nitrogen, sources of the, of (DIETZEL), 1885, A., 418; (HELLRIEGEL and WILFARTH), 1889, A., 640; (LAWES and GILBERT), 1892, A., 367.
- nitrogen, absorption of, by (BOU-TELLEAU), 1884, A., 1401; (BRIÉAL), 1888, A., 1330; 1890, A., 79, 660; (LAWES and GILBERT), 1890, A., 814; 1892, A., 369; (PETERMANN), 1890, A., 816; (ATWATER and WOODS), 1891, A., 353, 491; (SCHLESING and LAURENT), 1891, A., 353; 1892, A., 378, 523, 1021; (PRZYMOWSKI), 1891, A., 607; (FRANK), 1891, A., 764; 1892, A., 371; (NOBBE, SCHMID, HILTNER and HOTTER), 1891, A., 1533; (IMMENDORFF), 1892, A., 374.
- protein-compounds from, solubility of, in water containing hydrochloric acid (RITTHAUSEN), 1884, A., 1390.
- fungus-symbiosis of (FRANK), 1890, A., 1020; 1891, A., 353.
- Lemons**, Californian, composition of (COLBY and DYER), 1892, A., 1511.
- Linseed**, germination of (JÖRISSEN), 1885, A., 181.
- Lucerne**, composition of (WILSON), 1889, A., 1078.
- insoluble carbohydrate in (SCHULZE and STEIGEN), 1889, A., 643.
- Lupines**, cultivation of (KÖNIG), 1883, A., 114.
- water culture of (WEINKER), 1884, A., 1400; 1885, A., 420; (TROSCHEK), 1885, A., 420.
- composition of (FLECHSIG), 1884, A., 1405; (TROSCHEK), 1887, A., 518; (WAAGE), 1887, A., 991.
- composition of varieties of, grown under like conditions (FLECHSIG), 1886, A., 95.
- percentage of alkaloids in different varieties of (HILLMAN), 1885, A., 832.
- removal of the bitter principle from (WILDT), 1885, A., 184.
- behaviour of conglutin from, towards saline solutions (RITTHAUSEN), 1883, A., 360.

# AGRICULTURAL CHEMISTRY.

## PLANTS—

- Lupines**, poisonous matter of (ARNOLD), 1888, A., 740; (ARNOLD and SCHNEIDEMÜHL), 1884, A., 915.  
 fixation of free nitrogen by (LAWES and GILBERT; PETERMANN), 1890, A., 816.  
 yellow, assimilation of free nitrogen by (FRANK), 1892, A., 371.  
 seeds, composition of (FLECHSIG), 1884, A., 1406; (BAUMERT), 1888, A., 1221.  
 fat from the (JACOBSON), 1889, A., 296.  
 shoots, constituents of (SCHULZE and BARBIERI), 1883, A., 1122.  
 straw, composition of (FLECHSIG), 1884, A., 1406.  
**Lupine sickness** in sheep (HARMUTH), 1883, A., 228.  
*Lupinus luteus*, composition of the seeds of (SCHULZE, STEIGER and MAXWELL), 1891, A., 1541.  
*Lycopersicum esculentum*, composition of the fruit of (BRIOSI and GIGLI), 1891, A., 955; (PASSERINI), 1891, A., 956.  
**Mahwa flowers**. See *Bassia latifolia*.  
**Maize** in the experimental plots at Grignon (DEHÉRAIN), 1884, A., 204, 1070; 1890, A., 280.  
 manuring of (NANTIER), 1884, A., 635; (ATWATER), 1884, A., 1401.  
 manuring of, with phosphates (RAULIN), 1889, A., 435.  
 the sum of mean temperatures in relation to the cultivation of (SESTINI and FUNARO), 1884, A., 672.  
 function of silicic acid in the growth of (JODIN), 1884, A., 201, 669.  
 growth of, in mineral and organic solutions (JODIN), 1884, A., 1208.  
 growth of, in nutritive solutions (HEIDEN), 1888, A., 1328.  
 composition of (RICHARDSON), 1885, T., 88; (SCHISCHOWSKI), 1885, A., 291; (PORTELE), 1886, A., 274.  
 composition of varieties of, grown under like conditions (FLECHSIG), 1886, A., 95.  
 composition of, as influenced by environment (RICHARDSON), 1885, A., 585.  
 basic substance in (LUXARDO), 1883, A., 1156.  
 cane-sugar from (WASHBURN and TOLLENS), 1889, A., 918.

## PLANTS—

- Maize**, estimation of starch in (O'SULLIVAN), 1884, T., 8.  
 proteids of (CHATTENDEN and OSBORNE), 1892, A., 379, 746, 749.  
 amount of easily digestible proteids in germinated (STUTZER), 1884, A., 772.  
**Maize-plant**, chemistry of (LEPLAY), 1883, A., 366, 747.  
 development of the (HORNBERGER and v. RAUMER), 1883, A., 491; (v. SZILASSY and CSENHÁTI), 1891, A., 1395.  
**Mangel**, experimental plots of, at Grignon (DEHÉRAIN), 1891, A., 493.  
 feeding value of various (MAYER), 1885, A., 1259.  
**Millet**, composition of (VOELCKER), 1881, A., 630.  
*Myristica surinamensis*, aleurone grains in the seed of (TSCHIRCH), 1887, A., 1061.  
 fat of the fruit of (REIMER and WILL), 1885, A., 1197.  
*Nicotiana longiflora*, comparative effect of two metameric bodies on the growth of (REYNOLDS), 1883, A., 495.  
 See also Tobacco.  
**Oats**, experiments on, at Grignon (DEHÉRAIN), 1884, A., 204, 1069; 1889, A., 542; 1890, A., 820.  
 cultivation of varieties of (BESELER and MARCKER), 1885, A., 1008.  
 influence of thick and thin sowing, and of the manuring on the yield of (BESELER and MARCKER), 1884, A., 768.  
 manuring of (ATWATER), 1884, A., 1401; (v. LICHTENBERG), 1888, A., 189; (MULLER), 1888, A., 525.  
 with nitrogen and phosphates (MARCKER), 1884, A., 925.  
 with basic slag (BIELER), 1886, A., 391; (EMMERLING), 1888, A., 1223.  
 with basic slag on moorlands (BAESSLER), 1888, A., 189.  
 importance of silicic acid in the culture of (KREUZHAGE and v. WOLFF), 1881, A., 1211.  
 crops, failure of (SORAUER), 1889, A., 742.  
 testing soil by the growth of (ATTERBERG), 1888, A., 317.  
 composition and nutritive value of (MARCKER), 1889, A., 184.

PLANTS—

- Oats**, American, composition and physical properties of (RICHARDSON), 1887, A., 293.  
 proteids of (OSBORNE), 1891, A., 1285, 1890; 1892, A., 1120.  
 proteolytic and other ferments in (ELLENBERGER and Hofmeister), 1888, A., 867.  
 estimation of starch in (O'SULLIVAN), 1884, T., 8.  
 alimentary value of (MUNTZ and GIRARD), 1885, A., 281.  
 irritant properties of (SANSON), 1884, A., 914.  
**Oat-straw**, composition of (HÉBERT), 1890, A., 1461.  
**Onions**, composition of (GOESSMANN), 1887, A., 1137.  
**Oranges**, Californian, composition of (COLBY and DYER), 1892, A., 1511.  
**Palm-nuts**, fat in (v. WILM), 1885, A., 290, 1164.  
**Peach kernels**, proteids in (RITTHAUSEN), 1883, A., 360.  
**Pea mescalate** (RICHE and RÉMONT), 1884, A., 1068.  
**Pea-nut**. See Earth-nut.  
**Peas**, white, grey, and sand, cultivation of (MARCKER), 1884, A., 770.  
 comparative growth of, in mineral and organic solutions (JODIN), 1884, A., 1208.  
 growth of, in nutritive solutions (HEIDEN), 1888, A., 1328.  
 assimilation of free nitrogen by (LAWES and GILBERT), 1890, A., 814; (FRANK), 1892, A., 371; (SCHLESING and LAURENT), 1892, A., 378.  
 composition of (KLIEN), 1887, A., 73.  
 fat from (JACOBSON), 1889, A., 296.  
 root nodules of (PRAZMOWSKI), 1891, A., 607.  
**Peganum Harmala** seed (FISCHER and TAUBER), 1885, A., 821.  
**Phalurus canariensis**, composition of the seeds of (MAYER), 1889, A., 794.  
**Phaseolus vulgaris**, nitrogen assimilation of (NOBBE, SCHMID, HILTNER and HORTER), 1891, A., 1533.  
 constituents of the seed pods of (LIKIERNIK), 1891, A., 606.  
 carbohydrate in the seeds of (MAXWELL), 1890, A., 917.

PLANTS—

- Phleum pratense**, changes occurring in, during growth (LADD), 1888, A., 1220.  
**Pisum arvense**, cultivation of (MARCKER), 1884, A., 769.  
 composition of (NILSON), 1892, A., 522.  
**Pisum sativum**, composition of the seeds of (SCHULZE, STEIGER and MAXWELL), 1891, A., 1542.  
 constituents of the seed pods of (LIKIERNIK), 1891, A., 606.  
 nitrogen assimilation of (NOBBE, SCHMID, HILTNER and HORTER), 1891, A., 1533.  
**Potatoes**, cultivation of (LEYDHECKER), 1883, A., 114; (SCHULZ), 1883, A., 680; (MARCKER), 1884, A., 101; (CIMBAL), 1884, A., 483; 1885 A., 587; (TIMM), 1884, A., 1411; (JANOWSKY), 1886, A., 390, 577; (GIRARD), 1889, A., 647.  
 experiments on, at Grignon (DEHÉRAIN), 1890, A., 820.  
 experiments on, at Harelaw (AITKEN), 1887, A., 992.  
 experiments on, at Rothamsted (GILBERT), 1890, A., 409.  
 effect of drying the seed tubers on the yield of (WOLLNY), 1884, A., 624.  
 influence of the position of the "set" on (WOLLNY), 1885, A., 586.  
 influence exerted by the weight of the "sets" (TOBISCH), 1883, A., 236.  
 manuring of (VIBRANS), 1883, A., 882; (PREVOST and SWANWICK), 1884, A., 101; (MARCKER), 1884, A., 102, 865; (NANTIER), 1884, A., 635; (CAMERON), 1884, A., 866; (ATWATER), 1884, A., 1401; (SCHREWE), 1886, A., 578.  
 with bone-meal (KOCH), 1884, A., 637.  
 with kainite (FLEISCHER), 1884, A., 108.  
 with krugite (KARBE), 1884, A., 926; (KETTE), 1884, A., 1401.  
 with lime (HEIDEN), 1884, A., 1419.  
 with potassium and sodium nitrates (v. EDLER), 1883, A., 117; (DEHÉRAIN), 1884, A., 861.  
 with fresh stable manure (GAGNAIRE), 1885, A., 189.

# AGRICULTURAL CHEMISTRY.

## PLANTS—

- Potatoes**, earthing up (SCHLEH), 1884, A., 772.  
 growth of (KREUSLER), 1887, A., 71.  
 influence of electricity on the growth of roots and (HOLDE-FLEISS), 1885, A., 1152.  
 composition of (SACC), 1884, A., 208; (SCOVELL and MENKE), 1887, A., 747.  
 composition of unripe (HUNGER-BUHLER), 1886, A., 485.  
 change in the composition of, by ripening (SAARE), 1884, A., 1400.  
 oxalic acid in (SIEWERT), 1883, A., 232.  
 changes in the proteids in, when heated under pressure (BEHREND), 1885, A., 618.  
 estimation of starch in (GIRARD), 1887, A., 868.  
 conversion of starch into sugar during the freezing of (MÜLLER), 1883, A., 497.  
 presence of sucrose in unripe (SCHULZE and SELIWANOFF), 1888, A., 623.  
 preservation of (MÄRCKER), 1884, A., 101.  
 dried, use of (KÖHNE), 1883, A., 614.  
 desiccation of seed (ANDRÆ), 1885, A., 1155.  
 sprouts, etiolated, composition of (SELIWANOFF), 1888, A., 624.  
 shoots, solanidine in (JURISSEN and GROSJEAN), 1890, A., 1182; 1891, A., 473.  
 sweet (SACC), 1884, A., 208.  
 carbohydrates from (STONE), 1890, A., 1022.  
 diseased, amount of solanine in (KASNER), 1887, A., 860.  
 "scab" in (HEIDEN), 1884, A., 1419.  
**Potato-disease**, protection against (JENSEN), 1885, A., 1154; (NOBBE), 1886, A., 1067.  
 cure for (JENSEN), 1883, A., 233.  
**Pumpkin sprouts**, nitrogenous constituents of (SCHULZE), 1886, A., 173.  
*Quercus rubra*, composition of white and green leaves of (CHURCH), 1886, T., 839; P., 236.  
**Radish**, quantity of starch in the tubercles of the (LEPAGE), 1892, A., 92.  
**Ramie-plant**, composition of (JAFFA), 1892, A., 1511.

## PLANTS—

- Raspberries**, wine and brandy from (ROMMER), 1887, A., 292.  
**Rhubarbs**, composition of (ELBORNE), 1885, A., 582.  
**Rice**, cultivation of, in Japan (KELLNER and SAWANO), 1884, A., 672.  
 manuring of (GEORGESON), 1889, A., 646; (KELLNER, KOZAI, MORI and NAGAOKA), 1891, A., 1547.  
 effect of excessive liming on the growth of (KELLNER, SAKANO, SATO and SHINJO), 1892, A., 94.  
 glutinous (KREUSLER and DAFERT), 1886, A., 390.  
 of Japan (SHIMOYAMA), 1888, A., 1127.  
 Peruvian (*Chenopodium Quinoa*), cultivation of, in Austria (v. RODICZKY), 1884, A., 769.  
 estimation of starch in (O'SULLIVAN), 1884, T., 8.  
**Rice-meal**, detection of, in buckwheat flour (ANON.), 1883, A., 885.  
*Robinia Pseudacacia*, nitrogen assimilation of (FRANK), 1891, A., 764; (NOBBE, SCHMID, HILTNER and HOTTER), 1891, A., 1533.  
*Rosa centifolia*, composition of the flowers of (NIEDERSTADT), 1884, A., 97.  
**Rose-trees**, experiments with ferrous sulphate on (GRIFFITHS), 1886, T., 122.  
**Rye**, manuring of (MÄRCKER), 1884, A., 103.  
 manuring of winter (v. LIEBENBERG), 1888, A., 189.  
 manuring of, with basic slag and other phosphates (SIEWERT), 1887, A., 294.  
 estimation of starch in (O'SULLIVAN), 1884, T., 8.  
 ungerminated, and the embryos of, composition of (NACHBAUR), 1883, A., 107.  
**Rye grain** (EGGER), 1884, A., 532.  
**Rye-bran**, arabinose from (STEIGER and SCHULZE), 1891, A., 33.  
**Rye-meal and -bran**, detection of, in wheat-meal and -bran (BENECKE), 1890, A., 302.  
 detection of the adulteration of, with flour (WITTMACK), 1883, A., 392.  
 separation of wheat meal from (KIGERSKOU), 1884, A., 376.  
**Sainfoin**, experiments with, at Grignon (DEHÉRAIN), 1884, A., 204, 1070.

PLANTS—

- Sinapis alba*, composition of, during various stages of growth (HORNBERGER), 1885, A., 1087.
- Soja bean**, composition of the (MURST and BOCKER), 1883, A., 1024; 1884, A., 918; (SCHULZE, STIEGER and MAXWELL), 1891, A., 1542.
- nitrogenous constituents of (SCHULZE), 1888, A., 868.
- white, composition of (GOESSMANN), 1890, A., 192.
- composition of, and tables of the composition of various Japanese foods made from (KINCH), 1883, A., 235.
- manuring of the (LEVALLOIS), 1888, A., 870.
- fat of the (MORAWSKI and STINGL), 1887, A., 687.
- sugars of the (MORAWSKI and STINGL), 1886, A., 829; 1887, A., 686.
- Solanum Lycopersicum*, composition of the fruit of (BRIOSI and GIGLI), 1891, A., 955; (PASSERINI), 1891, A., 956.
- Sorghum**, cultivation of (TROSCHE), 1885, A., 1155.
- cultivation of, in France (MINANGOIN), 1885, A., 79.
- cultivation of two varieties of (V. PFUEL), 1885, A., 79.
- Sorghum halepense*, cultivation of (V. BARATTA), 1884, A., 921.
- Sorghum saccharatum*, cultivation of (V. SZECHÉNYI), 1885, A., 833.
- Spice**, champion (LEHMANN), 1884, A., 473; (HARZ), 1884, A., 865.
- Spurrey** (*Spergula arvensis*) and spurrey seed, composition of (MUNRO), 1886, A., 173.
- Star-anise tree** (*Illicium anisatum* (*religiosum*)), cultivation of, and the preparation of the oil in Annam (ANON.), 1885, A., 1275.
- composition of the fruit and seeds of (OSWALD), 1891, A., 957.
- products of the distillation of the leaves and fruits of the (EIRKMAN), 1886, A., 95; 1887, A., 497.
- Straw**, composition of (HÉBERT), 1890, A., 1459.
- effect of high farming on the amount of nutritious matter in (MARCKER), 1884, A., 772.
- aerobic nitrate-reducing ferment in (BRÉAL), 1892, A., 1259.
- xylose from (ALLEN and TOLLENS), 1890, A., 472.

PLANTS -

- Straw**, method for the analysis of (HÉBERT), 1890, A., 1460.
- Strawberries**, composition of (STONE), 1890, A., 659.
- ash of (MUNRO), 1885, A., 183.
- wine and brandy from (ROMMIER), 1887, A., 292.
- Strophanthus** seeds, constituents of (ELBORNE), 1887, A., 991.
- Strychnos Nux vomica*, indigenous to Ceylon, chemistry and botany of (DUNSTAN and SHORT), 1885, A., 583.
- Sugar-canes**, manuring of (RIFFARD), 1883, A., 506.
- Symphonia fasciculata* (Clusiaceæ), oleaginous seeds of the (RÉGNAULD and VILLEJEAN), 1885, A., 290.
- Synphoricarpos racemosus*, calcium oxalate in the leaves of (WEHMER), 1890, A., 191.
- Tea**, Chinese, composition of (DVORKOVITCH), 1891, A., 1302.
- Japanese, cultivation and preparation of (TAKAYAMA), 1885, A., 582; (KÖZAR), 1892, A., 1371.
- composition of leaves of (KELLNER), 1887, A., 73.
- See also Main Index.
- Tilias**, oil from the seeds of (MUELLER), 1892, A., 92.
- Tobacco**, cultivation of, in Japan (TAKAYAMA), 1885, A., 582; (FESCA and IMAT), 1889, A., 69.
- cultivation of, in Sumatra and Java (VAN BEMMELEN), 1890, A., 1340.
- cultivation of, in Switzerland (ANON.), 1885, A., 79.
- climatic conditions for the development of nicotine in (MAYER), 1891, A., 858.
- manuring experiments on (NESSLER), 1884, A., 362, 490; (JENKINS; JORDAN), 1886, A., 177; (HARZ), 1888, A., 990.
- See also Main Index and *Nicotiana*.
- Tomatoes**, composition and structure of the fruit of (BRIOSI and GIGLI), 1891, A., 955; (PASSERINI), 1891, A., 956.
- Trees**, forest, manuring of (MUEL), 1883, A., 617.
- reserve materials of (HARTIG), 1889, A., 740.
- calcium oxalate in the bark of (KRAUS), 1892, A., 1370.
- influence of solar rays on the temperature of (IHNE), 1884, A., 917.

PLANTS—

- Trees**, with red leaves, chlorophyllous assimilation of (JUMBELLE), 1891, A., 102.  
 distribution of ash in (WEBER), 1888, A., 742.  
 forest, ash of the seeds of (HORNBERGER), 1884, A., 353; 1885, A., 1255.  
 absence of nitrates in (EBER-MAYER), 1889, A., 541.  
 fruit, nourishment of (TCHAPLOWITZ), 1886, A., 390.  
**Trifolium**, composition of various (NILSON), 1892, A., 522.  
**Truffles**, chemistry of (CHATIN), 1890, A., 659, 821.  
 of Europe, relation between the terfäs or kamés of Africa and Western Asia and the (CHATIN), 1892, A., 654.  
**Turnips**, manuring of (DYER), 1885, A., 589; (WILSON), 1886, A., 913; (BROWN), 1886, A., 1068.  
*Ulex europæus*, composition of (TROSCHEK), 1885, A., 684.  
*Vateria indica*, fat of the fruit of (v. HOHNEL and WOLFFBAUER), 1886, A., 223.  
**Vegetable kingdom**, correlative growth in the (v. SACHS), 1884, A., 626.  
**Vegetable substances**, detection of sucrose in (SCHULZE), 1888, A., 624.  
**Vegetables**, albuminoid and non-albuminoid nitrogen compounds of (BÜHNER), 1883, A., 236.  
 red colouring matter of (TERREIL), 1885, A., 1142.  
 estimation of pentoses in (DE CHALMOT and TOLLENS), 1891, A., 768; (STONE), 1892, A., 247; (GUNTHER, DE CHALMOT and TOLLENS), 1892, A., 338.  
 used as food in Japan, and composition of (KELLNER), 1884, A., 674.  
**Vetches**, cultivation of some varieties of (DÖHN; NOBBE), 1888, A., 612.  
 fat from (JACOBSON), 1889, A., 296.  
**Vicia**, composition of various (NILSON), 1892, A., 522.  
*Vicia Faba*, vicine in (RITTHAUSEN), 1884, A., 1405.  
 artificial infection of, with *Bacillus radicicola* (BEYERINCK), 1891, A., 1539.  
*Vicia sativa*, composition of the seeds of (SCHULZE), 1889, A., 1029; (SCHULZE, STRIGER and MAXWELL), 1891, A., 1542.

PLANTS—

- Vicia villosa*, cultivation of (MARCK-ER), 1884, A., 769.  
 composition of (MARCKER), 1886, A., 645.  
**Vines**, vegetation of (ROOS and THOMAS), 1892, A., 908.  
 manuring of (STUTZER), 1884, A., 103, 1421; (NIPPGEN), 1884, A., 637; (MORITZ and SEUCKER), 1888, A., 190.  
 composition of (HILGER and GROSS), 1886, A., 1062.  
 boric acid in (BAUMENT), 1889, A., 295.  
 treated with copper sulphate and lime, copper in (MILLARDER and GAYON), 1886, A., 738.  
 origin of the colouring matter of (GAUTIER), 1892, A., 1242.  
 leaves of, physiological rôle of (MULLER), 1887, A., 685.  
 formation of starch in (CUBONI), 1885, A., 683, 1004.  
 diseases of, and their remedies (v. THUMEN), 1883, A., 110; (MULLER; GIRARDIN), 1884, A., 481.  
 submersion of (DE GASPARIN), 1883, A., 1164.  
 sulphuring of (BASAROFF), 1883, A., 551; 1884, A., 629.  
 affected with mildew, composition of grapes from (MACH), 1884, A., 1406.  
 removal of mildew in (PICHARD), 1885, A., 590.  
 use of copper sulphate to destroy mildew in (PÉRREY), 1885, A., 77.  
 use of copper sulphate with lime as a preventive of mildew in (PRILLIEUX), 1886, A., 737.  
 treated with copper sulphate and lime, copper in (MILLARDET and GAYON), 1886, A., 738.  
 phylloxera, destruction of (DE LAFITTE), 1883, A., 233; (CARRIÈRE), 1883, A., 680; (HENNEGUY), 1884, A., 99; (TOZZETTI), 1884, A., 355; (GIRARDIN), 1884, A., 481; (BALBIANI), 1884, A., 920.  
 carbon disulphide in aqueous solution as a remedy for (PELLIGOT), 1885, A., 77.  
 preparation of thiocarbonates for the destruction of (SESTINI), 1883, A., 405.  
 See also Grapes.  
**Wheat**, experiments on, at Brie (LADUREAU and MOUSSEAU), 1888, A., 383.

PLANTS—

**Wheat**, experiments on, at Grignon (DEHERAIN), 1884, A., 204, 1068; 1885, A., 928; 1889, A., 541; 1890, A., 820.  
 experimental plots of, at La Somme (NANTIER), 1888, A., 1127.  
 continuous cultivation of, at Rothamsted during twenty years (LAWES and GILBERT), 1885, A., 583.  
 continuous cultivation of, at Woburn (VOELCKER), 1884, A., 482.  
 cultivation of, in various latitudes (ANON.), 1885, A., 78.  
 cultivation of, in a sterile siliceous soil (PAGNOUL), 1891, A., 104; 1892, A., 909.  
 cultivation of, after sugar-beet and potatoes (GATELLIER), 1886, A., 906.  
 influence of rainfall on (ANON.), 1884, A., 206.  
 manuring of (JORDAN), 1883, A., 681; (MARCKER), 1884, A., 103.  
 manuring of winter (v. LIEBENBERG), 1888, A., 189.  
 manuring of, with phosphates (RAULIN), 1889, A., 435, 1242.  
 development of (DEHERAIN and MEYER), 1885, A., 493; (HÉBERT), 1891, A., 1285; 1892, A., 1119.  
 influence of temperature on the development of (RISLER), 1885, A., 422.  
 spring, grown in 1887, composition of (MARCKER), 1889, A., 183.  
 American, composition of (RICHARDSON), 1884, A., 1404.  
 Bordeaux, composition of (HÉBERT), 1891, A., 1286.  
 East Indian, composition of (DIETRICH), 1889, A., 184.  
 Indian, impurities in (BALLAND), 1884, A., 355.  
 composition of, as influenced by environment (RICHARDSON), 1885, A., 585.  
 composition of the products of roller-milling of (RICHARDSON), 1885, A., 1021.  
 aluminium in (ALLEN), 1888, A., 631.  
 gluten in (STUMPF), 1883, A., 236; (JOHANNSEN), 1889, A., 296; (GATELLIER and L'HÔTE), 1889, A., 740, 919.  
 proteids in (HÉBERT), 1892, A., 1119.  
 estimation of starch in (O'SULLIVAN), 1884, T., 7.

PLANTS—

**Wheat**, germinated, chemical examination of (BALLAND), 1884, A., 1087.  
**Wheat-grain**, ash of, grown at Rothamsted in different seasons and by different manures, composition of the (LAWES and GILBERT), 1884, T., 305.  
 richness and density of (PAGNOUL), 1888, A., 1128.  
 loss occasioned by improper methods of pickling (GRASSMANN), 1887, A., 293.  
 formation of starch in (HÉBERT), 1891, A., 1285.  
**Wheat-bran**, carbohydrates from (GANS, STONE and TOLLENS), 1888, A., 1060.  
 arabinose from (STEIGER and SCHULZE), 1891, A., 33.  
 detection of rye-meal and -bran in (BENECKE), 1890, A., 302.  
**Flour** obtained by various methods of grinding, quality of (GIRARD), 1884, A., 1447.  
 old, alkaloids in (BALLAND), 1886, A., 164.  
 aluminium as a natural constituent of (YOUNG), 1888, A., 624.  
 bacteria from (BOUTROUX), 1891, A., 1532.  
 proteids of (MARTIN), 1886, A., 1065.  
 action of sulphurous anhydride on (BALLAND), 1891, A., 95.  
 alteration of (BALLAND), 1884, A., 236, 532.  
 analysis of (BALLAND), 1884, A., 374; (LEEDS), 1884, A., 1080.  
 detection of alum in (HERZ), 1887, A., 530.  
 detection of ergot in (PALM), 1884, A., 376.  
 estimation of gluten in (REED), 1884, A., 122.  
**Wheat-meal**, detection of rye-meal and -bran in (BENECKE), 1890, A., 302.  
 separation of, from rye-meal (KIEBSKOW), 1884, A., 376.  
**Wheat-straw**, composition of (HÉBERT), 1890, A., 1461.  
 grown at Rothamsted under different seasons and manures, composition of the ash of (LAWES and GILBERT), 1884, T., 305.  
**Winter-bark**, true (ARATA and CANZONERI), 1890, A., 405.  
*Withania coagulans*, "rennet" ferment from the seeds of (LEA), 1884, A., 535.

SOILS.

SOILS—

**Soils**, chemical study of (DUGAST), 1884, A., 677.  
 chemical changes in (HOPPE-SEYLER), 1884, A., 633.  
 changes in, during the formation of a meadow (LAWES), 1889, A., 921.  
 arable, formation of (MÜNTZ), 1890, A., 1183.  
 testing, by growth of oats (ATTERBERG), 1888, A., 317.  
 physical properties of, influence of artificial manures on the (WOLLNY), 1884, A., 210.  
 physical properties of, influence of the, on the amount of free carbonic anhydride present (WOLLNY), 1887, A., 521.  
 physical properties of, influence of a crop or covering on the (WOLLNY), 1884, A., 922; 1888, A., 1222.  
 thermal conductivity of (WAGNER), 1884, A., 923.  
 temperature of, in relation to the air temperature (HOSSFELD), 1884, A., 357.  
 temperature of, and moisture in, influence of the state of aggregation on (WOLLNY), 1883, A., 500.  
 rise of temperature in, by the condensation of gaseous water and of gases (STELLWAAG), 1883, A., 615.  
 temperature of, influence of organic manures on the (WAGNER), 1888, A., 821.  
 temperatures in, influence of constant, on plants (HELLRIEGEL), 1884, A., 916.  
 odour of (BERTHELOT and ANDRÉ), 1891, A., 858.  
 influence of physical and chemical properties of, on evaporation (ESER), 1885, A., 80.  
 evaporation of water from (MASURE), 1883, A., 615; 1885, A., 1260.  
 and its cultivation, influence of, on the temperature of, and moisture in, the air (WOLLNY), 1885, A., 81.  
 water in, influence of cultivation on the (HENSCH), 1885, A., 588.  
 water in, influence of vegetation on the amount of (WOLLNY), 1888, A., 1222.

SOILS—

**Soils**, water in, influence of, on plant growth (HELLRIEGEL), 1885, A., 421.  
 water in, influence of, on vegetation (WOLLNY), 1888, A., 316.  
 influence of, on vegetation (RAULIN), 1892, A., 1121.  
 influence of the amount of, on the development of roots (HELLRIEGEL), 1884, A., 626.  
 dependence of cultivation on the depth of (HEINRICH), 1885, A., 80.  
 influence of, on the physical properties of plants (VILLE), 1890, A., 81.  
 effect on the fertility of, by covering with farm-yard manure (WOLLNY), 1883, A., 287.  
 fertility of, dependent on the action of worms (V. HENSEN), 1883, A., 287.  
 of the forest land of Deli (Sumatra) and Java, causes of the fertility of, for tobacco and of the decrease of fertility (VAN BEMMELEN), 1890, A., 1340.  
 fertility of, which had been removed from its original position and subsequently replaced (MÄRCKER), 1884, A., 773.  
 fertilising properties of the water of the Nile on (MÜNTZ), 1889, A., 646.  
 causes of the exhaustion of arable, by cropping without manures (DEHÉRAIN), 1890, A., 406.  
 exhaustion of cultivated but unmanured (DEHÉRAIN), 1890, A., 1459.  
 influence of the sterilisation of, on the growth of plants (TSCHIRCH), 1888, A., 985.  
 decomposition of organic manures in (WOLLNY), 1887, A., 523; (MÜNTZ), 1890, A., 1183.  
 retentive capacity for plant food possessed by (DUMAS), 1883, A., 681.  
 inoculation of, experiments on (SCHMITTER), 1892, A., 1512.  
 absorptive power of (VAN BEMMELEN), 1888, A., 985.  
 absorption by (KELLNER), 1887, A., 76.

SOILS—

- Soils**, composition of (VAN BEMMELÉN), 1890, A., 1339.
- arsenic in, of cemeteries (SCHLAGDEN-HAUFFEN and GARNIER), 1885, A., 1009.
- atmosphere in (SCHLESING), 1890, A., 81.
- boric acid in the products of (GASSEND), 1892, A., 98.
- calcium in (DE MONDÉSIR), 1889, A., 542.
- lime, action of, on (KELLNER, SAKANO, SATO and SHINJO), 1892, A., 94.
- lime, action of, on heavy loam (JOHNSTONE), 1892, A., 523.
- lime as a constituent of, influence of, on plant development (HILGARD), 1888, A., 318.
- carbon in (LAWES and GILBERT), 1885, T., 419.
- organic carbon in, which absorb free nitrogen (BERTHELOT), 1886, A., 736.
- carbonic oxide, absorption of, by (BERTHELOT), 1891, A., 16.
- carbonic anhydride formed in manured and unmanured (DEHÉRAIN), 1890, A., 408.
- percentage of carbonic anhydride in the air of (WOLLNY), 1889, A., 1030.
- free carbonic anhydride, influence of the physical properties of soil on the amount of, in (WOLLNY), 1887, A., 521.
- humus compounds in (EGGERTZ), 1889, A., 543; (L'HÔTE), 1891, A., 492.
- inorganic substances in acid (DE MONDÉSIR), 1892, A., 1513.
- ferrous oxide, action of, on (KELLNER), 1886, A., 481.
- iron sulphate, action of, on (MARGERITE-DELLACHARLONNY and DESTREMX), 1889, A., 436.
- kaolin in arable (SACHSSE and BECKER), 1892, A., 1026.
- Leguminosæ in acid (DE MONDÉSIR), 1889, A., 434.
- organic matter of, assimilation of, by plants (DEHÉRAIN), 1884, A., 208.
- oxyhydrogen gas, absorption of, by (IMMENDORFF), 1892, A., 377.
- phosphoric acid in (DE GASPARIN), 1885, A., 588; (BERTHELOT and ANDRÉ), 1888, A., 384; (DEHÉRAIN), 1892, A., 233; (WIKLUND), 1892, A., 750.

SOILS—

- Soils**, phosphoric acid, action of various forms of, in (FITTINGER), 1885, A., 1009; 1886, A., 1069.
- phosphoric acid, assimilability of, in (LECHARRIER), 1884, A., 868.
- phosphoric acid, exhaustion of, in, by continuous cropping (DEHÉRAIN), 1890, A., 407.
- superphosphates, action of, on (WAGNER), 1884, A., 1071; (VOELCKER), 1885, A., 82.
- superphosphates, absorption of, by sandy (THOMSON), 1891, A., 105.
- potassium, condition of, in (BERTHELOT and ANDRÉ), 1888, A., 190.
- silicates, decomposition of, in, by lime and gypsum (DE MARNEFFE), 1891, A., 1135.
- sodium chloride, effect of water containing, on (KRAUCH), 1883, A., 1027; (STORP), 1884, A., 856; (STOOD), 1889, A., 795.
- sulphur in (BERTHELOT and ANDRÉ), 1888, A., 384.
- titanic oxide in (MC CALEB), 1888, A., 745.
- urea, behaviour of, in (KELLNER), 1887, A., 524.
- weeds in (PUTENSEN), 1884, A., 211.
- zinc salts, behaviour of, in (NOBBE), 1884, A., 1407; (BAUMANN), 1884, A., 1408.
- zinc sulphate, effect of water containing, on (KRAUCH), 1883, A., 1027; (STORP), 1884, A., 856.
- Soil of "fairy rings," composition of (LAWES, GILBERT and WARINGTON), 1883, T., 215.
- humus obtained from peat, examination of (SOSTEGNI), 1885, A., 1082.
- rich in humus and their behaviour with water (EMMERLING and LOGES), 1884, A., 632.
- of a meadow newly laid down to permanent grass, history of the (LAWES), 1889, A., 920.
- meadow, increase of nitrogen in (DEHÉRAIN), 1886, A., 276.
- moorland, examination of (EGGERTZ and NILSON), 1890, A., 192.
- peaty, examination of (EGGERTZ and NILSON), 1890, A., 192.
- influence of the percentage of moisture in, on vegetation (HEINRICH), 1883, A., 681.
- action of sea-mud on (FLEISCHER), 1885, A., 920.

SOILS—

- Soil**, peaty, nitrogenous, experiments with (KEDDER), 1885, A., 188; (EUGLING), 1885, A., 929.
- raw heavy, how to bring, into cultivation (HEIDEN), 1884, A., 1412.
- sandy, action of kainite on (STEFENS), 1884, A., 868.
- action of sea-mud on (FLEISCHER), 1885, A., 929.
- result of removing forest litter from the surface of (RAMANN), 1885, A., 81.
- Algerian (LADUREAU), 1889, A., 436.
- from the Andaman Islands, East Indies, containing iron and chromium (WARDEN), 1891, A., 958.
- virgin, of Australia, exhaustion of (MACIVOR), 1888, A., 523.
- sterile, from California (VOELCKER), 1884, A., 486.
- volcanic, of Deli (Sumatra), and Malang (VAN BEMMELEN), 1890, A., 823.
- Japanese, examination of (KELLNER and IMAI), 1884, A., 680.
- black, from Manitoba (MUNRO), 1885, A., 834.
- of Manitoba prairies, sources of the fertility of (LAWES and GILBERT), 1885, T., 408.
- from Rembang (VAN BEMMELEN), 1890, A., 823.
- at Rothamsted, nitric acid in (LAWES, GILBERT and WARINGTON), 1884, A., 357.
- Tunisian (QUANTIN), 1885, A., 686; 1887, A., 860.
- from Washington Territory, composition of (SCHNEIDER), 1889, A., 435.
- from the new alluvia of the Zuiderzee (VAN BEMMELEN), 1890, A., 822.
- Nitrification, nitrogen and nitrogenous compounds** (WARINGTON), 1883, A., 115; 1884, T., 637; 1888, T., 751; 1891, T., 484; P., 92; (MARIE-DAVY), 1883, A., 116; (MÜNTZ and AUBIN), 1883, A., 233; (FRANKLAND), 1885, T., 181; (BAUMANN), 1887, A., 84; (CELLI and MARINO-ZUCO), 1887, A., 853; (BERTHELOT), 1889, A., 1238; (PICHARD), 1890, A., 545; (LEONE), 1891, A., 102.
- is organic carbon essential to? (MUNRO), 1886, T., 651.
- nitrification and denitrification, alternate (MUNRO), 1886, T., 669.

SOILS—

- Nitrification, nitrogen and nitrogenous compounds—**
- in organic media of acid reaction (CHUARD), 1892, A., 906.
- in soils of different degrees of fertility (DEHERAIN), 1889, A., 70.
- by soils taken from different depths (WARINGTON), 1887, T., 125.
- in Manitoba soil (LAWES and GILBERT), 1885, T., 410.
- liberation of nitrogen during (KELLNER and YOSHII), 1888, A., 185; (IMMENDORFF), 1892, A., 374.
- influence of gypsum on (WARINGTON), 1885, T., 758; (PICHARD), 1889, A., 1239.
- influence of gypsum and clay on (PICHARD), 1890, A., 545.
- influence of gypsum and iron sulphate on (PICHARD), 1891, A., 1543.
- influence of organic nitrogen and clay in fallow soils on (PICHARD), 1892, A., 656.
- influence of certain salts on (PICHARD), 1884, A., 924, 1417.
- influence of organic matter on (MUNRO), 1886, T., 667.
- of ammonia and its salts (MUNRO), 1886, T., 643, 654; (PLATH), 1888, A., 521; (LANDOLT), 1888, A., 1328; (SCHLÖSING), 1889, A., 1239; 1890, A., 282.
- of ammoniacal solutions (MUNRO), 1888, A., 82; (WARINGTON), 1891, T., 485.
- ammonia, formation of, in arable soils (HÉBERT), 1889, A., 1240.
- ammonia, absorption of, by clay soils (WIPPRECHT), 1887, A., 1136.
- ammonia, absorption of, from the air by soils (SCHLÖSING), 1890, A., 821, 822; (BERTHELOT), 1890, A., 822.
- ammonia, evolution of, from vegetable soils (BERTHELOT and ANDRÉ), 1887, A., 860; (BERTHELOT), 1889, A., 1238.
- of ethylamine by soil (MUNRO), 1886, T., 633.
- of gelatin by soil (MUNRO), 1886, T., 641.
- oxidation of iodides during (MÜNTZ), 1885, A., 870.
- comparative, of humus and undecomposed organic matter (PICHARD), 1892, A., 906.

SOILS—

**Nitrification, nitrogen and nitrogenous compounds—**

- nitrates, formation of, in (DEHÉRAIN), 1887, A., 993; 1890, A., 408; (WARINGTON), 1891, T., 514; (MÜNTZ), 1891, A., 1395.
- distinction between the production of nitrites and nitrates in (WARINGTON), 1891, T., 485.
- nitrates, percentage of, in unmanured soil (BAUMANN), 1887, A., 83.
- nitrates, conversion of, in soil, into nitrogenous organic matter (BERTHELOT), 1888, A., 745.
- nitrates, loss of, in soil, in drainage (DEHÉRAIN), 1891, A., 765, 859.
- nitrates, reduction of, in (DEHÉRAIN and MAQUENNE), 1883, A., 229, 503.
- nitrates, absence of, in soils of forests (EBERMAYER), 1889, A., 541.
- nitrites, formation of, in (WINOGRADSKY), 1891, A., 1545.
- nitrogen in various soils (LAWES and GILBERT), 1885, T., 419.
- nitrogen in the soil in experimental fields at Rothamsted (LAWES and GILBERT), 1884, A., 682.
- nitrogen, supply of, to soil, by the Lupitz method of cultivation (SCHULTZ), 1884, A., 105.
- nitrogen, amount of assimilable, in uncultivated soil (BAUMANN), 1887, A., 82.
- nitrogen, absorption of, by soil (JOLLIE), 1886, A., 275; (BERTHELOT), 1887, A., 395, 617; 1888, A., 871, 1330; 1889, A., 743, 1238; 1890, A., 822; (GAUTIER and DROUIN), 1888, A., 746, 871, 1127; 1892, A., 522; (SCHLESING), 1888, A., 747, 870, 1330; 1889, A., 1237; 1890, A., 822.
- nitrogen, absorption of, by clay soils (BERTHELOT), 1889, A., 1237.
- nitrogen, absorption of, by argillaceous soils (BERTHELOT), 1886, A., 175.
- nitrogen, absorption of, by soils, conditions favourable to the (BERTHELOT), 1888, A., 624.
- nitrogen, absorption of, by soil, influence of electrification on the (BERTHELOT), 1889, A., 1237.
- influence of, on the assimilation of nitrogen by plants (FRANK), 1892, A., 372.
- nitrogen, maintenance and increase of the amount of, in (KONIG), 1888, A., 523.
- nitrogen, increase of, in soil of grass land (DEHÉRAIN), 1886, A., 276.

SOILS—

**Nitrification, nitrogen and nitrogenous compounds—**

- nitrogen, loss of, in the decomposition of nitrogenous matters in (IMMENDORFF), 1892, A., 374.
- nitrogen, loss and gain of, by soil (FRANK), 1889, A., 71; (DEHÉRAIN), 1889, A., 745; (FAGNOUL), 1890, A., 1023.
- nitrogen, loss and gain of, in arable soil under the influence of different systems of cultivation (DEHÉRAIN), 1883, A., 373, 749.
- nitric nitrogen from soils and sub-soils (WARINGTON), 1887, T., 128.
- nitrogenous compounds, origin and transformation of, in (WARINGTON), 1884, A., 490.
- nitrogenous compounds in arable soil (L'HÔTE), 1891, A., 492.
- nitrogenous compounds in vegetable soil (BERTHELOT and ANDRÉ), 1887, A., 293; 1891, A., 610.
- nitrogenous compounds, volatile, evolved from vegetable soil (BERTHELOT), 1889, A., 1238; 1891, A., 611.
- nitrogenous organic compounds in soil (LOGES), 1886, A., 96; (WARINGTON), 1887, A., 523.
- of organic nitrogen (LEONE and MAGNANIMI), 1892, A., 367.
- nitrogen, liberation of, during (KELLNER and YOSHII), 1888, A., 185; (IMMENDORFF), 1892, A., 374.
- of thiocyanates (MUNRO), 1886, T., 638.
- of urea and urine (MUNRO), 1886, T., 639.
- Butyric ferment in soils (DEHÉRAIN and MAQUENNE), 1883, A., 610; 1884, A., 1063.
- Micro-organisms in soil (KOCH and MIQUEL), 1884, A., 486; (WOLLNY), 1885, A., 426, 683.
- Microzymæ and vibrios, origin of, in air, water, soil, etc. (BÉCHAMP), 1885, A., 417.
- Nitrifying organisms (MILES), 1887, A., 1134; (WINOGRADSKY), 1890, A., 1180; (WARINGTON), 1891, T., 523; (P. and G. FRANKLAND), 1891, A., 352.
- distribution of, in soils (WARINGTON), 1887, T., 118.
- period of incubation of (MUNRO), 1886, T., 679.
- Nitric organism, behaviour of, with ammonia (WARINGTON), 1891, T., 521.

SOILS—

**Nitrification, nitrogen and nitrogenous compounds—**

**Nitric organism** of nitrification, nutrition of the (WARINGTON), 1891, T., 519.

**Nitrous organism**, conditions which determine the formation or separation of a, in nitrification (WARINGTON), 1891, T., 490.

**Denitrification** (DEHÉRAIN and MAQUENNE), 1883, A., 229, 503; (GAYON and DUPETIT), 1883, A., 609; 1886, A., 823; (SPRINGER), 1884, A., 350; (MUNRO), 1886, T., 667, 681; (WARINGTON), 1888, T., 742; (DE BLASI and TRAVALI), 1890, A., 1453; (LEONE), 1891, A., 101; (BREAL), 1892, A., 1259.

**Denitrifying ferment** in soils (GAYON), 1883, A., 679.

**Fermentation** of cane sugar in contact with arable soil (DEHÉRAIN and MAQUENNE), 1884, A., 351.

**Oxidation**, spontaneous, of humic acid and vegetable soil (BERTHELOT and ANDRÉ), 1892, A., 655.

of ammonia in soil (UFFELMANN), 1886, A., 917.

of nitrites in soil (WINOGRADSKY), 1891, A., 1545.

under the influence of microscopic organisms in the (MÜNTZ), 1885, A., 1151.

**Soils, analysis of** (LECHARTIER), 1884, A., 921; (KNOP), 1885, A., 193; (MAYER), 1891, A., 958.

collection and preparation of samples for (LAWES), 1889, A., 921.

chemical and mechanical (ORTH), 1883, A., 621.

dialysis of arable (PETERMANN), 1884, A., 118.

detection of nitrates in (KREUSLER), 1889, A., 547; (FRANK), 1889, A., 649.

estimation of aluminium in (VAN BEMMELEN), 1890, A., 833.

estimation of ammonia in (BERTHELOT and ANDRÉ), 1886, A., 739,

SOILS—

**Soils, analysis of—**

740, 832; (SCHLÖSING), 1886, A., 740, 831; (KNOP), 1887, A., 297; 1888, A., 533; (BAUMANN), 1888, A., 87, 1336.

estimation of absorbed bases in (KELLNER), 1887, A., 77.

estimation of carbon in (STACHOWSKY), 1888, A., 534; (SCHLÖSING), 1888, A., 1335.

estimation of carbon dioxide in (WOLLNY), 1887, A., 521.

estimation of the fertility of (VOGEL), 1883, A., 517.

estimation of humus in (LOGES), 1883, A., 247, 830; (RAULIN), 1890, A., 668; (VAN BEMMELEN), 1890, A., 832; (PATUREL), 1891, A., 627.

estimation of the inorganic constituents of (BERTHELOT and ANDRÉ), 1891, A., 622.

estimation of kaolin in arable (SACHSSE and BECKER), 1892, A., 1026.

estimation of nitrates in, source of error in the (GIUNTI), 1889, A., 438.

estimation of ammoniacal nitrogen in (GUYARD), 1884, A., 1423; (BAUMANN), 1887, A., 82.

estimation of nitrogen in vegetable (BREAL), 1887, A., 1138; 1888, A., 334; (SCHLÖSING), 1888, A., 1335; (BERTHELOT and ANDRÉ), 1888, A., 1335; 1889, A., 307.

estimation of phosphoric acid in (DE GASPARIN), 1883, A., 619; 1884, A., 871; (WIKLUND), 1892, A., 750.

estimation of phosphoric acid, soluble, in (STUTZER), 1885, A., 439; (THOMSON), 1886, A., 392.

estimation of potassium in (QUANTIN), 1885, A., 1262; (RAULIN), 1890, A., 668.

estimation of sulphur in, and the forms in which it is present (BERTHELOT and ANDRÉ), 1892, A., 656.

estimation of sulphur, water, etc., in (VAN BEMMELEN), 1890, A., 832.

WATER.

WATER—

**Rain** as a source of nitrogen for vegetation (TUXEN), 1892, A., 233.  
collected at Rothamsted, ammonia, chlorine and sulphuric acid in (LAWES, GILBERT and WARINGTON), 1884, A., 209.  
of tropical districts, nitrates in the (MÜNTZ and MARCANO), 1889, A., 923.  
**Rainfall**, variations in (KREMSER), 1885, A., 425.  
**Waters, drainage** (DEHÉRAIN), 1890, A., 1459.

WATER—

**Waters, drainage**, composition of (WARINGTON), 1887, T., 506;  
(DEHÉRAIN), 1891, A., 765.  
chemical changes in (HORPE-SEYLER), 1884, A., 633.  
from different crops, loss of nitric nitrogen in (DEHÉRAIN), 1891, A., 859.  
from cropped land (WARINGTON), 1887, T., 513.  
from bare and cultivated soils (DEHÉRAIN), 1891, A., 859.

MANURES AND MANURING EXPERIMENTS.

**MANURES**, various (WAGNER), 1885, A., 1156.

formation of, by putrefaction (REISER), 1889, A., 739.

selection of (DE GASPARIN), 1885, A., 930.

supply of, at different periods of the growth of plants (LIEBSCHER), 1888, A., 382.

volume-weight of (MAGERSTEIN), 1884, A., 1213.

action of solutions of, on germination (JARIUS), 1886, A., 90.

influence of the division of, on their action (WAGNER), 1883, A., 117.

composition of the ash of wheat-grain and wheat-straw grown at Rothamsted in different seasons and by different (LAWES and GILBERT), 1884, T., 305.

influence of different systems of applying (v. TAUTPHOEUS; WOLLNY), 1885, A., 1156.

artificial, manner of applying (VAN DER BERGHE), 1886, A., 647.

influence of, on the physical properties of soil (WOLLNY), 1884, A., 210.

and farmyard manure, comparison of (GUILLAUME), 1883, A., 501.  
and natural (MACADAM), 1888, A., 625.

inferior (STUTZER), 1884, A., 490.

**Ammonium salts** as manures (PAGNOUL), 1891, A., 1545.

sulphate, manuring with (MARCKER), 1890, A., 287.

MANURES—

**Ammonium sulphate**, failure of, as manure (BROWN), 1886, A., 646.

manuring sugar-beet with (DEHÉRAIN), 1884, A., 491;  
(ANON.), 1884, A., 637; (MULLEN), 1884, A., 1418.

and sodium nitrate, comparative manurial value of (MARCKER), 1885, A., 1156; 1886, A., 646, 954; 1890, A., 287;  
(MAGERSTEIN), 1887, A., 77;  
(KLIEN), 1888, A., 872;  
(BAESSLER), 1889, A., 436;  
(ROLAND), 1880, A., 1085.

superphosphate and thiocyanates, manuring with (WOLLNY), 1884, A., 926.

**Beech cupules**, manurial value of (HORNBERGER), 1890, A., 287.

**Blood**, dried, manurial value of (PETERMANN), 1884, A., 211.

transformation of, into a solid and inodorous manure, by means of a new ferric sulphate (MARGUERITE-DELAHARLONNY), 1883, A., 239.

**Bone-meal** as manure (KOCH), 1884, A., 637; (STEFFENS), 1884, A., 868; (PETERMANN), 1888, A., 749.

as a manure, compared with basic slag and superphosphate (HERDEN), 1889, A., 299.

manufacture of (KÖNIG), 1884, A., 1419.

# AGRICULTURAL CHEMISTRY.

## MANURES—

- Bone-meal**, investigation of (KÖNIG), 1885, A., 851.  
 composition of (STOKLASA), 1891, A., 105.  
 amount of fat in (MERZ), 1891, A., 106.  
 nitrogen in (WAGNER), 1884, A., 359.  
 manuring of potatoes with (KOCH), 1884, A., 637.  
**Bone manure**, weathering of (KÖNIG), 1884, A., 360.  
**Bracken**, manurial value of (HORNBERGER), 1886, A., 485.  
**Lime** as a manure, with especial regard to paddy fields (KELLNER, SAKANO, SATO, and SHINJO), 1892, A., 93.  
 waste from sugar factories as manure (HOLDEFLEISS and STROHMER), 1886, A., 647.  
 manuring of potatoes with (HEIDEN), 1884, A., 1419.  
**Gypsum** as manure (NESSLER), 1884, A., 637; (PICHARD), 1884, A., 1418.  
 superphosphatic, as an absorbent of ammonia (HEIDEN), 1885, A., 83.  
**Chili saltpetre**. See Sodium nitrate.  
**Cider-marc**, use of, as manure (LECHARTIER), 1885, A., 834.  
**Compost manure** (MAYER), 1884, A., 360.  
 composition of materials used in the preparation of (PETERMANN), 1883, A., 504.  
 peat, and sea mud as manures (ENCKHAUSEN), 1884, A., 867.  
 and sodium nitrate, parallel experiments on, as manures for sugar-beet (KUNTZE), 1885, A., 429.  
**Farm-yard manure** (GRIFFITHS), 1884, A., 1070; (DEHÉRAIN), 1888, A., 748.  
 preparation of (DEHÉRAIN), 1884, A., 1412.  
 production of (MÜNTZ and GIRARD), 1887, A., 175.  
 production and cost of (HOLDEFLEISS and HERTER), 1884, A., 867.  
 cost of production of (DETTWEILER), 1884, A., 637.  
 composition of (AUOYNAUD and ZACHAREWICZ), 1885, A., 834, 1260; (SESTINI), 1888, A., 1332; (KÖNIG), 1890, A., 1478.

## MANURES—

- Farm-yard manure**, cause of the high temperatures observed in (DEHÉRAIN), 1884, A., 924.  
 and artificial manures, comparison of (GUILLAUME), 1883, A., 501.  
 effect on the fertility of soils by covering with (WOLLNY), 1883, A., 237.  
 effects of, on potatoes (GAGNAIRE), 1885, A., 189.  
 experiments with (HEIDEN), 1888, A., 872; 1890, A., 411.  
 depreciation of, by exposure to wet and to fermentation (ROBERTS and WING), 1891, A., 1396.  
 aërobie fermentation of (DEHÉRAIN), 1884, A., 1412.  
 fermentation of (GAYON), 1884, A., 773; (DEHÉRAIN), 1884, A., 1412; (SCHLESING), 1892, A., 1123.  
 fermentation of, in absence of oxygen (SCHLESING), 1890, A., 282.  
 loss of nitrogen during the fermentation of (JOUILLÉ), 1884, A., 1070, 1413; (BRAME), 1884, A., 1416; (VOGEL), 1891, A., 1547.  
 loss of nitrogen in, prevention of (DIETZEL), 1888, A., 873.  
 loss of nitrogen in, calcium sulphite as a preventive of (JENSCH), 1889, A., 184.  
 preservation of ammonia in (TROSCHEKE), 1885, A., 187.  
 preservation of (HEIDEN), 1886, A., 277; (HICKETHIER and HOLDEFLEISS), 1886, A., 390.  
 See also Organic Manures.  
**Felspar**, ground, as potash manure (AITKEN), 1887, A., 996.  
**Green manures**, best time for ploughing under (BAESSLER), 1888, A., 191.  
 as suppliers of nitrogen (MÜNTZ), 1890, A., 1184.  
**Guano**, a new, from Australia, composition of (GRIFFITHS), 1883, A., 375; 1884, A., 107.  
 from Aves Island, examination of (MÄCKER; GÜNTZ), 1884, A., 489.  
 of Cape Verde Islands, composition of (ANDOUARD), 1884, A., 359.  
 from Sidney Island (MÄCKER), 1885, A., 429.  
 coexistence of ammonium carbonate and potassium sulphate in (CHEVREUL), 1884, A., 359.

MANURES—

- Guano**, bat's, from Cuba (PITTMANN), 1889, A., 436.  
 Australian, and minerals therein (MACFARLANE), 1887, A., 708.  
 fish, manuring with (PITTMANN), 1889, A., 647.  
**Herring offal** and salt as manure (HECQUET D'ORVAL; PAGNOUL), 1884, A., 866.  
**Humus** as manure (DEBÉRAIN), 1891, A., 859.  
**Iron sulphate**, agricultural experiments with (GRIFFITHS), 1884, T., 71; 1885, T., 46; P., 130; 1886, T., 114; P., 260; 1887, T., 215.  
 influence of, on nitrification (PICHARD), 1891, A., 1543.  
**Kainite** as manure for sandy soil (STEFFENS), 1884, A., 868.  
 improvement of sheep manure by (RITTER), 1885, A., 834.  
 as potato manure (FLEISCHER), 1884, A., 108.  
**Krugite** as manure for potatoes (KARBE), 1884, A., 926; (KETTE), 1884, A., 1401.  
**Leaves, freshly fallen**, manurial value of (EMMERLING), 1885, A., 686.  
**Litter**, peat as (LENNÉ), 1883, A., 238; (SAGNIER), 1885, A., 429.  
 peat, composition of (FLEISCHER), 1884, A., 925.  
 peat and straw, comparison of (FLEISCHER), 1884, A., 1418.  
 sawdust and straw as (SAGNIER), 1885, A., 429.  
 turf and moss, as manure (FLEISCHER), 1884, A., 105.  
 turf and straw, as manure (FLEISCHER), 1888, A., 319.  
**Litters**, various, absorptive and evaporative powers of (WOLLNY), 1885, A., 1008.  
**Marine products** as manures (MAYER), 1889, A., 1085.  
**Mineral manures**, deposits of (GRIGORIEFF), 1883, A., 529.  
**Nitrates**, action of superphosphates on (DEVARDA), 1889, A., 72.  
 and superphosphates, incompatibility of, as manures (ANDOUARD), 1887, A., 617.  
**Nitrogen** in bone-meal (WAGNER), 1884, A., 359.  
 green manures as suppliers of (MÜNTZ), 1890, A., 1184.  
 necessary for cultivated plants (THIER), 1885, A., 75.

MANURES—

- Nitrogen**, manuring barley and oats with (MARCKER), 1881, A., 925.  
 manurial value of, in sodium nitrate and ammonium sulphate (KLIEN), 1888, A., 872; (BAESLER), 1889, A., 436.  
 loss of, during the fermentation of farmyard manure (JOLIE), 1884, A., 1070, 1413; (BRAME), 1884, A., 1416; (VOGEL), 1891, A., 1547.  
 loss of, in farmyard manure, prevention of (DIETZEL), 1888, A., 873.  
 loss of, in manure heaps, calcium sulphite as a preventive of (JENSCH), 1889, A., 184.  
 loss of, in the decomposition of organic matter (SCHLESING), 1889, A., 638.  
 estimation of the relative value of, in artificial manures (OSTERSETZER), 1885, A., 436.  
 ammoniacal and nitric, as manure (RAGNOUL), 1891, A., 1545.  
 organic, in chemical manures (GASAUD), 1887, A., 863.  
**Nitrogenous manures**, behaviour of various plants towards (v. WOLFF and KREUZHAGEN), 1888, A., 320.  
 effect of, on tobacco (HARZ), 1888, A., 990.  
 influence of, on yield of crops (WAGNER), 1888, A., 525.  
 various, values of (MARCKER), 1884, A., 488.  
 value of animal débris as (MÜNTZ and GIRARD), 1892, A., 96.  
**Nitrogenous organic manures** (PETERMANN), 1888, A., 990.  
 preservatives for (IMMENDORFF), 1892, A., 378.  
 decomposibility of (STUTZER and KLINGENBERG), 1883, A., 615.  
 loss of nitrogen during the fermentation of (v. KRAUSE), 1890, A., 1340; (VOGEL), 1891, A., 1547.  
**Organic manures**, influence of, on soil temperature (WAGNER), 1883, A., 821.  
 decomposition of, in soils (WOLLNY), 1887, A., 523; (MÜNTZ), 1890, A., 1183.  
 loss of nitrogen in the decomposition of (SCHLESING), 1889, A., 638.  
 See also Farmyard Manure.  
**Peat** as litter (LENNÉ), 1883, A., 238; (SAGNIER), 1885, A., 429.

MANURES—

- Peat** as manure (SCHREINER), 1885, A., 428; (WAGNER), 1885, A., 1009.
- litter and straw litter, comparison of (FLEINISCHER), 1884, A., 1418.
- analysis of (FLEISCHER), 1884, A., 925.
- waste, manurial value of (MÄRCKER), 1885, A., 687.
- Phosphates**, various, manuring experiments with (ROBERTS; KREMP), 1887, A., 1137; (GATELLIER), 1888, A., 749.
- manuring of barley and oats with (MÄRCKER), 1884, A., 925.
- manuring of cereals with (RAULIN), 1889, A., 435, 1242.
- manuring sugar-beet with (LADUREAU), 1885, A., 1157.
- and basic slag, manurial value of (SCHÖNEMARK), 1886, A., 1069; (SIEVERT), 1887, A., 294; (BRINCKMANN; FITTIGEN and SATFELD), 1887, A., 524.
- dissolved and undissolved, comparison of (DYER), 1884, A., 774.
- insoluble (LLOYN), 1884, A., 213.
- finely ground, as manures (AITKEN), 1887, A., 995.
- application of, to soils (FLEISCHER and KISSLING), 1883, A., 822.
- behaviour of, in peaty soils and in dilute solvents (KÖNIG), 1883, A., 681.
- action of (VOELCKER), 1885, A., 82.
- mineral, on arable land (GUILLAUME), 1883, A., 118.
- precipitated, manuring with (SCHÖNEMARK), 1886, A., 1069.
- manuring experiments with (LÜBBECKE), 1885, A., 429.
- retrograde, agricultural value of (JOFFRE), 1887, A., 861.
- reversion of, in soils (GLADDING), 1884, A., 1075, 1424.
- See also Superphosphates.
- Phosphoric acid** of mineral origin, differentiation of, from that of animal origin in manures (v. LORENZ), 1888, A., 1340.
- manurial action of various forms of (FITTIGEN), 1885, A., 1009; 1886, A., 1069.
- in sodium nitrate (OHSENUS), 1887, A., 558.
- value of, in basic slag (MÄRCKER), 1887, A., 687.

MANURES—

- Phosphoric acid** of basic slag, assimilation of (PETERMANN), 1889, A., 647.
- manuring sugar-beet with (MÄRCKER), 1891, A., 612.
- free, and superphosphates (WEILANDT), 1887, A., 995.
- Phosphorite** of Beauval, origin of (NANTIER), 1889, A., 837.
- of Capo di Leuca (GIGLIOLI), 1888, A., 1259.
- from the Rata Island, composition of (ANON.), 1884, A., 360.
- from Redonda, treatment of (WILLIAMS), 1885, A., 1013.
- Pig's dung**, composition of (LECOUTEUX), 1883, A., 117.
- Potash**, manuring with (FARSÝ), 1884, A., 774.
- manure, ground felspar as (AITKEN), 1887, A., 996.
- use of, in Brittany (LECHARTIER), 1885, A., 83.
- as a manure for potatoes (MÄRCKER), 1885, A., 83; (BOURSIER and SAINT-ANDRÉ), 1885, A., 833.
- Potassium chloride** as a manure (ZOLLA), 1885, A., 588.
- manuring sugar-beet with, on heavy soil (PETERMANN), 1888, A., 1128.
- Potassium nitrate** and sodium nitrate, manuring potatoes with (v. EDLER), 1883, A., 117; (DEHÉRAIN), 1884, A., 361.
- "Poudrette," preparation of (WEIGELT), 1884, A., 489.
- Sawdust** as litter (SAINTIER), 1885, A., 429.
- Sea-mud** as a manure (FLEINISCHER), 1885, A., 929.
- and peat compost as manures (ENCKHAUSEN), 1884, A., 867.
- Sewage**, manurial value of (MÜLLER), 1884, A., 642; 1885, A., 1268; (ENGLER), 1884, A., 1418.
- disinfected, injurious effects of (KELLNER), 1884, A., 697.
- Sewer mud**, manurial value of (FLEINISCHER), 1884, A., 107.
- Sheep manure**, improvement of, by kainite (RITTER), 1885, A., 834.
- quantity of, supplied to soils by grazing sheep (MÜNTZ and GIRARD), 1887, A., 175.
- Silicic acid**, function of, in the growth of maize (JONIN), 1884, A., 201, 669.
- importance of, in the culture of oats (KREUZHAGE and v. WOLFF), 1884, A., 1211.

MANURES—

- Slag, basic** (*basic converter*; *Thomas slag*) (JENSCH), 1887, A., 216.  
 influence of the ferrous oxide in, on plant-growth (MUNRO), 1887, A., 178.  
 obtained in the dephosphorising process, utilisation of, for agricultural purposes (ANON.), 1883, A., 133, 375.  
 use of, in agriculture (FLEISCHER), 1886, A., 277.  
 phosphatic, utilisation of (SCHEIBLER), 1884, A., 783; (ANON.), 1884, A., 1228.  
 preparation of manure from (WINKELHOFER), 1884, A., 212.  
 and other phosphates, manurial value of (SCHONEMARK), 1886, A., 1069; (SIEWERT), 1887, A., 294; (BRINCKMANN; FITTBOGEN and SAEFELD), 1887, A., 524.  
 comparison of, with superphosphate (MEISSEL), 1889, A., 745.  
 manurial value of (WRIGHTSON and MUNRO), 1887, A., 176; (WAGNER), 1887, A., 525; (AITKEN), 1887, A., 995.  
 as a manure compared with superphosphate and bone-meal (HEIDEN), 1889, A., 299.  
 as a manure for sugar-beet (v. PROSKOWITZ), 1888, A., 319.  
 as manure for moorlands (RIMPAU), 1887, A., 294.  
 as a manure for oats (BIELE), 1886, A., 391; (EMMERLING), 1888, A., 1228.  
 comparative manuring of oats on moorlands with (BAESSLER), 1888, A., 189.  
 manurial action of the free lime in (JENSCH), 1888, A., 525.  
 assimilation of phosphoric acid in (PETERMANN), 1889, A., 647.  
 value of the phosphoric acid in (MÄRCKER), 1887, A., 687.  
 tetracalcium phosphate in (OTTO), 1887, A., 445.  
**Sodium chloride** as a manure (ANON.), 1884, A., 926.  
 nitrate (*Chili saltpetre*), manuring with (KOCH), 1885, A., 187; (STUTZER), 1887, A., 77; (MAGERSTEIN), 1887, A., 78; (FLEISCHER), 1888, A., 1223.  
 and ammonium sulphate, comparative manurial value of (MÄRCKER), 1885, A., 1156; 1886, A., 646, 954; 1890, A.,

MANURES—

- 287; (MAGERSTEIN), 1887, A., 77; (KLIEN), 1888, A., 872; (BAESSLER), 1889, A., 436; (ROLAND), 1889, A., 1085.  
**Sodium nitrate** (*Chili saltpetre*), phosphoric acid in (OUESSENIUS), 1887, A., 558.  
 manuring of barley with (KLAWITTER; WATERLING), 1884, A., 1419; (MÄRCKER), 1885, A., 1169.  
 and potassium nitrate, manuring potatoes with (v. EDLER), 1883, A., 117; (DEHÉRAIN), 1884, A., 361.  
 manuring sugar-beet with (DEHÉRAIN), 1884, A., 491; (ANON.), 1884, A., 637; (MÜLLER), 1884, A., 1418.  
 and peat compost, parallel experiments on, as manures for sugar-beet (KUNTZE), 1885, A., 429.  
**Stable manure.** See Farmyard manure.  
*Stratiotes aloides*, constituents and properties of, and its use as a manure (NIEDERSTADT), 1884, A., 108.  
**Straw**, fermentation, aerobic and anaërobic, of (DEHÉRAIN), 1884, A., 1412.  
 as litter (SAGNIER), 1885, A., 429.  
 litter and peat litter, comparison of (FLEISCHER), 1884, A., 1418.  
 litter and turf litter as manure (FLEISCHER), 1888, A., 319.  
**Sulphuric acid** as manure (MÄRCKER), 1883, A., 681; (FARSKÝ), 1884, A., 775; 1885, A., 83; 1886, A., 954; (FRESSENIUS; STOCKS), 1884, A., 926.  
**Superphosphates** as manures (LLOYD), 1884, A., 867.  
 comparison of, with basic slag (MEISSEL), 1889, A., 745.  
 as manures compared with basic slag and bone-meal (HEIDEN), 1889, A., 299.  
 use of (DEHÉRAIN), 1884, A., 925.  
 fine and coarse-grained (FARSKÝ), 1885, A., 82.  
 action of (WAGNER), 1884, A., 1071; (VOELCKER), 1885, A., 82.  
 action of, on carbonates (WEILAND), 1887, A., 905.  
 action of, on nitrates (DEVARDA), 1889, A., 72.

MANURES—

**Superphosphates**, behaviour of sandy soil towards (THOMSON), 1891, A., 105.

influence of, on the quality of the yield (FARSKÝ), 1884, A., 860.

retrogression of (KNOP), 1884, A., 1214.

alumina in (YARDLEY), 1886, A., 288.

soluble phosphates in (OTTO), 1888, A., 553; (STOKLASA), 1891, A., 880.

changes of solubility in, when kept some time in bulk (BEYER), 1888, A., 228.

addition of wood ashes to (MAGERSTEIN), 1888, A., 749.

and nitrates, incompatibility of, as manures (ANDOUARD), 1887, A., 617.

manuring sugar-beet with (NANTIER), 1887, A., 295.

influence of, on the production of sugar (NANTIER), 1886, A., 832.

See also Phosphates.

**Thiocyanates**, manures containing, experiments with (MARCKER), 1884, A., 768; (KÖNIG; KLIEN), 1885, A., 76; (MEUSEL), 1887, A., 519.

and ammonium superphosphate, manuring with (WOLLNY), 1884, A., 926.

**Tobacco stems**, manurial value of (GOESSMANN), 1885, A., 589.

**Thomas slag**. See Basic slag.

**Turf litter** and moss litter as manure (FLEISCHER), 1884, A., 105.

litter and straw litter as manure (FLEISCHER), 1888, A., 319.

See also Peat.

**Waste products as manure** (PETERMANN), 1888, A., 749.

**Waste-water** from beet-sugar factories, manurial value of (TEUCHERT), 1883, A., 500.

"**Wool, dissolved**," manurial value of (PETERMANN), 1883, A., 500.

**Wool-dust**, solutions of (MARCKER), 1885, A., 428.

**MANURING EXPERIMENTS** (SALFELD), 1883, A., 116; (WAGNER), 1884, A., 486, 634; (V. SCHWERIN-LOWITZ), 1884, A., 636; (DRECHSLER), 1885, A., 186, 187; (KÖNIG), 1885, A., 1010.

sources of error in (RAULIN), 1888, A., 85.

with artificial manures (D'AYÈNE), 1884, A., 490.

MANURING EXPERIMENT—

by irrigation (KÖNIG and BÖHMER), 1886, A., 176.

by irrigation by means of Danube water (WOLFFBAUER), 1884, A., 635.

on heavy soil (HEIDEN), 1889, A., 300.

at Grignon (DEHERAIN), 1884, A., 204, 1068; 1885, A., 423, 928; 1889, A., 541; 1890, A., 820; 1891, A., 493.

in Holland (REINDERS), 1883, A., 617.

at Kiel (EMMERLING), 1884, A., 211.

at the agricultural station of La Somme (NANTIER), 1888, A., 1127.

at Reims (MANTEAU), 1884, A., 1419.

at Peterhof (V. KNIERIEM), 1884, A., 636.

in Posen in 1882 (WILDT), 1884, A., 361.

on a Silesian farm without cattle (FISCHER), 1884, A., 636.

on barley (KLAWITZER; WATERLING), 1884, A., 1419; (V. LIEBENBERG), 1888, A., 189; (KRANDAUFER), 1884, A., 870; (HANAMANN), 1889, A., 743.

on beans (AITKEN), 1885, A., 1258.

on clover (SAMEK), 1888, A., 1223.

on clover land (V. KNIERIEM), 1891, A., 492.

on forest trees (MUEL), 1883, A., 617.

on grain (EMMERLING), 1884, A., 1213.

on maize (NANTIER), 1884, A., 635.

on maize, potatoes and oats (ATWATER), 1884, A., 1401.

on marshy land (CARSTEN), 1884, A., 363.

on Alpine meadows (MARCKER), 1883, A., 238.

on meadows (V. KNIERIEM), 1891, A., 492.

on high lying moorlands (FLEISCHER), 1886, A., 578.

on oats (BESELER and MARCKER), 1884, A., 768; (BIELER), 1886, A., 391; (V. LIEBENBERG), 1888, A., 189; (MULLER), 1888, A., 525.

on potatoes (VIBRANS), 1883, A., 882; (PREVOST and SWANWICK), 1884, A., 101; (MARCKER), 1884, A., 102, 865; (NANTIER), 1884, A., 635; (CAMERON), 1884, A., 866; (SCHREWE), 1886, A., 578.

MANURING EXPERIMENTS—

- on potatoes at Harelaw in 1886 (AITKEN), 1887, A., 992.
- on potatoes at Rothamsted (GILBERT), 1890, A., 409.
- on rice (GEORGESON), 1889, A., 646; (KELLNER, KOZAI, MOH and NAGAOKA), 1891, A., 1547.
- on rye (MARCKER), 1884, A., 103.
- on winter rye (v. LIEBENBERG), 1888, A., 189.
- on soja (LEVALLOIS), 1888, A., 870.
- on straw (MARCKER), 1884, A., 772.
- on sugar-beet (BECHLER), 1883, A., 238; (TSCHTSCHKE), 1883, A., 823; (HOLDEFLEISS), 1884, A., 103, 773; (NANTIER), 1884, A., 635; (DEHÉRAIN), 1884, A., 773; (NOWOCZEK), 1884, A., 921; (PETERMANN), 1884, A., 1420; (PAGNOUL), 1887, A., 748; (KOHLEAUSCH and SPROHMER), 1890, A., 1022.
- on sugar-beet with ammonium sulphate (DEHÉRAIN), 1884, A., 491; (ANON.), 1884, A., 687; (MÜLLER), 1884, A., 1418.
- on sugar-beet with basic slag (v. PROSKOWITZ), 1888, A., 319.
- parallel, on sugar-beet with peat-compost and Chili saltpetre (KUNZE), 1885, A., 429.
- on sugar-beet with phosphates (LADUREAT), 1885, A., 1157; (MARCKER), 1891, A., 612.
- on sugar-beet with potassium chloride on heavy soil (PETERMANN), 1888, A., 1128.
- on sugar-beet with sodium nitrate (DEHÉRAIN), 1884, A., 491; (ANON.), 1884, A., 637; (MÜLLER), 1884, A., 1418.
- on sugar-beet with superphosphate (NANTIER), 1887, A., 295.
- on sugar-canes (RIFFARD), 1883, A., 506.
- on tobacco (NESSLER), 1884, A., 362, 490; (JORDAN; JENKINS), 1886, A., 177.
- on turnips (DYER), 1885, A., 589; (WILSON), 1886, A., 913; (BROWN), 1886, A., 1068.
- on vines (STUTZER), 1884, A., 103, 1421; (NIPPGEN), 1884, A., 637; (MORITZ and SEUCKEN), 1888, A., 190.
- on wheat (JORDAN), 1883, A., 681; (MARCKER), 1884, A., 103.
- on winter wheat (v. LIEBENBERG), 1888, A., 189.

MANURING EXPERIMENTS—

- on wheat at Brie (LADUREAT and MOUSSEAUX), 1888, A., 883.
- on wheat at Rothamsted during twenty years (LAWES and GILBERT), 1885, A., 533.
- on wheat at Woburn (VOELCKER), 1884, A., 482.

See also the individual Manures.

MANURES—

Manures, analysis of—

- valuation of (DEHÉRAIN), 1887, A., 174.

unexhausted, valuation of (LAWES and GILBERT), 1886, A., 177.

estimation of ammonia ready formed in (ZECCHINI and VIGNA), 1889, A., 649.

estimation of ammonia as nitrogen in (MARSALSKI), 1884, A., 638.

estimation of ferric oxide and alumina in (THOMSON), 1887, A., 302; (GLASER), 1890, A., 420; (STUTZER), 1891, A., 245.

estimation of moisture and free acid in (RUFFLE), 1888, A., 87.

estimation of nitrogen in (DRÉYFUS), 1884, A., 639; (AUBIN and QUENOT), 1890, A., 921.

estimation of the relative value of nitrogen in artificial (OSTERSETZER), 1885, A., 436.

estimation of nitrogen in guano (KÖNIG), 1883, A., 1030.

estimation of nitrogen in nitrate-superphosphate and sodium nitrate (ZIPPERER), 1889, A., 185.

estimation of nitrogen in substances containing organic, ammoniacal and nitric nitrogen (HOUSSEAU), 1885, A., 1011.

estimation of nitrogen in sodium nitrate, etc. (GRETE), 1883, A., 1031; (WAGNER), 1885, A., 435; (FOERSTER), 1891, A., 107.

estimation of insoluble phosphates in (EDWARDS), 1889, A., 747.

estimation of soluble phosphates in (EMMERLING), 1886, A., 741.

estimation of reduced phosphates (DIRCKS and WERENSKIOLD), 1888, A., 628.

estimation of reverted phosphates by Gladding's process (MILLOT), 1884, A., 639.

use of ammonium citrate in the analysis of precipitated phosphates (SHEPHERD), 1886, A., 579.

phosphatic, analysis of (ANDOUARD), 1885, A., 838.

# AGRICULTURAL CHEMISTRY.

## MANURES—

### Manures, analysis of—

- estimation of phosphoric acid in basic slag (KLEIN), 1886, A., 740, 835; (BRUNNEMANN), 1887, A., 527; (KENNEPOHL), 1888, A., 321; (VOGEL), 1888, A., 991; (V. REIS), 1889, A., 439.
- estimation of phosphoric acid in (ANON.), 1883, A., 620; 1885, A., 437; (GASSEND and CAMPREDON), 1884, A., 217; (WELLS), 1885, T., 185; P., 20; (SPENCER), 1885, A., 436; (MARTINOTTI), 1891, A., 1397; (BURNBY), 1892, A., 1125.
- estimation of phosphoric acid in, containing cotton-seed-meal (DANCY), 1892, A., 1029.
- estimation of phosphoric acid in agricultural phosphates (AUBIN), 1885, A., 1093.
- estimation of phosphoric acid and reverted phosphoric acid in dicalcium phosphate (MOHR), 1885, A., 688.
- estimation of reverted phosphoric acid (GLADDING), 1884, A., 1075, 1424; (PETERMANN), 1885, A., 837; (GLASER), 1885, A., 837, 838; (GIBSON), 1892, A., 1126.
- examination of reverted phosphoric acid at various periods (POST), 1884, A., 774.
- estimation of "half-soluble" phosphoric acid (OLLECH), 1883, A., 508.

## MANURE—

### Manures, analysis of—

- estimation of soluble phosphoric acid in superphosphates by the Belgian method (CRISPO), 1891, A., 1259.
- estimation of phosphoric acid in superphosphates (AUBIN), 1884, A., 1424.
- estimation of potash in (LINDO), 1888, A., 89.
- estimation of potassium in (ANON.), 1885, A., 440.
- analysis of rubbish heaps as (MAYER), 1888, A., 191.
- superphosphates, analysis of (GLADDING), 1884, A., 1426; (RUFFLE), 1888, A., 387; (HUGHES), 1889, A., 1245; (BURNBY), 1892, A., 1125.
- causes of discrepancy in (MARCKER), 1884, A., 639; (METGER and EMMERLING), 1886, A., 740.
- estimation of free acid in (RUFFLE), 1888, A., 87; (MEL-LON), 1888, A., 527.
- estimation of phosphoric acid in (AUBIN), 1884, A., 1424.
- Belgian method of estimating the soluble phosphoric acid in (CRISPO), 1891, A., 1289.
- estimation of water in (RUFFLE), 1888, A., 87; (STOKLASA), 1891, A., 110.

•  
RICHARD CLAY & SONS, LIMITED,  
LONDON & BUNGAY





